Appendicitis following solid organ transplantation

Šef, Davorin; Kocman, Branislav; Jadrijević, Stipislav; Škopljanac, Andrija; Kocman, Ivica; Mikulić, Danko; Poljak, Mirko; Suknaić, Slaven

Editorial

Dear colleagues and friends,

It is a great pleasure and honor to invite you to the *3rd Central European Congress of Surgery* and the *5th Croatian Congress of Surgery* with international participation which will be held in *Dubrovnik from April 28th to May 1st 2010*. The Congress events will include the international *Norman Barrett Symposium 2010:* ''From reflux to carcinoma''.

The main goal of these Congresses is the education of surgeons from all around the Europe. We have worked intensively and in close collaboration with all Central European scientific surgery committees and with our invited speakers, who are all leading experts in the field of surgery, to build up a very interesting program of highest quality, which will bring a lot of knowledge especially for young doctors training in surgery. The scientific program will include state-of-the-art lectures, oral presentations, posters, multimedia sessions and satellite symposia.

We strongly believe that the program will give the participants a comprehensive section of the present state of mentioned subjects by covering history taking, clinical examination, imaging, surgical techniques and postoperative rehabilitation.

Dubrovnik, one of the most beautiful cities in this part of Europe, is a dynamic and radiant city that features stunning architecture and a vibrant cultural life. You will have plenty of touring and shopping opportunities to take advantage of in the city. Take time to wander through the Dubrovnik's many historical landmarks and enjoy the grace of scenery. From Dubrovnik, you may travel and enjoy the rest of Croatia, which beholds extraordinarily beautiful nature not found in many, if any, other places in the world.

The Organizing Committee has chosen the Dubrovnik Palace hotel as the venue for the upcoming congress, as it is considered to be a top location for such a high-profile Meeting.

The Industry is also committed in their support of our meeting that will host a large exhibit area and many attractive opportunities to share their products and knowledge with the audience.

In addition to official program these Congresses offer excellent opportunities to meet some old and make some new friends.

We invite you to visit the website regularly for the latest updates and news about the organization of the Congress.

On behalf of Organizing Committee I wish you a very warm welcome in Dubrovnik in 2010!

Sincerely

Prof. *Božidar Župančić, M.D., Ph.D.*
Congress President

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CONTENTS

3rd Central European Congress of Surgery, Norman Barrett Symposium

ORAL

Gastric Surgery

A001

Columnar lined esophagus (CLE) and Barrett's esophagus (BE) in patients with and without symptoms of gastroesophageal reflux disease (GERD)

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Background. The frequencies of the morphologic manifestations of gastroesophageal reflux disease (GERD), columnar lined esophagus (CLE) and Barretts esophagus (BE; 0.5% annual cancer risk) in those with and without GERD symptoms is unknown.

Methods. Esophago gastroduo denoscopy (EGD) with multi level biopsies from the esophagogastric junction (from 1.0 cm above towards 1.0 cm distal to the level of the rise of the gastric folds) was prospectively conducted in asymptomatic persons (controls; $n = 81$; 25.5%) and GERD patients ($n = 237$; 74.5%); aged between 17–84 years (50 ± 14.6) and 55.6% females. Columnar lining above the level of the rise of the gastric folds was categorized as endoscopically visible CLE (CLEv). Histopathology of CLE included cardiac mucosa $\pm$ intestinal metaplasia (=BE) and oxyntocardiac mucosa; squamous epithelium and oxyntic mucosa (OM) were considered as normal lining of the esophagus and the proximal stomach. Prevalence of CLEv and histopathology proven CLE was compared between controls and GERD patients.

Results. There were no significant age-, gender-differences between the groups ($p > 0.05$). Prevalence of CLEv ($p = 0.083$), histopathology proven CLE ($p > 0.999$), CLE length ($p = 0.321$) and intestinal metaplasia (controls: 13.6%; GERD: 20.7%; $p = 0.159$) was indifferent between controls and GERD patients. Dysplasia and cancer have not been assessed.

Conclusions. The prevalence of CLE and Barretts esophagus was comparable in patients with and without GERD symptoms. Our findings may justify to consider screening endoscopy for Barretts esophagus.

A002

Review: The "Squamo-Oxyntic Gap" biopsy protocol in GERD patients

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Background. Endoscopy in patients with gastroesophageal reflux disease (GERD) aims to assess reflux and cancer risk.

Methods. Review of the literature on histopathology based biopsy protocol.

Results. GERD causes the interposition of columnar lined esophagus (CLE) between the squamous lined esophagus and the oxyntic mucosa of the proximal stomach (=squamo-oxyntic gap). The squamo-oxyntic gap may contain oxyntocardiac, cardiac mucosa $\pm$ intestinal metaplasia (Barretts esophagus). Intestinal metaplasia may progress towards esophageal adenocarcinoma (0.5% annual risk). Accordingly Barretts esophagus is recognized as having a cancer risk justifying endoscopic surveillance. Biopsies obtained from the squamocolumnar junction have the highest yield for the assessment of intestinal metaplasia (proofing reflux and cancer risk). Thus the biopsy protocol should include at least 4 quadrant biopsies from the squamocolumnar junction and biopsies obtained at 0.5 cm increments from endoscopically visible tongues or segments of CLE. The proximal to distal length of the squamo-oxyntic gap is assessed by multi level biopsies from the esophago-gastric junction zone.

Conclusions. The squamo-oxyntic gap ($\pm$Barrett's esophagus) serves as the histopathologic marker for gastroesophageal reflux and is the basis for a novel multi level biopsy protocol in GERD patients.

A003

Reliability of reflux symptoms to detect gastrooesophageal reflux following fundoplication in patients with long segment Barretts oesophagus

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Background. Patients with long-segment Barrett's oesophagus (>3 cm) are at risk for developing adenocarcinoma. Recurrence of gastrooesophageal reflux following fundoplication is juged to increase that risk. Reflux may prevail without symptoms in these patients. It was the purpose of this study to assess the frequency of recurrent reflux in patients who have undergone fundoplication for gastrooesophageal reflux with long-segment intestinal metaplasia.

Methods. Thirty patients aged between 43 and 85 years were retrieved from the prospective database at 2 to 13 years following laparoscopic fundoplication for symptomatic reflux and with >3 cm Barrett's oesophagus preoperatively. Nineteen patients were examined according to schedule. Upper GI endoscopy, 24 h oesophageal pH-metry and a structured interview based upon the GLQI (Gastrointestinal Quality of life index) was performed.

Results. Thirty-seven percent of our patients reported reflux symptoms. Gastrooesophageal reflux was detected by abnormal pH-metry in 47.5% of cases. Only 66.7% of these patients reported reflux symptoms. Among the 12 asymptomatic patients abnormal acid reflux was found in 3 patients (25%).

Conclusions. We conclude that periodic surveillance in asymptomatic patients with long-segment Barrett's oesophagus and fundoplication is worthwhile due to the fact that the risk of developing an adenocarcinoma increases if a reflux-relapse occurs.

A004

Influence of resection extent on morbidity in surgery for squamous cell cancer at the pharyngoesophageal junction

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Background. Squamous cell cancer (SCC) of the pharyngoesophageal junction area has a poor prognosis mainly due to late symptom manifestation and diagnosis. Treatment of choice is pharyngolaryngoesophagectomy substantially affecting quality of life but limited procedures have been adopted as well. The aim of this retrospective study was to evaluate whether the extent of resection influences postoperative safety and mortality.

Methods. From 1984 to 2006 66 patients were operated at a single tertiary referral center. Nineteen patients (28.8%) had SCC of the hypopharynx, 33 patients (50.0%) had SCC of the cervical and 14 patients (21.2%) of the cervicothoracic esophagus. Thirty five patients (53.0%) underwent segmental esophageal resection and 31 underwent esophagectomy. In 39 patients (59.1%) the larynx has been preserved. Thirteen patients (19.7%) were treated by radio- and/or chemotherapy.

Results. Forty-six patients (69.7%) had postoperative complications at any degree and 19 patients (28.8%) had to be reoperated. Total esophagectomy ($p = 0.015$) and larynx preservation ($p = 0.002$) were followed by a higher rate of non-surgical morbidity compared with partial resection and laryngectomy, respectively. Especially, pulmonary complications have been observed more frequently after larynx preservation ($p = 0.023$). Six patients (9.1%) died during hospital stay. Among them, 4 patients underwent total esophagectomy (12.9%) and 2 patients had segmental resection (5.7%). All of them were operated larynx preserving (15.4%). Overall, 53 patients (80.3%) died until follow-up. The actuarial 1-year and 5-year survival rates were 60.6% and 15.9%.

Conclusions. Segmental esophagectomy can be recommended as long as sufficient tumor resection is warranted. The advantage of raised quality of life throughout larynx preservation is gained by higher morbidity and mortality rates.

A005

Demografic data and histological performance of esophageal tumors in Hungary, 25 years follow-up of 1450 patients. Single center experience

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Background. The incidence of esophageal carcinoma – compared to other European countries – is very high in Hungary (8.25/105/year), and it is only found to be higher in countries like France (9.71/105/year) and the UK (11.83/105/year). Carcinoma of the esophagus became the twentieth most common malignant disease in the Hungarian population in the last decade. We analyzed the medical and epidemiologic data of 1174 patients admitted to the 1st. Dept. of Surgery of Semmelweis University in Budapest, Hungary between 1985 and 2004.

Methods. Data on symptoms, weight loss, duration of dysphagia until diagnosis and risk factors, such as tobacco smoking and alcohol consumption were registered.

Results. While the male-to-female ratio was 6.4 to 1 between 1985 and 1989, it became less than 4 to 1 in the last 5-year period. This shift was even more conspicuous among patients with squamous carcinoma (SCC) of the esophagus, decreasing from 8.11/1 to 4.15/1, pointing out a near twofold relative increase of esophageal cancers among women in the last 20 years. Esophageal carcinomas had developed almost three years earlier among male patients (58.6 years for men and 61.3 for women). The study pointed out that effect of smoking and alcohol consumption as two risk factors amplified, since 49.4% of all patients were heavy smokers and drinkers (more than 5 cigarettes and 50 g pure ethanol per day), and only 15.5% were abstainers.

The incidence of SCC of the esophagus remained stable in the last 15 years, representing 70% of all cancers (63.1%, 70%, 69.6%, and 72.8%, respectively). Unlike the results of numerous studies from the western world, there was no increase of incidence of adenocarcinoma (ACC) either, especially in the last 15 years, ranging between 25.3% and 26.5%

Conclusions. Our results showed no change in the incidence of either squamous cell carcinoma or adenocarcinoma of the esophagus in the last two decades in the Hungarian population that falls within our institution's range.

A006

Surgery for adenocarcinoma of gastroesophageal junction

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Background. Adenocarcinoma at the gastroesophageal junction may be regarded as of esophageal or of gastric origin, and tumor removal may follow the principles of esophagectomy or extended gastrectomy.

Methods. In a period from 1996 to 2009 we have operated 83 patients and tumors were categorized according to Siewert's classification (I, II, or III) of gastroesophageal junction tumors. Twenty-six patients with type I ($n=18$), II ($n=4$), and III ($n=4$) tumors underwent esophagectomy and gastric tube reconstruction, and 57 patients with type I ($n=4$), II ($n=19$), and III (n $=34$) tumors underwent extended gastrectomy and long Roux.

Results. Hospital mortality within the first 30 days included three patient in each group. Totally 10 patients underwent re-operations after the initial operation. The duration of surgery was longer after esophagectomy than after the extended gastrectomy procedure.

Conclusions. Due to aggressive local tumor growth and to early lymph node spread, resections for cure usually require large resections with lymph node dissection in the abdomen and in the chest. For SI tumors the transthoracic resection with two-field lymphadenectomy is superior to the transhiatal approach, opposite to this, the transhiatal procedure for SII ans SIII tumors is usually associated with less morbidity and mortality and allows only limited dissection in the lower parts of the chest.

A007

Experience of the single Institution in surgery for esophagogastric junction carcinoma

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Background. Experience of the single Institution in surgery for esophagogastric junction carcinoma.

The purpose of this study was to summaries experience of our Institution in reconstruction after potentially radical resection of cardiac carcinoma.

Methods. For the purpose of this study we analyzed data of 481 patients with carcinoma of the esophagogastric junction, operated with radical intent at Department of Esophagogastric Surgery in Belgrade.

Results. Majority of patients had pT2 or pT3 tumor, and more than 80% were node positive. In the patients with the adenocarcinoma of the distal esophagus (type I according to Siewert classification) subtotal esophagectomy and esophagogastroplasty was surgical procedure of choice. Transhiatal approach with cervical anastomosis and trahsthoracic approach with intrathoracic anastomosis (Ivor-Lewis procedure) were almost equally represented (60% and 40% respectively).

Conclusions. Distal esophagectomy with total gastrectomy, D2 dissection, and Roux-en-y reconstruction is surgical therapy of choice for majority of patients with advanced type II and III carcinoma. In our opinion transhiatal approach (using medial phrenotomy) could be reasonable alternative in majority of patients with Siewert type III carcinoma, and some patients with type II carcinoma. In majority of patients with type II carcinoma, for safe intrathoracic anastomosis after medial phronothomy, left anterolateral thoracotomy had to be performed too, but with sparing of left hemidiaphragm.

A008

Totally laparoscopic transhiatal gastro-esophagectomy (video presentation)

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Background. The progress of minimally invasive surgery has allowed esophagectomy to be performed by totally laparoscopic transhiatal approach. The aim of the study is to present our initial experience with totally laparoscopic transhiatal esophagogastrectomies for carcinoma of the cardia.

Methods. We use 5 ports. First step is stomach is mobilization. After lymphadenectomy of the celiac trunk and the hepatic pedicle stomach is divided and tubulized. After that follows dissection and resection of distal esophagus and mediastinal lymphadenectomy. Intrathoracic esophago-gastrostomy is accomplished by means of a circular stapler (DST Series^{TM} EEA^{TM} OrVil^{TM} 25 mm Device).

Results. Two patients underwent the procedure. Operating times were 265 min in first patient and 205 min. There were no intraoperative or postoperative complications.

Conclusions. In selected cases, it is possible to perform a distal esophagectomy entirely by laparoscopy, without the need for any thoracic or cervical access.

A009

Para-oesophageal hernia repair (POHR): An evaluation of tailored laparoscopic repair

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Background. This study aims to evaluate the immediate and late outcome of POHR.

Methods. Twenty-nine patients, who underwent POHR between April 2004 and Aug 2009 were surveyed for immediate post-operative improvement of symptoms and for late adverse effects at follow-up.

Results. Of the cohort, 19 were female and 10 males of median age 69 years, with postoperative stay ranging from 1 to 9 days. The majority (20/29) were admitted with acute symptoms. Eighteen of the patients were found, intra-operatively to have a POH only while the remaining 11, in addition, had a gastric volvulus. All underwent laparoscopic reduction of the hernia to some degree; complete reduction was achieved in 21, while the remainder had incomplete reduction, due to a short oesophagus. Gastric volvulus was treated by correction and gastropexy. Only 2 (13.3%) of the cohort suffered any adverse peri-operative complications. The median follow-up period for first and second assessment was 5 and 18 weeks respectively. Twenty-one (77%) considered the improvement to be 'excellent' at the end of second review with complete alleviation of symptoms. Five have

persisting residual symptoms although are gaining weight. The remaining 1 was found to be suffering from sigmoid diverticulosis.

Conclusions. POHR outcome is, for the great majority of patients excellent. Treatment has to be tailored to symptoms and the physical fitness of these patients.

A010

Help of computer analysis in stage appropriate surgery for early gastric cancer patients

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Background. An optimal management of early gastric cancer should be stage oriented with lymph node status as main criterion. Nodal status can be assessed preoperatively with modern radiological imaging techniques, sentinel node biopsy, molecular or genetic markers of tumour and computer analysis.

Methods. The aim of this study was to evaluate feasibility and accuracy in preoperative prediction of lymph node status with help of computer analysis. We used available computer program WinEstimate and constructed own computer model with data of patients with gastric cancer treated in University Medical Centre Ljubljana between 1993 and 2003. The prediction of two computer models was then tested on 110 patients treated between 2004 and 2005 in same manner as patients from the database. The goal of study was to compare prediction for lymph node status in control group by the computer program with real data collected after surgery.

Results. Accuracy of computerized preoperative predictions of N0/N1 status with first computer model (WinEstimate) was 91% (sensitivity 94% and specificity 87%) and second computer model 86% (sensitivity 91% and specificity 79%).

Conclusions. Results of accuracy of preoperative predictions of nodal status are very high and allow with some restriction in individual case to guide stage appropriate therapy. Best applicability is obtained with implementation of this new approach with standard diagnostic methods.

A011

Is there any multimodal treatment for advanced gastric cancer?

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Background. Despite of advances in surgical treatment of resectable gastric cancer the recurrence rate remains high, mostly because of loco-regional relapses. Postoperative chemo-radiotherapy for selected group of patients (>T2a or >N0, no remote disease) is a standard clinical practice in Slovenia since 2001. The aim of this study is to investigate the effectiveness of adjuvant therapy in patients with gastric cancer treated in our clinic.

Methods. All together 146 gastric cancer patients after curable gastric resection were included in the study according to the inclusion criteria (age <75, stage $>$ T2a or >N0, no remote disease, survival at least 90 days after surgery). Seventy-six patients in the surgery-only group and 70 patients in the surgery plus chemo-radiotherapy group.

Results. Cumulative survival was significantly better in surgery plus chemo-radiotherapy group ($p=0.034$). Three-year survival rates were 47.0% in the surgery-only and 61.6% in the surgery plus chemo-radiotherapy group; the five-year survival were 44.2 and 61.6%, respectively. The hazard ratio for death in surgery only group, as compared with the surgery plus chemo-radiotherapy group, was 1.713.

Conclusions. The results of our study demonstrate that adjuvant chemo-radiotherapy significantly improves survival also in patients with radical resection of the gastric cancer.

A012

Laparoscopic gastric surgery

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Background. Laparoscopic gastric surgery belongs to an advanced minimally invasive surgery. At our department in Roosevelt Hospital, we performed minimally invasive surgery in laparoscopic gastric surgery more than 10 years. We started with laparoscopic fundoplication, following with laparoscopic cardiomyothomy for achalasia, pseudocystogastrostomy, bariatric surgery as banding and sleeve resection too, partial wedge gastric resection for GIST and subtotal or total gastric resection for benign and malignant diseases. Subtotal or total gastric resection we perform last 2 years.

Methods. At the beginning, we performed gastric resection as laparoscopically assisted procedures, but in present, we perform these procedures completely laparoscopic (resection and reconstruction of GI-tract too). We use for gastric resection endostaplers (Echelon 60 mm blue cartridges – Johnson&Johnson). After subtotal rescetion we perform Roux-Y retrocolic anastomosis and for reconstruction we use endostaplers (45 mm with blue cartridges – Johnson&Johnson). After total gastric resection we perform esophagojejunoanastomosis with OrVil circular stapler (Covidien) and for jejunojejunoanastomosis endostapler (45 mm with blue cartridges – Johnson&Johnson).

Results. We performed more than 600 fundoplications, 40 cardiomyothomies, 90 patients were indicated for bariatric surgery. Wedge resection for GIST we performed 14 time and 14 patients were indicated for subtotal or total gastric resection, most of them for neoplasma, 9 patients (9/14) were operated as totally laparoscopic procedures. Operative time for wedge resection for GIST was from 35 to 120 min (medium 70 min). Operative time for subtotal or total gastric resection was from 180 to 360 min (medium 260 min). one patient died 6 months after operation for metastatic process. All living patients are in follow-up.

Conclusions. Laparoscopic gastric surgery is advanced and expensive miniinvasive surgery, but is feasible with all benefits of the MIS.

A013

Laparoscopic surgery in gastric carcinoma

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Background. From 01/2004 to 09/2009 10 laparoscopic operations of the stomach due to gastric carcinoma were performed at the surgical department SMZ Floridsdorf, Vienna.

Methods. In detail 7 total gastrectomies, 2 Billroth-II distal gastrectomies and one wedge-resection were conducted.

Results. All patients had histopathologically diagnosed gastric cancer according to UICC-TNM classification: pT1 ($n=2$), pT2 ($n=5$), pT3 ($n=2$), pT4 ($n=1$). Mean age was 70 yrs, mean BMI 26 and the average tumour size was 4.2 (1–7) cm. In every case R0-resection could be obtained, the amount of resected lymph nodes (29 mean) was oncologically reasonable. Conversion to open surgery was performed in two patients because of technical reasons. Operation time was long compared to experiences in open surgery, 362 (290–465) min. There was no mortality, complication rate was acceptable. Postoperative stay was 12 days mean.

Conclusions. Based on our experience laparoscopic procedures are feasible for treating gastric carcinomas. 100% R0-resection rate and the amount of resected lymph nodes demonstrates adherence to oncologic principles.

A014

Laparoscopic surgery in patients with a stomach cancer – our initial experience

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Background. Miniinvasive surgery of the stomach is a secure method as the conventional procedure. This intervention can be used for a palliative purpose in selected patients with an unresectable tumour in which no other endoscopic method will provide adequate result.

Methods. This is a prospective clinical study. We have analyzed our own experience of 36 patients, operated through an eighteen months' period between July 2008 and December 2009. There were 20 men and 16 women. The mean age of the patients was 62.4 years (44–82 years). A radical operation was applied in 33 of the cases and a palliative procedure was done in 3 cases.

Results. The mean operative time was 166 min (118–204), the mean intraoperative blood loss was 120 ml (50–250 ml). Using the fast tract method our patients are in motion in the day of the operation and they are fed with liquids the next day. Our postoperative complications were 8 (22.22%). We had 3 cases of esophageal-jejunal leakage, which were treated conservatively and there was no need of a reoperation. We had no mortality in the postoperative period.

Conclusions. We share our point of view, based upon our initial experience, that laparoscopic surgery is an advanced and progressive technique, which need a specific background as much as a good knowing of the conventional gastro-esophageal surgery.

A015

Surgical treatment of gastric stromal tumors

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Background. Operative treatment remains the standard procedure for non-metastatic gastrointestinal stromal tumors (GISTs). We retrospectively analyzed the results of surgery on gastric GISTs.

Methods. A total of 23 surgical interventions for gastric GIST, i.e. 60.5% of all the GIST cases were performed between 1998 and 2009, male/female ratio: 10/13, mean age: 65.9 (40–86) years. The diagnostic procedures included endoscopy, ultrasonography, CT and endosonography. The operations involved open atypical gastric wall resection (9 cases), major gastric resections (7 cases), laparoscopic wedge resection/enucleation (6 cases) and surgical biopsy (1 case). For the assessment of the risk of GIST, the Fletcher classification was used. The mean follow-up period was 34 months (range: 1–108 months).

Results. One perioperative death occurred, due to a cardiac dysfunction. The histology revealed R0 resection in all resectable cases. There were 1 c-kit-negative, non-classified, 9 low-grade, 7 intermediate and 6 high-grade cases (4, 36, 36 and 24%). The overall disease-free survival was 87%. Adjuvant therapy was applied for one patient with metastatic disease.

Conclusions. Gastric GISTs have a high rate of resectability, even in the event of a significant tumor mass. Laparoscopic resection of GISTs is considered safe and effective as compared with open techniques.

A016

Neoadjuvant treatment of gastric cancer

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Background. The prognosis of locally advanced gastric cancer remains poor. It has been shown that multimodal treatment can improve the outcome in comparison to surgery alone.

Methods. Between December 1998 and April 2009 44 patients with locally advanced gastric cancer were given neoadjuvant chemotherapy according to the ECF scheme. Before treatment, staging examinations were carried out: endoscopy, barium swallow, chest X-ray, computer-tomography and laparotomy or diagnostic laparoscopy. We treated patients with 4 three-weeks-long courses of chemotherapy with bolus injection of epirubicin and cisplatin on day 1, and continuous infusion of 5-fluorouracil on days 1–21. Twelve weeks long treatment was followed by 4 weeks free of treatment, than staging was repeated to determine response.

Results. Fifty-two percent response rate was achieved. Three complete response were observed. Twenty patients showed partial response, 9 stable diseases and 12 progressive disease were detected. Thirty-one patients were operated on. Twenty-six resections were carried out, fifteen with curative intent. Overall survival and disease free survival in the whole group were 12.19 and 8.66 months, while in patients with R0 resection 20.66 and 18.33 months.

Conclusions. Neoadjuvant chemotherapy provides a hope for cure for patient with locally advanced gastric cancer.

A017

The place for palliative gastric resection in gastric cancer patients with no chance for curable resections

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Background. The intend of palliative resections is to improve the quality of live by relieving the symptoms. The aim of our study was to reveal the results of palliative resections and to search for any significant prognostic factors.

Methods. Between January 1992 and December 2004, in 81 patients gastric resection was performed with palliative intend. They have larger tumors, often located in proximal stomach and their stage (UICC) is higher then in patients with curable resection. In R2 morbidity is 30% and mortality 13%. Patients who lived less than 5 months are older, the performance status is worse and the gross residual tumor was in form of diffuse peritoneal seeding in comparison to those who lived more than 5 months.

Conclusions. Non-curable gastric resections in patients with gastric obstruction or bleeding are justified in patients younger than 66 years with reliable general performance and without diffuse peritoneal seeding.

A018

Influence of lymphadenectomy extend on long term survival in gastric cancer

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Background. While surgical procedures for the treatment of the primary tumor have been standardized, there has been no worldwide consensus as yet on the extent of lymphadenectomy. D2 lymphadenectomy aims to reduce the incidence of locoregional relapse, and to increase patient survival. We retrospectively investigated the effect of extended lymphadenectomy on survival in gastric cancer patients.

Methods. From 636 patients who underwent potentially curative (R0) resection from 1993 to 2004, D1 lymphadenectomy was performed on 214 patients and D2 or more on 422. The 5-year survival rate and statistical differences of both groups were investigated.

Results. The postoperative morbidity (15% vs. 18%) and in-hospital mortality rate (6.1% vs. 5.5%) of both groups (D1 vs. D2) were not statistically different. The 5-year survival rates were as follows: Stage IA (D1: $n=86$, 79%; D2: $n=73$, 82%; $p=0.213$), Stage IB (D1: $n=47$, 70%; D2: $n=98$, 70%; $p=0.731$), Stage II (D1: $n=36$, 48%; D2: $n=67$, 49%; $p=0.406$), Stage IIIA (D1: $n=32$, 24%; D2: $n=66$, 30%; $p=0.112$), Stage IIIB (D1: $n=6$, 10%; D2: $n=46$, 22%; $p=0.023$), Stage IV (D1: $n=7$, 0%; D2: $n=72$, 10%; $p=0.507$).

Conclusions. Our results indicate that D2 lymphadenectomy or more might be performed as safely as D1 lymphadenectomy in patients with gastric cancer but only patients with Stage III have a survival benefit from such surgical treatment.

A019

Impact of palliative gastric resection and chemotherapy in patients with advanced gastric carcinoma

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Background. Gastric carcinoma is often diagnosed at UICC stage 3b or 4. R0 resection can be achieved only in very few cases. Even for these patients the 5-year survival rate is less than 5%. Surgical palliation is traditionally reserved for the treatment of severe tumor complications not responding to other forms of treatment.

Methods. We report about 102 patients who underwent palliative surgical treatment for advanced gastric cancer. We performed 68 palliative resections (54 gastrectomies, 11 proximal gastric resections and 3 distal gastric resections) and 34 non-resection procedures (23 gastroenterostomies, 11 explorative laparotomies).

Results. Resected patients in selected subgroups had an improved overall survival time in comparison to patients who received non-surgical treatment. The perioperative risk was acceptable. Median survival for resected patients was 14 months. Survival after gastroenterostomy was 8.5 months and after explorative laparotomy was 5.5 months.

Conclusions. Palliative gastric resection can provide a pronounced survival benefit over any other palliative treatment options. Especially younger patients with limited tumor sites should be considered for palliative resection whenever technically achievable.

A020

Complications and mortality after surgery for complicated gastric cancer

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Background. Emergency procedures for gastric cancer (GC) complicated by acute bleeding (BLGC) or perforation (PFGC) is one of the serious problem for emergency surgery and have worse outcomes than elective surgery.

Methods. We present retrospective study of the rate complications and operative mortality after surgery in 770 patients with BLGC (71 (9.2%) – urgently) and urgent surgery in conditions of peritonitis in 77 patients with PFGC from 1982 to 2009 years. The average age of the patients with BLGC was 56.6 ± 7.1 and with PFGC – 50.1 ± 4.2 yrs, male/female ratio accordingly was 5.2:1 and 3.4:1. The correlations of PC and OM with localization, macroscopically and microscopically characteristics and cancer stage, methods of surgery were analyzed.

Results. Total or subtotal radical gastrectomy were performed at 525 (68.2%) for BLGC and at 45 (58.5%) patients for PFGC; palliative or symptomatic surgical procedures were at 245 (31.8%) and at 32 (41.5%), respectively. The total postoperative morbidity rate was 32% for BLGC and 36.1% for PFGC. The overall OM rate for BLGC was 9.5% (73 patients), after radical – 6.5% (34), not radical – 15. 9% (39) and for PFGC – 7.8% (6). 3.2% (1), 10.9% (5), respectively. PC and OM were correlated to many different factors, which were analyzed.

Conclusions. Surgery for complicated GC can be performed safely with enough low postoperative morbidity and mortality rate.

A021

Complet pathological responce after first line chemotherapy in metastatic gastric cancer

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Background. Metastatic gastric cancer is a dissease with poor prognosis with no long term survivors. New chemotherapy regiments used as first line chemotherapy offers new hope for patients with this dissease. The possibility of downsizing and downstaging after this treatment should be keep in mind and justify reevaluation of its responce to treatment.

Methods. We present two case reports of complete pathological responce followed by radical surgery in patients with clinical stage IV gastric cancer and review of the literature.

Results. Our case reports confirmed very rare experience of complet pathological responce in patient with metastatic gastric cancer after first line chemotherapy.

Conclusions. Although complete pathological responce in metastatic gastric cancer is very rare, our experience confirmed that it is possible and subsequent radical surgery is possible to perform with currative intent.

Liver Surgery (meta)

A022

Current treatment of colorectal liver metastases in Czech Republic

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Background. There is the main position of surgery in the cure of colorectal liver metastases carcinoma (CRLM). 912–1.824 patients with CRC present advanced form of disease with synchronous or metachronous metastases who are indicated to liver surgery in Czech Republic.

Methods. To analyze patients with liver metastases of CRC (CRLM) who were indicated to liver surgery in the period of 2000–2008 on the base of questionnaire and to evaluate 5 yrs survival after R0 resection. Another aim is to present current possibilities of the treatment in multidisciplinary approach.

Results. Three hundred and fifty four liver surgical procedures including 268 liver resections (75%) were done in 2000 in Czech Republic. Totally 426 patients were cured in surgery departments in that year. Four hundred and three liver procedures including 123 major resection were done in 2009, totally 494 patients were cured in surgery departments. Five years survival wavers between 32–34%.

Conclusions. R0 resection currently presents the method of therapeutic choice with the improvement of patient survival, in Czech Republic wavers between 32 and 34%. There is no significant difference in the surgical cure of patients with colorectal liver metastases in Czech Republic between last decades. Total number of patients cured by liver surgery is not sufficient.

A023

Diagnostic and surgical approaches to hilar cholangiocarcinoma

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Background. Diagnostic work-up, resection rate, surgical approach and prognostic factors are important issues in the treatment of hilar cholangiocarcinoma (hilCC) and differ from center to center. This is particularly true for the resection rate which exceeds 70% in Asian countries whereas it is around 40% in the Western world.

Methods. All patients seen between 1998 and 2008 ($n = 182$) were included in an analysis based upon the department's prospective database. After interdisciplinary board reviewing, preoperative work-up was focused on percutaneous transhepatic cholangiography and drainage (PTC/PTD). In 75% of all patients the bile duct stent usually placed by the admitting institution was removed which was followed by CT scan and placement of PTD.

Results. A total of 123 patients (68%) underwent resection, related to patients undergoing exploration the resection rate was 77%. The surgical approach to be performed was correctly predicted in 85% of patients undergoing resection. PTC had the highest predictive value when compared to ERC and MRI. En-bloc resection of the tumor and the adjacent liver including segment 1 was performed in 109 of these patients. In patients with Bismuth I and II tumors accompanied with considerable co-morbidity surgery was restricted to hilar resection ($n = 14$). Right and left hemihepatectomy were performed with identical frequency resulting in identical survival. Hospital mortality of resected patients was 5.7%. Five-year survival in patients without surgery or with exploration was 0%, after resection it was 26%. Even patients with R1 resection experienced longer survival than patients without resection ($p < 0.001$). Lymph node involvement proved to be the only significant predictor of prognosis ($p = 0.007$).

Conclusions. In patients with hilCC resection rate is influenced by the mode of preoperative work-up. Meticulous preoperative work-up may allow for a more precise assessment of the longitudinal tumor extension and, thereby, help to increase the resection rate. This is of importance as even after palliative re-

section survival is substantially increased compared to patients without resection.

A024

Extended hepatoduodenal lymph node dissection in hepatobiliary malignancies

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Background. While hilar lymphadenectomy is worldwide accepted as a part of surgical treatment of GBC and HBC, there are only few data about the significance of planned lymph node removal in HCC or CLM cases. This prospective study aimed to investigate the clinical significance of extended lymph node dissection in hepatobiliary malignancies.

Methods. Between 1996 and 2009 at the 1st Surgical Department of Semmelweis University 1548 patients underwent surgery for liver tumors, 1268 from them with primary or secondary hepatic malignancy. In 1037 pts (78.7%) resection were performed. In 250 patients hepatoduodenal, left gastric and suprapancreatic lymph nodes were removed prospectively.

Results. There were no postoperative complication due to the extended lymphadenectomy. Hepatocellular carcinoma (HCC), colorectal liver metastases (CLM), gallbladder carcinoma (GBC) and hilar adenocarcinoma of the biliary tract (HBC/Klatskin tumor) showed suprisingly high incidence of lymph node positivity as follows: HCC = 50%, CLM = 29%, GBC = 54%, HBC = 54%. In a paired comparative model we investigated the late effect of hepatoduodenal lymphatic block dissection (HBD) on survival of CLM patients after surgery. There is a significant difference in favour of HBD at 3 yrs (68 vs 42%) and at 5 yrs (54 vs. 36%).

Conclusions. Systematic lymph node dissection should be reconsidered as a recommended intervention during radical surgery for CLM or HCC as well.

A025

Benefits, limitations and drawbacks of radiofrequency ablation

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Background. Radiofrequency has been applied for local ablation of liver malignancy since 1990. Tumor ablation can be used alone or combined with resection.

Methods. Although RFA became a widely accepted method as an alternative to resection, even in resectable lesions, its effectiveness has not been tested in RCTs. In restrospective, cohort studies, both the local control of CRC metastases, and the overall survival after RFA was significantly inferior to surgical resection. In general, complete ablation could be achieved only in lesions with a diameter <3 cm. However, the combination of RFA with surgical resection allows to ablate small lesions in other locations while removing the larger lesions. Adding RFA to resection is well tolerated, with similar morbidity and mortality.

Results. The majority of patients (80–90%) with colorectal liver metastasis are not candidates for curative resection because of multifocality, tumor location, proximity of the tumor to the vessels, or inadequate functional reserve. In these selected cases, as a palliative modality, RFA provides survival superior to that of non-surgical chemotherapy treatment.

Conclusions. Based on the current data, RFA should be reserved only for non-resectable metastases, non-operable high risk patients, or as complementary to surgical resection.

A026

Resection for noncolorectal liver metastases; Results from University Hospital for Tumors, Zagreb

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Background. In contrast to the well-defined guidelines for surgery in liver metastases from colorectal carcinoma, surgical policy for noncolorectal liver metastases is mainly based on institution-related criteria; evidence is lacking because of a small number of available retrospective studies with limited numbers of patients. Thus, the clinical benefits of surgical resection of hepatic metastases from noncolorectal primary tumors are still not widely accepted. The available data are inconsistent in terms of indication for surgery, treatment, and outcome, so a generally applicable algorithm is currently lacking.

Methods. A total of 43 patients underwent resection for noncolorectal liver metastases between 2007 and 2009. We consider extrahepatic metastases to be a contraindication for liver resection.

Results. Resection was performed to remove liver metastases from noncolorectal gastrointestinal carcinoma ($n=13$), neuroendocrine tumors ($n=1$), genitourinary primary tumors ($n=4$), breast carcinoma ($n=14$), leiomyosarcoma ($n=1$), and metastases from other primary cancers ($n=10$). Eight (18%) major hepatectomies and 35 (82%) minor resections were performed. In 40 (93%) of 43 patients, a curative resection (R0) could be achieved. Overall 2- and 5-year survival is being observed.

Conclusions. The resection of noncolorectal liver metastases may be associated with a 5-year survival rate of up to 50%. Resection of liver metastases from gastrointestinal adenocarcinomas correlates with a poor prognosis. In summary, patients with noncolorectal liver metastases may benefit from resection, provided that a curative resection is achieved. Curative resection is particularly beneficial in liver metastases from mammary carcinoma, leiomyosarcoma, and renal carcinoma metastases, even over the long-term period.

A027

Surgical treatment of liver metastasis – our experience

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Background. The liver is, after the lymph nodes, the second most common seat of all metastatic tumors and most frequent seat of haematogenic metastatic tumors in the body. Metastatic tumors are the most common malignant liver tumors.

Methods. Insight into the histories of patients treated at our Institute and their statistical analysis.

Results. In the period from 2002 up to 2009 we operated 111 patients with metastatic liver tumors. Distribution of primary tumors in operated patients was: 68 colorectal cancers, 17 biliary cancers, 10 pancreatic cancers, 7 gastric cancers, 3 melanomas, 2 lung cancers and one renal, suprarenal, breast and cervix cancer. In 3 patients we made repeated liver resection due to the reappearance of metastases after previous resection of metastases. In 66 patients we made a segmentectomy, in 20 patients hepatectomy was done in 6 of them expanded, and in 28 patients we made a metastasectomy. Surgical techniques of liver resection included the use of ultrasound Cusae knife for parenchymal organ resection, and two metastasectomies were made laparoscopically.

Conclusions. The best results in the treatment of liver metastases are achieved by resections in respect to functional anatomical distribution in the liver segments. An important factor is the number of operated patients, where specialized tertiary centers with a large number of patients achieved significantly better results.

A028

Equal survival after radiofrequency ablation and repeated resection of recurrent hepatocellular carcinoma confined to the liver

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Background. Recurrence of hepatocellular carcinoma (HCC) after surgical treatment is rather common. It can be treated by radiofrequency ablation (RFA) or repeated hepatic resection. This report compares both in a retrospective, single-institution database.

Methods. A prospectively collected database was retrospectively analyzed. RFA was performed under ultrasound control using two different monopolar devices. All kinds of access were used: open surgical ($n=10$), percutaneous ($n=13$) and laparoscopic ($n=4$). Repeat resection was performed using an ultrasound aspiration device. Indication for a particular treatment was alloted on a case-by-case basis; the final decision was not rarely made intraoperatively.

Results. Survival after RFA (median 40 months) was similar compared to repeated hepatic resection (48 months, $p=0.641$, logRank-test). Tumor-free survival was markedly impaired after RFA (15 vs. 29 months). This difference was however not significant ($p=0.07$, logRank). Both groups were different regarding presence of cirrhosis, maximal tumor size, time since initial diagnosis and duration of the procedure.

Conclusions. In this non-randomized retrospective trial, survival and disease-free survival was not significantly different comparing RFA and repeated hepatic resection. There was however a tendency towards a longer tumor-free survival in the resected patients.

A029

Combined blunt-clamp dissection and LigaSure ligation for hepatic parenchyma dissection

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Background. Blunt-clamp dissection allows for visualization of intrahepatic vessels and individual ligation of major blood or bile vessels. Recently, many instruments have been developed for ''precoagulation'' of liver parenchyma before sharp transection, but suffer from the possibility of injuring major blood and biliary vessels that are not well-visualized, along with high cost. In this article, we describe a ''postcoagulation'' technique combining clamp dissection and sealing of vessels under direct vision using a tissue-sealing device.

Methods. Clinical evaluation of patients subjected to liver resection using this technique.

Results. There were no cases complicated by hemorrhage. There was an incidence of 1.8% for bile leaks. This low incidence of biloma formation was seen even with the high incidence (49%) of abnormal parenchyma encountered in this cohort.

Conclusions. Combining the clamp-crushing method with use of the LigaSure device (Valleylab) allows identification of intraparenchymal vessels followed by sealing. This method of parenchymal resection optimizes ease of use with confidence in vessel ligation.

A030

Can a scoring system predict the resectability of colorectal liver metastases?

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Background. The purpose of this study was to examine the validity of the clinical risk score (CRS) for predicting the resectability and survival of patients with colorectal liver metastases (CRLM).

Methods. In the period of January 1996–2010, 207 patients underwent 311 surgical and/or local ablative procedures for CRLM. This study assesses five preoperative prognostic criteria which define the CRS (nodal status of the primary tumor, the disease-free interval, the number of hepatic metastases, the preoperative CEA level, and the size of the largest metastasis). We

analyzed the calculated CRS with respect to the patient's postoperative survival.

Results. An individual CRS was found to be predictive of survival. CRS stratified into three groups (CRS scores 0–1; 2–3 and 4–5) proved predictive of survival as well, with 5-year survival rates of 56.2%, 28.1% and 8.8%, respectively. Ten-year survival rates for patients with CRS scores 0–1, 2–3 and 4–5 were 44.7%, 15.4% and 0%, respectively. We identified 26 long-term survivors who lived or are still alive from 6 to 14 years after liver resection.

Conclusions. Immediate hepatic resection is reasonable in patients with CRS 0 to 1. In patients with CRS 2 to 3, chemotherapy may be required in addition to hepatic resection. In patients with CRS 4 to 5, hepatic resection is probably reasonable only if there is a response to chemotherapy.

Liver Transplantation

A031

Surgical treatment of hepatocellular carcinoma: Resection versus transplantation

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Background. Liver transplantation (LT) appears to be the optimal treatment of small and oligocentric hepatocelluar carcinoma (HCC) in cirrhotic livers. Replacement of the cirrhotic liver implies not only the removal of the tumor the cirrhotic liver but also the precancerous tissue. Apart from organ scarcity, another problem in LT is the restriction of this procedure to patients meeting the Milan criteria (MC) which are frequently exceeded during waiting time. As drop out from the waitlist can only partially be avoided by bridging approaches, initial liver resection (LR) is considered a feasible alternative to LT, either as bridging or as discrete procedure.

Methods. Two-hundred and nineteen patients with HCC treated at our institution between September 1997 and December 2008 were included in this analysis. All LT candidates (n 171) underwent repeatedly performed transarterial chemoembolization (TACE) before transplantation. According to our protocol TACE was performed in intervals of 6 weeks until transplantation. Patients with tumor progress during TACE exceeding the RECIST criteria were eliminated from the waitlist (drop out). During the same period 64 patients with liver cirrhosis (Child A: $n=61$, Child B: $n=2$) were treated by LR.

Results. Of the 171 LT candidates, 110 exceeded the MC. Transplant candidates were significantly younger than patients undergoing LR (59.5; 36–73 versus 67.2; 37–84 yrs; $p<0.001$). 112 patients were finally transplanted (MC in: 50, MC out: 62). Accordingly, the dropout rate during a median waiting time of 218 (22–756) days was 35%. Survival in patients who were finally not amenable to LT or LR was 468 days. Five-year survival in all LT patients was 68% compared to 22% in LR patients ($p<0.001$). If all transplant candidates are included in the Kaplan Meier analysis (intention-to-treat analysis), 5-year survival dropped to 56%. Even this rate is significantly superior to the survival after LR ($p=0.003$). Patients meeting the MC have a similar prognosis regardless of the surgical approach ($p=0.541$) whereas patients exceeding the MC fare better with LT compared to LR (5-year survival 51 vs. 15%; $p=0.003$). Survival after LT or LR in patients with AFP > 400 nG/ml have a 5-year survival of 49 and 11% ($p=0.130$), in patients with AFP < 400 nG/ml the difference in survival is significant ($p=0.034$).

Conclusions. Despite a dropout rate of 35% during pretreatment by repeatedly performed TACE, the inclusion of patients with HCC into this protocol aiming at bridging the waiting time to LT results in superior overall survival compared to LR. Dropout rate is similar in patients within and beyond the MC. A subgroup analysis (intention-to-treat) of patients meeting the MC indicates comparable survival after LT or LR. According to these results LR remains a feasible treatment option in patients with small and oligofocal tumors, in particular in view of graft scarcity.

A032

Liver transplantation – past, present and future liver transplantation in Croatia

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Background. The first successful liver transplantation was performed by Starzl in 1963, however, a new era of transplantation was initiated in the 1980s after major advances were made in the field of immunosuppression (cyclosporine).

Methods. Refinements and innovations in surgical technique resulted in advanced transplant procedures such as piggy-back transplantation, split transplantation, living donor transplantation and domino transplantation, making liver transplantation the most dynamic transplant program. Also, new indications for liver transplantation have emerged, including tumor pathology.

Results. The beginning of liver transplantation in Croatia dates back to 1990 when two transplants were performed, however, both patients died in the early postoperative period. The program was started again in 1998 and the gradual increase of transplantations performed reflected the expansion of the donor pool in Croatia.

Conclusions. Today, all types of liver transplantations are performed in Croatia, including split transplantations, adult-to-adult and adult-to-pediatric living donor transplantations. Clinical Hospital Merkur performs about 95% of liver transplantations in Croatia. Other transplant centers include Clinical Hospital Centers Zagreb (pediatric and adult transplantations) and Rijeka. Our results in organ donation and transplantation are comparable to those in developed European countries.

A033

Treatment of hepatocellular carcinoma with liver transplantation – experience at Clinical Hospital Merkur

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Background. Orthotopic liver transplantation (OLT) is the most efficient option for the treatment of hepatocellular carcinoma (HCC) in terms of survival and recurrence rate provided that restrictive selection criteria are applied. However, tumor recurrence occurs in 3.5–30% of recipients and it has a negative impact on prognosis. In this retrospective study we analyzed survival and tumor recurrence rate in a cohort of patients with HCC treated with OLT in a single center.

Methods. Between 2005 and 2009 30 patients with HCC were transplanted. Mean age was 58 + 5.28 years. Twenty-two patients were male and 8 were female. Etiology was viral in 12 patients (30%), alcoholic in 14 (46.6%) and miscellaneous in 4 patients (13.3%).

Results. After a median follow-up of 30.8 months, 25 recipients (83.3%) were alive. Eight patients (26.6%) had disease recurrence. Twenty-one patients (70%) were transplanted within and 9 patients (30%) were outside Milan criteria. A higher recurrence rate was noted in patients surpassing the Milan criteria.

Conclusions. OLT is an effective mode of treatment for patients with HCC providing low recurrence rates and survival comparable to liver transplantation for benign disease if restrictive selection criteria are applied.

A034

Pediatric liver transplantation in Croatia – results from KBC Zagreb

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Background. The first pediatric liver transplantation in Croatia was performed in September 2001. Since then we have performed 16 liver transplantations.

Methods. We had 10 males and 6 females patients, age from 10 months to 16 years. Indications for transplantation were biliary atresia (5), choledochal cyst (2), cryptogenic hepatal cirrhosis (1), alfa-1 antitrypsin deficiency (2), PFIC type I (1), Alagille syndrom (1), chronic hepatitis B (1), fulminant hepatitis (1), neonatal hepatatis (1) and Sy Crigler-Najjar type I (1). There were eight cadaveric and eight living-related liver transplantations. We had thirteen segmental and three orthotopic, whole liver transplantations.

Results. Several postoperative surgical interventions were performed. Indications were various, from hemorrhage, stenosis or trombosis of anastomosis (vascular or biliodigestive), formation of biloma, subphrenical abscessus and pleural empyema to obstructive ileus.

Conclusions. We will present and discuss our results, our early and our late posttransplant surgical complications.

A035

Living donor procedure for pediatric liver transplantation – our experience

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Background. In last 10 years 16 pediatric liver transplantations were performed in our hospital with one year survival rate of 81.2%, and three-year rate of 67% with our follow-up period ranging from 2 months to 9 years. We performed eight cadaveric and eight living donor liver transplantations. In this paper we will present our experience with living donor procedure, performed by hepatobiliary surgeons.

Methods. We had 7 living related donors (5 ABO compatible and 2 ABO incompatible donors) and one unrelated ABO compatible donor. In 7 donors we performed left lateral segmentectomy and used segments II and III as liver graft, and in one donor we performed left hepatectomy and left liver lobe was used as a graft.

Results. We had one complication that was treated by reoperation. It was necrosis of segment IV after left lateral segmentectomy due to the injury to the blood supply to the segment IV. Patient was treated with reoperation and segment IV segmentectomy. All other 7 donors had no complications. All our donors completely recovered and returned to normal activities within 6 weeks.

Conclusions. Living donor liver procurement is a safe procedure and a living related donors are a valuble source of organs for pediatric liver transplantation in our time that is marked by significant organ shortage and expanded use of marginal donor organs that are not suitable for split liver procedures.

Bariatric Surgery

A036

Current status of metabolic surgery: A review

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Background. The obesity burden for our society is followed by a diabetes tsunami with more than 280 millions of people

worldwide suffering from diabetes mellitus. Within the next 20 years a 50% increase in type II diabetes is expected with the biggest burden in developing countries. Diabetes is already the most costly disease in the US, consuming one out of every 7 dollars.

Methods. Metabolic Surgery results in a 50–95% remission rate in patients suffering from type II diabetes – depending on the operating method used. Several other factors like longstanding disease, age, waist circumference and others can influence the outcome after metabolic surgery. Gastric Banding effects diabetes simply by persistent weight reduction whereas other methods like gastric bypass result in an upregulation of incretins and satiety hormons.

Results. Besides the well established bariatric procedures new methods like duodenal exclusion, ileal trnasposition and gastric stimulation are presented. Furthermore, data from literature on diabetes remission in overweight and obese patients will be discussed.

Conclusions. Metabolic surgery is the preffered treatment modality for morbidly obese patients with type II diabetes. There is growing evidence for the effectiveness of this treatment in patients with BMI 30–35 kg/m^2. New procedures should only be conducted within trials.

A037

Bariatric surgery: An overview with focus on restrictive procedures

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Background. European and world-wide obesity epidemic necessitates long-term efficient, economically bearable and patient safe solution. Bariatric surgery is the most effective, low risk treatment for morbidly obese in terms of weight loss and long-term weight maintenance, currently available.

Methods. Excellent bariatric results are fundamentally dependent on standardized patient selection and close interdisciplinary team collaboration. This applies to pre-operative assessment, and to life-long post-operative follow-up.

Results. European indication criteria for bariatric surgery are available. Among other criteria, the patient should have Body Mass Index > 35 with serious co-morbidities, or BMI > 40 even without them. Basic surgical approaches to obesity: Gastric restrictive/food limitation procedures (Gastr.band), which mechanically limits amount of food eaten at a time. Operations limiting absorption of nutrients (BPD). Combined procedures (gastr.bypass). The two most common bariatr. procedures worldwide, AGB and RYGBP, have different penetration in USA and in Europe. In USA the RYGBP is more frequent, whereas AGB is more prevalent in Europe. There is a noticeable tendency to increase AGB in USA, and vice-versa.

Conclusions. Regardless differences in weight loss, bariatric surgery is the most effective treatment modality for morbidly obese patients in terms of total weight loss and and long-term weight maintenance.

A038

Is there a place for bariatric surgery in the adolescent and elderly?

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Background. Bariatric surgery is well established for adults suffering from morbid obesity. Concerns exist whether to operate on adolescents suffering from extreme obesity. Elderly people with morbid obesity, having a high risk to become disabled are also not offered bariatric surgery in all centers.

Methods. A review of the literature for bariatric surgery in the adolescent and elderly is given. Furthermore long term results on 50 adolescents having had laparoscopic gastric banding between 1997 and 2004 in Austria are presented. Evaluation criteria for bariatric surgery in adolescents and international guidelines are discussed.

Results. Bariatric surgery leads to sustained weight loss in the adolescent, resolving the majority of comorbidities. In the elderly the quality of life is improved significantly.

Conclusions. Young patients who suffer from extreme obesity should be offered bariatric surgery after careful consideration. In elderly patients the quality of life is dramatically improved by permanent weight loss, whereas the impact on life expectancy remains questionable.

A039

Bariatric surgery in Slovakia

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Author show the history and milestones of bariatric surgery in Slovania and partly in Czech republic. Economic and other facts are considered in developing of bariatric procedures. General situation in Slovakia (questionnaire method 2004, 2007, 2009) in laparoscopic surgery is one of the reasons for not fully satisfactory status of bariatric surgery.

There were only three methods of bariatric surgery used in this period (SAGB, RYGB and SG) and collections of patients are very small. Now new policy of health insurancies and new generation of surgeons promise a greater impulse in this field.

A040

Four years experiences with laparoscopic sleeve gastrectomy

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Background. Laparoscopic sleeve gastrectomy (LSG) significantly improves metabolic disturbances and T2DM of morbid obese patients.

Methods. Ninety-four MO patients underwent LSG from 2006 to 2009. Dyslipidaemia was pre-operatively diagnosed in all cases. The fasting lipids, insulin, adiponectin, leptin, resistin, GLP-1, GIP, PYY and ghrelin were measured pre-operatively, 6 and 12 month postoperatively, respectively, in s cohort of 20 obese women. T2DM was pre-operatively diagnosed in 31 patients.

Results. Two years follow-up was completed in 67 MO patients. Average weight loss was 34.3 kg (21–72), average %EBL reached 84% (64–100) and average decrease of BMI was 14.7 (7.9–17.2) two years after the procedure. In cohort of 20 MO women after 12 month lipid and glucose metabolism parameters and endocrine dysfunction of adipose tissue were markedly improved. Average body weight was 91.2 kg (loss of 28.3 kg) and average BMI was 32.8 (loss of 10.5). During the postoperative period of 24 months T2DM in 31 (100%) patients diabetes completely resolved in 71% after surgery (i.e. 8 patients/100%/ from the diet-treated patients and in 11 OAD-treated patients/65% of OAD group).

Conclusions. The LSG is a safe bariatric procedure with good results in both weight loss, and improvement of metabolic comorbidities of patients with obesity. Supported by IGA MZ grant No. 10024-4.

A041

LRYGB in the treatment of morbid obesity

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Background. Bariatric surgery is the fastest growing field of surgery. There are at least 4 modern procedures that are accepted worldwide to treat morbid obesity. All of them have their advantages and disadvantages, and still there is a lack of evidence based on which choice of the procedure could be individualised.

Methods. Retrospective method.

Results. Laparoscopic Roux-en-Y gastric bypass (LRYGB) is gaining in popularity in Europe because of better weight loss and eating quality, simpler postoperative follow-up and less late complications as compared to restrictive procedures. After proper training and sufficient accumulation of surgical experience it could be done as safe as restrictive operations. LRYGB has also metabolic effect by stimulating production of gut hormones and possibly intestinal gluconeogenesis. In patients with BMI > 50, weight loss after LRYGB is less when compared to laparoscopic biliopancretic diversion – duodenal switch (LBPD-DS). LBPD-DS patients have higher risk for protein malnutrition and is in need of close follow-up.

Conclusions. During recent years, laparoscopic sleeve gastrectomy (LSG) started challenging restrictive procedures and LRYGB in the treatment of morbid obesity. However, its place is still to be defined.

A042

Complications after laparoscopic bariatric procedures

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Background. The expansion of bariatric surgery worldwide also affected Croatia at the beginning of the 3rd millennium. Minimally invasive surgery is performed in Croatia since 1992/93 and contributed largely to this expansion. The first LAGB was performed in 2005, first sleeve resection (with and without DS) in 2006 and first laparoscopic bypass in 2008. We describe the majority of complications after LAGB and the way to treat them laparoscopically, endoscopically and by open surgery.

Methods. One hundred and twenty patients were treated with LAGB, 28 with laparoscopic sleeve resection and 11 with laparoscopic gastric bypass. Excessive Weight Loss (EWL) and complications were monitored for 4 years, 3 years and 11 months, respectively.

Results. Complications after LAGB were: gastric fundus perforation (1), bolus pouch-obstruction (3), slippage (3), band erosion (1), esophageal dilatation (2), pulmonary microembolism (2), and port site infection (2). Complications after gastric bypass were: rhabdomyolisis (1), subphrenic and interintestinal abscess (1).

Conclusions. Several surgical procedures for morbid obesity have been performed in Croatia since 1970: mostly small intestine bypass surgery followed by vertical gastric banding (VBG). From 2005 we started with laparoscopic procedures for morbid obesity and we have also learned how to prevent complications and deal ourselves with them at our institution.

A043

Bariatric surgery in a private hospital – 5 years experience and outcome

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Background. The aim of the study is to reveal 5 years experience with Bariatric surgery in a private Hospital. Organizing and qualifying such a team in a private hospital is a challenge for all specialists, involved in management of Morbid obesity.

Methods. A total number of 302 patients were included in the retrospective study. The surgical procedures were: antecolic gastric by pass, vertical gastroplasty by Champion technique, sleeve gastrectomy and Lap-Band placement. Endoscopic procedure of insertion of gastric baloon was also included in the study as a part of treatment of superobeses patients with BMI more than 56. All patients were assessed preoperatively by a team of surgeon, cardiologist, endocrinologist, psyhotherapist and a diet specialist.

Results. The BMI of the patients varied from 37 to 64. The average age of the patients was 38-year old. The youngest patient was 16 years old and the oldest – 63-year old. We did 81 gastric by pass operations – 12 by open technique and the rest laparoscopically. A number of 124 vertical gastroplasty were done, 14 sleeve gastrectomies, 67 Lap-Bands and 16 intragastric baloons were also

performed in that period. Median postoperative stay varied due to the type of the procedure. Serious complications as leakage of the stapler line of stomach necrosis were encounterd in 12 cases.

Conclusions. Bariatric Surgery in a private hospital can be safe and reliable treatment.

A044

Pseudo-achalasia following a slipped laparoscopically placed adjustable gastric band: A case report

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Background. Purpose: To demonstrate that laparoscopic adjustable gastric banding may promote oesophageal dilatation or interfere with oesophageal motility.

Methods. We report a case of a 67-year-old female with a complex medical history who developed secondary achalasia from a slipped laparoscopically placed adjustable gastric band for weight loss. This led to recurrent episodes of aspiration pneumonia requiring multiple admissions at North Shore Hospital, Auckland, New Zealand.

Results. A decision was made to remove the gastric band, five years after its initial insertion. At one month follow-up, she was swallowing normally and oesophageal manometry had returned to normal.

Conclusions. Oesophageal dysmotility is sometimes seen in patients who have bands that are adjusted too tightly or in whom the band has slipped. This can lead to serious complications if unrecognized and incorrectly treated. Oesophageal symptoms in patients with adjustable bands must be considered secondary to the band unless proven otherwise i.e. removal of the band or complete deflation.

Pancreatic Surgery

A045

Modern treatment of pancreatic cancer

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Background. Pancreatic cancer is associated with an aggressive tumourbehavior and a poor prognosis. The best result published in literature is a 5 year survival rate of 32–41% for node-negative or/and resection margin-negative patients and does not exceed 20% in most centers.

Methods. For diagnosis MR offers an ''one stop shop'' (information about parenchyma, bile duct and vascular system). A biopsy – if necessary – should only be done with an endosonographic way.

Treatment of choice is the radical resection (R0) including the lymphnodes of the hepato-duodenal ligament and along the large vessels (portal and proximal mesenteric vein, celiac trunk, right portion of the mesenteric artery). The resection of the portal vein should be done if a tumour-free margin is possible. Mortality should not exceed 5%.

Conclusions. The benefit from adjuvant chemotherapy is demonstrated by some studies. Controversies exist about diagnostic laparoscopy, response-evaluation with PET and the value of palliative resections.

A046

Laparoscopic operations on the pancreas

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Background. Laparoscopic operations on the pancreas are indicated in case of small resectable tumors of the body and tail of the pancreas. Videopresentation of laparoscopic operation on the pancreas shows the technical aspects of these operations.

Methods. At the Department of Surgery in Banska Bystrica was performed 12 laparoscopic operation on the pancreas in period 2007–2009. There were 7 distal pancreatectomies and 5 partial resections or enucleations. Videopresented is laparoscopic distal subtotal pancreatectomy with splenectomy for polycystic tumour of pancreatic body.

Results. Mortality of laparoscopic operation was zero, morbidity was comparable with open surgery. In postoperative period we had two pancreatic fistulas, one fistula after enucleation of insulinoma of pancreatic body and one fistula post distal pancreatectomy. Both fisulas healed conservativly within 4 weeks.

Conclusions. Laparoscopic operation on the pancreas in case of small distal pancreatic tumors are safe and convenient for patients but required good experience in laparoscopy.

A047

Long-term survival after resection therapy for head pancreatic carcinoma

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Background. Prognosis of the patients with pancreatic carcinoma is very poor in the aspect of long-term survival despite on the improvement of surgical technique and perioperative anestesiologic care. The aim of the presentation is to present the survival analysis of patients after surgery for pancreatic carcinoma.

Methods. We analyse 423 patients with pancreatic carcinoma admitted to our surgery department (1998–2008), in 271 with head pancreatic carcinoma. 84 patients underwent radical resection, 19 palliative resection, 129 by-pass procedures, 47 exploration. Data were collected prospectively on all patients. For statistical purposes Student t-test, chisquare statistics as well as Kaplan–Meyer analysis were used.

Results. Median survival of 1) group reached 18.5 mo, 2) group 6.0 mo, 3) group 6.2 mo and 4) group 5.2 with perioper-

ative mortality 4.1% in 1. group 5-year survival was in 1. group 8.9%. According to stage of disease there was significant survival in stage I, II and III to compare to stage IV.

Conclusions. Radical resection is only therapeutic method improving the chance for longer survival of patient with pancreatic carcinoma.

A048

Simultaneous pancreas and kidney transplantation (SPKT) in University Hospital "Merkur"

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Background. Simultaneous pancreas and kidney transplantation (SPKT) is an acceptable method for patients with IDDM and chronic renal failure in which conservative treatment cannot achieve satisfactory results. Since 2003, we successfully performed 75 SPKT surgery, of whom 43 patients were male and 32 female.

Methods. In evaluation we used the rate of one-and five-year survival of patients, and one-year survival rate of pancreas and kidney graft. We also used biochemical parameters (amylase S/U, blood sugar, creatinine) to review the situation after the transplant.

Results. Since 2003, we successfully performed 75 SPKT surgery, of whom 43 patients were male and 32 female. One-year survival rate of patients after SPKT surgery is 87%, while the five-year survival rate is 81%. Rate of one-year pancreas graft survival was 75%, and rate of one-year kidney graft survival was 85%.

Conclusions. Simultaneous pancreas and kidney transplantation (SPKT) is an acceptable method for patients with IDDM and chronic renal failure in which conservative treatment cannot achieve satisfactory results. Successful transplantation of pancreas and kidney improves quality of life. Pancreas transplantation stops new or even improves some of existing complications of long lasting DM.

A049

Analysis of donor dependent early pancreatic graft loss risk factors in patients after simultaneous pancreas and kidney transplantation

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Background. Results of simultaneous pancreas and kidney transplantation (SPK) in dialysis patients with type 1 diabetes mellitus depend mainly on pancreatic graft related complications in early postoperative period. Among risk factors of early pancreatic graft loss donor dependent factors are considered to play the key role. The aim of the study was to analyze cadaveric donor dependent risk factors of early pancreatic graft loss in patients after SPK.

Methods. Five pancreatic grafts (12.5%) were lost in 40 patients subjected to SPK due to thrombosis or infection. Donor parameters included in Preprocurement Pancreas Allocation Suitability Score (P-PASS) were analyzed in patients who lost pancreatic graft (group 1) and without this complication (group 2).

Results. Donors age was significantly higher in group 1 compared to group 2 (30.4 years [range: 27–37] vs. 24.1 [16; 40]). Groups did not differ as regards BMI, Stay at ICU, serum sodium and amylase. The percentages of donors that required cathecholamines and with cardiac arrest before harvesting were identical. Donors of organs for patients in group 1 scored significantly more points in P-PASS compared to group 2 (18 [14; 19] vs. 15 [11; 18], respectively).

Conclusions. Older donor's age remains important risk factor of early pancreatic graft loss in patients after SPK. P-PASS is a useful tool in identifying optimal pancreatic graft cadaveric donor.

A050

Survival rates for pancreatic cancer patients after pancreatic resection and new possibilities for survival improvement

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Background. The goal of the present study is to determine complications associated with pancreatic resection and to describe their influence on the survival rate for pancreatic cancer patients. The present study deals with new possibilities for identifying early-stage pancreatic cancer patients.

Methods. Between 1996 and 2009, the findings about 125 pancreatic cancer patients were analyzed in a prospective trial at the First Department of Surgery, University Hospital in Košice, Slovakia.

Results. The overall mortality rate and morbidity rate during our research were 3.2% (4 patients) and 27% (34 patients), respectively. In patients with complications, the median survival time was 12 months, in patients without complications – 18 months. Since 2007, we have started a trial, in which histopathological and immunohistochemical examinations of lymph nodes were performed. Out of the 119 negative lymph nodes detected by histopathological examination (19 patients), 37 positive lymph nodes were detected by immunohistochemical examination (6 patients).

Conclusions. The presence of postoperative complications after pancreatic resections has negative influence on the survival rate for pancreatic cancer patients. Immunohistochemical examination of histopathologically negative lymph nodes can detect positive lymph nodes and early-stage pancreatic cancer patients can be identified.

A051

Treatment of pancreatic neoplasm in University Hospital Dubrava, Zagreb

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Background. Treatment of pancreatic neoplasm still presents quite a challenge. According to the world literature most patients have incurable disease and fewer than 20% are candidates for surgery. Overall survival after the surgery is 10–20% in 5 year. Our objective was to compare our results in treatment of pancreatic neoplasm with results in world literature.

Methods. Retrospective analysis of clinical records of patients underwent any surgical procedure for pancreatic neoplasm.

Results. From 1999 till 2010, in the University Hospital Dubrava, were performed 228 operations of pancreatic neoplasm. Average age was 65.5 years (male patients 57.8%; women patients 42.2%). Whipple procedure was performed in 23.8%, segmental resection in 3.9%, distal pancreatectomy in 7.3% and total pancreatectomy in 0.5%. Unfortunately, in 45.1% cases we performed some kind of palliative procedure and explorative laparotomy was performed in 16.1%. Main intraoperative problem was infiltration of adjacent structures. Early perioperative mortality rate was 10%. Overall 5-year survival after surgical procedure in University Hospital Dubrava was 15% (data from Croatian Register for cancer).

Conclusions. Our results are compatible with those presented in literature. We have shown that the main problem in treatment of pancreatic neoplasm is advanced stage of illness in time of diagnosis. Despite of that tendency of curative resections is increasing.

A052

Neuroendocrine tumors of pancreas: Retrospective study

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Background. Pancreatic neuroendocrine tumors (PNETs) are uncommon tumors of the pancreas that account for fewer than 5% of pancreatic neoplasms. They are divided into 2 groups: functioning and nonfunctioning tumors. Functioning PNETs are related to symptoms of pancreatic hormonal hypersecretion while nonfunctioning lack the same and are thus harder to identify. Functioning PNETs include insulinomas, gastrinomas, glucagonomas, VIPomas and somatostatinomas.

Methods. In our research we reviewed the presentation,management and outcome of 6 patients with PNETs treated at Department of abdominal surgery of Clinical Hospital ''Dubrava'' between January 2004 and January 2010.

Results. Over this 6-year period 137 patients were treated for pancreatic neoplasms. Six of them were diagnosed with PNETs; 4 patients had insulinomas, one had PNET of undefined malignancy and one was not operated because differential diagnostics was inconclusive. For 2 patients surgical treatment was distal pancreatectomy with splenectomy, extirpation of the tumor was performed in 2 other, while one operation ended with exploration.

Conclusions. PNETs are rare tumors that account for less than 5% of all pancreatic neoplasms. Results of our retrospective study show that 4.5% of pancreatic tumors treated surgically are PNETs, which is consistent with world literature. While diagnostics and localization of these tumors is difficult, surgery is still only curative treatment.

A053

Surgical management of chronic pancreatitis and its complications

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Background. Chronic pancreatitis is inflammatory pancreatic disease with miscellaneous symptoms. Surgical treatment is intended to relieve severe abdominal pain or/and to solve the complications of chronic pancreatitis.

Methods. Surgeries directly on pancreas are ductal draining or pancreatic resection or combination of both. There is no single procedure curative for all patients. Surgery for complications of chronic pancreatitis contains many types of operations which are intended to treat local of distant complications of chronic pancreatitis. Crucial role in indications for surgery and type of operation play imaging examinations MRI and CT or ERCP.

Results. Authors bring results of surgical treatment of 34 patients with chronic pancreatitis cured in last 2 years in their hospital enlarged by case reports. They performed 11 pancreatic resections, 5 ductal draining surgeries and 18 operations due to complications of chronic pancreatitis. They had 3 pancreatic fistulas, all cured conservatively and 1 stenosis of hepaticojejunostomy all after Whipple procedure, and 1 wound seroma. One reoperation was needed – redo hepaticojejunostomy.

Conclusions. Surgical treatment of chronic pancreatitis is demanding part of surgery and belongs into hands of experienced surgeon. Although possibilities of endoscopic and radiologic methods are broadened, surgical procedures still play eminent role in treatment of chronic pancreatitis.

Colon Surgery

A054

Laparoscopic Colorectal Surgery: Benefits and downsides

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Background. Laparoscopic Colorectal Surgery is making its way into surgical routine. The benefits regarding minimally inva-

sive surgery are well published and are widely accepted in centers. After the humongous success of laparoscopic cholecystectomy, less invasive endoscopic procedures gained more and more acceptance among the surgical community.

Methods. Main concerns were raised regarding oncological standards in Colorectal Surgery. Multiple international studies have proven feasibility and oncological safety of laparoscopic resections for Cancer of the Colon and the Rectum. The flat learning curve, higher costs and longer operating times remain an obstacle in establishing minimally invasive procedures as the standard in Colorectal Surgery. It needs to be further discussed whether the downsides are outweighed by better cosmetic results and decreased post-op. expression of stress hormones resulting in less pain and faster recovery.

Conclusions. In this review the main aspects of laparoscopic Colorectal Surgery are discussed in conjunction with international data analyzing this surgical method.

A055

Laparoscopic approach for colorectal carcinoma

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Background. Laparoscopic colectomy for colorectal cancer has not been still widely accepted. This is because of its steep learning curve, concerns with oncological outcomes, lack of randomized controlled trials (RCTs) and initial reports on port-site recurrence after curative resection. The aim of this lecture is to summarize current evidence on laparoscopic colorectal surgery in patients with malignant disease.

Methods. In this lecture we summarize the published data on laparoscopic colorectal cancer surgery, and we compare them with our results (over 200 laparoscopic colorectal resections).

Conclusions. Laparoscopic colorectal surgery proved to be safe, cost-effective and with improved short-term outcomes. However, further studies are needed to assess the role of laparoscopic rectal cancer surgery and the value of enhanced recovery protocols in patients undergoing laparoscopic colorectal resections.

A056

Laparoscopically assisted versus open colectomy for TNM stages II and III colon cancer: Comparison of short-term outcomes

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Background. The purpose of this retrospective study was to compare results of minimally invasive laparoscopic approach to these of open surgery for treatment of TNM stages II and III colon cancer.

Methods. Retrospective analysis of 322 patients with stages II and III colon cancer operated from January 1st 2007 to November 30th 2009 was made. Laparoscopically assisted colectomy (LAC) was performed in 87 patients and open colectomy (OC) was performed in 235 patients.

Results. Sex ratio and mean age were similar in both groups. Eight patients in the laparoscopic group (9.6%) underwent conversion to open surgery. The number of lymph nodes removed was similar in both groups (21.7 in LAC vs. 21.1 in OC, $p = 0.91$). Postoperative complications requiring reoperation were observed in 2 patients in LAC group and in 7 patients in OC group (2.3% vs. 3.0%, $p = 0.73$). Anastomotic fistulae occurred in 2 patients in OC group (0.4%). Patients undergoing LAC had a lower incidence of postoperative complications, however the difference was not significant. Early mortality rate was similar in both groups (1.1% LAC vs. 2.1% OC, $p = 0.56$). Mean length of stay was significatly shorter after LAC (8.5 vs. 11.1 days, $p = 0.003$).

Conclusions. Laparoscopically assisted colectomy for cancer as radical as open colectomy, however it appears to reduce the incidence of postoperative complications and mean length of stay.

A057

Comparison between young and adult colon cancer: Etiology and evolution

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Background. Colonic cancer had its peak incidence in western civilization in the sixth and seventh decades. Nutritional, genetic, and inflammatory factors have been mentioned frequently in regard to possible etiology of the disease. Some doubts, however, seem to be justified as to the validity of these factors being involved in cases of juvenile cancer of the colon. Is it possible that two different types of colonic cancer do exist: the young and the adult type?

Methods. We analysed a group of 145 cases admitted and treated in our department in 5 years.

Results. The mucinous type of colonic cancer comprises only 5% of all colonic cancers, whereas, in the young age group, it comprises up to 76%. In adult colonic cancer patients, coexisting polyps can be found in 40–50% of patients, whereas, in the young group, polyps are exceedingly rare. The alleged nutritional factor in the genesis of colonic cancer has to be present for many years, which cannot be the case in the younger's group. In the adult type of colonic cancer population, a family history of the disease is found in 20–30%, whereas this is almost nonexistent in the young adult type.

Conclusions. It is almost impossible to point at genetic, viral or embryologic etiologic factors in the young population of colonic cancer. Survival rates was higher in adult colonic cancer due to differentiation type.

A058

Factors that influence 12 or more harvested lymph nodes in resective R0 colorectal cancer

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Background. The number of lymph nodes required for accurate staging is a critical component in colorectal cancer. Current guidelines demand at least 12 lymph nodes to be retrieved. This study was designed to determine the factors that influence the number of harvested lymph nodes ($\geq$12) in resective R0 Colorectal Cancer early-stage CRC in a single institution.

Methods. Between July 2005 and December 2008, data on patients who underwent surgery for CRC were analyzed retrospectively (225). Data for a total of 139 R0-surgery patients were collected. Several possible factors that influence 12 or more harvested lymph nodes were investigated and classified into four aspects: (1) operating surgeon, (2) examining pathologist, (3) patient (age, sex, and body mass index), and (4) disease (tumor localization, tumor cell differentiation, tumor stage, type of resection).

Results. A total of 100 patients (71.9%) with 12 or more harvested lymph nodes and 39 patients (28.1%) with $<$12 lymph nodes were analyzed. Tumor localization, depth of tumor invasion according to Dukes stage and grading were independent influencing factors of 12 or more harvested lymph nodes.

Conclusions. Neither the operating surgeon nor the examining pathologist had significant influence on the number of harvested lymph nodes. Therefore, from the viewpoint of the surgeons, disease itself is the most important factor influencing the number of harvested lymph nodes.

A059

MutYH associated polyposis (MAP) – relevance for surgeons and the Austrian experience

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Background. In 2002 MutYH associated polyposis (MAP) was detected, with a number of patients presenting an atypical medical history of polyposis. Some of these patients have shown to bearan inherited defect in the base excision repair MutYH.

Methods. We analyzed 67 unrelated Austrian families clinically diagnosed with typical FAP (18; 26.6%), AFAP (32; 47.8%) or multiple colorectal adenomas (17; 25.4%) for mutations in the MutYH gene. All 16 exons of the gene were sequenced started from genomic DNA. An inherited alteration in the APC gene was excluded.

Results. In 16 of 67 (23.9) patients a mutation in the MutYH gene was identified. In 16.4% (mean age 44 years) both alleles were affected. Fifty-seven percent of these presented with colorectal cancer. Patients with monoallelic alterations had a mean age of 51 years, two of them colorectal cancer (40%). 18.8% of mutation carriers presented with classical FAP, 62.5% AFAP and 18.8% multiple adenomas. Five of them had gastroduodenal adenomas. Surgical therapy ranged from oncologic resection, coloscopic polypectomy subtotal colectomy and proctocolectomy. We detected one new mutation in the MutYH gene.

Conclusions. Management of MAP should follow distinct guidelines – but there seems to be little knowledge about the disease among surgeons. More attention for clinical distinction of hereditary tumor diseases is needed in order to provide standard surgical treatment procedures in MAP patients.

A060

Intestinal cells of Cajal and definition of the new volume of the large bowel resection in the surgery of Hirschsprung's disease in adult

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Background. Many surgeons use in treatment of Hirschsprung's disease (HD) the Duhamel's procedure, which is unsuccessfull often. Rare studies evaluated the role and condition of the interstitial cells of Cajal (ICC) as pacemakers of gut motility in pathogenesis of this disease.

Methods. From 1979 till 2009 we operated on 67 adult patients with HD in our centre. During 1979–2005 it were resections of aganglionosis zone and megacolon: with one stage colorectal or coloanal anastomosis ($n=32$), two stage procedure with end colostomy at first stage ($n=17$). After electron microscope examination of ICC we perform subtotal colon and aganglionosis zone resections and cecoanal anastomosis with proximal loop ileostomy ($n=18$).

Results. Resections of aganglionosis zone and visible megacolon were noneffective for gut motility in long-term period. Our investigation revealed destruction of ICC in transverse and ascend colon, which were evaluated by surgeon at the operation as normal. After introduction of the new volume of large bowel resection our patients have adequate defecation and high quality of life.

Conclusions. Congenital deficiency of the myenteric plexuses in the rectum and acquired destruction of ICC in the colon during the HD are two parts in pathogenesis of this disease in adults. Those patients require in more extended large bowel resection than Duhamel's procedure.

A061

Surgery for diverticular disease of the colon

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Background. Under the present understanding of the natural course of diverticular disease and following the introduction of laparoscopic surgery in clinical practice, the strategy of surgical treatment of diverticular disease has changed in the last years.

Methods. At Department of abdominal surgery of UMC Ljubljana from 2006 until November 2009 101 patients were operated on due to complicated diverticular disease. Analysis of results of these operations and review of literature were used to try to determine an evidence-based approach towards treating this disease.

Results. Fourty-five patients (44.6%) were operated urgently and 56 (55.4%) patients we operated on elective basis. Postoperative mortality of urgently operated patients was 28.9%, whereas none of the electively operated patients have died. High mortality of urgently operated patients is attributed to severity of the disease (assessed under the Hinchey scale) and comorbidities of these patients.

Conclusions. In the urgent setting, the indications for surgery have not changed much; regarding the surgical technique, there is a trend towards less invasive procedures with yet unclear influence on the outcome. As regards elective surgeries, the most appropriate timing remains to be determined; however, laparoscopic assisted resection turned out to be the most appropriate method.

A062

Laparoscopic colorectal procedures – Future

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Background. There is increasing tendency to colorectal surgery in department of surgery in Žilina Hospital from 1998 to 2009. From 2005 laparoscopical and TEM approach is preferred.

Authors describes results of prospective study of 577 patients which lasts from January 2005 to January 2010 (60 months). Patients with acute abdomen were included to study. Used mininvasive methods were laparoscopic approach and transanal endoscopic microsurgery – TEM.

Seventy-two percent of procedures of mininvasive were performed by one surgeon.

TEM procedures were 13× for malignant lesions (10× for pT1 and 3 for pT2 lesion), others for adenomas. Malignant patients underwent pre or postoperative neoadjuvant therapy.

Authors considered aspects of postoperative course od patients after miniinvasive colorectal surgery, operating time, radicality of procedure in malignant cases. Data were considered with comparative group of patients treated by classical approach in period from 2001 to 2005. (500 retrospectively considered collection of patients.)

Results. Conversion rate is 12.3%. This number is comparable with literature standards. For only one main surgeon it is 9.3%.

Mortality rate is higher in classical group 4.1 vs. 2.1%.

Postoperative course is better after mininvasive approach (shorter hospital stay, lower consumption of analgetics, sooner peroral uptake and mobilisation of patient).

Hospital stay after mininvasivce approach is 6.7 postoperative day against 9.3 after classic surgery. Operating time for procedures is significantly longer for some mininvasive methods, but has clear decreasing tendency (learnin curve). Significantly longer operating time is for Miles procedure, Hartmann resection and decolostomy. Others are only minimally longer opearting time (right hemicolectomy, segmental sigma resection, low anterior resection). Some miniinvasive procedures had shorter opearеting time than classical – but diffrences are minimal (left hemicolectomy, other segmental resections, bypasses and adhaesiolysis). Laparoscopical stomias have even significantly shorter operating time. In our opinion that is caused by above mentioned fact, that 72% of miniinvasive methods were performed by one skillfull surgeon and mininvasive group had greater part of acute procedures.

In malignant cases (60.7%) radicality of procedure according to number of resected lymphonodes is the same in both laparoscopic and classical too.

Long term results for survival are not comparable because of short lasting of study.

Conclusions. Minimal invasive approach to colorectal surgery is safe and profitable for patients in benign and malignant diseases too. Mininvasive methods can be recommended to acute cases too. Authors plan to continue study for proving good long term results for malignancy in mininvasive approach. TEM method with pre and postoperative neoadjuvancy is promisable for pT2 lesions for some group of patients, but needs more studies to prove good long term results. Adenomas and pT1 lessions are method of choice.

Rectal Surgery

A063

A multidisciplinary approach in the treatment of rectal cancer

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Background. Histologically involved circumferential margin due to inadequate lateral dissection confers a high risk of local recurrence. Even high-quality surgery can not always achieve a curative resection for locally advanced cancers.

Methods. The management of rectal cancer requires a multidisciplinary approach, with treatment decisions based on patient evaluations by surgeons, gastroenterologists, medical and radiation oncologists, radiologists, and pathologists. Pre-operative staging is used to determine the indication for neoadjuvant therapy prior to surgical resection or to determine whether local excision is an option in selected patients with early rectal cancer.

Results. Oncological cure and overall survival are the main goals, but sparing of the anal sphincter mechanism and functional results are also important. Total mesorectal excision (TME) has become the standard of care for mid and distal rectal cancers. For locally advanced cancers of the lower two-thirds of the rectum, the combination of surgical resection with chemoradiotherapy decreases local recurrences and probably improves overall survival.

Conclusions. Cylindrical abdominoperineal excision for low rectal cancer removes more tissue around the tumor that leads to a reduction in circumferential resection margin involvement and intraoperative perforations, which should re-

duce local disease recurrence and has the potential to improve patient outcomes.

A064

Endoscopic diagnosis and therapy of rectal cancer

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Background. Many techniques have been introduced into the diagnosis (magnifying endoscopy, chromoendoscopy, narrow band imaging, confocal endomicroscopy, autofluorescence imaging) and therapy (endoscopy polypectomy – EPE, mucosal resection – EMR, submucosal dissection – ESD, argon plasma coagulation, malignant obstruction stenting) of rectal cancer.

Methods. Advanced diagnostic endoscopic techniques (microendoscopy) have been described. Novel approaches to rectal cancer therapy have been provided (indication, description, complications).

Results. Complications after therapeutic procedures are postpolypectomy bleeding (0.7–3.4%) and perforation (0.08–0.69%).

Conclusions. Modern diagnostic techniques are focused mostly on detection and treatment of early stages of rectal neoplasia.

A065

Rectal cancer treatment and survival – comparison of two 5-year time intervals

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Background. In last two decades there was a huge step forward concerning rectal cancer treatment. The aim of our study was comparison of two time intervals regarding the methods of treatment and results of radical rectal cancer surgery.

Methods. Four hundred and seven patients operated on for rectal cancer were included in study. Those were patients with elective radical resection of solitary rectal tumor who survived first month after the operation. Patients were divided in two groups regarding the time of theirs operation. In group one were patients operated on between 1996 and 2000 and in group two patients operated on between 2001 and 2005. We compared our results in both intervals with special consideration about type of operation considering localization of the tumor, local recurrence and cancer related survival.

Results. Significant differences were found between two groups. There were more sphincter saving operation in second group, less local recurrences and better survival.

Conclusions. This study observed a significant improvement in rates of recurrence and in total survival for rectal cancer and we can say that our results are improving but there is still much work to do to be able to compare with the best centers in rectal cancer surgery.

A066

Laparoscopic abdominotransperineal resection for the benign and malignant disease of the middle and low rectum

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Background. Middle and low rectal tumors are located extraperitoneally in the pelvis which limits the approach considerably. Creation of the safe low colorectal or coloanal anastomosis is the most complex part of the laparoscopic surgery of the middle and low rectum.

Objective we are presenting our method developed for the laparoscopic resection of the middle and low rectum.

Methods. The operative procedure begins with the transperineal approach to the rectum. Transperineal mobilization and resection of the rectum with the application of the linear stapler are then being performed. Rectum is then mobilized up to the peritoneum. Splenic flexure, left colon and rectum are laparoscopically mobilized, inferior mesenteric artery is highly sutured and hypogastric nerves are prepared – the TME (total mesorectal excision) is performed. Bowel tissue affected with tumor is removed through the perineal opening. The anastomosis with the circular stapler is being formed through the same site.

Results. This method was used in thirteen (13) operations. All of the operations were performed due to the low and middle rectal carcinoma (4–8 cm) with the no mortality rate. One patient experienced a partial dehiscence which healed after perineal fistulisation in 6 weeks period.

Conclusions. The laparoscopic abdominotransperineal resection of the rectum enables safe and simple rectal approach and rectal mobilization. Abdomen is not being opened for the material extraction, the anastomosis is eye controlled and performed by using the standard staplers. Described method makes the rectal operation easier for the surgeon and safer for the patient.

A067

Surgery for rectal cancer after neoadjuvant radiochemotherapy

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Background. Clinical asessment of rectal cancer is required to correctly plan the therapeutic approach to the tumor. Early stage tumor is suitably treated by surgery alone, while preoperative radiochemotherapy (CRT) followed by surgery is frequently favored in T3/T4 and/or node-positive disease.

Methods. One hundred and eight patients with rectal cancer after neoadjuvant CRT were operated on in a period of 3 years from 2007 to 2009. There were 70 males and 38 females patients with average age and average time of hospitalization being 62 years and 11 days, respectively. Dworak method was used for assesing tumor regression.

Results. Abdominoperineal excision was performed in 38 and anterior rectal resection in 66 cases. There were 4 noncurative operations. In 3 cases we synchronously resected hepatic metastases. R0 resection was achieved in 98, R1 in 4 and R2 in 6 cases. There was a 6% rate of perioperative morbidity and no perioperative mortality. The commonest tumor response was Dworak 2, while in 9 cases we observed complete tumor regression (Dworak 4).

Conclusions. Neoadjuvant CRT has improved the local control rate and overall survival in locally advanced and/or node-positive rectal cancers. Reports in literature indicate an increase of surgically relevant complication rates caused by preoperative CRT. Future strategies should be aimed at an even more strict selection of patients who are at high risk for local failure.

A068

Risk factors for anastomotic dehiscence in colorectal cancer surgery

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Background. Surgical treatment of rectal cancer has been significantly progressed after appearing of stapling technique in surgery. Thus, formation of risky very low anastomosis after anterior rectal resection was enabled. At the same time, introduction of mesorectal excision has resulted in lower local tumor recurrence incidence, and at the same time, has increased anastomosis dehiscence rate.

Methods. Our work is based on 10-year working experience at Department of Surgery. All data were analyzed retrospectively using the available database.

Results. Within the period, from 1990 to 2000, there were done 599 anterior resections due to primary rectal cancer. Clinically manifested anastomosis dehiscence was detected in 55 (9.2%) cases. There were 41 (74.5%) patients with partial anastomosis dehiscence (PAD) and 14 (25.5%) with total anastomosis dehiscence (TAD). The mean dehiscence time was seventh postoperative day for both analyzed cases. The overall mortality was 12 (21.8%): 9 (21.9%) related to PAD and 3 (21.4%) related to TAD. Multivariate analysis showed that sex, protective stoma, total mesorectal excision and level of anastomosis were independent associated factors for the development of anastomotic dehiscence.

Conclusions. We recommend a protective stoma after low anterior resection for rectal cancer completed with total mesorectal excision and creation of anastomosis within the lower third of the rectum particularly in man.

A069

Rectal cancer hot topics as reflected in the Czech National Cancer Registry

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Background. Optimal therapy of rectal cancer can be selected only when basic diagnostic parameters are avalilable and validated as prognostically significant.

Methods. 21,538 cases from Czech National Cancer Registry (1996–2005) were analysed for median survival (MS, months) in relation to routine prognostic parameters and effects of adjuvant therapies.

Results. Clinical stage proved to be significant indicator of prognosis (MS stage I: 106, II: 54, III: 32 and IV: 7 months) as were the depth of invasion (MS T1: 111, T2: 92, T3: 59, T4: 21, all N0M0), node metastases (MS of T2N0M0: 92, T2N1M0: 62, T3N0M0: 59 and T3N1M0: 38 months) and resection margins (MS of R0: 69, R1: 49, R2: 19 months, all in stage II). Grade showed significance only for anaplastic G4 tumors (MS of G1: 50, G2: 58, G3: 51, G4-anaplastic: 20 months). Any radiotherapy, ether preoperative or postoperative, improved outcomes in both, stage II (MS 69 vs. 38 months) and stage III (40 vs. 22), also in T2N0M0 (112 vs. 76) and T3 (83 vs. 39) N0 M0 as subdivided stage II. Preoperative radiotherapy was superior to postoperative one in stage II (91 vs. 68) as well as in stage III (46 vs. 38). Adjuvant chemotherapy (FU/FA) improved median survival in both stages II (74 vs. 44) and III (44 vs. 21). Also palliative chemotherapy in advanced stage IV significantly improved median survival (15 vs. 3) in this large historical group.

Conclusions. Reflection of trials in practice is crucial goal.

A070

Utilizing radiowaves for proctology surgery – A new modality

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Background. Advances in technology continue at a rapid pace affecting several aspects of life; medicine is no exception. Electrosurgery has been used for many decades in medicine. Radiowave is a further refinement of electrosurgery. Radiowaves produces ultra-high frequency waves that cause heat in the tissue water, producing steam, with which one can perform cutting, coagulation and fulguration of tissues with minimum collateral tissue damage. As the radiowave energy is applied, frictional heating of tissues results, with cell death occurring at temperatures between 38 and 700 °C.

Methods. This paper discusses author's personal experience of using radiowave for various ano-rectal pathologies namely hemorrhoids, anal fistula, anal polyps, sinuses and anal papillae. A Ellman radiowave generator was used for carrying out the procedures.

Results. The radiowave was able to tackle most of the above-mentioned pathologies successfully.

Conclusions. Radiowave is a relatively new modality that is being used for ano-rectal surgeries with increasing frequency. Proctological surgeries using a radiowave device are simple to perform with many advantages over the most conventional techniques. The procedures take less operative time, post-operative pain is significantly less and the postoperative recovery is accelerated with negligible incidences of complications. All the procedures are performed as a day care procedure.

A071

Topical nitroglycerin versus lateral internal sphincterotomy for chronic anal fissure

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Background. To compare the effectiveness of local glyceryl trinitrate (GTN) versus internal sphincterotomy in the management chronic anal fissure.

Methods. Eighty patients with chronic anal fissure were enrolled in the study. They were divided into two groups; group (1) included 40 patients treated with topical GTN 0.2% on liposomal base applied to the anoderm twice daily and group (2) included 40 patients treated with internal sphincterotomy. We compared the effectiveness of both techniques in the management chronic anal fissure

Results. In group 1, healing of fissures occurred in 85% of patients after 8 weeks therapy. Headache as a side effect developed in 65% of patients. In group 2, healing occurred in 97.5% of patients after 8 weeks. Incontinence to flatus occurred in 3 patients (7.5%), mild soiling in 2 patients (5%) and one patient developed wound infection. All complications were temporary except for one patient with persistent incontinence to flatus. At the end of 8 weeks both groups were equal in pain scoring.

Conclusions. Topical GTN should be the initial treatment in chronic anal fissure while internal sphincterotomy may be reserved for patients who not respond to GTN therapy and those with severe pain (as healing is faster with sphincterotomy).

A072

Treatment of recurrent of anal fissures with excision, internal sphincterotomy and V–Y advancement flap

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Background. After lateral internal sphincterotomy, 8% of the patients result in recurrence of anal fissures because of incomplete sphincterotomy, constipation and severe chronicity. Treatment of recurrent anal fissures, despite repeated internal sphincterotomy, very often requires excision of anal fissures and flap reconstruction of the defect.

Aim. To present the experience in treatment of recurrent chronic anal fissures with concurrent excision and internal sphincterotomy.

Methods. Twelve patients with recurrent chronic anal fissures were treated, general anesthesia was used. Mean age of the patients was 42 years (21–79); 5 were males and 7 were females. Complete excision of anal fissure and internal sphincterotomy in loco were performed. The defect was covered with advancement V–Y flap. Mean duration of the operation was 15 min. Intra and post-operative complications including necrosis of the flap was not detected. Patients used laxatives two months after the operation.

Results. Complete wound sanation occurred in 4–6 weeks period. In all patients complete relieves of symptoms of anal fissures occurred. Two patients had difficulty in controlling flatus.

Conclusions. Internal sphincterotomy and excision of anal fissure have been shown as successful approach. V–Y advancement flap is safe and easy to perform in anal region and it should be used in covering defects after the excision of the fissures.

New Oncologic Concepts

A073

Current trends in combined treatment of upper digestive tract cancers

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Background. Results of surgical treatment of advanced upper digestive tract cancers (esophagus, stomach, pancreas, external bile ducts, liver) are still bad. Therefore the current standard of treatment constitutes combined modality approach associating surgery with chemo- and/or radiotherapy in different combinations.

Methods. Esophageal carcinoma-current trend is focused on preoperative radio- and/or 5-fluorouracil/cisplatinum based chemotherapy or definitive chemoradiotherapy. Gastric cancer-surgery + adjuvant chemotherapy. New trend in palliative chemotherapy is focused on epidermal growth factor receptor-EGFR (erlotynib, gefitynib), vascular endothelial growth factor-VEGF (bewacizumab) and HER-2 receptors (lapatynib).

Results. Pancreatic cancer-surgery + regional lymphadenectomy as primary treatment. In loco-regional unresectable disease definitive high dose rate brachytherapy (HDR) + chemotherapy is invesigated. In palliation new anti-VEGF drugs are investigated (Avastin). Extrahepatic bile ducts cancers-surgery with regional lymphadenectomy is primary approach and prospectively adjuvant chemoradiotherapy using gemcytabine is investigated. Liver cancer-surgery + adjuvant sorafenib.

Conclusions. Advanced upper digestive tract cancers consitutes an indications for combined modality approach.

A074

Improved staging using intraoperative ultrasound for mediastinal lymphadenectomy in non-small lung cancer surgery

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Background. The extend of lymph node involvement in patients with non-small cell lung cancer (NSCLC) is the cornerstone of staging and influences both multimodality treatment and final outcome. We studied safety, accuracy and characteristics of intraoperative ultrasound (US) guided systematic mediastinal nodal dissection in patients with resected NSCLC.

Methods. Intraoperative hand held ultrasound probe was used in systematic mediastinal nodal dissection in 124 patients after radical surgery for NSCLC and compared with 120 patients who underwent radical surgery followed by standard systematic mediastinal nodal dissection. Mapping of the lymph nodes by their number and sation followed by histopathologic evaluation was performed.

Results. Skip nodal metasteses were found in 24% of patients without N1 nodal involvement. We upstaged 12 (10%) patients using US guided mediastinal lymphadenectomy. Median follow-up was 38 (range: 10–52) months. Standard staging system seemed to be improved in US guided mediastinal lymphadenecetomy patients. Complication rate showed no difference between analyzed groups of patients.

Conclusions. Higher number and location of analyzed mediastinal nodal stations in patients with resected NSCLC using hand held ultrasound probe siggested to be of great oncological significance. Our results indicate that intraoperative US may have important staging implication.

A075

In situ marking of breast cancer margins – Concerting action of radiologist and surgeon

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Background. Preoperative core biopsy and realiable marking of tumor margins are the main diagnostic requirements of EUSOMA breast cancer management protocol. We suggest the method of carbo adsorbens spot marking (CASM).

Methods. Technically, we use for marking carbo adsorbens in 4% saline solution. The black CA pigment is injected into breast under ultrasonographic control in laying woman as trajectory beginning with skin spot and continuing in parallel with tumor margin in approximately one centimeter distance. Usually two injections and marking spots are used to determine the largest diameter of tumor. Marking CA spots remain stable until surgery which allows full freedom in planning of operation term. In women with neoadjuvant chemotherapy we perform CASM just after the second cycle of chemotherapy when the peritumoral edema is already reduced.

Results. In our mammodiagnostic MammaCenter in Prague, which participates in the Czech Breast Cancer Screening Programme, more than 30,000 women have been examined annually with nearly 500 new breast cancers detected, biopsied, marked to surgeon with carbo adsorbens spots and treated. We have been able to apply described procedure of CA spot marking in 95% of all diagnosed cases.

Conclusions. Surgical resection is safely guided in by CA pigment trajectories, which help also to pathologist with specimen orientation. CASM helps to optimize the extent of breast conserving operations.

A076

Criteria and procedures for breast conserving surgery

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Background. The circumstances that determine surgical approach and using of breast conserving surgery (BCS) are not uniform. Common goal of BCS is maintaining survival that is found when more radical procedures are used.

Methods. Several leading oncological protocols in the world are compared, using PubMed database, and our own experience. Data gathered are compared to conclusions of the fifth international consensus conference of the Breast Health (Milan, 2005). Furthermore, most significant surgical contraindications found in everyday work are considered, having in mind satisfactory cosmetic effect, as well as keeping the 1 cm border of ''clear'' edges.

Results. After observing several relevant protocols, we found very high frequency of mastectomy vs. BCS, despite the fact that stage of disease was low. We also found only 20% of real medical contraindications that disabled use of BCS. Most frequent contraindication for BCS was multicentricity of the tumor (with microcalcifications), especially in ductal in situ carcinoma.

Conclusions. BCS followed with irradiation and tumor-free edges is standard procedure in treatment of low-stage breast cancer. This approach implies higher risk of local relapse (LR), where local relapse is not cause, but indicator of worse prognosis.

A077

Surgical strategy for CRLM in clinical and pathological response to neoadjuvant chemo- and targeted therapy

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Background. The neoadjuvant chemotherapy, later on it's combination with biological response modifiers has resulted the increasing clinical response rate in CRC patients with liver metastasis.

Methods. The author's analysis covers 61 patients between 01.01.2006. After year 2000 at the beginning – sporadically, later on more and more frequently a new phenomena, the disappearance of metastases became known. The recent publications laid down the criteria of the possible relevations between clinical and pathological response. The latter is becoming the new endpoint of neoadjuvant chemo- and targeted therapy followed by liver resections for CRLM.

Results. The author's analysis covers 61 patients between 01.01.2006 and 31.12.2009 with CRC liver metastasis and the neoadjuvant chemo- and targeted therapy followed by surgery and detailed pathology. The clinical and pathological response rate were analyzed. Complete pathological response has been observed in 2 patients (0.3%), and major pathological response rate

(necrosis >50%) could be seen in 3 patients, while minor pathological response (necrosis <50%) has been revealed in 5 patients.

Conclusions. The neoadjuvant and targeted treatment of CRLM should focus on the pathological response rate. At present the pathological response is regarded the main prognostic factor, determine the long term survival rate after the R0 resection of liver metastasis.

A078

Haemostatic disorders in patients with gastrointestinal cancer

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Background. French Armand Trouseau was the first who noticed the connection between cancer and thrombosis. Hemostatic disorders can occure in connection with cancer in all components of haemostasis – vascular part, coagulation, thrombocytes and fibrinolytic system.

Methods. Complex of haemostasis is disabled in 50% of patients with primary cancer, but up to 95% of patients with metastatis disease. Clinical symptoms of cancer can be thrombosis, haemorage or combination of both. Thrombosis occurs in 4–20% of patients with cancer. Wells criteria and D-dimer positivity are used for diagnosis of deep venous thrombosis.

Results. Authors bring the results of running prospective study concerning the presence of deep venous thrombosis in patients with gastrointestinal cancer.

Conclusions. Venous thromboembolism is the 2nd leading cause of death in patients with cancer. In spite of progress in treatment of thrombosis in recent years occurrence of deep venous thrombosis in patients with cancer is still undervalued.

A079

No ReStInG in surgical oncology

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Background. Molecular oncology and prediction have been claimed to be new directions in the management of cancer with personalized dimension. However, in order to ''connect this new roof with the older basement'' also older gold standards must be reported and improved. ''No ReStInG'', examination of nodes (No), resection margins (Re), clinical stage (St) and investigation on grade (InG) are still principal factors for therapeutic decisions.

Methods. Reporting of these 4 parameters was evaluated in the Czech National Cancer Registry (since 1977, 1.5 million cases) in few frequent cancer diagnoses from last completed years 2004–2005.

Results. Among 14 Czech regions N status varied in wide range: 12–33% in colonic carcinoma, 3–13% in malignant melanoma. Parameters R0, R1 or R2, were unreported in 6% of breast, 12% rectal, 18% bronchogenic, 38% pancreatic and 50% hepatocellular carcinomas. Stage was missing in 7% of melanomas, 10% breast, 15% colorectal, 16% uterine cervix, 18% prostate, 18% renal, 30% bronchogenic, 48% pancreatic carcinomas, and 39% sarcomas. Grading was absent in 23% of breast, 18% colorectal, 24% uterine cervix and 16% bladdercancers and 42% sarcomas.

Conclusions. New molecular markers can be effectively used only if standard classification criteria of malignant tumors are not ignored. No ReStInG abbreviates parameters which also serve as indicators for quality control in surgical oncology.

A080

Chemoresistance of tumor cells in surgical patients with colorectal cancer

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Background. Slovakia belongs to countries with the highest incidence of colorectal cancer in Europe. Despite advances in diagnosis and therapy of colorectal cancer, more than 1500 patients die each year. Choosing of the most effective cytostatic drugs for an individualized chemotherapy based on predictive in vivo tests is becoming a part of clinical practice.

Methods. For the analysis of in vitro sensitivity of colorectal cancer cells to cytostatics we used 5-day MTT (3-(4.5 dimethyl thiazol-2-yl)-2.5-diphenyl tetrasolium bromide) test for its accuracy, simplicity, reproducibility and its price availability.

Results. For the period 2005–2007 was evaluated by MTT test chemoresistance to cytostatics in 66 samples of colorectal cancer. In rektosigmoid part of colon tumor cells had greatest sensitivity to cisplatin, although it is not first line cytotoxic agent. Result of first line cytostatic 5-fluorouracil was comparable with the cisplatin and paclitaxel. Cancer cells were most sensitive to 5-fluorouracil, cisplatin and etoposide in other parts of the colon.

Conclusions. Choosing of the most effective cytostatics for an individualized chemotherapy based on predictive in vitro tests should be made a part of the normal clinical practice in specialized places, at least in cases where the polyresistant and recurrent tumors after prior therapy are present, or cases where the standard treatment is demonstrably ineffective.

A081

Colorectal cancer screening in the Czech Republic – data monitoring of screening colonoscopies

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Background. In the Czech Republic, colorectal cancer was diagnosed in 7828 people and 4183 died because of this disease in year 2006. Although the organized screening programme has currently been running for nearly a decade (introduced in year 2000), the incidence and mortality of colorectal cancer has been stable over recent years.

Methods. In years 2000–2008, guiac fecal occult blood test (FOBT) was offered to asymptomatic individuals aged over 50, followed by colonoscopy in case of its positivity. In year 2009 programme design has been changed. To asymptomatic individuals aged 50–54, guiac or immunochemical FOBT is offered, followed by screening colonoscopy, if positive. In age of 55, there is a choice of either FOBT biannually or primary screening colonoscopy in 10 years interval.

Results. In years 2006–2009, 27,459 screening colonoscopies have been performed (26,622 as FOBT positivity indication and 837 as primary screening colonoscopies). During this period, 8,332 adenomatous polyps (30.3%) have been removed and 1,499 carcinomas (5.5%) have been diagnosed. Perforation has been reported in 11 and 10 cases during diagnostic, respectively. therapeutic procedure.

Conclusions. The Czech Republic established an organized colorectal cancer screening programme, equipped with highly functional information system. In order to achieve higher compliance rate, screening colonoscopy was added as an alternative method.

A082

Hyperthermic Intraperitoneal Chemotherapy (HIPEC) and Cytoreductive Surgery (CS) as treatment of peritoneal carcinomatosis

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Background. Surgery for peritoneal carcinomatosis in our institution, prior to introduction of cytoreductive surgery (CS) and hyperthermic intraperitoneal chemotherapy (HIPEC) in beginning of 2007, was considered only as palliative method, dealing with issues like intestinal obstruction and malignant ascites. Possibility to perform CS in patients with peritoneal spread has a potential to remove macroscopic malignant diseases present intraperitoneally, and combined with HIPEC even microscopic malignancy up to 2.5 mm can be annihilated.

Methods. Twenty-two patients with intraperitoneal malignancy undergone cytoreductive surgery (CS) and hyperthermic intraoperative chemotherapy (HIPEC) between January 2007 and January 2010. Nine patients had adenocarcinoma of colorectal origin, 8 patients had ovarian cancer, and 5 had pseudomyxoma peritonei.

Results. All patients with pseudomyxoma peritonei diagnosis are alive, with mean follow-up time 24.8 months (range: 15–35). In group of patients with adenocarcinoma from colorectal origin, 3 died, resulting in mean survival time 7.6 months (range: 1–16). In group of patients with ovarian cancer, 2 died, resulting in mean survival time 13.8 months (range: 0–31). Two patients died in early postoperative period.

Conclusions. Although HIPEC with CS improves survival, during introduction period higher morbidity and mortality could be expected.

New Technologies

A083

Natural orifice transluminal endoscopic surgery (NOTES) and single port surgery: Our clinical experience

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Background. The aim of this study was to determine the feasibility and technical aspects of single port cholecystectomy (SPC) and transvaginal laparoscopically assisted endoscopic cholecystectomy (TVC).

Methods. During SPC we have used a different single-ports and instrumentations. The steps of the procedures have been the same as conventional laparoscopic cholecystectomies. The first step for TVC was to insert a 5 mm trocar via supraumbilical incision. This port provided the view of the gallbladder and allow the use of working instruments during the procedure. The second trocar and laparoscope were introduced through a posterior vaginal colpotomy. The gallbladder was dissected free from the liver bed using standard 5 mm laparoscopic instruments via supraumbilical port. The dissected gallbladder was placed in a retrieval bag prior to removal through the vagina.

Results. Between November 2008 and December 2009 we have performed 26 SPC and three TVC. The procedures have been feasible in the all patients. There were no intraoperative complications and no conversions to open or standard laparoscopic operations. No postoperative complications were observed. Total operative time ranged between 60 and 75 min. Median length of hospital stay was one day.

Conclusions. The results of our initial experience are encouraging. SPC and TVC are feasible, effective and safe when performed by experienced laparoscopic surgeons.

A084

NOTES transgastric ovarectomy versus laparoscopy in a porcine model

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Background. NOTES represents an alternative approach to surgical procedures in a peritoneal cavity with no trauma to an abdominal wall.

Methods. We developed, practised and mastered an effective transgastric approach to the abdomen and the full thickness gastrotomy closure. An ovarectomy was chosen as a simple intraadominal surgical procedure easily comparable to a com-

mon appendectomy. Ten pigs underwent a transgastric NOTES ovarectomy and Ten pigs underwent a standard three-port laparoscopy, they were euthanized on the 30th POD/postoperative day. Operational stress markers – CRP, WBC and IL-6 levels were measured.

Results. In NOTES group necropsies showed no peritonitis, minor clear exudate in 50% and minor adhesions in 40%. In the laparoscopic group minor clear exudate was in 30% and minor adhesions in 40%. In both groups CRP significantly increased on the 2nd and 7th POD. WBC increased non significantly. Both CRP and WBC normalized after 30 days and differences between the two groups were not significant. IL-6 did not differ in either group from baseline level, which will need further evaluation in this model.

Conclusions. Both groups had similar frequency of minor complications and induced similar degree of operational. Supported by a grant from IGA-NS9994-4.

A085

A novel double endoloop technique for natural orifice transluminal endoscopic surgery gastric access site closure

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Background. Effective and safe access site closure is critical for clinical application of natural orifice transluminal endoscopic surgery (NOTES). The current study evaluated a simple novel technique of gastrotomy closure.

Methods. Endoscopic closure of a gastrotomy incision was evaluated in 10 pigs in a survival study. A standard double channel endoscope was advanced into the peritoneal cavity through an incision made by a needle knife and an 18 mm dilation balloon. Following peritoneoscopy and salpingectomy, gastric closure was performed using an endoscopic grasper and sequential application of two endoloops. After a follow-up period of 1–3 weeks, the pigs were sacrificed for postmortem examination.

Results. Correct positioning and delivery of endoloops was achieved in all animals in a median time of 17 min (range: 13–25). All of the animals survived without complications. Postmortem examination demonstrated patent full-thickness gastric closure without any evidence of infection.

Conclusions. Double endoloop technique represents a novel, simple, safe and efficient means of gastric access site closure in NOTES.

A086

Our experience with a single umbilical laparoscopic surgery/SILS of the allimentary tract

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Background. Single incision laproscopic surgery – SILS involves performing abdominal operations with laparoscopic instruments placed through a single umbilical incision. SILS has the potential advantages of reduced postoperative pain, reduced port-site complications and improved patient cosmesis. In this research we present our experiences with SILS cholecystectomy, sleeve gastrectomy and combined operations

Methods. Within 2 years over 100 SILS cholecystectomies were carried out through small skin incision with multiple low-profile trocars. Dissection was performed as a regular retograde cholecystectomy, regular sleeve resection of the ventriculus. Data were collected prospectively and analyzed retrospectively from case notes and the theater database.

Results. A retrospective chart review was performed in over 100 consecutive inpatient SILS procedures. Over 100 cholecystectomies, 2 sleeve resections of the ventriculus and combined procedures-cholecystectomy/appendectomy, revision of the biliary tract or adhesiolysis were done. Outcome measures included need for conversion, operative time, time to oral analgesia, length of hospitalization, cosmetic outcome, and complications

Conclusions. Single incision laparoscopic surgery is efficacious and feasible method for a variety of general surgical conditions, allowing for scarless abdominal operations. We propose a single-incision laparoscopy as a step toward less invasive surgical procedure.

A087

Minimally Invasive Hip Surgery – AMIS

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Background. Advantages of minimally invasive anterior hip approach (AMIS) in total hip replacement (THR).

Methods. AMIS is anterior approach to the hip between m.tensor fascia lata and m.rectus femoris. During 2008 and 2009 we treated 120 patients with THR, 35 with AMIS and 85 with transgluteal lateral approach (control group). In AMIS group 33 patients had procedure due to coxarthrosis and 2 patients due to femoral neck fracture. Early postoperative complications and functional status are followed by Harris Hip Score (HHS).

Results. In AMIS group there were no infections or hip luxations. In control group 1 early hip luxation, 2 skin infections and 3 seroma appeared. Operation time was the same in both groups but blood loss was lesser in AMIS group than in the control group. AMIS group had 1 patient with postoperative knee pain, 1 with fractured tip of a greater trochanter, 1 with acetabular overreaming and 4 with parestesia of lat. femoral coutaneous nerve. Generally AMIS group was more satisfied, demanded less analgesics and rehabilitation was faster. AMIS group HHS after 2 months was 80 compared with 69 (control group) and after 4 months 92 compared to 88.

Conclusions. AMIS take precedence over other approaches in total hip replacement due to less soft tissue damage, less postoperative blood loss and better cosmetic effect. It allows early and rapid rehabilitation minimizes postoperative pain and trochanter problems.

A088

Diagnosis of scirrhous carcinoma of the stomach aided by impedance planimetry

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Background. A novel functional imaging probe (EndoFlip) uses impedance planimetry to assess distensibility of the esophagogastric junction (EGJ). We report a case where this device helped to establish a diagnosis of a scirrhous carcinoma of the stomach. A 84 year old male patient presented with weight loss and dysphagia. No abnormality was encountered during endoscopy and a computed tomography (CT) of the abdomen and chest. Achalasia was ruled out by manometry.

Methods. A bag mounted on a catheter is positioned at the EGJ and filled with a liquid of defined conductivity. Impedance measurements inside the bag relate to the cross-sectional areas (CSA) over a length of 8 cm. Intrabag pressure, CSA and estimated diameter are recorded in real time and displayed on a screen.

Results. 30 ml distensions resulted in a mean smallest CSA of 25 mm^2 at an intrabag pressure of 54 mmHg. EGJ diameters <10 mm were recorded over a length of 3 cm. Distensibility of the EGJ was severly compromised compared to healthy volunteers (0.46 mm^2/mmHg vs. 8 ± 2 mm^2/mmHg). An intramural neoplasia was suspected. Laparoscopy with multiple biopsies of the gastric wall and peritoneum established a diagnosis of scirrhous carcinoma of the stomach (G3 T4N1M1).

Conclusions. Impedance planimetry results were decisive for suspecting a neoplasia despite negative endoscopy and CT results. Severly impaired EGJ distensibility may indicate an occult neoplasm.

A089

Clinical ethics as an intrinsic value of contemporary surgery

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Background. Contemporary medicine also requires contemporary ethics. The surgical environment is becoming more complex. The scientific-technological progress simply imposes new categories of the surgeon-patient relationship. There is an emerging need for a redefinition of this relationship and allocation of responsibilities.

Methods. Literature review.

Results. In the past, there was an accepted opinion that sufficient medical knowledge and technical skills are enough guarantee that the final decision on what is medically indicated would be accurate. However, a clinical evaluation always includes in itself a set of values or norms outside the frame of medical-technical values. Namely, each medical, especially surgical decision includes in itself the ethical component, as well as the medical-technical component.

Conclusions. Exactly clinical ethics offers an adequate frame for making surgical decisions ethically accurate. Especially today, the question: ''Is surgery an art or a technology? Is it a humanistic enterprise with a scientific-technical component, or a scientific-technical enterprise with a humanistic component?'' becomes more prominent. Surgery which at the same time attempts to be honorable, balanced, accessible and unbiassed must constantly reflect on its ethical principles: beneficence, non-maleficence, justice, and autonomy.

A090

Intraperitoneal continuous negative pressure

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Background. This pilot study was performed for future surgical peritonitis therapy.

Methods. To create an intraperitoneal negative pressure, a Jackson drainage was wrapped into wound gaze and surrounded by a new designed perforated foil to create a kind of patch to lay on operative treated locations such as post cholecystectomy liver bed, pancreas surface, colon anastomosis, bowel anastomosis. Four patches were positioned with parts of them on treated areas, parts on untreated organ surfaces. After closing of the abdomen, negative pressure was applied over 8 hours continuously on all 4 drains. Thereafter, organs were removed for histological studies and fotodocumentation.

Results. Wound just was collected continuously from all 4 drainages. No observation of anastomosis leakage, no fistulas, no ischemic signs of the treated tissues. No difference was observed between treated and non treated areas of patch suction. The tissues out of the patches showed minimal lower extravascular effusion.

Conclusions. By the animal model the system for intraperitoneal negative pressure therapy was demonstrated to be save and ready for human therapy use.

A091

Video-assisted thoracoscopic surgery in treatment of spontaneous pneumothorax – our experiences

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Background. Spontaneous pneumothorax (SP) represent sudden and unexpected air collection in the pleural space resulting lung collapse usually caused by congenital abnormality and, rarely acquired lung diseases. The aim of this study is to identify surgical outcome of minimal invasive approach using video-assisted thoracoscopic surgery (VATS) in treatment of SP.

Methods. This is a retrospective clinical study conducted on 260 consecutive patients treated by VATS due to spontaneous

pneumothorax in University Department of Surgery, Clinical Hospital Split, Croatia, in period between May 1996 and December 2009. Patients characteristics, type of surgery, complication rate and final surgical and functional outcome were analyzed. Median follow-up was 36 months.

Results. VATS was used in all patients, where bullectomy or wedge resection with or without pleurodesis/pleurectomy was performed in most cases. Conversion to standard thoracotomy was required in 5 patients (1.9%). Altogether 20 patients (7.7%) needed a reoperation. Twelve patients (4.6%) were reoperated within one month from surgery, most often due to prolonged air leakage (10 patients, 3.8%) and bleeding (2 patients, 0.8%). Ten (3.8%) patients were reoperated because of recurrent pneumothorax, in average 17 months (range: 1–40 months) after the primary operation. Functional effects of VATS procedure was very satisfactory to excellent.

Conclusions. Nowadays VATS procedure is a golden standard in primary treatment of SP. It is both safe and effective procedure with minimal complication rate and excellent functional effects.

A092

Device for subcutaneous stitching of surgical wounds

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Background. The device is meant for the stitching of surgical wounds by subcutaneous technique and completely replaces classical way of surgical stitching.

Results. The technical realization of this device is performed through the prototype of the device, which was used in several experiments on the animals/10 of them/with success.

Conclusions. The device consists of two parts connected by guiding parts on which they slide when closing and fixing on the wound. The parts have wavy surface on the inner side, made of convex and concave contours, with guiding needles, penetrating each other and making wavy area where the edges of the wound are being pressed into a line identical to the wavy surface. After closing the device, the guiding needles and wavy surface round and transfer wavy space into a narrow virtual straight line through which runs straight surgical needle with suture, leaving behind straightly positioned suture. After opening the device, the wound returns into the straight position, and suture is positioned in a snake-like wavy course, which is the essence of the invention. By tightening of the suture on both sides, the edges of the wounds are drawn close and the stitching is completed.

A093

The DaVinci Robot System in esophageal and general thoracic surgery

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Background. Robotic surgery is an emerging field. Since its introduction in our department in 2001, all types of ''classic'' laparoscopic and thoracoscopic operations have also been performed using the DaVinci operation robot system.

Methods. In total 186 operations have been performed using the DaVinci operation Robot System. Ninety-nine out of them were general thoracic surgeries consisting of esophageal, mediastinal and pulmonary operations.

Results. Until recently, 32 thymectomies, 10 mediastinal tumor resections, 16 esophageal resections, 15 fundoplications, 8 Heller myotomies and 22 lobectomies have been performed. Perioperative and postoperative results will be discussed, with a critical assessment of the pros and cons of robotic assistance in the respective operations.

Conclusions. In minimal invasive thymectomies and in Heller-myotomies, the application of the DaVinci operation Robot provides a significant benefit. In selective situations, the DaVinci operation Robot System can be advantageous in lung resections and esophagus resections. There is no proven benefit in standard antireflux surgery.

A094

Technical aspects of surgical procedures: resection and reconstruction of the upper segment of the alimentary canal

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The improvement of the quality of life of patients following upper gastrointestinal tract cancer resections depends mainly on the appropriate reconstruction method. Based on a multi-center experience we will discuss different methods of resection and reconstruction of the gastrointestinal tract following esophagectomy, gastrectomy, pancreatoduodenectomy and also biliary duct resection. Oesophageal cancer located below the trachea bifurcation requires a transhiatal esophagectomy and also a video-assisted lymphadenectomy is suggested. Gastrointestinal tract continuity is usually restored by a substitute formed from the stomach. The extensive gastric cardia cancer is also problematic, for which we suggest a two-stage procedure: esophagectomy and gastrectomy during the first stage followed by radiotherapy and chemotherapy. The restoration of gastrointestinal continuity is made with the use of the distal part of the ileum and the right colon during the second stage. The methods and techniques and technical details of esophago-jejuno anastomosis will be discussed. The methods of biliary anastomosis and gastrointestinal tract reconstruction following pancreatoduodenectomy conducted at our Department will be presented as well.

A095

Laparoscopic liver resection literature survey and own experience

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Background. Initially laparoscopic liver resection was described for peripheral, benign tumors resected by nonanatomic wedge resections. Today, minimally invasive liver resections are being performed for malignant tumors even in challenging locations.

Methods. Prospective study and literature research.

Results. Laparoscopic liver resection for primary and secondary tumors was carried out at the Department of Surgery, PMU Salzburg, 2009 in 12 patients. Majority of cases were wedge resections but also anatomic left lateral sectionectomy and segmentectomies. R0 resection was achieved in all cases. Postoperative morbidity was 12% and mortality 0%, conversion rate 0%. A recent review accounted for 2804 reported minimally invasive liver resections. Fifty percent for malignant tumors, 75% were performed completely laparoscopically. The most common type of resection was a wedge resection or a segmentectomy (45%) followed by anatomic left lateral sectionectomy (20%) and right hemihepatectomies (16%). Conversion occurred in 4.1%. Mortality was 0.3% and morbidity 10.5%. Postoperative bile leak was reported in 1.5% of cases. Negative surgical margins were achieved in 82–100%. Survival rates are comparable to open hepatic resection.

Conclusions. Our results correlate with the international literature. Laparoscopic liver resection is feasible and save although selection of patients is crucial.

A096

Technique of hepaticojejunostomy in reconstruction of major bile duct injury – our experience

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Background. We present our experience in performing hepaticojejunostomy in patients with major iatrogenic bile duct injuries (BDI).

Methods. Two hundred and twenty procedures were performed in 202 patients between 1970 and 2008. The preferred method in the reconstruction of the common bile duct is anastomosing bile ducts with a prepared Roux-en-Y jejunal limb which we performed in 150 our patients. An essential condition for the sustainable success was creation of wide atleast 15 mm opening in the bile duct in the place of anastomosis. In 35 cases we used the Hepp technique. The posterior layer of anastomosis was finished with continuous suture by approximation of intestinal wall and bile duct only after the full line of suturing was placed. The anterior layer of the anastomosis was finished with interrupted sutures tied with knots on the outside. Both layers of sutures were done with Maxon 4-0 or 5-0 and the lines of sutures were additionally enforced by circulating sutures along the jejunal opening.

Results. Detailed results will be presented in oral presentation. In case of redo hepaticojejunostomy in 26 patients we used a newly incision opening anastomosed with the previously prepared Roux limb. Strictures within anastomosis followed in 18 cases (12%). Reoperations due to strictures were successful in 11 on 16 cases.

Conclusions. Hepaticojejunostomy with wide anastomosis is highly effective solution in treatment of BDI.

A097

Effects of ultrasonic and wersajet hydrosurgery debridement on bacterial burden

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Background. Venous leg ulcer in Europe occurs with an incidence of approximately 2% of the total population. One of the basic therapy is treating wound bed – removing a necrotic and fibrin tissue. Beside classic debridement methods there are two kinds of mechanical debridement – ultrasonic and hydrosurgery debridement.

Methods. We formed two groups of ten patients with chronic leg ulcers in each group. In first group debridement were performed using ultrasonic debridement equipment, and in other group with hydrosurgery debridement equipment. Ultrasonic assisted wound treatment system Söring Sonoca-185 equipment and Smith & Nephew Versajet Hydrosurgery System were used. Before treatment wound tissue biopsy were taken from three wound sites for microbiological examination and measuring of viable bacterial number (CFU). The same procedure was performed immediately after debridement.

Results. Analysis of results showed that viable bacterial number in wound tissue significantly decrease in both group. In 35% there were no bacteria in biopsy, and in other cases CFU were decreased in average of 75%.

Conclusions. Mechanical debridement, when is painstakingly performed, not only remove necrotic and fibrin tissue, it's also significantly reduce viable bacterial number in wound. This results in reduced antibiotic administration and creating adequate environment for wound healing progress.

A098

Experience of V.A.C. abdominal dressing use in large series of patients with open abdomen following secondary peritonitis

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Background. Use of negative pressure therapy (NPT) as a temporary abdominal closure (TAC) technique has increased dramatically during the past decade. Authors retrospectively reviewed consecutive records from five different surgical departments to evaluate mortality rates of patients who received NPT of open abdomen following severe secondary peritonitis.

Methods. Records were divided into three different groups according to method of TAC: 1) NPT conventional dressing (V.A.C. Therapy via conventional dressing; CV), 2) NPT via specialized (V.A.C. Abdominal Wound Dressing; VAWD) and 3) open packing techniques (OP). Patient demographics, number of days in ICU, and mortality were recorded and analyzed. Authors also developed an algorithm to guide use in this patient population.

Results. Medical records of 239 patients were analyzed. The APACHE II score was significantly higher for the VAWD group.

Conclusions. NPT is a safe and viable tool in open abdominal wound management following severe diffuse peritonitis.

A099

Management of severe peritonitis by primary use of vacuum assisted closure reduces mortality and morbidity

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Background. Severe peritonitis is connected with high morbidity and mortality (20–60%). Treatment by re-laparotomy or laparostomy might be necessary to eliminate persistent peritonitis. The Vacuum Assisted Closure (V.A.C.) laparostomy is a new technique that combines advantages of laparostomy and closed system with an active suction. There are no evidence based recommendations how to use the system. The aim of our retrospective study was to compare two groups where the laparostomy was used primarily or later after the pursued indication.

Methods. Totally 35 pts. (13 W/22 M, age 59 years) with severe peritonitis were treated by V.A.C. laparostomy in between years 2008–2009. The peritonitis was classified as severe secondary in 14 (40%) or tertiary in 21 (60%) pts. V.A.C. was used primarily in 17 patients (49%) – group A and late in 18 (51%) – group B.

Results. Mean hospital stay was significantly shorter (39 vs. 62 days) as well as the mortality was lower in group A (35.3% vs. 50.0%). The fascial closure was possible more frequently in group A (35% versus 22% of pts).

Conclusions. Primary V.A.C. laparostomy reduces mortality within patients with severe peritonitis, reduces hospital stay and allows higher fascial closure rate. It is necessary to carry out a prospective randomized control trial improve therapeutical algorithm of severe peritonitis. Study is supported by Internal Grant Agency of Ministry of Health (NS 10466-3).

A100

The impact of V.A.C.-instill TM in severe diabetic foot infections

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Background. Neuropathic ulcers or minor trauma often leads to severe or limb threatening infections in diabetics. Main principle of infection surgery has always been radical debridement. Ubi pus, ibi evacua, often cited in medicine is not enough. Infection control can be difficult or even impossible in case of insufficient debridement or persistence of bacteria.

Methods. The V.A.C.-instill® enables a 3 stage-working cycle. Vacuum therapy/instillation of antiseptic fluids/time to reaction. We have always been using Polyhexanid (Lavasorb®) for instillation. Eight patients with severe diabetic foot infections as a part were included in a prospective study of 100 patients in a Multicenter Trial, treated with V.A.C. instill because of orthopaedic implant or soft tissue infections. One thing was equal in all patients. Debridement and following plastic surgical procedure seemed to be insufficient for infection control, or time to closure seemed to be to early. Instillation time directly depended on wound size. Time of therapy lasted at least 4 days, at most 12 days. Dressing changes were performed every two to four days. Surgical closure was performed by direct secondary suture, skin grafting or flap surgery.

Results. In all cases infection control and complete healing was achieved, despite of incomplete debridement and long lasting open Charcot joints.

Conclusions. We believe the V.A.C.-instill® to be a useful tool for infection control and limb salvage in severe diabetic foot infections and in case of impossibility of totally debridement. Early defect coverage and hospital discharge could be cost-effective.

Education and Publishing

A101

Surgical education in era of evidence based medicine

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Background. Surgery is setting a new round by the reign of evidence that was brought up by the EBM. Surgeons are mostly reluctant to it and acceptance is very slow, but begun to gain popularity in surgical journals and practice.

Methods. While experience of an expert counts the least by the principles of EBM, randomized controlled trials and other comparative studies gained their importance. Recommendations included in guidelines represent demanding shift in surgeon's professional thinking, but there is no such in surgical education.

Results. Classical education is very much master – apprentice centred and more eminence than evidence based. If experience came from bad clinical decisions and is today slowly moving towards principles of EBM, surgical skills training remains almost the same for centuries. Learning in operating room leaves little opportunity for practice and reflections. Laparoscopic surgery brings training simulators and insured learning of technical skills, there is still other important interpersonal skills to learn, such as communication, decision making and leadership.

Conclusions. Surgical trainees rarely ever receive any feedback on their nontechnical or team skills, despite it importance in patient safety. There is a problem in objective assessment and structured feedback. Aviation experiences point out importance of open communication lines and cross checks, which are mostly pivot of error.

A102

New technologies in teaching abdominal surgery

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Background. Preparation of masters in surgical areas of medicine puts very high demands on the skills and technology operations. The solution to this problem is possible only subject to a large number of independent operations under the supervision of a teacher, which is possible only if the introduction of modern casts and the development of alternative available methods of training.

Methods. Our method of training is to use animal organs (pigs, sheep) installed in special devices, which are almost completely mimic the abdominal organs of man. We have developed and successfully tested in the preparation of master operation trauma of abdominal organs, bowel resection and gastric limphodissection, formation gastrostomy and others. Recent developments pertaining to the creation of devices to perform laparoscopic surgery on the esophagus and stomach.

Results. The introduction of alternative teaching methods in the masters program has significantly increased the digestibility of practical skills from 60 to 95%, with a survival rate of m knowledge rose from 45 to 90%. Advantage of the method is the possibility of learning on an individual basis, learning some skills at home.

Conclusions. Alternative teaching methods using isolated organs of animals in our method is quite simple and effective way to prepare novice surgeons.

A103

Upgrading of surgical training programmes in Slovenia

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Background. All different surgical specialties have their own 6-year training programmes with 2-year common trunk. In compulsory 6-year period 670 operative procedures should be carried out by each trainee. This number is frequently not achieved for various reasons.

Methods. Slovenian surgical association appealed to enlarge 2-year common trunk because of general hospitals' interest. University medical centres demand subspecialised experts during 24-hour service, general hospitals need widely experienced general surgeons during night shift.

Results. Task force for upgrading of surgical training programmes studied European models and proposes 2-year common trunk, 2-year general surgery training and 2-year education in subspecial field. Each 2-year step represents minimal period for compulsory education with defined number of executed operations by trainee and with final examination needed to continue with training at next level. Professional surgical societies will carry out workshops for defined surgical skills and knowledges like FAST, fracture fixations, use of stappling devices, endoscopies, minimal invasive surgical techniques, surgical anatomy, etc.

Conclusions. Tasks and responsibility of trainee's mentor should be redefined. Catalogue of knowledges and skills should be upgraded because of continuous scientific development and old-fashioned procedures should be eliminated from list.

A104

Learning portfolios in undergraduate surgical education: our early experience

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Background. Time constraints on teaching and evaluation of students continue to alter the ways in which medical knowledge is imparted and assessed. A possible tool for students to record their accomplishments, reflect on their experiences and gain formative feedback are portfolios.

Methods. In September 2009, we began a program to encourage students to develop a case-based portfolio to document their experience and demonstrate acquisition of knowledge in caring for a variety of surgical diseases during undergraduate surgical course.

Results. In this work we describe this approach and provide an early analysis of its effect on our curricular learning outcomes achievements and acceptance of the system by the students by analysing data from students' survey and evaluation by faculty.

Conclusions. Our early analysis of its impact demonstrates a positive effect across many learning outcomes, and survey analysis revealed that students have a positive view of this learning tool. The role of the teacher is crucial to the success of portfolios. As the portfolio is further incorporated into the educational program, we believe that our students will discover portfolio especially suited for development of reflective skills and self-directed learning.

A105

Pediatric surgeon's satisfaction with profession and education

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Background. Survey was performed to identify factors strongly associated with pediatric surgeon's career satisfaction, and to identify risk factors for dissatisfaction.

Methods. A national survey was performed during 2009. General Assembly of CSPS. All convention attendees completed the 37 questions form.

Results. The response rate was 74.5%. Average age was 46 years, and 91% were male. Average participant has 17 years of practice, work 208 hours monthly, Pediatric surgeons are satisfied with professional career (77%), and 88% will chose same profession again. Patient satisfaction (85%), quality of care (79%), and professional achievements (76%) are rated very high. Dissatisfaction responders pointed at shortage of time for effective communication with patients (poor – 69%). Other dissatisfaction factors are organizational; administrative work (88%), working hours (73%), professional burn-out (66%) and technical issues; IT technology (79%) and equipment (73%) out of date, old/unsuitable facilities (73%). During 2008 57% responders presented paper on international congresses, and 32% published paper in indexed journal. Two major concerns about education are insufficient training 61% and lack of time for continuous education 79%.

Conclusions. Pediatric surgeons are satisfied with professional career. Patient care/helping other issue is leading area of satisfaction. Study identified some educational problems.

A106

Aesculap academy education in clinical hospital ''sestre milosrdnice''

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Background. Authors had shown founding and work of Aesculap Academy, first educational center of that kind in our region, which works under the same principles in fifty countries worldwide and holds around thousand endoscopic courses yearly. In the year 2009 fist basic course of Aesculap endoscopic surgery has been held among first participants, from Croatia and surrounding countries.

Methods and results. In our laboratory you can find most up-to-date endoscopic educational equipment set up on 5 different working points; all that have conditions for manual training and complete endoscopic operations. Training is done on freshly prepared swine organs as on specially prepared swine bodies. That part of education is prepared in cooperation with Veterinary faculty of Zagreb University. Further program of endoscopic training will include practical workshops, seminars, training practices and procedures but also a real operations procedure in operating halls.

Conclusions. Aesculap Academy future plans are to hold, except of endoscopic surgery, practices and courses in endoscopic surgical gynecology, urology and neurosurgery.

A107

Best practice in surgical publishing

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Background. In modern medicine a ''good'' publication list is generally taken as a sign of professional excellence, which paves the way to grant applications or job appointments. This notion is also valid to surgery, as the reputation of a surgeon is judged not only by the quality of operations, but by the value of his publications, worldwide.

Methods. Publishing is crucial final step in science; the sharing of newly collected information (to confirm, improve or disprove established knowledge) is one of the most important components of the scientific method. Yet, despite this fact many young surgeons have week training and expertise in scientific methodologies, and consequently in biomedical publishing.

Results. This lecture is intended to give a realistic analysis on this situation, partly based on data collected from characteristic scientific journals, summarizing some of the frequent problems (including excessive specialization), and trying to convince the audience that a multidisciplinary approach is really necessary for scientific advances, where clinical surgery and theoretical medical branches are in complementary relation to one another.

Conclusions. If this is true, there should be many practical possibilities to acquire the essential skills for surgical sciences and biomedical publishing – similarly to best clinical practice, where perfect knowledge of anatomy and careful planning underlie all flawless operations.

POSTER

Gastric Surgery

P001

Influence of intra-abdominal pressure and early enteral nutrition on postoperative course in patients with pylorostenosis

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Background. Enteral nutrition (EN) is often used in surgical patients. Our objective was to evaluate the relationship between EN tolerance and intra-abdominal pressure (IAP).

Methods. A total of 32 patients suffering gastric cancer complicated by pylorostenosis were enrolled prospectively. All of them partial gastrectomy with Roux-en-Y reconstruction was performed. APACHE II score, IAP and abdominal perfusion pressure (APP) were recorded at admission in the intensive care unit after operation. Every four hours the following were recorded: IAP, APP, ml/h of administered diet, diarrhea, vomiting, EN formula, high gastric residuals, need for temporary stop of the EN.

Results. All of patients were divided into two groups. The mean first IAP recording before commencing EN was 7.15 ± 1.82 mmHg in group 1 and 9.9 ± 1.3 mmHg in group 2 respectively. High gastric residuals – 26%, vomiting – 36% and diarrhea – 13% were the main gastrointestinal complications in

group 2 and nausea – 17% in group 1 respectively. When EN had to be stopped because of intolerance IAP 11.1 ± 1.7 mmHg was recorded in group 2. All of patients in group 1 had good EN tolerance with stable level of IAP – 7.15 ± 1.82 mmHg. The level of postoperative complications was significantly higher in group 2.

Conclusions. IAP measurement in surgical patients receiving EN can be used to monitor diet tolerance and for prognostic assessment of postoperative course.

P002

A case of esophageal cancer with Nonrecurrent inferior laryngeal nerve treated by esophagectomy with three-field lymph node dissection

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Background. A Nonrecurrent inferior laryngeal nerve (NIRLN) is a rare anomaly. The right subclavian artery normally arised from the brachiocephalic artery. Variations in its anatomy are rare. An aberrant right subclavian artery arising from the aorta is a rare deperopement. This anomaly suggested that the right inferior laryngeal nerve branched directly from the vagal trunk.

Methods. We present the case of 59-year-old woman with thoracic esophageal cancer.

Results. Retroesophageal right subclavian artery (RRSA) was detected preoperatively by computed tomography. We conducted transthoracic esophagectomy with three-field lymph node dissection. Perioperatively, we recognized the right subclavian artery originated from aorta and passed between the esophagus and the vertebral column. The right recurrent nerve was not identified at the right subclavian artery during upper mediastinal lymph node dissection, but we recognized NIRLN was branched off the vagus nerve at the level of lower third of the tyroid during neck lymph node dissection. Thoracic duct drained into the right venous angle.

Conclusions. Because the RRSA is associated with the NIRLN and sometimes aberrant course of thoracic duct, preoperative recognition of this anomaly is important for the prevention of accidental complication during operation.

P003

Breast lobular carcinoma given metastases to gastrointestinal tract: Diagnosis and therapeutic approaches

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Background. The incidence of gastrointestinal tract metastases from breast cancer has been reported to be 6% in patients suffering from breast cancer.

Methods. Seven patients with breast cancer metastasis to the stomach were identified in a period of 5 years (2003–2008). Histopathological data, surgical and adjuvant treatment options and survival were evaluated.

Results. The median interval between the primary breast cancer and the gastric involvement was 51 months. Computed tomography findings revealed encasement of the whole stomach or multiple lesions of the gastric wall. All the patients underwent surgical intervention including total or subtotal gastrectomy with D2 lymphadenectomy in 5 patients and in 2 gastric by-pass surgery. The histological findings confirmed estrogen receptor and cytokeratin 7 positivity. All the patients received chemotherapy and 2 were treated with hormonal treatment. The response rate to chemotherapy was 57.1% (2 complete response and 2 partial responses). The median survival was 14 months.

Conclusions. A high index of suspicion for breast cancer metastasis to the stomach should be maintained when recurrent gastrointestinal symptoms appear in patients with a previous diagnosis of lobular breast cancer. Histopathological findings are essential for the diagnosis. Surgical interventions combined with systemic chemotherapy constitute the appropriate treatment options.

P004

Gallstone ileus: A controversial issue regarding treatment options and clinical outcome

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Background. Gallstone ileus occurs as a rare complication of cholelithiasis. It accounts for 1–4% of mechanical bowel obstruction and is associated with high morbidity and mortality rates in elderly. The aim of our study is to evaluate different surgical treatment options and the clinical outcome.

Methods. In a period of 6 years, 11 patients were treated in our hospital. Patients history, operative strategy and the clinical outcome were evaluated.

Results. The mean age of the patients was 74 years of age. The median duration of symptoms of was 4 days. Preoperative diagnosis was established by abdominal X-ray, ultrasonography, and computed tomography. In 9 patients the surgical approach included enterolithotomy alone, and in 2 one-stage procedure was performed including enterolithotomy, cholecystectomy and closure of the fistula. The mean size of the stones was 3.5 cm. Both the patients treated with one stage procedure died while 1 out of 9 patients died in enterolithomy treated group.

Conclusions. Gallstone ileus remains a controversial issue concerning decision making. Treatment of gallstone ileus should be individualized. The one-stage surgical approach should be reserved for those patients with good cardiorespiratory reserve and with clear indications for biliary surgery once the diagnosis has been established.

P005

A case of a resection for relapsing lymph nodes and a new recurrence in a distant lymph node after CR of chemotherapy for esophageal cancer

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Background. It is important to perform aggressive surgery for local cancer control.

Methods. We show the case of a resection for relapsing lymph nodes and a newly developed recurrence in a distant lymph node after a complete response of chemotherapy for esophageal carcinoma.

Results. A 35-year-old male complaining of dysphagia visited the referral hospital in March 2006. The diagnosis was esophageal squamous cell carcinoma. Computed tomography (CT) revealed lymph node metastases along the lesser curvature of the stomach and abdominal para-aortic region. The TNM classification was T3N1M1b, StageIVB. Therefore, he was initially treated with chemotherapy using 5-fluorouracil and cisplatin. The response to chemotherapy was a complete response. In September 2006, CT revealed a regrowth of the para-gastric node with invaded stomach and pancreas. He was referred to our hospital for further treatment in November 2006. A lower esophagectomy and total gastrectomy with concomitant resection of distal pancreas and spleen via the left thoraco-abdominal approach were performed. In July 2008, CT revealed left cervical lymph node swelling. Therefore, we performed thie lymph node dissection. He is doing well with no recurrence now.

Conclusions. This case may show the advantages of aggressive surgery for relapsing or recurrent local metastasis after a complete response of chemotherapy for advanced esophageal squamous cell carcinoma.

P006

A "strange" gastric tumor

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Background. Trichobezoars arise from aggregation of ingested hair with other indigestible organic fibers. Trichotillomania, the practice of habitually pulling hair out, in association with habitual ingestion of hair (trichophagia) can predispose to the formation of trichobezoars.

Methods. We present a case of a 28 years woman who was admitted in our clinic for abdominal pains, nosia, weight loss. The clinical exam revealed an abdominal mas in the upper part. The lab parameters was normal excepting a mild anemia and hipoproteinemia. A CT-scan of her abdomen showed a markedly distended stomach with a centrally located soft tissue abnormality.

Results. The patient underwent exploratory laparotomy and gastrotomy. We found an intragastric mass made by hair. The trichobezoar was removed intact as a firm black mass and it was confirm by the mycroscopic exam. The patient's post-operative course was uneventful and she was discharged after 7 days of hospitalisation. We sugested the psychiatric counseling.

Conclusions. The trichobezoar appear at young people with psychiatric disorders – due to its dimensions, the only treatment is the open surgery – the after surgery course is favorable and needs psychiatric counseling.

P007

The opportunities of diagnosis and treatment of the benign strictures of extra-hepatic biliary ducts

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Background. The treatment of benign strictures (BS) of extrahepatic biliary ducts (EBD) presents a difficult page of biliary surgery.

Methods. During 1980–2009 years 210 patients were treated. The diagnosis algorithm of BS of EBD included a few consequence steps: I step – biochemical testing US, II step – bile tree contrasting directly by ERCPG/CT/cholangiofistulography. In the cases with difficulties in diagnosis MRI in regimen of

Results. Surgical treatment of BS of EBD was in direct ratio with the level of localization. For BS Bismuth I type 58 (27.6%) of cases were optimal termino-lateral choledochojejunoanastomosis on the Y loop by Roux. In situation of BS of II type at 80 (38.1%) of cases was performed choledocho- and hepatica-jejunostomy on the Y loop by Roux. In 60 (28.6%)cases of BS of type III termino-lateral hepaticojejunostomy on the Y loop by Roux and transanastomotical separate drainage of biliary ducts was realized. In BS of type IV at 12 (5.7%) of cases the restoring of bile flux in digestive tract was realized via bi-hepaticojejunostomy on the loop by Roux with transanastomotic's drainage of hepatic ducts. The postoperative lethality was of 6(2.9%) cases.

Conclusions. The optimal solution is derivation on the loop by Roux that completely excludes the digestive reflux in the biliary tree and prevents the late postoperative stenosis.

P008

Laparoscopic resection of gastrointestinal stromal tumors (GIST): Could it be effective?

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Background. Surgical resection is still the mainstay of treatment of GIST. All GIST have to be treated as potentially malignant tumors. The tumor diameter, along with mitotic rate, correlates with the risk of spreading disease. Resection needs to ensure complete removal while lymphadenectomy is not required. When technically feasible, laparoscopic resection is proposed.

Methods. We report 3 cases of gastric GIST submitted to laparoscopic resection.

Results. First patient was a 42-year-old woman with an ulcered bleeding submucosal lesion, 4.4 × 6.8-cm, arising from the mid gastric body. She was submitted to laparoscopic partial resection with subsequent diagnosis of intermediate risk gastric GIST. In the second patient, a 63-year-old woman, a 3-cm posterior lesser gastric curvature neoplasm was discovered during routine follow-up for breast cancer. Laparoscopic resection revealed a low risk gastric GIST. In the third patient, a 61-year-old man, a 7-cm fundic posterior gastric polyp, suspicious for GIST after endoscopic ultrasonography, was diagnosed preoperatively. At laparoscopic removal an intermediate risk gastric GIST was confirmed. No postoperative complications were observed and all patients are alive and disease free.

Conclusions. We still need more cases to optimize laparoscopic surgery indication, alone or in combination with tyrosine kinase inhibitors, Imatinib and Sunitinib, as adjuvant or neoadjuvant therapy.

P009

Recidivant gastric carcinoid tumor – Case report

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Background. The gastric carcinoid tumor is an uncommon histopathologic kind of tumor and the gastric localization represents only 3% of all carcinoids.

Methods. We present the case of an 50-year-old woman, who was admitted in our clinic in February 2007 with: asthenia, weigh loss (9 kg/3 months), epigastric pain and intermittent episodes of perspirations with facial rush, and diarrhea. All laboratory results revealed macrocitar anemia and high rate of blood sedimentation. The upper endoscopy presented a submucosal tumor, near cardia of 1 cm diameter. The histopathological exam confirmed the final diagnosis: gastric carcinoid tumor.

Results. In March 2007, in Surgical Clinic it was performed the tumor resection, with post-surgery course uneventful. The endoscopic control, after one year of evolution, which consist in conventional upper endoscopy and the magnifying gastroscopy with precised biopsies, revealed another submucosal tumor of 0.5 cm. In march 2008, the histopathological exam, reconfirmed the diagnosis of gastric carcinoid tumor. That diagnostic imposed the gastric resection.

Conclusions. The relapse of gastric carcinoid tumor, without metastasis, imposed a radical therapeutic decision – total gastric resection.

P010

Quality of life after gastrectomy for gastric cancer: A long-term result

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Background. This study was performed to identify the long-term results of quality of life after a distal subtotal gastrectomy and a total gastrectomy for gastric cancer.

Methods. The Korean versions of the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire and QLQ-STO22 questionnaire were used to assess quality of life of 166 patients during the 5th annual follow-up after surgery.

Results. The scales of global health status and quality of life did not show significant difference between two groups ($p = 0.407$). Functional scales, symptom scales/items and financial difficulties did not show significant differences between two groups. Gastric cancer specific scales did not revealed significant differences between two groups.

Conclusions. The quality of life long after a total gastrectomy was not significantly worse than that after a distal subtotal gastrectomy. Therefore, extent of gastric resection should be determined not by the postoperative quality of life but by the oncologic curability and safety of surgery.

P011

Case-report: GIST with positive parameters of malignancy treated surgically alone

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Background. GISTs are the most common tumours of the mesenthelyal origin in the GI tract and make approximately 3% of all tumours of this localisation. Assessment of tumour malignancy is based on the Guidelines, which appear to be unreliable, and this case-report is additionally aimed at pointing at that fact. Namely, every GIST can recur or metastatise irrespectively of assessment.

Methods. A 52-year-old male, was admitted to the our department for elective surgery. The patient had been evaluated on an out-patient basis for weight lost despite an abdominal volume expansion, rapid exhaustion and intolerance to larger amounts of food. Abdominal CT showed an oval tumorous mass with a central cyst 22 × 20 cm in size, adhering to the posterior ventricular wall with no metastases. Explorative laparotomy was performed without complications.

Results. At surgery a well defined mass was removed and sent for a histopathological examination which indicated a GIST.

Conclusions. Croatian and German oncologists were consulted. In spite of the fact that the mass had 4 positive predictors of malignancy, it was decided that the patient would not be treated adjuvantly and that regular follow-up examinations would be sufficient. At the last follow-up five years after the surgery, neither local recurrence nor distant metastases were

detected. The patient is still without complaints, and his condition is assessed as satisfactory.

P012

Our experience with double tract reconstruction after total gastrectomy in patients with gastric cancer

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Background. After total gastrectomy it is necessary to realize reconstruction of the upper part digestive tract. The double tract (DT) method is the optimal reconstruction procedure after total gastrectomy for patients with gastric cancer.

Methods. In General hospital ''Sveti Vracevi'' in Bijeljina from January 2006 to 2009 37 patients who underwent a total gastrectomy with a curative resection. In all patients to the esophagojejunostomy, the side-to-end jejunoduodenostomy was performed manually, 35 cm distal to the esophagojejunal anastomosis. The end of the Y limb was anastomosed manually to the side of the Roux limb, approximately 15 cm distal to the jejunoduodenal anastomosis.

Results. In these study were observed early postoperative complications and mortality, postoperative food intake and nutritional status (hemoglobin, total proteins and albumin), and incidence of diarrhea and dumping syndrome at 1 and 3 years. The overall 1-, 2-, and 3-year cumulative survival rate were 53.3%, 29.6%, and 11.8%, respectively. In the pathological examination, the tumors of 34 patients were diagnosed as adenocarcinoma, 2 as malignant lymphoma, and 1 as leiomyosarcoma.

Conclusions. The benefits of this method are (1) a simple procedure; (2) preservation of the duodenal passage; and (3) no duodenal stump, resulting in no risk of postoperative stump rupture.

P013

Is Mechanical Bowel Preparation for surgery of esophageal cancer valid? Retrospective study

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Background. In Japan, it is popular that Mechanical Bowel Preparation (MBP) is practiced with oral gastrointestinal lavage solutions before esophageal surgery. However MBP is stressful for patients and may cause dehydration and electrolyte imbalance. There were no reports discussing necessity of MBP for esophageal surgery. The purpose of this study was to validate MBP for esophageal surgery.

Methods. We used to perform esophageal surgery with MBP, since May 2008 without MBP. Retrospectively we evaluated validity of MBP for esophageal surgery. Consecutive patients that had curative surgery for esophageal cancer between January 2005 and December 2009 in our hospital were examined. Sixty patients, 33 patients with MBP (MBP group) and 27 patients without MBP (non-MBP group), were selected.

Results. In both group, body weight on the operation day was significantly decreased compared with on the admission day.

Conclusions. Our study suggested that MBP potentially made patients a tendency toward dehydration. We concluded MBP was not necessary for surgery of thoracic esophageal cancer.

P014

A pilot trial of S-1 plus CPT-11 for esophageal adenocarcinoma

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Background. Here, we report the clinical efficacy and toxicity of S-1plus CPT-11 for esophageal adenocarcinoma.

Methods. From April 2005 to December 2009, 6 patients with esophageal adenocarcinoma were included. Two patients had unresectable tumors and/or distant organ metastases, 2 had recurrent tumors after the operation, and 2 were performed this treatment as the adjuvant chemotherapy after the curative operation. The median age was 49.0 (range: 36–67) years. TS-1 of 80 mg/m^2 was orally administered for 2 weeks and CPT-11 of 80 mg/m^2 was administered on days 1 and 8 in the outpatient clinic.

Results. The total of 50 courses of the treatment was performed. The best overall responses were one CR and 3 PR among the patients with the target lesions, and 2 patients without the target lesions showed no appearance of the new tumor. The median progression free survival period was 9.0 (range: 5–41) months. Mild non-hematological toxicities such as anorexia, nausea, and diarrhea were experienced, whereas no severe hematological toxicity was observed.

Conclusions. In our study, the combination chemotherapy using TS-1 and CPT-11 showed drastic clinical efficacy for esophageal adenocarcinoma. Also, this combination chemotherapy provided the patients with a good quality of life because the toxicity is tolerable and the treatment can be performed in the outpatient clinic.

P015

Incidence of Barrett's esophagus after surgical treatment of gastroesophageal reflux disease (GERD)

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Background. Evaluation of incidence of Barrett's esophagus in patients treated surgically due to GERD.

Methods. The study included 617 surgical patients treated due to GERD in the period between 1993 and 2008. Barrett's esophagus was diagnosed in endoscopy and histopathologic examination. A follow-up period was at least 12 months. All patients with preoperative diagnosis of Barrett's esophagus were re-examined in endoscopy.

Results. Among studied patients Barrett's esophagus was found in 27 cases (4.4%). Posterior fundoplication was applied in 7 patients, Nissen's procedure in 20 patients. During the follow-up exacerbation of Barrett's esophagus was noted in 1 patient (3.7%), in others neither progression nor improvement was found.

Conclusions. Incidence of Barrett's esophagus in patients with GERD is not common. Antireflux procedures have no significant effect on the course of Barrett's esophagus.

P016

Early results of surgical treatment of esophageal hiatus hernia with abdominal access

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Background. Hiatus hernia is an important issue in surgery of the upper gastrointestinal tract.

Methods. Between January 2004 and December 2009 in The Department of Gastrointestinal Surgery; Silesian Medical University 69 patients, including 36 men and 33 women were operated due to esophageal hiatus hernia.

Results. The average age of the patients overall was 53.8 ± 12.4 years, including women, 55.28 ± 12.9 years and men 52.5 ± 11.9 years. The most common symptoms reported by patients were: heartburn and retrosternal pain. The average duration of symptoms was 7 ± 4 months. In 5 (7.2%) cases surgery was performed because of recurrent esophageal hiatus hernia. The average hospital stay was 14 ± 5.5 days. The mean operation time was 92 ± 34 min. Patients were operated with abdominal access including 62 Nissen and 7 Toupet procedures. Early postoperative complications occurred in 6 (8%) patients. The most common complication was wound purulence occurred in 2 (2.8%) patients. Relaparotomy was performed in 1 (1.4%) case because of postoperative ileus. In hospital mortality rate was 0%.

Conclusions. Surgical treatment of esophageal hiatus hernia with abdominal access is safe procedure with short length of operative time.

P017

Early results of paraesophageal hiatal hernia repair by the laparotomy approach

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Background. Paraesophageal hiatal hernia is an important issue in surgery of the upper gastrointestinal tract.

Methods. Between January 2004 and December 2009 in the Department of Gastrointestinal Surgery in Silesian Medical University 69 patients (36 men and 33 women) were operated on because of paraesophageal hiatal hernia.

Results. The average age of the patients was 53.8 ± 12.4 years. The most common symptoms reported by patients were: heartburn and retrosternal pain. The average duration of symptoms was 7 ± 4 months. In 5 (7.2%) cases surgery was performed because of recurrent paraesophageal hiatal hernia. All patients were operated by laparotomy which included 62 Nissen and 7 Toupet fundoplications. The mean operation time was 92 ± 34 min. Early postoperative complications occurred in 6 (8%) patients. The most common complication was wound infection and it occurred in 2 (2.8%) patients. Relaparotomy was performed in 1 case. In hospital mortality rate was 0%. The average hospital stay was 14 ± 5.5 days.

Conclusions. Surgical treatment of paraesophageal hiatal hernia by the laparotomy approach is safe procedure.

P018

Eight-year experiences in the treatment of gastric cancer

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Background. Gastric cancer is the fourth common malignancy in Hungary. 2/3 of the cases are diagnosed in advanced stages, when chemo-, radiotherapy or combined modalities could achieve less favourable effect. Treatment depends on the clinical stage at presentation and the comorbid diseases of the patient. For patients who have potentially resectable disease, surgery should be performed with an effort to attain R0 resection.

Methods. Our surgical approach comprises total gastrectomy with D2 lymphadenectomy and optional splenectomy for distal tumors (except Lauren's intestinal type carcinoma) and total gastrectomy with splenectomy, distal oesophageal resection and D2 lymphadenectomy for proximal tumors. To achieve R0 resection we aim to perform multiorgan resections or D3 lymph-node dissection.

Results. Between 01.01.2002 and 31.12.2009 in our department 284 patients were operated on gastric cancer. Radical operations were performed in 213 patients which included 111 (52%) total gastrectomies and 102 (48%) subtotal resections. Postoperative complications were: suture insufficiency (2.9%), subphrenic abscess (2%), bleeding (1.2%), pancreatitis (0.6%), wound dehiscence (2.5%), duodenal stump insuff (0.5%). Mortality was 6%.

Conclusions. The quality of the surgical procedure is a principle factor in the treatment of gastric cancer. Multi-organ resections might be preferable and necessary to achieve R0 resection status.

P019

Argon plasma coagulation – is there any role in advanced upper GI cancer?

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Background. Increasing number of unfit/elderly patients are being diagnosed with advanced upper GI cancer. The study aims to assess whether a standardised approach can be implemented in this cohort of patients and whether there is any survival benefit?

Methods. A prospectively collected database (EndoSoft) on all patients undergoing APC was retrieved. Upper GI cancer pathologies were only included in the analysis. Indications for APC, number of procedures and intervals between procedures, were analysed. Outcome measured by being discharged from follow-up and or death. Cause of death was verified with death certificates and only those who died of cancer was analysed on Kaplan Meir analysis. Episodes of APC was correlated to outcome. P

Results. From January 2000 to May 2008, 42 patients (male 29, Female 13) underwent APC treatment. Sixty percent were oesophageal, 26% gastric and 14% junctional. Primary indication was blocked stent (38%), followed by recurrent disease (14%). Fifty percent of patients had stage 4 disease. Median APC episodes were 2 (range: 1–10). Stage 4 disease patients had some survival benefit on increased APC episodes, log rank (Mantel-cox) $p = 0.044$.

Conclusions. While APC has been used in advanced upper GI cancers, their benefit other than symptom palliation is only seen in stage 4 disease by slight increase in survival.

P020

Surgical treatment of stomach gastrointestinal stromal tumors (GISTs)

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Background. Gastrointestinal stromal tumors (GISTs) are mesenchymal gastrointestinal neoplasms that constitute only about 1% of all GI neoplasms. Fifty to sixty percent arise in stomach. The criteria for evaluating biologic potential of GIST are tumor size and mitotic activity. Surgery is the definitive therapy for patients with GISTs with laparoscopic method being an option in properly selected patients.

Methods. In the period from 2007 to 2009 32 patients with GIST were treated. There were 20 males (62%) and 12 females (38%). Average age of patients at the time of treatment was 67 years, ranging between 43 and 85 years.

Results. Laparoscopic surgery was used in 17 patients, the average size of tumor was 3.9 cm. Postoperative stay in this group was 5.6 days. Open surgery was performed in 15 patients, the average size of the tumor was 3.2 cm, the average postoperative stay was 7.4 days.

Conclusions. Surgical resection either open or laparoscopic is the therapy of choice for gastric GISTs to ensure a local radical removal. Laparoscopic approach has several advantages including fast postoperative recovery and better cosmetic results. Patients must be carefully selected. We have to consider size and localisation of the tumor. Patients with big tumors or tumors localised in the area of cardia or pylorus should undergo open surgery.

P021

Gastrointestinal stromal tumor – a single-center experience

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Background. Gastrointestinal stromal tumors (GISTs) are the tumors originated from progenitor cells of intestinal cells of Cajal – and the majority of them express c-Kit, a tyrosin kinase receptor. GISTs are common mesenchymal tumors of gastrointestinal tract, however, their incidence rate is low.

Methods. The authors performed a retrospective analysis of all patients who underwent surgery in the Central Military Hospital Prague, from 2003 to 2009, with histologically confirmed GISTs.

Results. During the 7-year period, 20 patients were operated in the Department of Surgery, Central Military Hospital in Prague. The commonest tumor locations were stomach (60%) and small intestine (40%). R0 resection was performed in 19 subjects (95%). Eighteen patients (90%) remain in remission, in one case has been recorded the disease progression with generalisation (5%), and in one patient is the disease stabilised (5%).

Conclusions. Surgery is a standard treatment in localised tumors. The patients benefit from adjacent treatment with tyrosin kinase inhibitors following radical resection and tyrosin kinase inhibitors have been shown effective in the treatment of metastatic and relapsing disease. Primary surgical treatment in metastatic GIST remains a paliative option for patients with obstruction or bleeding.

P022

Early postoperative complications in surgical treatment of complicated postbulbar and juxtapapillar duodenal ulcers

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Background. Analysis of early postoperative complications (EPC) in 270 patients operated on the complicated postbulbar duodenal ulcers (PBU) and juxtapapillar duodenal ulcers (JPU) was performed.

Results. In total EPU occurred in 26 of 220 patients operated in PBU group (11.8%). Thirteen percent EPC (15 of 115) occurred in 1st observational period (1983–1992) and 10.5% (11

of 105) – in the 2nd period (1993–2008). After surgical treatment of complicated JPU EPC occurred in 21 of 50 patients (42%): in 1st period 66.6% of patients had EPC and in 2nd period 16 of 41 patients (39%) had EPC after surgical treatment. The frequency of EPC at complicated JPU was 3.6 times (or 30.2%) higher than after surgical treatment of complicated PBU ($\chi^2 = 23.803$, $p < 0.0001$).

Conclusions. Use of rational tactics of surgical treatment, new methods of surgery with reimplantation of bile papilla and papillar drainage at complicated JPU and developed techniques of postoperative management of patients reduced the frequency of EPC.

P023

Negative prognostic factors for postoperative dysphagia and quality of life after antireflux surgery

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Background. Failure of antireflux procedure occurs in 5–10% in patients after fundoplication. Postoperative dysphagia is the most common complication after antireflux surgery, usually is transient and resolves within weeks after surgery.

Methods. In years 2001–2008 520 patients were operated for gastroesophageal reflux disease, laparoscopic fundoplication was performed. Preoperative data(symptomatology, effect of PPI, preoperative oesophageal pH metry and manometry, age, gender) was examined. All patients filled in GIQLI questionnaire.

Results. Analysis was performed in 292 patients with complete data. Seventy-three patients had dysphagia more than 6 weeks after surgery, 22 with preoperative atypical symptoms. Two hundred and nineteen patients had no postoperative dysphagia. Two hundred and four of these had typical symptoms, 15 patients were with atypical symptoms, good response to medical therapy in 45 patients in group with dysphagia, bad response in 24 patients. In the group of patients with no postoperative dysphagia, we found a good response to medical therapy in 203 patients and bad response in 16 patients. Quality of life improved from 116 to 123 in the group of patients with good response to medical therapy an decreased from 112 to 105 in the group with bad response.

Conclusions. Postoperative dysphagia cannot be predicted by preoperative oesophageal pH metry, preoperative manometry, age and type of antireflux surgery. Supported by NPV II-2B06060.

P024

Biliary cast syndrome in a non-transplant patient

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Biliary cast syndrome is uncommon but is more frequently described in liver transplant patients. To our knowledge there have been only a few published cases describing biliary casts in non-liver transplant patients. The aetiology of cast development is not fully known but is more likely to be multifactorial with the presence of biliary sludge being a prerequisite for cast formation. Bile duct damage and ischaemia, biliary infection, fasting, parenteral nutrition, abdominal surgery and possibly other factors, are all thought to be implicated in cast pathogenesis via sludge development.

We described a 37 male patient who developed a biliary cast after cholecystectomy We described the symptoms, disease course, the results of these examinations (USG, CT-scan, ERCP, MRI-cholangiography), the description of the three operations, the histopathological examination and postoperative course.

P025

Gastrocolic fistula: Review of three cases

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Background. Gastrocolic fistula (GCF) is a rare lesion appearing traditionally as a complication of inadequate gastric surgery or of gastric or colon malignancies but actually described in many different digestive and iatrogenic conditions.

Methods. Three cases with GCF – 2 men and one woman – with 36, 43 and 61 years respectively are presented. These included one patient each with a 2/3 gastrectomy for duodenal ulcer practiced 3 years ago, a gastric carcinoma and a Crohn's disease. History, physical examination together with the radiologic study and endoscopy were the most reliable diagnostic aids. In two cases the classical triad: weight loss, water diarrhea and fecal vomiting was present but in the third case the patient presents a subphrenic abscess appearing 3 weeks after emergency cholecystectomy done elsewere. Although the CT revealed a communication between the great gastric curvature and the splenic colic flexure, no fistula but only visceral adherrences and strong appearance of Crohn's disease was found at operation.

Results. A revision gastrectomy with segmental colectomy and a enlarged gastrocolectomy were performed in the first two cases but only adesiolysis and a segmental colonic resection was done in the third one.

Conclusions. Excepting the rare situation of spontaneous or after medical therapy healing, surgery is the mainstay treatment of GCF.

P026

Short term symptomatic outcomes after open and laparoscopic nissen fundoplication for gastro-oesophageal reflux disease

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Background. A meta-analysis of published literature comparing 3, 6 and 12 symptomatic outcomes comparing open (ONF) with laparoscopic Nissen fundoplication (LNF).

Methods. Electronic databases were searched from January 1991 to August 2009. A systematic review was performed to obtain a summative outcome.

Results. Eight randomized controlled trials were analyzed. At 3 months no difference was seen between LNF and ONF in relation to heartburn ($df = 4$, $p = 0.61$), dysphagia ($df = 3$, $p = 0.14$) or regurgitation ($df = 1$, $p = 0.95$). After 6 months of follow-up no significant difference was found in heartburn ($df = 2$, $p = 0.57$), regurgitation ($df = 1$, $p = 0.34$) or ability to belch ($df = 2$, $p = 0.30$). However we did find a significant difference in favour of ONF relating to presence of dysphagia compared with LNF ($df = 2$, $p < 0.01$).

Conclusions. LNF appears comparable to ONF in relation to symptomatic outcome after short term follow-up. A paucity of follow-up studies means conclusions should be made with caution and further trials are required to strengthen the evidence. Long term follow-up may yield any differences.

P027

Open versus laparoscopic Nissen fundoplication in the treatment for gastro-oesophageal reflux disease: A meta-analysis

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Background. A meta-analysis of published literature comparing peri-operative outcomes after open (ONF) and laparoscopic Nissen fundoplication (LNF) for gastro-oesophageal reflux disease.

Methods. Electronic databases were searched from January 1991 to August 2009. A systematic review was performed to obtain a summative outcome.

Results. Nine randomized controlled trials involving 657 patients were analyzed. Three hundred and thirty-six patients were in the laparoscopic and 321 in the open group. LNF took longer to perform compared with ONF [random effects model: SMD = –1.64, 95% CI (–2.21, –1.06), $z = -5.57$, $df = 8$.

Conclusions. LNF is safe and patients stay in hospital for less time with an earlier return to work compared with ONF $df = 8$. Follow-up may determine whether there is any difference between these 2 techniques in the short or long term.

P028

Limited hiatal disection in surgery for achalasia

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Background. It is speculated that postoperative pathologic gastroesophageal reflux after Heller's myotomy can be diminished if the lateral and posterior phrenoesophageal attachments are left intact. The aim of this study was to evaluate the effectiveness of limited hiatal dissection in patients operated due to achalasia.

Methods. Prospective, randomized, 3 years follow-up of 84 patients operated due to achalasia. In 26 patients Heller-Dor with complete hiatal dissection was done (G1), limited hiatal dissection combined with myotomy and Dor's procedure was performed in 36 patients (G2) and with Heller's myotomy alone in 22 (G3). Stationary manometry and 24 h pH study were performed in regular postoperative intervals.

Results. Postoperatively, higher median values of lower esophageal sphincter resting pressures were marked in G2 and G3, while patients in G1 were presented with higher median values of pH acid score.

Conclusions. Indicating further long-term studies, three years after the operation limited hiatal dissection compared to complete obtains better reflux control in achalasia patients, regardless of Dor's fundoplication.

P029

Is there a role of lymphatic fluid cytology in oesophageal cancers?

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Background. To assess the value of lymphatic fluid cytology in identifying micro metastasis in oesophageal cancer.

Methods. Cross-linking two databases (Path and WebICE), to retrieve prospectively entered patient details. Histology and cytology reports of all patients undergoing oesophagectomy were retrieved.

Results. From January 2005 to August 2009, 69 patients underwent two stage oesophagectomy under one surgeon. Twenty of these patients have lymphatic fluid aspirated from thoracic duct and was send for cytology. Of these 13(65%) were male: 12 (60%) had T3 disease. Fourteen of these patients were node positive. Six out of fourteen node positive patients have lymphatic invasion on histology. All 20 patients lymphatic fluid cytology showed mature lymphocytes but no malignant cells.

Conclusions. Among various clinical and pathological findings, lymphatic invasion is the strongest risk factor for

nodal metastasis in oesophageal cancer. Even though a small cohort but simple cytology fails to detect any micro-metasis.

P030

What is the optimum duration of hospital stay following laparoscopic nissen fundoplication (LNF)?

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Background. We sought to investigate the appropriateness of the increasing trend towards a shorter hospital stay following complex laparoscopic procedures.

Methods. Prospectively recorded patient details were scrutinised and a database was populated. Outcome parameters for the study were assessed on a 5-point Likert scale, which for analysis was collapsed into a binary response for each of the outcome parameters.

Results. Between Oct. 2004 and May 2009, 198 patients underwent LNF. 83 (41.9%) patients were discharged within a day of admission. 43 (21.7%) of them were discharged by the end of the working day (Group A: day case) and an additional 40(20.2%) were discharged with 24 hours of admission (Group B). Group D was the longer stay cohort; out of whom 10(54%) were discharged within 48 hours and 8 (4%) were discharged at varying lengths of stay 2–6 days (median 3). Group C (Group A + Group B) was entirely in the time period 2007 onwards. Seven patients, all from the day-case group were seen postoperatively in the Emergency Department with upper GI symptoms or abdominal pain and 5 patients were readmitted. At first follow-up (6 weeks) patients in Group B patients appear to demonstrate maximum symptom relief, adequate pain relief and greatest overall satisfaction with care.

Conclusions. We conclude that a short hospital stay (less than 24 hours) and not necessarily a working day discharge is appreciated as adequate by patients.

P031

Intragastric laparoscopic resections: A possibility of minimaly invasive treatment for GIST

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Background. Gastrointestinal stromal tumors (GIST) are rare tumors of gastrointestinal system and require a surgical resection with free margins for cure. This fact and anatomical features of stomach set the background for introduction of intragastric laparoscopic surgery which can be combined with endoscopy.

Methods. Five patients, 4 women and 1 man were presented with small tumor of the proximal third of the stomach diagnosed with endoscopy and endoscopic ultrasound. In two cases with the help of endoscopist and in three cases independently an intragastric laparoscopic resection through a mini laparotomy was performed.

Results. Four women, average age 56.8 (46–66 years of age) and 1 man (47 years) had a tumor of size between 10 and 20 mm, which was located in one case subcardial and in other cases within the proximal third of the stomach. GIST was histologically confirmed with the low malignant potential and free margins. In one case histology revealed lipoma. Average hospital stay was 7 days (5–8 days). No postoperative complications were observed and on follow-ups there are no signs for disease reccurence.

Conclusions. Intragastric laparoscopic resection for GIST is with careful patient selection a minimally invasive operative procedure, which enables cure and fast recovery for the patient.

P032

Anastomotic leaks after Ivor-Lewis esophagectomy – how to deal with?

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Background. Anastomotic leaks represent a major complication in surgery with high mortality. We tried to evaluate of the causes and the treatment of the anastomotic leaks after Ivor-Lewis esophagectomy.

Methods. We analysed a lot of 14 patients with Ivor-Lewis esophagectomy admitted and operated in our Surgery Department between Jan. 2005 Dec. 2007 with a rate of anastomotic leaks of 21.4%.

Results. Sex distribution ratio was 5/1 (male/female), with average age of 42.3 years old. The lot structure (based on diagnosis) was: Barret esophagus 3 cases (21.4%), esophageal adenocarcinoma 6 cases (42.8%) and postcaustic esophageal stenosis 5 cases (35.7%). In all cases the esophageal lesion was situated in the distal third of esophagus. The leaks appeared between the 5th and 7th day after surgery. The leaks was certified by clinical aspects (the quality and quantity of pleural drainage) and by radiological examination using a water-soluble contrast agent – meglumine amidotrizoate (Gastrographin). All leaks volumes was between 300 and 500 ml/24 h. In 2 cases the treatment was conservative and in 1 case surgical approach (reintervention) was performed (the recalibration of esophageal hiatus). Average hospitalization was 26.4 days.

Conclusions. The treatment of this kind of complication is ruled by the volume of drainage, the biologic status of patient and the radiological aspects of the anastomotic fistula.

P033

Adenocarcinoma of the esophagogastric junction

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Background. The incidence of adenocarcinoma of the esophagogastric junction (AEG) is increasing, the term ''cardia or AEG carcinoma'' is still controversial.

Methods. A topographic-anatomic Siewert classification of adenocarcinomas of the esophago-gastric junction is now increasingly accepted and used worldwide. Classification described adenocarcinomas of the esophagogastric junction as tumors that have their center within 5 cm proximal and distal of the anatomical cardia AEG Type I: adenocarcinoma of the distal esophagus which usually arises from an area with specialized intestinal metaplasia of the esophagus, i.e., Barrett's esophagus, and may infiltrate the esophagogastric junction from above. AEG Type II: true carcinoma of the cardia arising from the cardiac epithelium or short segments with intestinal metaplasia at the esophagogastric junction. AEG Type III: subcardial gastric carcinoma which infiltrates the esophagogastric junction and distal esophagus from below.

Results. Stage distribution and overall long-term survival after surgical resection also shows marked differences between the AEG subtypes worldwide. There are various surgical approaches for AEG carcinoma depending of subtypes.

Conclusions. It seems that Siewert type of AEG is not a potential prognostic factor but is still a useful tool in the preoperative assessment for determination of the surgical approach.

P034

Antireflux management in surgery complicated peptic ulcers

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Background. Gastro-esophageal reflux (GER) is very common disorder in the patients with complicated gastroduodenal peptic ulcers (CPU) and it must be taken into account in surgery CPU and methods of correction GER.

Methods. Analysis of 4481 patients (1982–2008 years) who was operated on CPU was done on the subject of frequency, clinical evidence, endoscopic findings, severity GER and esophagitis before and after different gastric surgery (PCV – 2179, TV – 890, SV – 41, vagotomy and antrumectomy – 580, elective gastric resection – 791) without – 791(group I) or combined with different corrections of esophagogastric zone (3588). Among anti-reflux procedures were ''floppy'' Nissen fundoplication – 588 (group II), Toupet fundoplication – 1036 (group III) and our own 3 modifications – 1934 (group IV). Follow up results were studied.

Results. All the patients with CPU had wide range of GER and esophagitis which depended upon the kind and duration of CPU. After operation in group I GER and esophagitis disappear (56.0%) or reduced (44.0%), but in 32.1% periodically were exacerbations. Dysphagia, gas bloat syndrome. were observed in 13.0% (group II), 5.6% (group III) and 2.3% (group IV) patients. Clinical and endoscopic sings of GER and esophagitis were less in groups III and IV.

Conclusions. Our data confirmed the necessity to pay attention on correction of a zone of esophagogastric junction in surgery of CPU.

P035

Clinical features and endoscopic management in bleeding dieulafoy's ulcer

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Background. Dieulafoy's ulcer (DLU) is an uncommon cause of serious gastrointestinal bleeding (GDB) and is enough difficult for diagnosis and surgical tactics.

Methods. From 1982 to 2008 years, 21774 patients with acute GIB were admitted to our clinic and in 230 (1.1%) the cause of GIB was Dieulafoy's ulcer (DLU). We analysed clinical features; endoscopic stigmata (Forrest), localization of DLU, different methods of endoscopic hemostasis (EH), appreciated its effectiveness, the rate of rebleeding (RB).

Results. Among 230 pts with DLU – 116 (50.4%) had hemaetemesis, 65 (28.3%) – melaena and 49 (21.3%) – hemaetemesis and melaena. Hemorrhagic shock had 36 (15.7%) pts. On emergency endoscopy DLU was verified in 204 (88.7%) and in 26 (11.3%) it was done on control (12) or for rebleeding (14) endoscopy. DLU was located on posterior (174) or anterior (4) walls of proximal stomach – 178 (77.4%) and on posterior half-round of duodenal bulb – 52 (22.6%) with normal surrounding mucosa. Active bleeding (FIA, FIB) had 118 (51.3%), adherent clot (FIIB) – 45 (19.6%), vissible vessel (FIIA) – 67 (29.1%). Stigmata FIA was in 2,5 times frequently in stomach than in duodenum. EH with 6 different endoscopic procedures was done for treatment and prophylactics of early RB. Surgery was undertaken in 43 (18.7%), total mortality – 2.6%.

Conclusions. EH for control bleeding and treat DLU is safe, enough effective and not expensive procedure.

P036

Biology of nondysplastic columnar lined esophagus

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Background. Gastroesophageal reflux disease is associated with columnar lined esophagus (CLE). We aim to summarize the novel understanding regarding the biology of CLE.

Methods. Review of the recent literature (2006–2010) on CLE.

Results. Gastroesophageal reflux induces the formation of columnar lined esophagus (CLE), which is paralleled by genetic changes. The reflux-induced genetic changes within the stem cells of the esophageal epithelium cause the switch from squamous to cardiac mucosa (CM) mediated via bone morphogenetic protein 4. By the appearance of parietal cells CM may progress towards oxyntocardiac mucosa (OCM) (mediated via sonic hedge hog, SSH, promoting parietal cell maturation) or, by the presence of goblet cells, to intestinal metaplasia (IM = Barretts esophagus) (mediated via Cdx2). SHH and Cdx2 pathway is stimulated by

acidic and alkaline pH, respectively. All forms of nondysplastic CLE share comparable amounts and distributions of genetic abnormalities. Effective anti-reflux surgery seems to reverse the oncologic biology of CLE.

Conclusions. Definition of the biology of CLE is required to objectify the potency of medical and surgical therapies of GERD and Barrett's esophagus.

Liver Surgery (meta)

P037

Prevention of dissemination and recurrence of hydated disease by implementation of intraoperative ultrasound treatment of hydated cavities

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Background. In surgical treatment of Hepatic Hydatid Disease (HHD) it is important to prevent flooding of cystic contents into abdominal cavity or wound surface during the surgery.

Methods. The results of surgical treatment of 153 patients (86 male and 67 female) aged 14–76 years, with HHD were analyzed. In most cases one-step closed echinococcectomy was applied followed by intraoperative low-frequency ultrasound treatment. A universal ultrasound-passing needle of special construction connected with electro-aspirator was used for puncture of the cavity wall allowing simultaneously evacuation, lavage and ultrasound irrigation of the cystic cavities. To prevent dissemination of the HHD, 5–8 min ultrasound treatment of residual cavity was provided through the same needle. In case of ''daughter'' cysts ultrasound treatment of those cysts was done after section and evacuation of their contents.

Results. No postoperative complications requiring invasive procedures were developed and recorded in patients undergoing liver surgery with ultrasound sterilization of hydatid cavitas. No cases of recurrences were observed in 2 years.

Conclusions. Intraoperative low-frequency ultrasound treatment of hydatid cavitas is an effective approach in sterilizing of cavitas and destructing of affiliated cysts. Intraoperative ultrasound treatment method can be effectively applied for prevention of dissemination and recurrence of HHD.

P038

Results of a. lienalis embolization in decompensated liver cirrhosis

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Background. The endovascular, including the embolization a. lienalis, methods of treatment of the portal hypertension were proposed in the recent years as the alternative to the abdominal operations in decompensated liver cirrhosis.

Methods. The embolization a. lienalis was applied on 84 patients (Child-Pugh class B – 45, C – 39).

Results. The improvement of the illness course was observed in the most of patients. One patient died in the nearest postoperative period. The remote results were evaluated in 72 patients. The signs of gastropathy were decreased in all patients. Ascites disappeared in 18 patients, obviously decreased with the simultaneous increasing sensitivity to the diuretics – in 20, did not change or became the progressive character – in 12 patients. The secondary hypersplenism was completely eliminated in 30 cases, its clinical manifestations were removed in 38 patients. According to the Child-Pugh, the liver functional reserve was improved in 33, did not change – in 37, and became worsen – in 2 patients. The satisfactory results were noted in 47 patients and unsatisfactory – in 25 patients.

Conclusions. The embolization a. lienalis is the most effective for the secondary hypersplenism correction and may be the alternative to the splenectomy. The reduction of the lien blood-flow is the one of the direction of the management of the complicated portal hypertension in liver cirrhosis.

P039

Appendicitis following solid organ transplantation

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Background. Appendicitis among immunocompromised solid organ transplantat recipients is an important diagnosis to make promptly. The impaired immune response in these patients may cause a delay in diagnosis and an increase in complications.

Methods. We reviewed records of 350 patients who received solid organ transplants at University Hospital Merkur between 1998 and 2009 and subsequently underwent appendectomy for presumed acute appendicitis.

Results. The first case was a 75-year-old man, admitted for acute appendicitis with a periappendiceal abscess 2 years after liver transplantation. He was treated conservatively and subsequently underwent interval appendectomy. The second patient was a 34-year-old woman, admitted for acute appendicitis with a diffuse peritonitis 3 years after simultaneous pancreas-kidney transplantation.

Conclusions. This report discusses the clinical presentation, hospital course and possible complications of appendicitis in two transplant recipients. Both patients recovered after surgery with a good graft function.

P040

Extended indication for liver resection in combination with radiofrequency ablation

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Background. Liver tumors should be surgically treated whenever possible. In case of bilobar disease or coexisting liver cirrhosis, surgical options are limited. Radiofrequency ablation (RFA) has been successfully used for irresectable liver tumors. The combination of hepatic resection and RFA extends the feasibility of open surgical procedures in patients with hepatic malignancies.

Methods. RFA was performed with two different monopolar devices using ultrasound guidance. Intraoperative use of RFA for the treatment of liver metastases or HCC was limited to otherwise irresectable tumors during open surgical hepatic resections. Irresectability was considered if bilobar disease was treated, the functional hepatic reserve was impaired or appraised marginal for allowing further resection.

Results. Ten patients with both liver metastases and HCC, and 2 patients with cholangiocellular carcinoma were treated. Two patients of the metastases group and 5 patients of the HCC group suffered from local recurrence after a median of 12 months (1–26) (local recurrence rate 32%). Five patients of the metastases group and 6 patients of the HCC group developed recurrent tumors in different areas of the ablation site after a median time of 4 months (2–18) (distant intrahepatic recurrence in 55%). Survival at 31 months was 36%.

Conclusions. RFA extends the scope of surgery in some candidates with intraoperatively found irresectability.

P041

Perioperative tumor markers levels in liver resection for colorectal metastases

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Background. Surgical resection remains the only potentially curative therapy for hepatic malignancies. Recent data focus on growth factors that may be released in response to surgery-stimulating receptors of residual tumour cells. Liver specific markers should be used also for liver regeneration monitoring.

Methods. Blood samples were taken during surgery, 24 hours, 48 hours and one week after surgery. Levels of interleukins IL6, IL8, HGF were measured using multiplex imunoassay, levels of CEA, TK, IGF1, CA 242 and TPS were measured using routine imunoassay methods.

Results. Level of HGF rises in first 24 hours, subsequently falls down. Level of IL6 rises in first 24 hours, falling down slowly. Level of TPS rises intensely after start of surgery and collapses 24 hours after operation. Level of IL8 is elevated after operation, but has no characteristic peak. Thymidinkinase rises one week after surgery, probably as marker of DNA synthesis during tissue regeneration.

Conclusions. HGF and IL6 expression are increased after hepatectomy which may results in an increase in tumor growth in the residual liver. While hepatectomy is the only curative option, it may accelerate growth of microscopic residual disease. The perioperative levels of HGF and IL8 seem to be significant for monitoring reaction of organism to liver resection. Supported by grant: GAAV IAA500200917.

P042

Radical surgery for centrally located liver echinococcal cysts

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Background. Liver echinococcosis is still an endemic disease in Balkans. Surgery is indicated for type III or complicated cysts. It's commonly believed that radical surgery could be considered the most appropriate treatment for centrally located cysts, but with higher risk of morbidity.

Methods. From June 2007 to Sept. 2009, 9 consecutive patients (5 females, 4 males, mean age: 30.5 ± 13.08, range: 8–54) with 15 cysts were treated for echinococcal liver disease in Surgical Division of Peja Hospital, Kosovo. All patients received Albendazol before operation and in the perioperative period. Medical therapy was discontinued the day after operation.

Results. Nine pts with 15 cysts underwent radical surgery (1 right hepatectomy, 2 left lobectomy, 9 multiple total pericystectomy with closed cysts, 1 subtotal pericystectomy). Four of them had multiple cysts. Mean postoperative stay was 5.1 days (range: 3–10). Mean follow-up is 18 months (range: 6–36 months). No recurrence were observed.

Conclusions. Our initial experience is encouraging and shows that radical surgery can be considered a suitable option for liver echinococcosis also for centrally located cysts in poor resources hospital. Patients with echinococcal cysts need to be referred to Centers in which therapy is evaluated and treated in a multidisciplinary team with specific expertise in liver surgery.

P043

Obstructive jaundice secondary to endobiliary thrombus originating from cholangiocellular carcinoma

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Background. Intrahepatic cholangiocellular carcinoma is the second most common neoplasm of the liver after the hepatocellular carcinoma, but has in increasing trend. These lesions are classified according to the macroscopic aspects or for the topography. Vascular infiltration is quite frequent but intrabiliary thrombosis is rarely reported.

Methods. A 52-year-old female was admitted in our hospital for jaundice. CT demonstrated a dilated intrahepatic biliary tree and a mass of about 5 cm in diameter on the right liver involving the right hepatic duct and infiltrating the posterior branch of the right portal vein. The procedure consisted in the resection of the right liver together with segment IVb, toilette of the bile duct and lymphadenectomy until the celiac trunk.

Results. Surgical treatment is the only effective therapy of ICC. The intervention required is more often an extended resection. Jaundice is more often expression of direct involvement of the biliary confluence by the tumor. Rarely it occurs for clots or tumor thrombus.

Conclusions. This experience show that extended hepatectomy can be performed also in poor resource hospitals with acceptable risks. It's not well established if tumor thrombus is or not an indication to common bile duct resection. In this case it was not observed early recurrence.

P044

Laparoscopic esophageal transsection

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Background. Bleeding from esophageal varices is an important cause of morbidity and mortality in patients with portal hypertension. Recently most patients with oesophagogastric varices are treated initially by endoscopic technique and the surgical intervention is usually performed after all other methods are either failed to prevent recurrent bleeding or are refused by the patient. Transection and devascularization procedures had been the most popular modality of treatment for oesophagogastric varices until the 1970s.

Methods. Our procedure was performed in 38 years old patient with alcoholic liver cirrhosis, portal hypertension, bleeding esophageal varices, and a previous bleeding episode treating before with no-surgical procedures. There were no significant hemodynamic changes and bleeding during the surgery. Operation time was 70 min. During the lecture a short video with main steps of operations and the surgical technique will be presented.

Results. We observed no surgical complications. The patient have many symptoms according to hepatic failure: ascites, hypoalbuminemia, splenic hyperactivity with thrombocytopenia. He was treated conservatively. The postoperative hospitalization was 8 days.

Conclusions. Laparoscopic transsection of esophagus is feasible, effective, and safe surgical procedure, and has all the benefits of minimally invasive surgery for patients with bleeding from esophageal varices.

P045

Modern treatment of liver metastases – where are we today ?

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Background. Colorectal cancer, being the third most common cancer in Europe and USA, and hepatocellular cancer, as on of the most common cancers worldwide, certainly deserve special scientific and clinical attention.

Methods. Review of clinical results of liver resection at our institution is presented.

Results. Recent years brought a rapid development in the field of surgical treatment of these neoplasms. Modern surgical approaches are the result of better understanding of tumor development and progression, as well as increased knowledge about the response to surgical trauma. Combined with the development in operating technology, this resulted in the new concept of minimally invasive oncologic surgery. In my institution, these novel methods are fully embraced, and continual clinical research keeps the door opened for other emerging concepts.

Conclusions. Together with non-operative modalities of cancer treatment, we are now able to provide more oncologically radical surgical procedures that range from minimally invasive local resections and tumor ablations to extensive multiorgan resections. Such advancement in treatment could not have become reality without extensive basic and clinical research.

P046

Hepatocellular carcinoma – a course of acute abdomen – a case report

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Background. Hepatocellular carcinoma is among the most common solid tumors ranking behind lung and gastric for cancer related deaths. Most patient present with advanced stage cancer limiting treatment options.

Methods. Case report: A 77-year-old patient was admitted in hospital for acute abdomen. He was presented with severe abdominal pain. In a last 30 days his body weight was reduced for 10 kg. CT of the abdomen was performed. CT showed mass involving II. and III. segment of the liver measuring $90 \times 90 \times 10$ mm. In IV. segment of the liver the similar mass was found measuring 50×70 mm. There was intraperitoneal fluid around the liver and the spleen. Alpha-foetoprotein level was elevated at 653.6 ng/l.

Results. During acute presentation, he was first resuscitated with intravenous fluid. The oparation was scheduled 2 days later. During operation, cirrhosis and a bleeding tumor in II and III segment was found. There was about 1 litre of blood with blood clots in the peritoneal cavity. Segmentectomy II and III was performed. After operation, the patient state was complicated with intraabdominal bleeding. Another operation was performed to tamponate place of resection. After 2 days tampons were removed. Histopathology of the resected tumor showed that was HCC. Patient recovered well.

Conclusions. Ruptured HCC is a life-threatening complication. Resuscitation with fluids and surgical procedure are main modalities of treatment.

P047

Surgery of liver hemangiomas: A 7 year retrospective study

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Background. Hepatic hemangioma is the most common benign tumor of the liver. Patients undergo surgery due to presence of symptoms, or change in hemangioma diameter. Enucleation or partial liver resection is performed depending on the location and size of the lesion.

Methods. The authors retrospectively reviewed 24 consecutive patients that underwent surgical treatment for hemangioma in our institution between 2003 and 2010.

Results. The sex ratio was M/F = 5/19 with a mean operative age 51 (range: 33–74). Laesions were solitary in 16 (66.6%) and multiple in 8 patients (33.3%). The mean diameter was 7.7 cm (range: 1.2–25). In 13 patients (54.2%) haemangiomas were enucleated, 8 patients (33.3%) had partial liver resection and in 3 patients (12.5%) the combination of last two was performed. There was no mortality. Patients were discharged at the mean of 9 postoperative days (range: 4–24). Postoperative course was complicated in 16% patients with no relation to the choice of operative technique; wound infection occurred in two patients and subhepatal effusion in the other two patients, of which one was surgically retreated.

Conclusions. The authors advocate that the surgery of haemangioma is safe and efficient with low morbidity and mortality, indepedent of the surgical technique used. Enucleation offers greater preservation of normal hepatic parenchyma and therefore is the preferred technique for suitable lesions.

Bariatric Surgery

P048

Rhabdomyolisis after bariatric surgery – case report

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Background. Rhabdomyolisis is less known postoperative complication after bariatric surgery. Rhabdomyolisis is associated with muscular necrosis which lead in release of intracellular components into the circulation.

Methods. Case report about complications after lap-bypass procedure.

Results. The risk of rhabdomyolisis grows with prolonged surgical operations and is often linked to patient position on operating table, muscular compression or vascular compromise. The potentially fatal complication of rhabdomyolisis is acute renal faileur with 20% mortality. Individuals with diabetes, hipertension and super-obese patients has increased risk for rhabdomyolisis. Diagnosis requires the recognition of symptoms and laboratory test changes (muscular pain, muscular weakness, proteinuria, pigmenturia. CPK in the serum, myoglobine in serum and urine, calcium and phosphorus can be measured. Consequences can be reduced with agressive hydration, additional padding and urine alkalinization. Measuring of CPK before and after bariatric operation is mandatory.

Conclusions. We described the treatment of rhabdomyolisis in female patient after gastric bypass for morbid obesity.

P049

The influence of bariatric surgery on regressing of the metabolic syndrome

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Background. The Metabolic Syndrome (MS) is the combination of the most hazardous, often mutually bind risk factors of progression of arteriosclerosis and diabetes mellitus type II. The MS or its elements are the most common comorbidities of obesity. Conservative treatment of bariatric patients with BMI greater than 35 kg/m^2 is highly ineffective.

Methods. The aim of study is to present the results of the treatment of patients with MS who underwent operational intervention due to obesity. In our department we have operated persons due to obesity since January 2003 to December 2008 527 persons. After one year 389 patients responded the postoperative questionnaire (73.81%). The MS meeting the criteria of IDF 2005 was diagnosed at 56.3% ($n = 219$).

Results. The MS regressed at 73.97%. The comparison of the results in the group with BMI $\geq 40 < 50\ kg/m^2$ and with BMI $\geq 50\ kg/m^2$ showed better results in morbid obesity. In the both groups the best results were observed after GB, subsequently SG, VBG and ASGB.

Conclusions. The type of operation has important impact on the regressing the MS and its components. All the bariatric operations could be effective in treating the MS, but the most effective, especially in superobesity is gastric by-pass-GB. It should influence the choice of surgical procedure. The higher percentage of the declining of MS and its components was observed in morbid obesity.

P050

Intragastric band migration in pregnant women after SAGB – a case report

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Background. Bariatric surgery is only effective treatment for morbid obesity. The main advantage of SAGB is that this operation is minimally invasive to the stomach and adjustable to the patient's needs.

Methods. Case report: A 28-year-old female patient was admitted in hospital due intragastric band and partial tube migration. Two years earlier she was underwent SAGB procedure owing to morbid obesity. During first year she lose significant weight but process of loosing of weight was stopped. In the same time she become pregnant. She reported on control examination on which she didn't have any symptoms and due to pregnancy they didn't take any diagnostics.

Results. After she give birth she take a gastroscopy which revealed intragastric migration of band together with first portion of tube. They fail to extract band and tube via gastroscopy. After failing to remove band via gastroscopy laparotomy and gastrotomy was performed to remove band. The patient recovered with no postoperative complications.

Conclusions. Although SAGB has a high rate of complication and reoperation it is still an effective bariatric procedure for achieving weight loss in well select patients according to specific criteria for gastric banding.

Pancreatic Surgery

P051

Complications of duodenal diverticulae: A report of five cases

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Background. Purpose: To review the incidence, acute presentations and management of duodenal diverticulae presenting to North Shore Hospital, Auckland, New Zealand.

Methods. We present five cases of complicated duodenal diverticulae presenting over the period of 2005–2006. We reviewed 1622 consecutive ERCP reports at our institution to determine the endoscopic incidence.

Results. The endoscopic incidence of reported duodenal diverticulae was approximately 13%. Five cases of severe complicated duodenal diverticulae presented over a 12 month period. There were 3 men and 2 women aged 48–83. These included 3 cases of free perforation, 1 of contained perforation and 1 of recurrent severe pancreatitis. The free perforations were treated with emergent surgery including a pancreaticoduodenectomy and 2 excisions and primary closure. The contained perforation was managed conservatively. The patient with severe pancreatitis required a pancreaticoduodenectomy. There were significant complications but all patients survived and have resumed normal diets.

Conclusions. Complications of duodenal diverticulae are diverse and may be severe. Timely surgical intervention results in good outcomes.

P052

Pancreatic tumor and mid-gut malrotation: A case report

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Background. Mid-gut malrotation is defined as developmental anomaly which may be associated with absence of distal parts of the superior mesenteric artery. In this situation the role of the pancreaticoduodenal arcad is very important.

Methods. A 49 years old woman was admitted to our department in 2006 with obstructive jaundice. A 2 cm tumor in the head of the pancreas was diagnosed preoperatively. Malrotatio or other developmental anomaly was not revealed previousely. A Whipple procedure was performed.

Results. At the laparotomy several typical signs of mid-gut malrotation was founded: right-sided duodenal jejunal junction, left position coecum, inverted position of the SMV. In the postoperative period reoperations were necessary two times due to necrosis of the upper parts of small bowell. The patient died 28 days after the procedure. At autopsy an almost entire congenital stricture of the SMA was revealed. The ligature and cutting of the gastroduodenal artery and pancreaticoduodenal arcade during the Whipple procedure impaired the blood supply of this region, and the compensation retrogradely from the right colic artery was not enough.

Conclusions. Although the mid-gut malrotation and the pancreatic tumor together occur very rare, the current case suggests, however, that the impaired blood supply of the upper parts of small bowell after the resection procedure may have to lead to the death because of the ischemic complication.

P053

Pancreatic carcinoid: Case report

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Background. The carcinoid tumors are the most frequent between the neuroendocrin tumors. The pancreatic site is uncommon. Most of the time the symptoms of the pancreatic carcinoid are missing with normal serotonin serum level. In time the tumor spread into the lymph nodes and liver. The carcinoid syndrom is the expression of the hormonal secretion in the advances cases with metastases. For this reasons the diagnose of the carcinoid is usually late and the prognosis reserved.

Methods. We present two cases of pancreatic carcinoid. The first is a 38 years woman with atypical symptoms like abdominal pains, nausia, vomiting and weight loss. The CT-scan revealed a

tumor localised in the had of the pancreas. The second case is a 63 years man with symptoms of the carcinoid syndrome. The CT scan revelead a tumor into the pancreatic body, but with multiple hepatic metastasis. The biopsy confirm the diagnose of carcinoid type.

Results. At the first case we performed cephalic duodenopancreatectomy with postive exam for the carcinoid tumors types. At 5 years after surgery the evolution is still favorable.

Conclusions. The pancreatic site of the carcinoid tumors is uncommon. The hepatic metastasis are frequent in carcinoid tumors. The surgical treatment with large resections is the only curative approach with good long term results.

P054

Middle segment pancreatectomy – own experience

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Background. The aim of paper was analysis of results in patients following middle-segment pancreatectomy.

Methods. Between January 2008 and December 2009, 154 patients received pancreatic resections in the Department of Digestive Tract Surgery. The following pancreatic resections were performed: proximal pancreatectomy (pancreaticoduodenectomy) – 109, central (middle segment) pancreatectomy – 9, distal pancreatectomy – 32, total pancreatectomy – 3, and subtotal pancreatectomy – 1. Analysis of results in patients following middle segment pancreatectomy was performed.

Results. There were 3 (33.3%) men and 6 (66.6%) women in the analyzed group. The mean age was 47.55 (26–68) years. The mean total duration of hospitalization was 24.28 (8–57) days. The mean duration of postoperative hospitalization was 20.71 (6–54) days. The mean duration of operation was 3.6 (2.25–4) hours. Early postoperative complications were noted in 3 (3.33%) patients. The most frequent early complication were wound infection and intraabdominal collection observed in 2 (22.2%) patients. Pancreatic fistula was noted in 1 (11.1%) patients. The other complications were the following: intraabdominal bleeding (1 – 11/1%) and pancreatic necrosis (1 – 11.1%). Early postoperative mortality was 0%.

Conclusions. Middle segment pancreatectomy performed in referral surgical center is safe procedure associated with low risk of complications.

P055

Pancreatic endocrine tumors

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Background. Neuroendocrine tumors (NETs) are neoplasms of variable clinical behavior ranging from slow-growing well-differentiated NETs to malignant poorly differentiated NETs. Endocrine pancreatic tumors (PET) originate from endocrine pancreatic precursor cells.

Methods. The authors analysed retrospectively 25 patients operated on for the PETs in Department of Gastrointestinal Surgery of Medical University of Silesia for 2003 to 2009.

Results. Patients' median age was 56.7, ranged from 36 to 76 years. There were 9 women (36%) and 16 men (64%). In 12 patients (48%) the tumor was localized in the pancreatic head, in 8 (32%) in the tail, in 4 (16%) in the body and in one patient (4%) in both body and tail of the pancreas. The pancreatoduodenectomy was performed in 11 cases, distal resection in 6 cases, middle segment resection in one case, tumor enucleation in 4 cases, gastric and biliary by-pass in one case, pancreatic head and body resection modo Beger in one case and explorative laparotomy in one case. Histopathological examination revealed well-differentiated neuroendocrine tumor in 9 cases (36%) and neuroendocrine cancer in 16 cases (64%).

Conclusions. In our material PETs most often were localized in the pancreatic head, more often appeared in male patients and more often were malignant.

P056

Double resections for pancreatic and stomach/renal synchronous carcinomas: Case reports

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Background. Synchronous pancreatic and other tumors are extremly rare. Authors present two double resections for pancreatic/renal and pancreatic/gastric tumors operated on in 2009. Second tumor was diagnosed as incidentaloma.

Methods. Case reports.

Results. A 79 yrs man presented with jaundice. Double duct sign was dignosed. On CT tumor of head of pancreas and asymptomatic renal tumor were diagnosed. Pylorus preserving pancreatoduodenectomy with lymphadenectomy and nephrectomy were carried out. The postoperative course was uneventful. Ductal adenocarcinoma, G2, pT3N1M0, stage IVa (JPN) and T1 renal carcinoma. A 70 yrs man presented with jaundice. ERCP disclosed small gastric antral carcinoma and intrapancreatic bile duct stenosis. Endo-usg diagnosed small tumor of pancreatic head, and other tumor or dissemination with PETCT scan were excluded. Whipple's procedure extended to distal 2/3 stomach resection and lymphadenectomy were carried out. Postoperative course was uneventful. Ductal adenocarcinoma, G3, pT2N1M0, stage III (JPN) and T1 for stomach cancer. Both patients have been treated with gemcitabine postoperatively. Their status is very good, Karnofsky 0, tumor free.

Conclusions. Radical resection is highly recommended, adjuvant therapy should be administered. Uncomplicated postoperative course and short hospital stay is general condition of successful therapy. Procedures should be carried out in pancreatic centres.

P057

Evaluation of postoperative factors according to the pancreatic reconstruction after pancreaticoduodenectomy

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Background. White blood cell count, lipase and C-reactive protein serum levels may be useful to recognize patients with increase possibility of postoperative complications.

Methods. Thirty-seven patients after pancreatoduodenectomy were enrolled to study and were divided into the 2 groups: pancreaticojejunostomy –25 patients, pancreaticogastrostomy – 12 patients. The WBC, lipase and C-reactive protein levels were examined before the surgery and twice postoperatively.

Results. Intergroup analysis did not show any differences as regards the lipase level before the operation ($p = 0.27$) and twice postoperatively ($p = 0.79$; $p = 0.31$). The change dynamics of the lipase in groups were statistically insignificant (PJ $p = 0.17$, PG $p = 0.10$). The CRP level was statistically insignificant: before the operation $p = 0.12$; twice postoperatively $p = 0.25$, $p = 0.36$. The CRP level dynamics were statistically significant in groups (PJ $p < 0.0001$, PG $p = 0.0024$). Comparing the groups, the WBC changes, both before and after the operation, were statistically insignificant (before: $p = 0.43$; postoperatively $p = 0.98$; $p = 0.93$). The WBC dynamics were statistically significant in groups (PJ $p < 0.0001$, PG $p < 0.0001$). Postoperative complications were observed in 1 group 48%, and 2 group 41.2%, $p = 0.2$.

Conclusions. Variations in the WBC, lipase and CRP serum levels in the early postoperative period are not depended on the pancreatic reconstruction and were not depended on the pancreatic reconstruction.

P058

Influence tumor size on complication after pancreas head resections

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Background. Size of the tumor may probably influence on frequency of surgical complications.

Methods. The study group included 53 patients who had undergone pancreatoduodenectomy due to neoplasm. Patients are divided into three groups depend on the size of the tumor: I (4.5 cm) – 22 patients.

Results. In study group 53 pancreatoduodenectomies were performed. The average size of the tumor was 4.4 cm (1–9 cm). Overall complications occurred in 17 patients (32%), alimentary tract hemorrhage (8.8%), DGE (11.7%), wound infection (11.7%), haemorrhage to the abdomen (8.8%), pancreas abscess (5.9%), fluid collections (2.9%), subhepatic hematoma (2.9%), acute pancreatitis (5.9%), anastomotic leakage (14.7%) early postoperative deaths (26.5%). Average size of tumor was 4.48 cm in patients with no complications and 4.20 cm among patients with complications. Overall complications in group I 33%, II 43%, III 22.7%. There were no differences between groups (I–II $p = 0.9$, I–III $p = 0.8$; II–III $p = 0.9$). There is no correlation between the size of a tumor and individual postoperative complications.

Conclusions. The size of a tumor does not have an influence on the frequency of complications.

P059

High correlation between CEA level in pancreatic cyst fluid and pancreatic cancer

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Background. Pancreatic cysts in most cases are complications of acute or chronic pancreatitis, but some of them are the result of cystadenomas or mucinous cystic tumors, some of which are malignant. The aim of the study was analysis of potential markers of malignant cystic lesion.

Methods. Between October 2003 and December 2008, 94 patients underwent treatment of pancreatic pseudocyst in the Department of Gastrointestinal Surgery. In our study we analysed only patients who underwent Roux-en-Y cystojejunoanastomosis and cystogastrostomy – 55 patients (27 men and 28 women). The mean age of the patients was 48.85 (22–74). We analysed the inflamation history, level of Ca 19–9, carcinoembryonic antigen (CEA), amylase, cytologic examination of cysts fluid and histopathological examination of the part of cysts wall.

Results. Among patients who underwent cysto-jejuno or cystogastrostomy, four patients (7.3%) had malignant cystis lesion. In these cases the inflammation history was negative, the carcinoembryonic antigen (CEA) level was extremely high, and the amylase level was low. None of the patients with inflammation cysts had high level of CEA.

Conclusions. Histopathological examination of cyst wall and cyst fluid markers analysis – especially carcinoembryonic antigen (CEA) – is a very useful tool in distinguishing benign from malignant cystic lesions.

P060

Percutaneous drainage for acute fluid collection and pancreas abscess in severe acute pancreatitis

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Background. Percutaneous drainage is a possible therapy for the treatment of peripancreatic fluid collection (PFC) and pancreatic abscess (PA) in severe acute pancreatitis.

Methods. We treated 291 patients (222 males, 69 females) with necrotizing pancreatitis. Percutaneous drainage was used for those patients, with 2–3 cm or wider peripancreatic fluid

collection (72 patients) or pancreatic abscess (15 patients). Multivariate regression analysis determined predictors of PCD success. Variables entered into the analysis included: type, diameter, and location, complexity of PFC and PA, and drainage technique (pigtail or trocar).

Results. No complications were found related to this intervention. Fifty patients with PFC (69.4%) were recovered without surgery after a 14.8 days average time of drainage. The remaining 22 patients with PFC underwent a late (14–30 days of admission) operations. Ten patients with PA were recovered without open surgery.

Conclusions. We suggest the percutaneous peripancreatic drainage as a first intervention for acute fluid collection or pancreas abscess in patients with severe pancreas necrosis. PCD should be considered as the initial therapy in selected patients with PFC and PA, and as a staging method for the resolution of sepsis prior to surgery.

P061

Laparoscopic surgery of pancreatic pseudocyst: A case report

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Background. Introduction: The incidence of pancreatic pseudocysts on acute biliar pancreatitis is between 2 and 10%. Almost it is serious complication. We report a case of pancreatic pseudocyst that was treated successfully by laparoscopic surgery.

Methods. A 44-year-old women with a history of acute biliar pancreatitis was admitted in our hospital. Pseudocyst size 12×8 cm was located in the pancreas body and was discovered by either ultrasonography and computer tomography. It was associated with several abdominal pain, nausea, vomiting, bloating and other nonspecific symptoms.

Results. After conservative treatment for acute pancreatitis, laparoscopic cystogastrostoma was performed out. An incision was made through the anterior gastric wall to exposure the posterior gastric wall in close contact with the pseudocyst using an ultrasonicaly activated scalpel. The fluid contents was aspirated and examinated for pathological analysis along with a portion of the pseudocyst wall. Cystogastrostoma was performed with endoscopical linear stapler. The anterior gastrostomy was closed by sutures.

Conclusions. The patient recovered well after operation. Laparoscopic cystogastrostomy is the best choice for treatment pancreatic pseudocysts.

P062

Impact of modified pylorus-preserving pancreatoduodenectomy on gastrointestinal function in early postoperative period

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Background. Delayed gastric emptying (DGE) is frequent postoperative complication pylorus-preserving pancreatoduodenectomy with incidence of 15–45%. Complication is transient but during DGE oral feeding is not possible, tube feeding can worsen the situation, leading to delayed recovery of patients. There is no clear cause of this phenomenon. We believe that the inability to maintain neurovascular integrity of antropyloric region and the initial part of the jejunum are the main cause of DGE.

Methods. Modification consists in dilatation of pyloric muscle before the establishment of gastrointestinal anastomosis. The purpose is to make pyloric muscle temporary incompetent. Branches of the vagus during lymphadenectomy could be injured and relaxation could not be achieved. Resection of the jejunum should be avoided and loop anastomosis performed in order to maintain neurovascular integrity of the initial part of jejunum. Latero-lateral jejunal relaxing anastomosis must be completed. In the time period of 10 years, we prospectively followed 107 patients who underwent PPPD.

Results. In any one patient operated with this method we noticed DGE. The nasogastric tube was removed at a mean of 4.2 days, and solid food intake started at 7.2 days. In 25 patients we performed paracetamol absorbtion test and in 15 patients scitigraphy.

Conclusions. With pylorus dilation and jejunal preservation with relaxing anastomosis, it is possible to DGE the most common complications after PPPD.

P063

Biological behaviour of periampullary adenocarcinomas

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Background. Periampullary tumors originate from ampullary, duodenal, biliary, or ductal pancreatic epithelium. Survival adjusted to tumor stage is greater for nonpancreatic periampullary cancers than for pancreatic cancers.

Methods. Tumor biology rather than anatomic factors probably causes these differences in survival. Intestinal-type adenocarcinoma and pancreaticobiliary-type adenocarcinoma represent the main histological types of periampullary carcinoma Pancreatobiliary type of differentiation independently predicts poor prognosis after pancreaticoduodenectomy for periampullary adenocarcinoma. Intestinal type of differentiation indicates better prognosis.

Results. Each type of mucosa produces a different pattern of mucus secretion. The expression of MUC1 and MUC4 is typical for pancreatobiliary type (pancreatic ductal carcinoma and the ampullary carcinoma of pancreatobiliary origin). MUC2 is rarely expressed in pancreatic ductal carcinoma and is predominantly in intestinal type of mucosa (papilla Vateri).

Conclusions. In pancreatobiliary adenocarcinomas, markers MUC1 and MUC4 expression indicate a particularly poor prognosis. MUC1 and MUC4 is related with the aggressive behavior of human neoplasms and a poor outcome of the patients in general. Also these markers might be used for diagnosis of malignant pancreatic tumors.

P064

Congenital hyperinsulinism – surgical treatment and complications

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Background. Congenital hyperinsulinism is a common cause of persistent hypoglycaemia in neonates. Cases resistant to medicamentous therapy require surgical treatment, where the greatest challenge is to differentiate focal from diffuse forms of the disease and to localize the focal lesion.

Methods. PET-scan, selective arterial stimulation and venous sampling (ASVS) and intraoperative frozen sections examination are used to determine the type. Partial pancreatectomy for focal forms has lower complication rate and diabetes mellitus development then radical near-total pancreatectomy for diffuse forms.

Results. We report a case of 6-month old boy with focal form of CHI with special emphasis on surgical complications of pancreas resection together with their management.

Conclusions. Surgical procedures on the pancreas are rare in childhood, but when needed, careful planning, capability to solve possible complications and multidisciplinary management is obligatory to achieve success.

P065

Treatment of neuroendocrine tumors of the pancreas – our experience

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Background. Neuroendocrine tumors are rare neoplasms of the pancreas. Aim of this research is to present the way of treating such tumors at our Institute.

Methods. Retrospective analysis of patient histories treated at our institute.

Results. Over a six-year period we have treated 13 patients (9 males and 4 females) with neuroendocrine tumors of the pancreas, mean age 42.69 years. Of the mentioned patients, 10 at the time of presentation had symptoms signaling towards possible pancreatic involvement, while 3 patients had non-specific symptoms. Five tumors were found in the head and 8 in the body and tail of the pancreas. All patients were surgically treated, of which 3 underwent cephalic duodenopancreatectomy (according to Whipple), 6 distal splenopancreatectomy and in 4 cases other types of surgery were performed. Of the operated tumors, one had lymph node metastases, while 3 had liver metastases. One lethal outcome was recorded. In all other cases, recovery went well without significant complications.

Conclusions. According to our experience, although neuroendocrine tumors have a low prevalence in the general population, late appearance of symptoms and their non-specificity makes diagnosis and adequate patient care difficult. The surgical procedures involved are often complicated and very demanding for seriously ill patients, but they remain the treatment of choice.

P066

Our experience with surgical treatment of intraductal papillary mucinous neoplasm (IPMN) of the pancreas

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Background. Intraductal papillary mucinous neoplasm (IPMN) is an increasingly recognized disease of the pancreas. Among other cystic pancreatic tumors, IPMNs are classified as neoplasms with clear malignant potential, and as a disease in which surgical resection is a preferred method of treatment.

Methods. During the 8 year period we operated 3 patients with IPMN of the pancreas (2 males, 1 female). In 2 patients the neoplasm was in the head of the gland and the Whipple operation was performed, and in one patient the tumor was in the tail so distal splenopancreatectomy was performed. In two patients, diagnosis of IPMN was not made before the definitive patohystological confirmation, and in one patient preoperative diagnosis of IPMN was made due to the patognomonical sign of mucus protruding through the papila Vateri. One patient presented with recurring acute pancreatitis, chronic pancreatitis and pancreatic pseudocyst and was treated by pseudocystojejunostomy before.

Results. All 3 patients had no postoperative complications, and their recovery and return to normal activities was uneventfull. All patients are still in alive and in follow-up, 7.8 and 1 year postoperatively, with no signs of tumor recurrence.

Conclusions. We conclude that pancreatic resection is preferred method of treatment for patients with IPMN, because it is safe and with good long term results.

P067

Resections for pancreatic head cancer: Complications, survival and quality of life. Single center experience

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Background. Surgical treatment of pancreatic head cancer plays a key role for prognosis. The aim of surgery is remove the tumor with regional lymphatic nodes and thereby achieve R0 status.

Methods. Eighty-eight head resections were carried out for pancreatic malignancies in 2006–2009. Complications rate, cumulative survival and quality of life were evaluated.

Results. Intraabdominal abscess was in six (6.8%), hepaticojejunal anastomotic leakage, bile leakage from aberant duct and postoperative pancreatitis occurred in three patients (3.3%). Postoperative bleeding was in two patients (2.2%). Wound infection was found in 8 (9%), dehiscence of laparotomy in 4 of them. Delayed evacuation of the stomach was observed in five patients (5.6%) always dealt with nasogastric tube. Pancreatojejunal anastomotic dehiscence occurred in eight patients (9%), treated with completion of pancreatectomy. Mortality was 3 from 8 patients (37.5%) with this complications, overall mortality was 3.4%. Overall morbidity is 39.3%. Surgical reintervention rate was 17%. Early deaths within 30 days after surgery occurred in 3 cases (3%).

Conclusions. Despite the extreme difficulty of these procedures, outcomes from ongoing experience, improving technology, surgical technique and postoperative care is clearly improving. In specialized centres mortality drops below 5%, morbidity is below 40% and the number of postoperative dehiscence decreases below 10%.

P068

Pancreatic cancer: diagnosis, management and survival rates. Is pancreatic cancer diagnosis a death sentence?

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Background. Symptoms primarily in pancreatic cancer are caused by mass effect rather than disruption of exocrine or endocrine function. The clinical features depend on the size and location of the tumor as well as its metastases.

Methods. Retrospective review of the clinical records of patients undergoing surgery for pancreatic cancer. The jaundice was present at almost all patients, being the main symptom for these patients.

Results. In our clinic in the last 10 years we performed 23 PD and 103 biliary derivations as paleative procedure. From these, 97 cases were histologic diagnosed with pancreatic cancer; 3 cases underwent pylorus preserving pancreatico-duodenectomy (PPPD) and 20 patients, classical Whipple procedure (PDW). Mean age was 57.0 ± 2-year-old (34–78-year-old), and male to female ratio was 1.2:1. Jaundice was presented in 112 cases, abdominal pain at 89 patients (58.94%) and Curvoisier-Terrier sign at 57 cases (37.74%). Postoperative morbidity rate was 35%. Postoperative mortality rate was 14%. Average survival rate was 11.7 months. Histological exam diagnosed adenocarcinoma in 108 cases.

Conclusions. The results after radical surgery in non elective groups, (postoperative morbidity and mortality, long-term survival) are similar to that following biliary internal derivation and other paleative procedures. Radiation combined with chemotherapy has slowed progression in locally advanced cancers.

Colorectal Surgery

P069

Stapled hemorrhoidectomy versus traditional hemorrhoidectomy for the treatment of hemorrhoids

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Background. We aimed in this randomized clinical trial to compare the results of traditional versus stapled hemorrhoidectomy for treatment of third and fourth degree hemorrhoids.

Methods. Thirty patients admitted for surgical treatment of prolapsing hemorrhoids were randomly assigned to traditional ($n = 15$) or stapled hemorrhoidectomy ($n = 15$). All patients received standardized preoperative and postoperative analgesic and laxative regimens. Visual analog scale (VAS) scores were used as the primary outcome measure. Secondary outcome measures were operative time, use of analgesia, postoperative complications, hospital stay duration, time to first bowel motion, and return to normal activity.

Results. Stapled procedure for hemorrhoids is associated with a significant improvement in postoperative pain control and with an earlier return to normal activity. Operative time and duration of hospital stay were shorter for the stapled procedure. A trend towards earlier bowel functions after the stapled procedure, although not significant in this study.

Conclusions. Stapled hemorrhoidectomy is an effective treatment for third and fourth degree hemorrhoids with significant advantages for patients compared with traditional hemorrhoidectomy.

P070

Laparoscopic anterior resection with totally intracorporeal anastomosis and transanal specimen extraction

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Background. Currently most colectomies performed laparoscopically commonly require an abdominal incision to delivery the specimen and perform some components of the operation extracorporeally. Such approach may impair the concept of MIS. To avoid this we performed laparoscopic anterior resection with transanal specimen extraction and totally intracorporeal anastomosis.

Methods. After mobilization of the colon and division of the mesentery, a partial colotomy is made at the anterior rectal wall proximal to the future transection line. The anvil of the circular stapler was then introduced transanally into the abdominal cavity

through this colotomy. A transverse antimesenteric opening of the colon was carried out on the segment to be resected. The anvil was passed through the colon opening and puncture was made few cm proximal to the future resection line by stilett (spike). Proximal colon transection was then performed by endostapler. Rectal resection was completed and specimen was delivered transanally. Rectal stump was closed by endostapler. The anastomosis was completed after having inserted the circular stapler transanally, this results in a side-to-end colorectal anastomosis.

Conclusions. This method allows less body trauma, avoid possible incisional hernias, allow lower infection rate and represent truly minimal invasive procedure.

P071

Colorectal cancer operations between 2006–2010 at Department of Surgery, Clinical Hospital Center Osijek

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Background. Join team of surgeon, gastroenterologist, radiologist, pathologist and oncologist took a multi-disciplinary approach for every patient in order to make a quick dyagnostic of cancer and a better preoperational and postoperational patient's care.

Methods. Retrospectively we have examined a history of the patients at the Department of Surgery at the Clinical Hospital Center Osijek between January 01, 2006 to December 31, 2009. Postoperatively, in a period of 1 month, 5% of the patients deceased.

Conclusions. Finally, it can be concluded that the right timing approach to operative treatment and a experienced surgeon give the good results in the operative treatments of the patients.

P072

Topical nitroglycerin versus lateral internal sphincterotomy for chronic anal fissure

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Background. To compare the effectiveness of local glyceryl trinitrate (GTN) versus internal sphincterotomy in the management chronic anal fissure.

Methods. Eighty patients with chronic anal fissure were enrolled in the study. They were divided into two groups; group (1) included 40 patients treated with topical GTN 0.2% on liposomal base applied to the anoderm twice daily and group (2) included 40 patients treated with internal sphincterotomy. We compared the effectiveness of both techniques in the management chronic anal fissure.

Results. In group 1, healing of fissures occurred in 85% of patients after 8 weeks therapy. Headache as a side effect developed in 65% of patients. In group 2, healing occurred in 97.5% of patients after 8 weeks. Incontinence to flatus occurred in 3 patients (7.5%), mild soiling in 2 patients (5%) and one patient developed wound infection. All complications were temporary except for one patient with persistent incontinence to flatus. At the end of 8 weeks both groups were equal in pain scoring.

Conclusions. Topical GTN should be the initial treatment in chronic anal fissure while internal sphincterotomy may be reserved for patients who not respond to GTN therapy and those with severe pain (as healing is faster with sphincterotomy).

P073

Actinomycosis: A dilemma in diagnosis

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Background. Introduction: Actinomycosis is a chronic bacterial infection commonly caused by Actinomyces israelii, a common non-pathogenic anaerobe found in the nose and throat. Although rare, intra-abdominal actinomycosis can masquerade as a surgical emergency requiring operative intervention. Clinical findings are non-specific and current imaging modalities are unable to differentiate between inflammatory versus neoplastic processes. Surgical management is required for diagnostic biopsy or complete excision. Purpose: To review the presentation and management of patients presenting acutely with intra-abdominal actinomycosis to North Shore Hospital, Auckland, New Zealand.

Methods. Inclusion criteria: Consecutive adult general surgical patients presenting to North Shore Hospital from 2004 to 2009. Data collection: Waitemata hospital laboratory database.

Results. Five patients grew Actinomyces israelii from either their surgical specimen (4 patients) or fine needle aspirate (1 patient). Four of the patients were female and only one was male. The median age was 39 (range: 18–45). Four patients were managed operatively and with intravenous antibiotics while one with antibiotics alone. One patient had an appendicectomy, two patients had right hemicolectomies, and one had a small bowel resection and omentectomy.

Conclusions. Acute presentations of actinomycosis are diverse and diagnosis is often made retrospectively. Timely surgical intervention and intravenous antibiotics result in good outcome.

P074

A case report of an endoscopically removed colonic lipoma

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Background. Management of colonic lipomata is still debated primarily because of its rarity and lack of long term data.

Methods. We report a case of a colonic lipoma removed endoscopically with synchronous polypectomy. This report presents aspects to consider when managing these conditions when they occur at the same time. It is generally considered that lipomata less than 2 cm in diameter may be safely removed endoscopically. If the neoplasm is larger than 2 cm and pedunculated successful endoscopic removals have been reported. Some advocate the use of surgery in larger lesions due to the risk of bleeding and perforation. These considerations mentioned are for isolated colonic lipomas only.

Results. In our case we had a patient with synchronous pathology. The colonic lipoma was over 3 cm in diameter and surgery has been advocated even in asymptomatic patients. A suggested approach to treatment for colonic lipomas is presented.

Conclusions. Larger colonic lipoma may safely be removed endoscopically.

P075

Temporary decompression after low and ultra-low colorectal or coloanal anastomosis: Evaluation of the loop ileostomy and loop colostomy

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Background. The low and ultra-low colorectal or coloanal anastomoses have a relevant risk of leakage. To decrease morbidity a preventive stoma is recommended. We therefore performed a retrospective study comparing loop ileostomy (LI) with loop colostomy (LC) in a group of patients operated electively for rectal cancer.

Methods. Among 76 patients undergoing rectal resection with low and ultra-low colorectal or coloanal anastomoses for cancer during 2004–2009, 12 (15.8%) had a LC in our original modification and 7 (9.2%) a LI to defunction a low anastomosis. The two groups were similar with respect to age, gender, tumor stage and duration before closure.

Results. 44 (57.9%) patients underwent a low anterior resection with double-stapling colorectal anastomosis. As well as 32 (42.1%) patients underwent an ultra-low anterior resection with coloanal hand-sewn anastomosis. Clinical signs of postoperative anastomotic leakage were not found in patients with preventive stoma. After stoma construction, the morbidity rate was significantly higher following LI than after LC ($p = 0.041$). After stoma closure the complication rate were no significant differences between in the ileostomy group and in the colostomy group ($p = 0.02$).

Conclusions. The results of this study showed that LC in our original modification is the best procedure for defunctioning colorectal anastomoses electively.

P076

The value of c-reactive protein in the management of right lower quadrant abdominal pain

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Background. The aim of this study is to clarify the role of CRP in the investigation of right lower quadrant abdominal pain.

Methods. A total of 638 patients were included that presented in the General Hospital of Amfissa with right lower quadrant abdominal pain and were admitted in the Surgical Clinic. Four hundred and thirty patients (Group A, 67.4%) were finally diagnosed with atypical right lower quadrant pain and did not undergo surgery whereas 208 patients (Groups B–E) were diagnosed with acute appendicitis and underwent surgery.

Results. Patients of Group A had normal CRP levels and normal WBC. A total of 208 patients underwent surgery of whom 13 had a normal appendix histopathologically (Group B). They had normal values of CRP and WBC. Among the 195 patients who had appendicitis, 75 had an inflamated appendix(Group C, simple appendicitis), 91 had a gangrenous appendix(Group D) and 29 had perforated appendix (Group E). Patients of Group C had slightly increased CRP (1–3 mg/dl), while patients of Group D had CRP values between 3 and 6 mg/dl. Finally, patients of Group E had significantly raised levels of CRP (>10mg/dl).

Conclusions. In acute appendicitis the values of CRP could be normal or slightly elevated at the beginning of the disease but in cases of complicated appendicitis CRP values are almost always elevated. When WBC and CRP values are normal, acute appendicitis rarely is the diagnosis for the pain of right lower quadrant.

P077

Effect of eras pathway implementation on hospital length of stay and post-operative complications

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Background. The Enhanced Recovery After Surgery (ERAS) pathway was introduced to improve care and shorten length of hospital stay. The main elements of this pathway include preoperative assessment, minimal physical stress intra-operatively, early gut motility and mobilisation post-operatively. The aim of this study was to measure the effect of the ERAS pathway on length of stay and incidence of post-operative complications.

Methods. A case-referent study was undertaken on 86 patients who underwent elective colorectal surgery. Data on major post-operative complications and length of hospital stay was

collected. Prospective data collection was performed on 43 patients undergoing elective colorectal surgery between January and July 2009 after an ERAS pathway was introduced. The results were compared with retrospective data from 43 patients undergoing closely matched elective colorectal surgery prior to implementation of the ERAS pathway.

Results. Patients on the ERAS pathway had a shorter hospital stay (median 7 days) compared with patients prior to the pathway (median 10 days, $p \leq 0.05$, MW test). There was a small reduction in post-operative complication rates in patients on the ERAS pathway (37.2%) compared to patients not on the pathway (39.5%, NS).

Conclusions. The implementation of the ERAS pathway has demonstrated an overall reduction in length of hospital stay.

P078

Unusual case of spontaneous colocutaneous fistula caused by sigmoid diverticulitis

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Background. Colonic diverticulosis is common in developed countries and its prevalence increases with age. Diverticulitis is mainly complication of diverticulosis. Diverticulitis may be complicated by abscess, peritonitis, obstruction or fistula formation. Fistula is rare manifestation and can arise spontaneously or postoperatively. We report a case of spontaneous colocutaneous fistula in patient with previously undiagnosed diverticulosis

Methods. A 65-year-old female presented with a 3-months history of unsuccessful healing of left lumbar abscess. Past medical history consisted of laparoscopic cholecystectomy and laparotomy due to biliary peritonitis. Physical examination revealed a left lumbar ulcer discharging purulent material positive for *Escherichia coli*. Laboratory and radiographics were unremarkable. Colonoscopy showed inflammatory mucosal changes and sigmoid diverticulosis. Multidetector CT fistulography revealed a colocutaneous fistula from the sigmoid colon.

Results. Sigmoid colectomy with fistulectomy and primary anastomosis was performed. The postoperative course was uneventful. Histology revealed fistulized sigmoid diverticulosis.

Conclusions. Spontaneous colocutaneous fistula caused by diverticulitis is rare complication. Surgery is indicated when conservative management failed. The guiding principle in treatment is resection of the diseased segment of colon and fistulous tract, with end-to-end anastomosis.

P079

Incidental finding of a solitary colonic ganglioneuroma. Is colonoscopic surveillance enough?

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Background. Gastrointestinal ganglioneuromas are rare and typically occur in association with neurofibromatosis and (MEN) syndrome.

Methods. Seventy-one year old gentleman was diagnosed with sigmoid colon ganglioneuroma on screening colonoscopy Immunoperoxidase stains were negative for CD117, CD34, smooth muscle actin and muscle specific actin. The patient though asymptomatic, was referred for sigmoid resection for recurrence of his colonic ganglioneuroma. Given the relatively benign nature of these solitary lesions it was decided to observe with serial colonoscopy. The follow-up in 12 months was unchanged.

Results. Identifying the genetic components and elucidating the mechanism of GN formation remain an area for further investigation. There appears to be no convincing link with cancer specially with solitary occurring colonic GN. The limiting factor here lies in the rare nature of this phenomenon and the limited ability to study large numbers of such individuals.

Conclusions. There is no indication for elaborate colonic resection in asymptomatic patients or for long term follow-up surveillance colonoscopy in patients who have had their lesions resected since the lesion does not appear to be premalignant. In elderly patients with medical comorbidities, serial observation over time with regular routine colonoscopies is often enough though further studies are needed.

P080

Anastomotic leak after laparoscopic assisted resection of sigmoid colon and rectum

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Background. Anastomotic leak is the most feared early complication in the postoperative period after laparoscopic assisted resection of rectosigmoid colon and significantly increases morbidity and mortality.

Methods. From 2006 to 01.11.2009 we had 126 patients who underwent laparoscopic assisted resection of sigmoid colon and rectum because of benign disease or cancer. Majority were female (59.5%). Average age was 65.3 years. Sixty-eight (53.9%) patients were operated for cancer, 37 (29.4%) for precancerosus lesions and 21 (16.7%) because of benign disease.

Results. In 117 (92.9%) patients we had made laparoscopic assisted resection, conversion to open technique was necessary in 9 (7.1%) patients. One patient had protective ileostomy during first procedure. Four (3.2%) patients developed clinically confirmed anastomotic leak, 2 males and 2 females. Average age was 70 years, ASA score 2–3. Three patients had cancer lesions, one had a precancerosus lesion. We treated one patient with creation of a protective ileostomy, 3 patients had resection sec. Hartmann. Eight (6.3%) patients had minor postoperative complications. None of the patient died.

Conclusions. Laparoscopic surgery for cancer or benign lesions of sigmoid colon and rectum has similar complication rate to open surgery. A surgeon has to assess the risk factors and decide whether to create protective stomy.

P081

Spontaneous stercoral perforation of the colon

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Background. Stercoral perforation of the colon is a rare disease with less than 100 cases reported in the international literature,due to pressure necrosis from a fecal mass. We explored the management of three cases of patients with different clinical presentation of the disease.

Methods. Two patients had sustained a stercoral perforation of the rectosigmoid colon and one patient of the cecum. All patients had a long history of constipation treated with laxatives and/or enema and two of them received constipating agents because of neurological comorbidities (Parkinson's and Alzheimer's disease). Two patients presented peritonitis symptoms and one was initially treated conservatively with a diagnosis of acute appendicitis.

Results. Two patients underwent Hartmann's procedure and intraoperative colonic lavage, and another was treated with elective right colectomy. Two patients with relatively delayed diagnosis presented an adjacent mass formation. There was one surgical mortality and the other patients had an uneventful post operative course

Conclusions. Stercoral perforation is a rare disease with still unacceptably high mortality rate (35%). Severe chronic constipation is main causative factor in the development of the disease and must always actively treated.

P082

Initial experience with the anal fistula plug for the treatment of complex anal fistula

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Background. High transsphincteric fistulas are difficult to treat surgically because of the risk of incontinence. The anal fistula plug seems to be a successful treatment for these conditions but cost-effectiveness must be further evaluated.

Methods. Five patients with complicated anal fistulas were treated with fistula plug. The median age was 38,8 (27–55) years and all patients had previously undergone clinical examination, coloscopy, fistulography and MRI. Inflammatory bowel disease was absent in all cases. Three patients received previously antibiotics. Debridement was performed and fistula was irrigated with hydrogen peroxide. The plug was inserted and fixed with sutures and small mucosal flap advancement was performed. External opening was left opened.

Results. The longer surgical time was 40 min and the mean surgical time was 28 (20–40) minutes. Median clinical follow-up was 10.8 (6–16) months. One patient presented delay closure of the external opening and a clear fistula reformation almost six months later.

Conclusions. Anal fistula plug is an expensive material not totally covered by the National Health System in Greece. The high success rate (80%) in our limited number of patients is promising and we consider that could be the first approach to treat these kinds of fistulas, taking into account sphincter functionality. More cost-effectiveness studies are necessary.

P083

The colon obstruction and the colorectal team in a low volume surgical unit

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Background. Objectives: To evaluate the clinical results and our complications in the treatment of colon obstruction after a colorectal unit was organized in a low volume surgical unit.

Methods. Fifty-two consecutive patients with colon obstruction (23 males, 29 females, mean age 71 years who underwent one or two stage operations were evaluated in a decate (1999–2009) retrospective review. Carcinoma was the cause of obstruction in 41 (78.8%) patients, 5 patients had sigmoid volvulus and 6 patients acute diverticulitis. Cases with nonoperable colonic cancers and colonic perforations were excluded. Perioperative parameters and outcome including morbidity and mortality were recorded.

Results. One-stage primary resection and anastomosis were performed in 43 (82.7%) patients, ASA I II III (group A). Hartmann's procedure was performed in 9 patients (17.3%), ASA IV (group B). Two of the patients (3.8%) died. There was only 1 (1.9%) anastomotic leak and 2 (3.8%) patients developed local recurrences within a year postoperatively.

Conclusions. Primary resection and anastomosis is a safe procedure in certain patients with colon obstruction performed by specialized colorectal team working in the small community hospitals. The Hartmann's procedure is retained for high risk patients. Mortality and morbidity is not related with the type of procedure.

P084

Metachronous solitary splenic metastasis of ascending colon cancer treated by splenectomy: A case report and literature review

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Background. Colon cancer most commonly metastasizes to the liver, lungs or axial skeleton, although recurrences can occur

elsewhere. An isolated metachronous splenic metastasis from colorectal cancer is very unusual finding, with only 15 cases described in the English literature.

Methods. We present a case report and review of the literature.

Results. Herein, we describe a case of a 55-year-old female with history of ascending colon cancer and previous right hemicolectomy (the tumor was staged T4N0MX) who presented with a mass in the spleen. Sixteen months after surgery there was an elevation of CEA levels and mild abdominal pain. The patient had abdominal CT scan, which revealed: a solitary mass considered as an isolated metastasis in the spleen. Exhaustive imaging studies revealed no evidence of widespread metastatic disease. The patient was treated via splenectomy. The histological diagnosis was consistent with metastatic adenocarcinoma to the spleen.

Conclusions. Our case report an review of the literature underscore the rarity of such clinical entities. The existing data indicates that curative splenectomy seems to be the treatment of choice for isolated splenic metastasis, since it can significantly prolong the disease-free survival.

P085

Lower burden of co-morbidity in patients with screen detected colorectal cancers

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Background. Higher ASA (American Society of Anaesthesiologists) grade is associated with increased perioperative morbidity and mortality. Detecting colorectal cancers at an earlier stage in patients with less co-morbidity via screening should improve outcome.

Methods. Patients with screen detected colorectal diagnosed between 2001 and 2009 were identified from the unit's database. Dukes's stage and ASA grade were obtained for these patients. Comparision was made with data from the most recent National Bowel Cancer Audit which includes screen detected and symptomatic patients.

Results. A total of 171 patients with screen detected colorectal cancer who had undergone surgery were identified. A higher proportion of these patients were fit or had a non-restrictive relevant disease (ASA I and II) than in the overall population of patients undergoing surgery for colorectal cancer (55% vs. 46.7%).

Conclusions. Detecting cancers via a screening programme identifies a group of patients with less co-morbidity than those with symptomatic disease. This suggests that these patients will have a lower anaesthetic and surgical risk and hence better outcome and lower cancer related mortality. Follow up data will be required to confirm this.

P086

Screening for colorectal cancer – are we making a difference?

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Background. Survival from colorectal cancer is in part dependent upon the Duke's stage of the tumour. Detecting colorectal cancer at an earlier stage should translate into a decrease in cancer related mortality. This study compares the Duke's stage of cancers detected via screening with the Duke's stage of tumours in all patients with colorectal cancer.

Methods. Patients with screen detected colorectal cancer, presenting between 2001 and 2009, were retrospectively identified from the colorectal cancer database at our institution. The Duke's stage of their tumour was recorded and the data compared with that from the most recent National Bowel Cancer (NBC) Audit.

Results. One hundred and ninety three patients were identified and Duke's stage was available for 189 patients. Seventy-four (38.3%) had Duke's stage A disease, 59 (30.6%) had Duke's B disease, 52 (26.9%) had Duke's C disease and 4 (2.1%) had Duke's D disease. This compares favourably with data from the NBC audit where only 6.6% of patients had Duke's A diease at presentation and 16.1% had Duke's stage D disease.

Conclusions. A far higher proportion of the screen detected cancers are at an earlier stage. Most motably Duke's stage A, which according to recent data from the National Cancer Intelligence Network has a 5 year relative survival of greater than 90%. Thus by screening for colorectal cancer and detecting cancer at an earlier stage it is hoped that cancer related mortality will be reduced.

P087

Extension of the NHS bowel cancer screening age range – a move in the right direction?

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Background. In the UK the NHS Bowel Cancer Screening Programme (BCSP) offers screening every two years to all men and women aged 60 to 69 and it will be extended to include those up to 75 years of age. The pilot stage of screening included patients ages 50–59 years. This study seeks to determine whether the NHS Bowel screening programme should be extended to include this group of patients.

Methods. Data on patients from the second round of pilot screening and for symptomatic patients over the same time period was obtained from the institution's database and retrospectively analysed. Comparison was also made with patients under the age of 60 in the National Bowel (NBC) audit.

Results. 7.3% of symptomatic patients were younger than 50 at diagnosis. Patients aged 50–54 years accounted for 6.5%

of cancers detected in pilot screening and 6.6% of symptomatic patients. Patients aged 54–59 years accounted for 19.4% of cancers in pilot screening and 9.2% of symptomatic patients.

Conclusions. Approximately one fifth of all patients with symptomatic colorectal cancer are under 60 years old at the time of diagnosis. A similar proportion was found amongst those cancers detected in the pilot screening programme. Whilst the NHS BCSP is being extended to include older patients it is important to include those younger than 60 in whom a significant number of cancers occur as this is likely to reduce the mortality from colorectal cancer.

P088

Short term outcome of laparoscopic anterior resection for rectal cancer

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Background. Laparoscopic surgery (LS) for rectal cancer is a challenging procedure from the technical point of view. The magnification of laparoscopy allows surgeons to perform more precise rectal dissection with perfect preservation of intrapelvic autonomic nerves, ''Total mesorectal excision''. However, the most difficult procedure of laparoscopic rectal surgery is proper division of the lower rectum with adequate surgical margin.

Methods. We revived 15 LS cases of anterior resection between January 2008 and December 2009 in Dubrava University Hospital and studied about intraoperative accidents and postoperative complications.

Results. We performed 15 laparoscopic anterior resection. From overall number of LS rectal operations 4 was high anterior resection, 9 low anterior resection and 2 ultralow resection. In all cases of anterior resection we didn't preformed protective ileosteomy. T classification was as follows T1 was 5 cases, T2 was 7 cases T3 was 3 cases. We didn't have intraoperative complication. All anastomoses are tested. We had two postoperative complications, anastomosis stricture and one anastomosis leakage. Both complication are treated with laparotomy. We didn't have wound infection.

Conclusions. With the advancement of technique and devices, laparoscopic rectal surgery will be more widely expanded as safe, oncologic procedure as well as minimally invasive operation.

P089

Radiofrequency ablation for anal cancer: A case report

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Background. This report introduces the application of a minimally invasive and alternative therapeutic technique, Radiofrequency ablation (RFA) in anal adenocarcinoma.

Methods. A 74-year-old female patient was admitted to our hospital because of rectal bleeding and change in bowel habit since a 4 month period time. She was diagnosed with adenocarcinoma of anal canal. With patient's informed consent, RFA was performed transanally on tumorous tissue.

Results. The whole procedure and the postoperative period were uneventful, without any complications. There were changes in the density and the characteristics of the tumour mass which was significantly decreased. However, after six months, the patient came back presenting stenosis of anal canal and was then treated surgically.

Conclusions. The application of RFA to an aggressive and rare form of cancer such as anal adenocarcinoma was initially associated with changes in the density and the size of the tumour. The late appearance of stenosis raises questions. As a result, further studies should be conducted to determine the usefulness, safety and the oncological outcome of RFA in anal cancer and its combination or not with a surgical resection and other treatment forms.

P090

Erectile dysfunction in patients with colorectal cancer disease

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Background. Cancer remains a major public health problem. Oncological illness changes the quality of life, system of value, and mental state. It influences the length of life, social contacts and economic status. Sexual well-being may be altered by both the diagnosis and treatment of cancer. Sexual dysfunction is often unrecognized, underestimated and untreated. A great number of oncological patients describes a deterioration in their partner staff regarding changes in their sexuality and their relationships.

Methods. Our group of thirty patients were investigated, they filled up an IEEF 5 (International Index of Erectile function) questionnaire. All the patients underwent low rectal resection or abdominoperineal resection of rectum because of CRC.

Results. The erectile dysfunction were proved in about 90% of patients, comparing an overall score of IEEF 5 questionnaire before and after operation.

Conclusions. These findings shows for necessity of sexuological education before oncological treatment. The therapy of erectile dysfunction is necessary almost in all patients with CRC after rectal resection. Couple therapy is a important part of complex care in patients with colorectal cancer disease.

P091

Complications after surgery for colorectal cancer in county hospital Čakovec

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Background. The paper analyzed patients with complications after colorectal cancer surgery. The purpose of the work was to determine type and frequency of complications, and surgery for solving complications.

Methods. We analyzed patients according to sex, age, tumor localization, Dukes classification, surgery performed and mortality. Data were obtained from the medical histories, operating protocols, and pathohistological findings.

Results. From 01.01.2000. to 31.12.2009.g. a total of 586 patients was operated for colorectal cancer. Reoperation for postoperative complications has been performed in 89 patients (15.18%). Fifty-nine patients required one, 23 patients two, and 7 patients 3 reoperations for complications. We performed 31 reoperations for abdominal wall disruption, 35 for anastomosis leakage, 21 for obstructive ileus, and 9 operations for bleeding and intraabdominal abscess (each). Primary localisation of tumor was rectum in 42, sigmoid colon in 17 and rectosigmoid in 7 reoperated patients. Among reoperated, 31 patients were in D stage, 26 in C stage, 23 in B stage and 9 patients in A stage according to Dukes.

Conclusions. About 15% of patients had reoperation for complications after colorectal cancer surgery. The most of reoperated patients has primary tumor in the rectum, and about 64% are classified in C or D stage according to Dukes.

P092

Acute appendicitis in children below 14 years of age

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Background. Acute appendicitis is a common emergency which is managed effectively by timely operation. The purpose of our study was to examine the presenting symptoms, signs, perforation rates, time interval between onset of symptoms and hospitalisation and outcomes of appendicitis in children below 14 years.

Methods. Retrospectively collected data on patients with acute appendicitis (0–14 years) was analysed for a period of 5 years.

Results. On average 108 appendectomies were performed per year (108.4 ± 7.47), 61% of those were performed in boys and 39% in girls, the average age was 9.94 years. The average time interval between the start of symptoms and hospitalisation was 42.2 hours for perforated appendixes with peritonitis and 28.9 hours for non-perforative appendicitis. Majority of appendectomies was done by classical approach, although there is an upward trend of laparoscopic approach. 78.6% of appendectomies was performed on gangrenose appendixes and only 7% on virtualy normal appendixes. 80.8% of children were hospitalised for 3–7 days.

Conclusions. Our review has shown that the number of appendectomies done per year is constant and the incidence is greater in boys. The time interval between start of symptoms and arrival to the hospital was 13.3 hours longer in children with perforative appendicitis and peritonitis.

P093

The management of locally recurrents colorectal cancer

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Background. The evaluation and management of locally recurrent colorectal cancer remains an important problem in plur-idisciplinary approach of this disease treatment, the rate of this recurrence remaining increased.

Methods. Between 9 November 1990 and 25 July 2009, 856 patients with Dukes Stages B and C, who had undergone curative resection, were monitored postoperatively using a physical exam and several tests, including blood tests, CEA, chest X-rays, bone scans, ultrasounds, and CT, PET, or MRI scans. Treatment of recurrences was included surgery, radiation, and chemotherapy. An second-look operations was performed on any potentially resecable recurrence.

Results. Recurrence developed in 23% (196/856) of patients, and 85% (167/196) of the recurrences were detected within the first three years following curative resection. The locally recurrence was in 11% (94/856) of cases. Seventy-nine patients underwent an second-look operations, in 52% (41/79) had all of their disease resected. The resecable group carried a significantly better survival than the unresecable recurrence group (35.7 vs. 6.2%, $p < 0.01$).

Conclusions. We discuss the diagnosis, evaluation, and management of locally recurrent rectal cancer. Locally recurrent rectal cancer can be successfully managed with multimodal therapy; the surgery (second-look operations) remains the basis of this, results in improved survival.

P094

Clinical pathway of multimodal treatment for colon cancer shortens hospitalisation

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Background. Decreasing of surgical stress response with multimodal treatment (fast track) and standardized resections gives colon cancer patient best opportunity for cure. Hospitalisation can be crude quality indicator.

Methods. We compare results of last 30 colon cancer patients treated by the multimodal treatment clinical pathway in 2008 with results from 2004 and 2006 from our department.

Results. Mean age of patients were 65.1 years, half were male. Waiting time for nonurgent treatment was mean 18.7 days. 16.6% of patients have urgent operation. 80.6% of patient have epidural analgesia, other intravenous patient controlled analgesia. Nasogastric intubation have 20% of patients, half of them have urgent operations. Drain was used in 40% of patients. 76.7% patients tolerate liquids on the operation day and first solid defecation was average second day. There were one anastomotic leakage with reoperation, two prolonged paresis and two wound infections. One patient get cerebral embolism. There was no 30 day mortality. Median hospitalisation was 6 days. Comparing with previous results usage of nasogastric intubation was same, drainage was used less. Tolerance of liquids, food and defecation was earlier. There were fewer complications. Median hospitalisation was 6 days and is shorter than in previous analysis.

Conclusions. Applying all parameters of multimodal treatment (fast track) in every day practice reduce hospital stay.

P095

Therapeutic algorithm for anal fissure

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Background. Fissure in ano is a painful condition that affects a sizable majority of the population. Selecting a method of treating the condition that could achieve optimal clinical results and the least pain and inconvenience to the patient had always posed a challenge to the treating physician. This led to innovation of a number of surgical and pharmacological methods that relax the anal muscle. The aim is to present evidence leading to development of a rational and pragmatic guideline for the management of anal fissure.

Methods. Evidence on the etiology and treatment of anal fissure was gathered from databases and discussed by expert panels. The present study discusses various techniques advocated for the treatment of acute and chronic fissure-in-ano. It also elaborates on the advantages and deficiencies of each.

Results. Majority of patients can be treated with high success with pharmacological agents in spite of a growing concern about their long term efficacy and adverse side effects.

Conclusions. Surgery should be offered to patients with relapse or therapeutic failure with prior pharmacological treatment. Nevertheless, a physician can effectively deal with patients of anal fissures in his office using various conservative and sphincter manipulative techniques.

P096

Current management of colorectal hepatic metastasis at University Hospital for Tumors, Zagreb

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Background. Cancers of the colon and rectum are the third most common site of new cancer cases and cancer deaths. Hepatic metastasis is one of the most frequent sites of metastatic disease. Infact, 35–55% of patients with colorectal cancer will develop hepatic metastasis. Patients who are able to undergo complete resection of their hepatic metastases have the best chance of long-term survival. Survival following hepatic resection of colorectal metastasis now approaches 35–50%. However, approximately 65% of patients will have a recurrence at 5 years. Modern management of hepatic colorectal metastases necessitates a multidisciplinary approach to effectively treat these patients and increase the number of patients who will benefit from resection.

Methods. Local ablative methods such as radiofrequency ablation (RFA) have become increasingly utilized in recent years. RFA, either used alone or in combination with resection, but tumor ablation should not be viewed as a replacement for hepatic resection. The development of new molecular targeted therapies (bevacizumab and cetuximab) has also produced encouraging results and approximately 15–30% of patients with initially unresectable disease can be downsized with preoperative chemotherapy. Neoadjuvant chemotherapy is employed in patients with initially resectable disease. One potential benefit of neoadjuvant chemotherapy may be to allow an initially resectable lesion to be resected with a more parenchymal sparing resection with an improved ability to obtain an complete resection margin. Up to 15–25% of patients with primary CRC will have synchronous hepatic metastases at the time of presentation. Most clinicians have advocated for a staged approach in patients with resectable primary colon cancer and hepatic disease. However, several studies have now demonstrated the safety and efficacy of a simultaneous resection. Recently the ''liver first'' technique has been implicated as potential curative method for CRM. In patients with extensive disease involving both sides of the liver, a two-stage (or sequential) hepatectomy may be the best therapeutic approach.

Results. We operated 176 patients with CRM at the Surgical department of University Hospital for tumors in last three years (Nov. 2006 – Nov. 2009). In this review we presented the development ant current protocol for multidisciplinary approach and treatment of our patients.

Conclusions. We herein reviewed the current management of patients with colorectal metastases to the liver. The development of more efficacious chemotherapeutic regimens (including biologic agents) combined with refinement of surgical technique will hopefully continue to improve the survival of patients undergoing hepatic resection of CRC metastases.

P097

Expression of growth hormone and growth hormone receptors in colorectal adenocarcinoma

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All protocols of patients who have undergone a surgery due to colorectal carcinoma at the Department of Surgery, Nova Gradiška General Hospital. The aims were: (1) to determine the expression of growth hormone (GH), and growth hormone receptor (GHR) in primary colorectal adenocarcinoma, regional lymph node metastatic tumor and unaffected adjacent bowel wall, and (2) to correlate the expression of GH and GHR with clinicopathologic features of patients with primary tumors and survival data. The majority of tumors showed the increased expression of GHR, and a half of tumors showed positive staining for GH. No statistically significant difference has been found between the GH and GHR expression and the age, and sex of the patients, tumor size, and Dukes and Astler–Coller stage. No positive staining was found in adjacent bowel wall or it was very weak. Lymph node metastases showed increased expression of GHR in 68.4% cases, while the expression of GH was determined in 42.1% of tumors. Recurrences were appearing significantly more often in patients with increased expression of GHR. Statistically significant difference was determined in the survival of the patients with increased expression of GHR that have lived a significantly shorter period of time than those with the negative GHR expression ($p = 0.045$). Differences in the tested markers' expression, especially GHR in relation to the survival, have been noticed in this study.

P098

Role of perioperative nutrition in colorectal surgery

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Background. Nutritional depletion is one of the major determinant of the development of perioperative complications. Colorectal surgery patients are at risk of nutritional depletion from inadequate nutritional intake, surgical stress and increase in metabolic rate. Fears of postoperative ileus and the integrity of the newly constructed anastomosis have led to treatment typically entailing starvation with administration of intravenous fluids until the passage of flatus. Aim of the study was to investigate role of perioperative nutrition in reducing perioperative stress and complications colorectal cancer patients.

Methods. In study we investigated changes in perioperative stress with preoperative feeding regimen. Stress levels are evaluated through parameters of inflammation and IL-6 levels. We evaluated the impact of early postoperative oral immunoenriched diets on the outcome. Particular attention we focus on patients in advanced stage of the disease in which we assess the impact of immunoenriched diet and apetite stimulator on loss of muscle mass, BMI and well being index.

Results. In patients who received preoperative enteral nutrition we noticed significantly reduced levels of IL-6 and CRP. Patients in advanced stage of the disease who received immunonutritional support have significantly higher increase in appetite and weight gain.

Conclusions. Perioperative administration of an immunoenriched diet significantly reduces systemic perioperative inflammation and complications in patients undergoing major abdominal surgery.

P099

Laparoscopic colorectal surgery in small regional hospital

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Background. Recent multicenter survey showed that neither surgeon volume nor hospital volume was significantly associated with the incidence of perioperative morbidity following laparoscopic colectomy. The aim of this study was to analyse the outcome of laparoscopic management of colon diseases (cancer, diverticulitis, rectal prolaps) in small regional hospital.

Methods. Eighteen laparoscopic colon operations were performed by one surgical team. There were 1 loop colostomy and 1 loop ileostomy for preoperative irradiation by rectum cancer; 3 reconstructions of colon continuity following Hartman procedure; 7 right hemicolectomies, 1 left hemicolectomy, 1 sigmoid resections, 1 high and 1 low anterior resection for colorectal cancer; 1 sigmoid resection for diverticulitis and 1 sigmoid resection with rectopexy for rectal prolaps. One conversion to open procedure was excluded from study (inop. tumor). The following outcomes were assessed: intraoperative and postoperative complications, adequate lymphadenectomy (min. 12-lymph nodes), 30-day mortality.

Results. Two postoperative complications were occurred: 1 pneumonia and 1 rectus sheath abscess. Both of them were successfully treated. All lymphadenectomies following colon resections were adequate. There was no 30-day mortality.

Conclusions. Laparoscopic colon surgery proved to be safe and with improved short-term outcomes also in small regional hospital with experienced surgical team.

P100

Laparoscopic approach to colorectal surgery: Our 8-year experience

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Background. Laparoscopic procedures are applied to the treatment of almost all colonic diseases, including benign and malignant lesions. Significant benefits can be expected in terms of decreased postoperative pain, postoperative ileus, length of hospital stay, disability and adhesion formation. In our institution we are performing laparoscopic surgery for colorectal disease since 2001.

Methods. In the 8-year period we operated laparoscopically 45 patients, most of them in the last two years. Tissue prepara-

tion was made with a harmonic dissector, the anastomosis in rectal and sigmoid colon resection transrectally with circular stappler. In right and left colon resection, the anastomosis is made extracorporally, trought a small laparotomy.

Results. From January to December 2009 we operated 13 patients laparoscopically, 7 of them had resection of the sigmoid colon, 3 resection for rectal carcinoma and 1 right hemicolectomy. We also made one bitubular sigmoideostoma and one bitubular transversostoma for rectal carcinoma. The mean operating time was 157 min. The mean hospital stay was 6.6 days. We didn't have any major complication, only in one case there was a prolonged paralytic ileus.

Conclusions. Laparoscopic colorectal surgery is in our view a safe and feasible procedure for selected patients, especially those with benign pathology and small tumors.

P101

Treatment of the locally spread rectal carcinoma

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Background. Total pelvic exenteration (TPE) is reasonable primary surgical therapy in select patients with large bulky locally invasive rectal cancers that can be removed en block and to achieved R0 resection with tumor negative margins.

Methods. Many patients do not have either nodal or distant metastasis. Furthermore TPE can be curative and often is palliative for similar lesions that are recurrent or responsive to radiation therapy.

Results. Operative mortality rates should be under 10% and can be under 5% for primary cases. Early and late complications are significant. Unfortunately, preoperative identification of those patients requiring TPE rather than abdominoperineal or low anterior resection remains poor.

Conclusions. Radical surgical resection for locally spread rectal carcinoma with multimodal approach is reasonable method for fit and select patients with large locally invasive rectal tumors.

P102

Laparoscopic versus conventional colectomy: Our experiences

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Background. Laparoscopic surgery of colon, due to relatively complicated anatomy and high requirements for surgery techniques, has been accepted by rather small number of surgeons. We intend to present our experiences.

Methods. Until 2009 we performed 103 operations, for benign and malignant diseases. Over the same period we performed 1758 matched open surgical procedures and these patients were accrued and similarly analyzed. Data retrieved included patient demographics, selected intraoperative parameters, and postoperative outcome.

Results. Laparoscopic-assisted procedures performed included 17 right hemicolectomy, 29 left hemicolectomy, 13 anterior resections, 13 abdominotransperineal resections and 31 abdominoperineal resections. Mean operative time was longer for laparoscopic-assisted colectomy (208 min vs. 150 min, $p < 0.05$).

Conclusions. Laparoscopic-assisted colorectal procedures performed in well-selected patients have statistically and clinically significant benefits.

P103

Surgery for acute complications colorectal cancer

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Background. Emergency surgery for complicated colorectal cancer (CCRC) have worse outcomes than elective resections. We reviewed the results of the patients who underwent emergency colectomy for colorectal cancer.

Methods. From 2002 to 2009 years, 143 patients in the age 40–92 years (59.1 ± 5.2) after emergency surgery for CCRC were analyzed for tumor and stage characteristics, needs for enlarged resection and risk surgery, distal free margin, lymph node yield, mortality and morbidity.

Results. Different colorectal resections were performed for obstruction in 81 (56.6%), for bleeding – in 48 (33.6%), for perforation – in 14 (9.8%) patients. The complications were correlated to the cancer stage at operation: for obstruction – 24.7%, 32.1% and 43.2%; for bleeding – 10.4%, 66.7% and 22.9%; for perforation – 7.1%, 57.2% and 35.7% in the stage II, stage III, and stage IV, respectively. The mortality rate for obstruction was 17.3%, for bleeding – 6.25%, for perforation – 21.4% and postoperative morbidity rate was 29.6%, 20.8%, 42.9%, respectively in these groups. The outcome in older patients was poor compared with that of younger patients.

Conclusions. Oncologic resection techniques may be applicable to surgery for CCRC and radical resection may be warranted by emergency colectomy. The worse long-term prognosis for patients with CCRC may be related to the stage of the disease rather than to the failure of surgery.

P104

Laparoscopic treatment of colon cancer in Dubrovnik General Hospital

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Background. The aim of this paper is to show our experience in the treatment of colon cancer in the Dubrovnik General Hospital in the period 2008–2009.

Methods. Laparoscopic surgery in the Dubrovnik General Hospital began in November 1993 along with all major hospitals in Croatia. The largest number of laparoscopic operations related to the laparoscopic cholecystectomy, which we have performed 3117 in the period 1993–2009.

Reverse the last 18 months, we have performed laparoscopic surgery on the colon (hemicolectomy, appendectomy) and hernioplastics.

Results. In the past 18 months we performed 84 elective surgery on the colon. Each operation of colon cancer start with laparoscopic approach, except in patients with locally spreading of disease. Conversion of procedures is about 40% (33/84).

The paper analyzes the approaches, during surgery, age of patients, complications and length of stay in hospital in comparision with classical procedures performed before the introduction of laparoscopic techniques.

Conclusions. Although laparoscopic operations are more expensive and with longer duration in relation to open access (depending on skills and interest of the surgical team), shorter patient recovery and fewer complications than open surgery, justifying the performance of these procedures in our hospitals.

P105

Pelvic peritonization after laparoscopic abdominoperineal resection or low-rectal carcinoma

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Background. The abdominoperineal resection was a standard method for low-rectum carcinoma treatment. High mortality and morbidity decreased with the development of preoperative diagnostic procedures, new surgical techniques and surgical instruments. Pelvic peritonization is important prevention of postoperative adhesions and postirradiation enteritis after adjuvant radiotherapy.

Methods. The pelvic peritonization is performed after laparoscopic recto-sigmoid extirpation, using running absorbable intracorporeal suture with the titanium clips application after every second suture. The role of titanium clip is to grasp the running suture and to mark the postoperative irradiation field.

Results. We operated 261 patients with benign or malignant colorectal disease from December 12th 2002 to December 1st 2008, using laparoscopic procedure. The laparoscopic abdominoperineal rectum amputation with pelvic peritonization was performed in 21 (8.04%) of those patients (14 DukesB, 7 DukesC). The perineal active drainage was performed in all patients.

Conclusions. Pelvic peritonization after laparoscopic abdominoperineal rectum amputation is an important and technically not too demanding operative procedure. In this study we proved that it significantly decreases postoperative adhesions formation and postirradiation enteritis.

New Oncologic Concepts

P106

Different prognostic factors for survival in patients with gastrointestinal stromal tumors

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Background. The aim of paper was to asses influence of different prognostic factors on survival in patients with gastrointestinal stromal tumors (GISTs).

Methods. Between January 1989 and December 2008, one hundred seventeen patients were operated for GISTs. Retrospective analysis of prognostic factors (age, gender, mitotic index, tumor location, tumor size, and coexisting other neoplasm) was performed. Two years and five years survival rates were assessed. Prognostic factors and survival rates were correlated using Cox regression proportional hazard model. Kaplan-Meyer survival curves were constructed. A value <0.05 was considered statistically significant.

Results. According to univariate analysis, statistically significant poor prognostic factors were: male gender ($p=0.007$), and coexistence with other malignant neoplasm ($p=0.004$). Age ($p=0.11$), lower location in the gastrointestinal tract ($p=0.055$), tumor size ($p=0.23$) mitotic index ($p=0.054$), and risk of malignant behavior ($p=0.19$) did not influence statistically on survival in patients with GISTs in our study. Multivariate analysis revealed that male gender ($p=0.028$) and coexistence with other malignant neoplasm (0.001) were independent poor prognostic factors in patients operated for GISTs.

Conclusions. A male gender and coexistence with other malignant neoplasm are independent poor prognostic factors for survival in patients with GIST.

P107

Salvage esophagectomy after definitive chemoradiotherapy for thoracic esophageal cancer

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Background. Salvage surgery is the sole curative intent treatment option for persistent or recurrent locoregional disease after definitive chemoradioterapy. The purpose of this study is to evaluate salvage surgery after definitive chemoradiotherapy for thoracic esophageal cancer.

Methods. We reviewed 16 consecutive patients with thoracic esophageal carcinoma who underwent salvage esophagectomy after definitive chemoradiotherapy. All patients received more than 50 Gy of radiation plus concurrent chemotherapy for curative intent. The field of lymph nodes dissection in salvage esophagectomy was reduced than in standard surgery without chemoradiotherapy.

Results. Ten patients (63%) were recurred after salvage surgery. The average time to recure after salvage surgery was 10 months. The most frequent mode of postoperative recurrence was locoregional site (50%). Among them, 3 cases were recurred within the field of standard lymph node dissection. Three-year postoperative survival was 40%. Postoperative mortality and morbidity rate was 6.2%, 63%, respectively.

Conclusions. Salvage surgery following definitive chemoradiotherapy for thoracic esophageal cancer is comparatively safe methods. Some of the local recurrences were occurred in the region where we didn't dissect lymph nodes. So we need to perform standard lymph nodes dissection even in salvage surgery.

P108

Current status of radiofrequency ablation application in the abdominal organs

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Background. This report provides an overview of the current literature addressing the role of Radiofrequency Ablation (RFA) for the management of tumours or lesions in abdominal organs.

Methods. We thoroughly searched current data in order to identify the acquired benefit by the use of RFA in liver, spleen, pancreas, kidneys, adrenal glands, bowel.

Results. RFA is accepted as the best therapeutic choice for patients with unresectable adrenal tumours, hepatocellular carcinoma or hepatic metastatic disease especially from colorectal cancer. Long term data, also, supports the oncologic impact of the renal ablative modality. Furthermore, certain series involving human patients and animal models suggest the efficacy of ablative partial nephrectomy in the reduction of intraoperative blood loss and the preservation of renal function. Smaller series in pancreas, spleen, and bowel consisted of case reports and animal trials refer to ablative technique as a promising option for locally advanced and unresectable cancer, even though certain complications have been noticed, and emphasize on the use of RFA as a means of conducting partial splenectomy in order to maintain as more splenic parenchyma as possible.

Conclusions. RFA is a safe option for patients who cannot undergo a surgical resection. However, larger and long term series in spleen, pancreas, bowel are required to secure the encouraging results.

P109

Expression of CEACAM1 in colon cancer

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Background. Colon cancer is the second most common form of cancer among men and woman and the second leading cause of cancer-related death. Angiogenesis plays crucial role in cancer progression – in growth of tumor and metastases formation.

Methods. The aim of this study was to make a comparison of transcriptional activity of genes involved in regulation of angiogenesis in colon cancer. Studies were carried out on colon cancer tissue and histologically normal tissue. Total RNA was extracted using TRIzol® reagent (Invitrogen) according to manufacturer's recommendation. Transcription activity of genes was analyzed by microarray technique (HG-U133 A, Affymetrix). Values of fluorescence were normalized with the RMAExpress. Statistical analysis was performed by Statistica and Bland-Altman method.

Results. Cluster analysis divided samples into two distinct groups: controls and cancers. We selected 525 transcripts which were differentially expressed between two groups. In this group was 25 genes which are involved in regulation of angiogenesis. The biggest difference was in CEACAM1 expression. Expression was significant lower in colon cancer tissue compared with normal tissue. The transcriptional activity of CEACAM1 decrease with higher stage progression of cancer.

Conclusions. The results indicated that CEACAM1 can be significant gene involved in colon cancer development and it could be additional aim to treat.

P110

Histopathology of the Esophagogastric Junction (EGJ) in 237 GERD patients and 81 controls

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Background. Discrepancy exists regarding the anatomy of the esophagogastric junction (EGJ). We compared endoscopy and histopathology of EGJ-biopsies in persons with and without symptoms of gastroesophageal reflux disease (GERD).

Methods. We prospectively conducted esophagogastroduodenoscopy (EGD) with biopsies obtained 1.0 cm distal to 1.0 cm above the level of the rise of the gastric folds in controls ($n = 81$; 25.5%) and GERD patients ($n = 237$; 74.5%); 17–84 years (50 ± 14.6), 55.6% females. Histopathology of columnar lined esophagus (CLE) included cardiac mucosa ± intestinal metaplasia (=BE), oxyntocardiac mucosa. Squamous epithelium and oxyntic mucosa (OM) were considered as esophageal and gastric, respectively. Prevalence of endoscopically visible

CLE (CLEv) and histopathology was compared between controls and GERD patients.

Results. Age, gender ($p > 0.05$), prevalence of CLEv (p 0.083), CLE histopathology ($p > 0.999$), CLE length ($p = 0.321$) and intestinal metaplasia (controls: 13.6%; GERD: 20.7%; p 0.159) did not differ between controls and GERD patients. Dysplasia and cancer were not detected.

Conclusions. Frequency of BE was comparable in controls and GERD patients. The endoscopically visible proximal stomach contains CLE, indicating a more distal extension of the esophagus, as assumed by endoscopy.

P111

Surgical treatment of hyperparathyroidismus

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Background. Parathyroid gland diseases are significant and more common health problem due to usage of modern diagnostic procedures. The treatment of choice for parathyroid gland diseases is surgical. Aim of this study was to represent our experience in surgical treatment of primary and secondary hyperparathyroidismus.

Methods. We analyzed medical records of the patients that were operated for primary and secondary hyperparathyroidismus during 10-year period from 1998 to 2007.

Results. During 10-year period 290 patients were operated, 245 women and 45 men. The youngest was 12 and the eldest 81 years old (average 54 years). In operated patients pathohistological results were: 79% adenoma, 19% hyperplasia and 2% carcinoma. Average weight of carcinoma was 13.7 g, adenoma 3.9 g and hyperplastic glands 1.1 g. During 10-year period only 214 patients with chronic renal failure were operated for secondary hyperparathyroidismus. At one operated patient for secondary hyperparathyroidismus pathohistological finding was parathyroid carcinoma, and at others it was hyperplasia.

Conclusions. Regarding high frequency of parathyroid carcinoma it can be said that primary hyperparathyroidismus is diagnosed later than it is supposed, and that the surgical treatment is unnecessary delayed. Small number of patients operated for secondary hyperparathyroidismus is showing that the most of these patients are waiting to be operated.

P112

Laser treatment of children haemangiomas

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Background. Haemangiomas are common benign tumours of the vascular endothelium. Lasers have become a treatment of choice of haemangiomas.

Methods. The surveyed group included 20 patients under the age of 1 year. For the treatment of haemangiomas used lasers: CO_2, YAG, argon and apparatus for photodynamic therapy FDA-1.

Results. The analysis of previous studies, as well as literature data showed that the isolated use of the laser, with an attempt to remove for 1 session in 70% of the cases led to the formation of rough scars. Using argon laser in children in 50% of cases, led to the formation of keloid scars. New tactics of treatment was prolongation of treatment course by phased removal of haemangiomas with different types of lasers and methods of sclerotherapy. Prevention of scarring was done by the method of photodynamic therapy using a photosensitizer Alasens. We found that 80% of the cases preceded the appearance of haemangiomas transferred in the 2 trimester respiratory virus infection.

Conclusions. Laser treatment showed good cosmetic effect with low complications. Our investigations establish in many cases virus was an etiological cause of haemangiomas.

P113

Genetics in surgical colorectal cancer treatment

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Background. Colorectal cancer is responsible for 14% of malignancies in Croatia with incidence of 2840 cases annually. Lifetime risk of being diagnosed with this type of cancer is 8% in Croatia population.

Methods. There are well established parameters on which we base our decisions about optimal treatment (tumor size, local invasion, lymph node involvement, metastasis, perivascular and perineural invasion). However, these parameters, which are widely accepted, often do not completely elucidate different behavior in similar cancer stages.

Results. Rapid development of molecular biology: tumor markers and genetic predisposition diagnostics have started to impact clinical practice. Most of the new target genes are derived from GWAS (genome wide association studies) or targeted scans according to Hapmap and imply a population specific approach. In all this, environmental influences should not be disregarded.

Conclusions. Herein, we introduce the state of affairs in genetic research in colorectal cancer in Croatia.

P114

Liver tumors in childhood – 20 years experience on KBC Zagreb

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Background. Liver tumors count for approximately 2% of all childhood tumors and almost 70% of them are malignant.

Methods. Most of them are presenting as palpable abdominal mass. Correct diagnosis considering type, size and localization of the tumor is crucial for the right treatment strategy. Although surgical resection still remains the most important factor for survival, when combined with chemotherapy, the survival rates will raise. Liver transplantation is also considered in some cases of liver tumors.

Results. Since 1991 to 2010 we have treated 16 children with liver tumors.

Conclusions. Our experience together with review of recent literature is presented here.

P115

Infiltrating myoepithelial carcinoma of the breast (MEC), a case report with two years follow-up

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Background. Myoepithelial carcinoma (MEC) of the breast is a very rare tumor of controversial hystiogenesis. Little is known about its history and long-term outcome following treatment.

Methods. We present a case report of large infiltrating myoepithelial breast carcinoma in a 61-year-old female with the subsequent biopsy and segmental mastectomy specimens. While the fine-needle aspiration (FNA) specimens displayed mesenchymal tumor cellular pattern, mastectomy specimen showed infiltrating monophasic myoepithelial carcinoma. Patient was re-operated and it was performed total mastectomy combined with axillar lymph-nodes evacuation. The second pathological report has been negative on tumor cells.

Results. One year after radical operation patient showed no recurrance nor metastases on PET-scan. Two years later on surgical check up patient is symptom free.

Conclusions. Reports of metastases from large myoepithelial carcinoma are described and appear to be haematogenous rather than lymphatic, during two years follow-up we have not proven metastatic disease. Similary these tumors are reported as prone to local recurrence but in our follow-up no neoplastic recurrence was detected. Although considered as malignant, large myoepithelial carcinomas can sometimes express uncertain behavior and therefore a large number of factors should be considered when determining biological nature of these tumors, and a consequent therapy.

New Technologies

P116

A new system of cementless hip replacement with a screw based fixation

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Background. The Scyon Orthopaedics AG has developed a novel concept of cementless stem fixation that highly reduces influence of stress shielding on stability of the THA. The Scyon THR stem provides permanent anchorage through bony ingrowth from the medial cortex without coupling to the lateral cortex. Stability required for ingrowth is implemented by locking mono-cortical screws tapped trough the medial cortex and locked in the stem.

Methods. During implantation of the THA, insertions of Tantalum beads into specific areas of pelvic bone and femur were performed for the purpose of radiostereometric analysis. All patients were invited for follow-up examinations at 6 weeks, 6 months, and 1 year. At every follow-up examination patients underwent to RSA as well as standard X-ray evaluation.

Results. The 1 year follow-up results have shown excellent functional recovery and radiographically notable bony ingrowth from the medial cortex without additional bony integration from the lateral cortex. The average stem subsidence after 6 months was -0.01 ± 0.16 mm and after 1 year -0.14 ± 0.21 mm.

Conclusions. We believe that this new implant may decrease aseptic loosening rate of the THA by a more reliable fixation of the femoral stem, which diminishes stress shielding of the proximal femur.

P117

Use of progressive pneumoperitoneum in the repair of giant hernias in patients with concomitant diseases

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Background. Preoperative progressive pneumoperitoneum (PPP) is a well-known, but not yet widely spread procedure in

preparing patients with giant incisional hernias of abdominal wall. The purpose of this study was to improve the results of treatment of the patients with giant hernias as well as several concomitant diseases.

Methods. In our study (years 2006–2008) 22 patients were enrolled. PPP was established using a triple-lumen intraabdominal catheter and daily insufflation of ambient sterile air. Variables analyzed were age, sex, body mass index (BMI), type, location and size of hernia defect, number of previous repairs, number of days pneumoperitoneum was maintained, type of hernioplasty, type of concomitant diseases.

Results. The patients' mean age was 64.2 years, mean BMI was 41.3, mean width of defect of abdominal wall was 29.4 cm. All of patients had incisional hernias. Pneumoperitoneum was maintained for an average of 21.3 days and there were no serious complications relating to the procedure. After this procedure a tension-free hernioplasty was successful in all patients (14 with the technique by Rives-Stoppa, 6 – with the separation of components technique by Ramirez, and 2 – using the technique by Fabian.

Conclusions. The PPP is a usefull adjunct in the preoperative preparation of patients with giant hernias. Using of PPP facilitated the fascial repair otherwise untreatable giant incisional hernias.

P118

Functional results and complications of angular – stable plate fixation of 3-part and 4-part proximal humeral fractures in osteoporotic fractures

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Background. Despite recent advances in operative techniques, internal fixation of (3- and 4-part) displaced proximal humeral fractures in elderly patients with osteporotic bone remains contraversial, sometimes followed with poor results. The aim of the present study is to evaluate outcome of internal fixation with locking plate of multiphragmentary proximal humeral fractures in elderly patients.

Methods. The study cohort comprised 59 consecutive patients (average age 70.1) with 3- and 4-part fractures who had undergone open reduction and internal fixation with locked plate at the University Hospital 'Sisters of Mercy'', in Zagreb, Croatia. All patients were invited for follow-up examinations and underwent standard X-ray examination preoperatively to asses fracture pattern in the operating theatre as well as 6 weeks, 3 and 6 months, 1 year and than annually after surgery to asses fracture healing or complications. Clinical outcomes were measured by Constant score.

Results. The overall complication rate was 27.1%. The mean Constant score after 1 year follow-up for 3-part fractures was 70.2 points vs. 64.2 ($p < 0.0001$).

Conclusions. Despite relatively high overall complication rate, internal fixation with locking plate provides good functional results in treatment of osteoporotic complex proximal humeral fractures.

P119

Plastic stents in esophageal cancer treatment

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Background. Endoscopic oesophageal stent insertion is a widely used procedure to alleviate dysphagia caused by malignant strictures of the oesophagus and gastric cardia. It can, however, be associated with significant complications, mortality and morbidity.

Methods. Plastic stenting of the esophagus used in 80 patients with inoperable cancer of the esophagus and cardia. Patients' age ranged from 50 to 92 years (63 ± 5 years). For esophageal stenting used plastic stents direct and S-shaped form (design L.P. Strusskiy).

Results. After preliminary sessions diathermocoagulation or bouginage stent was placed using a special guide. Exciding 3 hours after the procedure permitted fluid intake. Postoperative pain was observed in 30 (37.5%) patients, bleeding in 2 (2.5%), damage to the esophagus in 2 (2.5%). Mortality 1.3%. Postoperative complications were treated with conservative measures. Life expectancy of patients after stent placement was 6–12 months. In the remote period observed complications: migration of the stent to 10% (depending on the location and extent of tumor), blockage of food masses 10%, tumor growth over the stent in 40% of cases.

Conclusions. Endoscopic stenting of the esophagus using special plastic stents (L.P. Strusskiy) can improve the quality of life of patients with tumors.

P120

Laparoscopic or open splenectomy by idiopathic thrombocythopenic purpura – our experience

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Background. Present of surgery is characterized by minimally invasive therapy. Authors present their experience with treatment 54 patients after splenectomy. The aim this study is evaluation and comparison results of laparoscopic (LS) and open splenectomy (OS).

Methods. Results of 27 patients after laparoscopic and 27 patients after open splenectomy for idiopathic thrombocytopenic purpura (ITP) were evaluate: complications – types and rate, operating time, length of hospitalization, haemocoagulating parameters – especially platelets.

Results. In first group after LS we had those complications: blading 2, subphrenic absces 1, laesio lienis 1, wound infection 1, ileus 1, reoperations rate 2. Operating time was 89 min, leng of hospitalisation 4.4 days. In group after OS were subphrenic absces 1, blading 1, hernia 1,

reoperations rate 1, operating time 67 min, hospitality 5.7 days.

Conclusions. The laparoscopic splenectomy provide a longer operating time, shorter hospitalization, faster treatment of thrombocytopenia and approximately the same number and nature of complications. The results and generally known advantages of minimally invasive approach see LS how prospective alternative surgical treatment of ITP.

P121

Long-term results and quality of life in the surgical treatment of iatrogenic bile duct injuries

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Background. The aim of paper was analysis of long-term results in patients following different methods of the surgical treatment of iatrogenic bile duct injuries.

Methods. Between January 1990 and March 2005, 138 patients – 37 (26.8%) men and 101 (73.2%) women were operated for IBDI in the Department of Digestive Tract Surgery. The mean age was 52.9 (18–85) years. The following reconstructions were performed: Roux-Y hepaticojejunostomy (49), end-to-end ductal anastomosis (45), jejunal interposition hepaticoduodenostomy (27), bile duct plastic reconstruction (6), choledochoduodenostomy (2) and others (8). Long-term results were assessed based on anamnesis, physical examination and accessory investigations. Obtained results were classified according Terblanche scale. Quality of life was classified according to the Karnofsky Performance Score.

Results. Information of long-term results was obtained in 91 (66%) patients. Long-term results according to Terblanche classification were the following: I grade – 58 (63.7%) patients, II grade – 14 (15.4%) patients, III grade – 13 (14.3%) patients, IV grade (recurrent anastomosis stricture) – 6 (6.6%) patients. Quality of life according to Karnofsky Performance Score was very good (the highest number of 100 points) in most (40.5%) patients.

Conclusions. Achievement of successful long-term results is possible in referral centers experienced in hepatobiliary surgery.

P122

Prosthetic "onlay" plastics at patients with ventral giantic hernia

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Background. Patients with ventral giantic hernia are considered as one of the unsolved problems in surgery.

Methods. Short term follow-up results at 353 patients from 2004 to 2009, who underwent subcutaneous prosthesis implantation, were analyzed. There were 15% male and 85% female patients. Incisional hernias composed 316 (89%), umbilical – 29 (8.2%), midline – 8 (2.3%). Patients' age ranged from 27 to 78 years old. Median age composed 58.5 ± 0.7 years old. 1st degree overweight was observed in 95 patients (27 ± 6.9), 2nd degree 66 (18.5 ± 5.2), 3rd degree 128 (36.5 ± 6.4), which composed 81.9% of patients. Body mass index was 32.6 ± 1.4, 37.4 ± 2.4 and 45.4 ± 4.7 correspondingly.

Results. Seroma formation at giant and large hernias observed in 24 (15.2%) and 9 (7.8%) cases respectively, which composed 33 cases (9.3%) in total. Wound infection prevailed at patients with giant hernias and observed at 6 patients, which composed 3.8%. All wound infection composed 49 (13.8%) and composed 6.3% (6) at 1st degree overweight, 16.7% (11) at 2nd degree and 20.3% (26) at 3rd degree. Postoperative mortality composed 0.6% (2 cases), followed by TEPA in one and abdominal compartment syndrome in another case.

Conclusions. Using of prosthetic "onlay" plastics at patients with ventral giantic hernia is technically feasible and safe, which leads to better outcome.

P123

Experiences form the use of tapp hernioplasty

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Background. The unambiguous advantage of the TAPP hernioplasty lies in the repair of the recidivous hernias, femoral hernias and bilateral hernias. A significant advantage does not appear at the primary hernias except when the operation is made in the minimal invasive centre by experts with expertise in the technique.

Methods. We performed 1885 inguinal hernia operations between 01.01.2002 and 31.12.2008; in 385 cases TAPP laparoscopic hernioplasty was performed. TAPP operations were indicated in 147 cases due to bilateral, in 133 cases due to recidivous and in 105 cases due to unilateral inguinal hernia.

Results. The intraoperatíve complications are: seromuscular bowel injury in 4 cases, which were attended by laparoscopy, ductus deferens injury in 1 case. In 5 cases the a. epigastrica inferior was clipped due to injury. Conversion did not occur. Complication: protracted seroma in 30 cases, suffusion in 15 cases, recidiva in 2 cases the reason of which was the adaptation of a small mesh, bowel paralysis in 2 cases. The average postoperation treatment is 1 day. Re-operation occurred in 2 cases due to scrotalis haematoma.

Conclusions. The method is beneficial for the patient, however, it is more expensive and harder to be studied than the open mesh procedures. It makes the combined operations possible and abdominal exploration can be applied. It has a low complication rate,the pain after the operation is minimal.

P124

Adaptive Periosteal Cambiplasty (APC) – a new bone grafting method

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Background. APC uses prestress of cortical bone to prepare the activated autologous bone graft. Mechanical stimulation of healthy tibial bone occurs by percutaneous application of a bone tissue expander – Differential Conical Screw (DCS). This produces adaptive osteogenic cell responses to the new stress and overgrowth of activated osteoinductive material from the cambium layer of the periosteum (osteoprogenitor cells). The new bone is shown to be formed by direct ossification (intramembranous) without cartilage expression like in the callus (endochondral). After 4–6 weeks of (DCS) implantation – the APC bone overgrowth can be autotransplanted to any required skeletal site.

Methods. Healing induced by APC graft is compared with autologous cancellous graft in 40 dogs – bilateral radial bone defects (30 mm) – left side filled with APC graft, right side with cancellous graft + external fixation,

Results. It is shown by using histomorphometry and by scintigraphic, densitometric and mechanical methods – more rapid healing = highly increased cellularity and metabolic activity of this APC graft compared with cancellous graft.

Conclusions: APC bone possesses greater (double) osteoinductive activity when compared with autologous cancellous (gold standard) bone graft. It is concluded that APC yields biologically improved bone graft for uses in any skeletal repair procedures (nonunions, bone cysts, arthro-spondylodesis etc.).

P125

Intraoperative oesophageal manometry with new calibration tube during the laparoscopic antireflux surgery

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Background. Post-operative dysphagia diminishes a good effect of antireflux surgery. We proved former study with intraoperative measurement of the LES pressure during fundoplication. The main procedural issue of this approach was displacement of the manometric probe. Now a new calibration probe with radial located pressure channels was designed. This report is to asses its feasibility.

Methods. We used our previous study population as a control group. The study group consisted of 62 patients having undergone antireflux procedure with the intraoperative manometry with the new device. Following values were compared between the groups: LES pressure before and after wrap formation, success of introduction of the calibrating tube and number of probe displacements and postoperative dysphagia.

Results. There was not a difference in the groups structure regarding gender, age, pH and oesophageal manometry results. Failure to introduce the calibration tube or calibration probe, respectively, was 5.1% and 3.2%. The probe displacement during the surgery occurred in 85.0% and 0.0%.

Conclusions. Number of probe dislocations was significantly lower in the newly designed calibration probe. Aside of lowering the risk of injury to the oesophagus and easier manipulation, the desired influence of the new device on the postoperative dysphagia occurrence has to be revalued on a higher number of patients, so the study continues. Supported by NPV II 2B06060.

P126

Local treatment of acute wound infections with combination of microdispersed oxidized cellulose and gentamicin. Experimental study

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Background. The aim of the study was to examine the effect of topically-used gentamicin combined with microdispersed oxidized cellulose (MDOC) in nanofibre form in the treatment of acute wound infections.

Methods. A model of a deep infected dermal wound was created in large animal – sus scrofa domestica. The effectiveness of topical gentamicin with microdispersed oxidized cellulose carrier was tested in acute wound infections caused by Staphylococcus aureus, Pseudomonas aeruginosa and *Escherichia coli*. The effectiveness was compared with that of Garamycin Schwamm.

Results. Although the microbial results were similar, macroscopic assessment showed differences between both the tested materials. MDOC with gentamicin was fully absorbed in 100% wounds after 168 hours. All the wounds were macroscopically clean and did not show signs of local infection. Garamycin Schwamm was fully absorbed only in 16.7% wounds after 168 hours. Additionally, 83.3% wounds showed local signs of infection at the end of the experiment, especially if the collagen carrier was not absorbed. This difference was statistically significant with $p < 0.1$ using Fisher's exact test.

Conclusions. Microdispersed oxidized cellulose carrier with attached gentamicin seems to be effective for treatment of deep soft tissues infections. The positive influence of microdispersed oxidized cellulose on the healing process of a dermal wound was observed.

P127

The use of Google web search as a diagnostic tool in patients with acute abdomen

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Background. The Internet offers an increasing amount of medical information, but its value as a primary diagnostic tool for surgical patients with acute abdomen is doubtful. We used the Google as a medical information source for working diagnosis, as well as the residents' views on the quality of particular sites.

Methods. The data of patients with acute abdomen at the Department of abdominal surgery, UMC Ljubljana were analysed in a retrospective observation study. Medical symptoms and/or sings from the ambulant chart were used as Web search query. The first ten results were analysed and working diagnosis was set and compared with the discharge diagnosis.

Results. We analysed data of 56 men and 44 women with median age 63 admitted to surgical ambulance because of acute abdomen in November 2009. Average 3.5 medical symptoms/sings were used for search query and 15,532 results were given from Google. In 95% were the first 10 results relevant to the working diagnosis and 90% relevant to the discharged diagnosis. Technical appearance, quality of content, and target grouping show big deficiencies between the results.

Conclusions. At present, the internet still plays a subordinate role as a source of information for patients with acute abdomen. With competent guides to process surgical information from the Internet young residents can use Google as primary diagnostic tool.

P128

Two stage hepatectomy in very advanced case of alveolar echinococcosis

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Background. Fourty-three year old female patient with alveolar echinococcosis of the liver was admitted to our department in August 2009. Preoperative angio-CT revealed two lesions: one fulfilling left lobe of the liver in total and second in right lobe limited to segment 5 and 6.

Methods. Intraoperative ultrasound revealed the extension of the lesions is far more advanced than it was described in CT-scan, involving segment 8 and 7 additionally and compression of right portal vein. Due to that fact decision was made to perform two stage hepatectomy (without portal vein embolisation/ligation because it was already thrombosed) to prevent patient against postoperative liver failure. Patient underwent resection of the right mass followed with albendazole treatment. After three months patient was readmitted with hypertrophy of the remnant of the right lobe of the liver which was confirmed in angio-CT. She underwent second surgery during which curative left extended hemihepatectomy was performed. Intraoperatively occlusions of left hepatic, medial hepatic and left portal veins were observed.

Results. Postoperative course was uneventful. Discharged from our hospital without complications after resection of 1470 g (490 removed during first surgery, 980 during second)of the hepatic and parasite tissue.

Conclusions. Two stage approach allowed to perform curative resection of advanced alveolar echinococcosis.

P129

Active controlled peritoneal lavage as adjuvant therapy in generalised peritonitis

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Background. We try to analyse the efficiency of active controlled peritoneal lavage in closed and open circuits in patients with secondary generalised peritonitis.

Methods. We analysed a group of 17 patients with secondary generalised peritonitis with common ethiology: gastric, small bowell and colonic perforations. Were analysed the etiology of digestive perforation, Mannheim classification, type of surgery, the types of substances used for peroneal lavage, the moment of peritoneal lavage, the type of lavage (open/closed).

Results. General mortality was about 5.8%, 1 patient from 17, the average hospitalisation period, (11.3 days), the rate of general/local complications (11.6%). We did't performed reinterventions for residual absceses.

Conclusions. Due to small number of patient we can only presume that this type of adjuvant therapy represents, in our opinion, a real benefit for patients with generalised secondary peritonitis.

P130

Intramedullary fixation of humerus fractures using composite nail

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Background. Intramedullary nailing, since first reported in 1939 has evolved to be the golden standard of fracture surgery. While the surgical technique and the design is common to all the metal nails the new composite material has been adopted in the nail design. Since the 1980s, polyaryletherketones (PAEKs) have been increasingly employed bio-

materials for trauma, orthopedic, and spinal implants. Novel composite nail material is radiolucent and has higher bending strength compared to titanium with elasticity modus similar to cortical bone.

Methods. We have used composite humerus interlocked nail made of carbon fiber reinforced PAEK in selected cases. Standard surgical technique was used. Clinical observations with follow-up results were recorded.

Results. Fracture surgery using carbon fiber reinforced composite humerus nail has several distinctive advantages such as: facilitated closed fracture reposition, nail insertion and eased distal locking. Intra-operative imaging and post-operative follow-up imaging is improved due to radiolucent composite material of the nail.

Conclusions. Encouraging preliminary results are observed in fracture surgery using composite nail due to the carbon reinforced PAEK biomaterial properties.

P131

Digital wound image analysis

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Background. Accurate wound measurement is important task in chronic wound treatment, because changes of wound size and tissue types are indicators of the healing progress. Towards elimination of subjective wound parameters estimation, we developed color image processing software witch analyze digital wound image, and based on learned tissue samples perform tissue classification.

Methods. Initially five wound experts classified wound tissue type on 50 randomized digital wound images, and mean percentage of tissue type were calculated for each wound. On these classification we developed advanced statistical pattern recognition algorithm based on color information which were implemented in application. Application also includes the therapy proposition module, implemented as the fuzzy expert system with 36 rules.

Results. Result of the analysis contains the wound image represented in pseudo colors as well as percentage of tissue types within the wound area. Local wound treatment is proposed based on calculated tissue percentages and user defined amount of wound exudation, the depth of wound and infection. Accuracy of digital image analysis is more than 90%.

Conclusions. Developed application for digital wound image analysis gives objective, reliable and reproducible results, allowing unique and objective comparison of treatment results between different methods and different institutions.

P132

Less invasive lumbar restabilization for segmental insufficiency: The CoflexF System

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The treatment of lumbar segmental insufficiency or micro-instability. As the one present in osteochondrosis, still remains a topic of discussion in spine surgery. It is widely accepted that a restabilization of the involved segment usually via posterior transpedicular fixation is the method of choice. Eventhough, as standard technique, it remains associated to a number of drawbacks. Also, the surgical treatment of spinal canal stenosis at the lumbar level is often indicated but associated secondarily with instability. Based on the role of the original ligamentoplasty technique as ''protective'' method for the posterior elements to reduce the risk of iatrogenic instability, Samani developed the interspinous ''U'' which allowed for a dynamic restabilization after decompressive procedures proving also to be useful for segmental insufficiency. Recently, a modified version of that device, conceived as proper stabilization or fusion add-on has been introduced after extensive mechanical testing. This device placed posteriorly between the spinous processes in association with the placement of two interertebral cages has proven biomechanically to have the same characteristics as a conventional transpedicular fixation. The device, technique and specific aspects will be presented along with clinical examples. It allows for a fusion with less tissue manipulation, reduces surgical time and we believe will avoid to some extent the risk of an adjacent level involvement as seen with the conventional PLIF technique.

Education and Publishing

P133

Why classical cholecystectomy by calculosis the gallbladder?

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Background. Most galstones 75% are asymptomatic. About 10–15% of people with gallbladder calculosis will have associated choledoholithiasis. Biliary colic is described as episodic pain in the right upper quadrant that radiates to the right shoulder or back.

Methods. Since 2365 operated during the five-year period in surgical clinic C.H.C. Pristina to Gracanica, 317 or 13.4% were operations on the biliary tractus. Male was 62 or 19.6% female and 255 or 80.4%. The average age of our patients was between 40–60 years of 174 or 55.8%.

Results. Calculosis chronic gallbladder was found in 212 or 66.9% of patients as follows: hydrops at 14 or (6.6–4.4%), choledoholithiasis with icterus at 12 or (5.7–3.8%). Calculosis acute inflammation of the gallbladder in 105 or 33.1% of patients as follows: Empyem gallbladder or in 26 (24.8–8.2%), hydrops 5 or (4.8–1.6%), gangrene gallbladder 19 or (18.1–3.2%), gangrene with perforation and abscessus 16 or 15.2%, phlegmonisis gallbladder 21 or (20.0–6.6%), acute gallbladder at calculosis 14 or (13.3–4.4%) and biliodigestine fistula at 4 or (3.8–1.3%) of our patients. Acalculosis gallbladder was found in 7, or (3.3%/2.2%) patients. Postoperative complications we had with chronic stone gallbladder in 23, or

10.8% and acute in 19 or 18.1% of our patients. Mortality did not have.

Conclusions. Laparoscopy cholecystectomy done whenever possible with uncomplicated gallbladder. Our results indicate that the classical (open) cholecystectomy always better for acute gallbladder inflammation calculosis (empyem, gangrene, perforation, fistula) because the visibility of the operating field, the better, and very safe surgery, which does not allow e.g. more errors or lesio surrounding stracter. Because did not major postoperative complications, we had no deaths. Because is a classic cholecystectomy safe calculosis the gallbladder with complications.

P134

Renal transplantation in Coach syndrome: A case report and literature review of the rare patient groups

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Background. COACH syndrome is a newly recognized syndrome, characterized by Cerebellar vermis hypoplasia, Oligophrenia, congenital Ataxia, Coloboma and Hepatic fibrosis. Nineteen cases have been reported.

Methods. Slowly progressive renal insufficiency is a frequent manifestation in COACH syndrome. Presently, there is no cure. Screening for some of the complications, as liver or kidney involvement that may become progressive over time, is recommended on an annual basis. We report a case of a 15-year-old girl who underwent successful living related renal transplant. Her perioperative course was uneventful. Our case shows that kidney transplant can be successful, individuals can achieve long-term success if they have a stable neurological condition and support system.

Results. Inherited as an autosomal recessive condition, the underlying defect is not definitively known. The basic defect in COACH syndrome, Joubert syndrome might be a disturbance in normal epitheliomesenchymal interactions, where different mutations might lead to overlapping but different clinical manifestations. No specific molecular defect has yet been identified.

Conclusions. Renal function has not been described consistently in previous reports of COACH syndrome but has been abnormal in all cases in which it has been investigated. We discuss aspects of renal failure in these rare syndrome and discuss relevant literature.

P135

Pelvic fractures in major trauma: What do we look out for?

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Background. Pelvic fractures cause high mortality and morbidity in major trauma, either immediate or during subsequent complications. Prompt recognition improves survival rates. Our aim is to optimize their management.

Methods. A retrospective study was conducted on all major trauma cases at the hospital's ED between Jan. 04 and Dec. 06 with information from the hospital's database. Major pelvis fracture was defined as a pelvic fracture of grade 4 and above (which is equivalent to an AIS score of 3 or more).

Results. Two hundred and seventeen patients were included. Twenty-nine had major pelvis fracture while 188 had minor pelvis fracture. The commonest cause was road accidents (59.0%), followed by fall from height (37.8%). Patients with major pelvis fracture has a mortality of 58.6% and are associated with a lower GCS score (mean 10.2%) and Survival Possibility score (mean 56.0%). They presented with tachycardia and a low systolic BP. More blood and FFP were given to them in the first 48 hours. Seven did not receive any surgery and all died. Development of infections was the most common complication. The average length of stay was 21.6 days.

Conclusions. Post-trauma patients with major pelvic fracture tend to present with hypovolemic shock. Early resuscitation with blood products and preparing him for early surgery improve survival outcomes. Infections affect morbidity more than mortality. Prophylactic measures need to be taken to reduce their occurrence.

P136

Post surgery outcome in two heterogeneous cases of diaphragmatic injury

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Background. Postinjury diaphragmatic hernia is not uncommon sequela of trauma (incidence 0.8–8%). Even though dates back 400 years, still remains recognition and management surgeons challenge despite recent diagnostic advances.

Methods. Two men with left-sited thoracic trauma after carcrash. Both hemodynamic stable. 1st: 30-years-old. Chest radiograph and gastrografine infusion through nasogastric tube reveal the injury. 2nd: 66-years-old. CTscan shows pleural cavity fluid removed by tube thoracostomy. Diaphragm rupture confirmed 4 days after, as patient developed dyspnea and new CT-scan performed.

Results. First patient underwent emergent laparotomy, where diaphragm repaired and spleenectomy took place (surface raptures). Hospitalized 19 days at I.C.U. and 10 at surgery clinic as pneumonia, pleural effusions, empyema, sepsis occurred. Same surgeon performed laparotomy in second case. Patient returned directly to surgical clinic. Six days after, he transferred to orthopedists for hip fracture treatment. Both recovered totally.

Conclusions. Diaphragm rupture with significant morbidity and mortality sometimes remain elusive: 40% normal X-ray, CT scan 15–60% sensitivity. In our cases injury mechanism and surgical procedure were similar. Thus eldest patient, with delayed laparotomy, outcome satisfactory compared to younger-healthier, indicating strong relation of morbidity with associated injuries and underlying trauma.

P137

Tumour markers in colorectal cancer: Estimation of metastatic site selectiveness

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Background. Our work proved their correlation with metastatic sites in patients affected by metastatized recto-colon carcinoma diagnosed with histology.

Methods. From January 2006 to December 2008, 71 patients who underwent radical surgery for recto-colon neoplasm with metastatic illness, confirmed by radiologic, endoscopic and histologic examinations, were monitored.

Results. Number of patients = 71. Metastatic site: Liver (39 pts) (CEA = 34/39 pts (87.1%)) (CA 19.9 = 30/39 pts (76.9%)) Other sites (32 pts) (lynp, pul, peR) (CEA = 21/32 pts (5.6%)) $p > 0.05$-X2 = 3.524 (CA 19.9 = 5/32 pts (23.8%)) $p > 0.001$-X2 = 24.028

Conclusions. The CEA confirmed the presence of a high sensibility without specific quality of metastatic site. Even if with less sensibility than the CEA, the CA 19.9 showed a remarkable selectivity for the hepatic metastasis. All in all, the combined use of the two indicators was of great help in the clinical evaluation of these patients.

P138

A case of esophageal cancer with nonrecurrent inferior laryngeal nerve treated by esophagectomy with three-field lymph node dissection

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Background. A nonrecurrent inferior laryngeal nerve (NIRLN) is a rare anomaly. The right subclavian artery normally araised from the brachiocephalic artery. Variations in its anatomy are rare. An aberrant right subclavian artery arising from the aorta is a rare deperopement. This anomaly suggested that the right inferior laryngeal nerve branched directly from the vagal trunk.

Methods. We present the case of 59-year-old woman with thoracic esophageal cancer.

Results. Retroesophageal right subclavian artery (RRSA) was detected preoperatively by computed tomography. We conducted transthoracic esophagectomy with three-field lymph node dissection. Perioperatively, we recognized the right subclavian artery originated from aorta and passed between the esophagus and the vertebral column. The right recurrent nerve was not identified at the right subclavian artery during upper mediastinal lymph node dissection, but we recognized NIRLN was branched off the vagus nerve at the level of lower third of the tyroid during neck lymph node dissection. Thoracic duct drained into the right venous angle.

Conclusions. Because the RRSA is associated with the NIRLN and sometimes aberrant course of thoracic duct, preoperative recognition of this anomaly is important for the prevention of accidental complication during operation.

P139

Primary adrenal oncocytoma: A case report and a review of the literature

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Background. Oncocytoma is a rare tumor usually involving salivary, thyroid and parathyroid glands, kidney and prostate. Primary adrenal oncocytoma is an extremely rare tumor with less than 30 cases described in the English literature.

Methods. We present a case of a 36-year-old woman who underwent abdominal ultrasounds (U/S) because of chronic abdominal discomfort. U/S findings revealed a sizable and oval right adrenal mass. As a next step, she underwent an abdominal CT-scan confirmed U/S findings. Hormonal laboratory findings were within normal limits. The patient underwent open adrenalectomy with Kocher incision. We removed an incapsulated adrenal mass of 500 gr, dimensions of $11.5 \times 10 \times 6$ cm with an intratumoral hemorrhagic cyst of 3 cm. The adrenal gland was involved in the tumoral capsule.

Results. Pathology report described a tumor with histologic character of primary adrenal oncocytoma with potential malignancy. The patient two years later does not present any signs of local recurrence or distant metastasis.

Conclusions. Adrenal oncocytomas are usually asymptomatic and most of them do not appear with functional characteristics. They are incidentally revealed during medical tests for other reasons and most of them are benign. The biological behavior of adrenal oncocytomas is not clear even after a definitive pathological examination.

P140

Surgical treatment of mitral valve paravalvular abscess in a patient undergoing chronic haemodialysis

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Background. Infective endocarditis is more common in patients on chronic haemodialysis than in the general population and constitutes the second most common cause of death in this group. Mitral valve paravalvular abscess is a serious complication of infective endocarditis which predicts future complications.

Methods. Female patient in age of 53 years is admitted in our institution for surgical treatment of mitral insufficiency and coexisting formation in left atrium with great risk of embolization. The patient had been treated by haemodialysis for end-stage renal disease due to diabetic nephropathy. TEE revealed callosity located near the posterior mitral cusp, with cavity in its center.

Results. Surgical exploration revealed existence of abscess cavity filled with purulent content, incapsulated, restrained from surrounding tissue in posterior part of the mitral anulus. Aggressive debridement of abscess cavity and involved tissue was performed. After that mitral biological prosthesis was implanted. *Enterobacter* spp. was isolated from operative specimens.

Conclusions. The presence of paravalvular abscess as a complication of IE significantly increases the complexity of surgical treatment and leads to increased mortality. The basic principle of surgical treatment of mitral valve paravalvular abscess is aggressive debridement and resection of the infected tissue.

P141

Radical surgery for hydatid disease like ideal choice to improve the technical skills in liver surgery in the balkan area

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Background. Within a training project leaded by Veneto Region-Italy, we assessed the safety and effectiveness of major hepatobiliary (HB) procedures in a scarce resources hospital. We report our experience.

Methods. From Jun. 2006 to Sept. 2009, 12 patients (pts) (7 F, 5 M, mean age 35.5 ± 13.08) underwent a major HB procedure. Because of the different grade of difficulty, liver hydatidosis was chosen as the preferred disease (15 echinococcal cysts in 9 pts). The others had 1 cholangiocellular carcinoma (ICC), 1 recurrent cholangitis for bile duct (BD) stenosis, 1 BD injury.

Results. Nine patients with 15 hydatid cysts underwent surgery (1 right hepatectomy, 2 left lobectomy, 9 total, 1 subtotal pericystectomy). Mean postop stay was 6.1 days (range 3–10) with no mortality and 1 minor morbidity. The patient with ICC underwent enlarged right hepatectomy and is disease free 15 months after surgery; 1 pts with BD injury and post ERCP bleeding and pancreatitis was transferred in our hospital for treatment but died 8 days after hepatico-jejunostomy from massive duodenal hemorrhage.

Conclusions. Radical surgery for hydatid disease is a good choice for training in HB surgery. It permits a wide range of procedures and all the basic maneuvers. Radicality was achieved in 93% of cases (figures in non-western countries are 10–40%). Also extended liver resections can be performed safely. Further experience is required to confirm these results.

P142

Correlation between techniques of the appendectomy and occurrence of an abscess in the area of appendix

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Background. One of the unpleasant preoperative complications of the appendectomy is an abscess-a collection of pus in the area of the appendix. In this research we present our findings acquired by comparison techniques of the appendectomy. We tried to find out whether is there any connection in appendectomias completed by use of the stapler, surgitie or those finished by hand suture of the stub of the appendix and abscess incidence.

Methods. Data were collected and analyzed retrospectively from case notes and the theater database. Most of the patient underwent standard laparoscopic appendectomia-the appendix was excised either by the stapler or surgitie. Rest of the patient, especially children and male underwent classical appendectomy.

Results. A retrospective chart review was performed in other 1000 consecutive inpatient appendectomia procedures completed during past 10 years. Outcome measures included number of abscesses in the area of appendix, relation to gender and age of the patient and used technique of appendectomy.

Conclusions. Laparoscopic way of appendectomy seems to be beneficial due to the ability of checking abdominal cavity. On the other hand, there is also need of the reliable and safe laparoscopic instruments – e.g. stapler. Occurrence of the abscess depends on several conditions-technique of appendectomia might be one of them. Is this condition avoidable by perfectly done appendectomia independently on used technique?

P143

Gallstone ileus

S. Grbaš, D. Košćak, A. Nekić, Ž. Štivić, N. Obran

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Background. Gallstone ileus is mechanical obstruction of the gastrointestinal tract from a gallstone, most commonly following passage of the stone through a spontaneous biliary-enteric fistula.

Methods. We present a study of 9 patients diagnosed with gallstone ileus from 1995 to 2009 in our hospital and a review of the published literature.

Results. Seventy-five percent of biliary-enteric fistulas develop between the gallbladder and duodenum. Gallstone ileus accounts for only 1–4% of all cases of small bowel obstruction and occurs in 1% of patients with gallstones, it may account for as many as 25% of cases of intestinal obstruction in elderly patients who have not undergone previous abdominal operation and do not have a hernia. Additional gallstones should be sought

as recurrent obstruction has been reported in up to 10% of patients with gallstone ileus. Gallbladder cancer has been reported in 15% of those patients. In patients with a significant inflammatory process or who are too unstable to withstand a prolonged operative procedure, the fistula and cholecystectomy can be addressed at a second laparotomy.

Conclusions. In the period of 15 years we had 15 260 abdominal operations, 2857 operations were on cholelitihasis and 396 operations on intestinal obstruction, in nine patients gallstone was the main cause of the intestinal obstruction (2.27%).

P144

The value of plasma cholinesterase in infants and children with liver disease before surgery procedure

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Background. Plasma cholinesterase (PChE) is an enzyme and like albumin synthesised in the liver. The aim of study was to assess the liver function in terms of synthesis in children with severe liver disease. PChE activity, dibucaine number and albumine concentration were measured in 15 children as well in 25 infants with biliary atresia and cirrhosis. Twenty healthy children were included in the control group as well as 20 healthy infants.

Methods. PChE activity was measured by the spectrophotometric method by Ellman. Dibucaine number was determined using benzoylcholine in phosphate buffer. Serum albumin concentration was determined by immunonephelometry as described by Naathelson.

Results. All children with liver disease have significant lower activity of PChE and albumine concentration in relation to the control group values ($p < 0.0001$). PChE activity and albumin were not correlated in patients with liver disease. In all children dibucaine number was normal. The results indicate the usefulness of determing PChE activity in children with severe liver disease to avoid altered response with drugs that are metabolised by PChE.

Conclusions. Decreased activity of PChE and albumin concentration with no correlation between them confirm the data of the independence of protein synthesis by the liver. Study indicate that PChE activity reflects more sensitively the degree of synthetic liver function than albumin concentration.

P145

Primary retroperitoneal cystadenoma. An extremely rare entity in a male patient

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Background. Primary retroperitoneal mucinous cystadenoma (PRMC) of borderline malignancy constitutes a rare tumor of unclear histological origin and only 9 cases have been reported in the English literature, whereof only one in a male patient. The most of the authors believe that it evolves through mucinous metaplasia in a pre-existing mesothelial cyst, rather than from an ectopic ovarian tissue or cystic teratomas; fact which is enlarged from the presence of this tumor in a male patient.

Methods. We present a case of a 37-year-old man with palpable abdominal mass extending from right hypochondrium to the right iliac fossa, confirmed by U/S and CT-scan. Patient underwent laparotomy. We performed an en block resection of a retroperitoneal cystic mass, presenting gelatinous-like content, arising from the prevertebral space of L1–L3 level and extending to right iliac fossa dislocating intestinal loops leftward.

Results. Pathology examination described a PRMC of borderline malignancy (diameter $22 \times 14 \times 4.5$ cm, weight 957 gr).

Conclusions. PRMC is a rare tumor and laparatomy is diagnostic and curative. To our knowledge, this is the second case of PRMC of borderline malignancy in a male patient reported in the English literature.

P146

Ulcus cruris of unknown cause

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Background. About 3–5% of ulcus cruris are atypical. With all diagnostic procedures and with all kind of therapy, we still don't know their cause and their progress. Because of that we have to put a lot more effort to get some results and to make that kind of wound to heal.

Methods. Its about a woman who was hit in her left lower leg. Later she develop an ulcer on stricken leg and than also on the other leg. In other hospitals she undergo through a lot of tests and different kind of therapy but with no results. Then she came to our clinic. We did all diagnostic tests and we didn't find any abnormality. We discontinued all drugs. We decided to conduct target antibiotic therapy. Several necrectomies and split skin grafts were done, along with NPWT. Advanced anti-bacterial dressings were used to augment target antibiotic therapy, as well as short stretch compression which she was taught how to do.

Results. One year after she first presented to our team, we finally got results. Now, her right leg ulcer has completely healed. On the left is a small remaining ulcer that is healing well.

Conclusions. After 8 years of fighting with these ulcers the cause was never fully discovered. She was with us for only one of those years and with consistent, responsive care we were able to resolve these horribly painful ulcers and allow this young woman to begin a normal life again.

P147

Radical surgery for hydatid disease like ideal choice to improve the technical skills in liver surgery in the balkan area

A. Recordare[1], N. Loxha[2], F. Shala[2], R. Dreshaj[2], S. Muhaxheri[3], B. Kastrati[4], H. Kingji[4], L. Bertinato[5]

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Conclusions. Radical surgery for hydatid disease is a good choice for training in HB surgery. It permits a wide range of procedures and all the basic maneuvers. Radicality was achieved in 93% of cases (figures in non-western countries are 10–40%). Also extended liver resections can be performed safely. Further experience is required to confirm these results.

5th Croatian Congress of Surgery with International Participation

ORAL

Acute Abdomen

A001

Acute cholecystitis – indication for emergent surgical procedure

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Background. Acute cholecystitis is a common surgical disease, a frequent complication of the symptomatic gall-stone, but sometimes gall-stone is not detected. Our statement is that every acute cholecystitis is acute abdomen and therefore acute surgical disease requiring emergent surgical treatment, early laparoscopic cholecystectomi.

Methods. We did retrospective analysis of OR documentation and PHD for cholecystectomies in acute and chronical cholecystitis and cholelithiasis in General Hospital Vinkovci for the period since 2005 till 2009.

Results. In the time frame from 2005 till 2009 every gallbleader operation started as laparoscopic procedure. We came to conclusion, that in our institution there is no significant difference in the number of complications after laparoscopic operation, weather it's acute or chronical or in case of cholelithiasis.

Conclusions. This study confirms the thesis of our institution that early cholecystectomy is justified since it is frequently done laparoscopically, with just a few conversions and other complications. It eliminates pain immediately, postoperative recovery is fast, significantly reduced duration of hospitalisation and absence of the patient from everyday activities. Expenses are reduced. In the same time we avoid the complications due to postponement of surgical procedure.

A002

Gallstone ileus

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Background. Gallstone ileus is mechanical obstruction of the gastrointestinal tract from a gallstone, most commonly following passage of the stone through a spontaneous biliary-enteric fistula.

Methods. We present a study of 9 patients diagnosed with gallstone ileus from 1995 to 2009 in our hospital and a review of the published literature.

Results. Seventy-five percent of biliary-enteric fistulas develop between the gallbladder and duodenum. Gallstone ileus accounts for only 1–4% of all cases of small bowel obstruction and occurs in 1% of patients with gallstones, it may account for as many as 25% of cases of intestinal obstruction in elderly patients who have not undergone previous abdominal operation and do not have a hernia. Additional gallstones should be sought as recurrent obstruction has been reported in up to 10% of patients with gallstone ileus. Gallbladder cancer has been reported in 15% of those patients. In patients with a significant inflammatory process or who are too unstable to withstand a prolonged operative procedure, the fistula and cholecystectomy can be addressed at a second laparotomy.

Conclusions. In the period of 15 years we had 15 260 abdominal operations, 2857 operations were on cholelitihasis and 396 operations on intestinal obstruction, in nine patients gallstone was the main cause of the intestinal obstruction (2.27%).

A003

Acute necrotizing pancreatitis: treatment strategy according to the status of infection – our experience

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Background. Infection of pancreatic necrosis is the most important risk factor contributing to death in severe acute pancreatitis, and should be managed surgically. Management of sterile pancreatic necrosis accompanied by organ failure is controversial.

Methods. A retrospective single-center trial evaluated the role of non surgical management including early antibiotic treatment in patients with necrotizing pancreatitis. Pancreatic infection, confirmed by fine-needle aspiration, was an indication for surgery.

Results. Twenty-three patients with CT-documented necrotizing pancreatitis underwent operative pancreatic necrosectomy within 28 days of initial diagnosis and had an average of 2 reoperations. Average length of stay in the ICU was 38 days and in the hospital 63 days. Fourteen patients had documented infected necrosis based on initial intraoperative cultures, while 9 had sterile necrosis. Overall, 95% of the patients had complication, with an average of 3 complication per patient. Common complication included ARDS, sepsis, renal failure, pneumonia. The overall mortality was 21% (5/23).

Conclusions. The patients with infected necrosis should be treated surgically after the demarcation of necrosis is complete. Indication for surgery in sterile necrosis should be based on persisting/advancing organ complications and sepsis signs de-

spite intensive care therapy. Management of sterile pancreatic necrosis is still a matter of debate.

A004

The acute abdomen in patients with cancer

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Background. Many patients who present to emergency department with abdominal pain and acute abdomen are patients who have known cancer or whose symptoms are caused by still undiagnosed one. Moreover, abdominal pain is the most common complaint in patients with known cancer. Management of cancer patients in emergency setting raises important questions: limited diagnostic abilities in emergency setting, oncological adequacy of emergent operation, poorer outcome of cancer patients after emergent operations etc.

Results. In 2009 we operated 83 emergent cancer patients for acute abdomen. Indications: Bowel obstruction in 70 (84%), perforation or septic complications in 12 (14%) and hemorrhage in 1 patient. Fifty-two patients (63%) had diagnosed malignant disease and received medical treatment before presenting with acute abdomen, and in 31 patients (37%) malignant disease was discovered in emergent workup or intraoperatively. Thirty-eight patients (46%) were patients in end-stage (terminal) malignant disease. We performed radical operation in 37 (45%) and palliative in 46 patients (54%). Short term outcome of the patients will be presented in the paper.

Conclusions. Cancer patients presenting to emergency room with abdominal pain and acute abdomen pose a diagnostic and management dilemma for surgeons. Multidisciplinary approach involving radiologists, oncologists and intensive care specialists is mandatory in treating cancer patients.

A005

Laparoscopic operations in emergency abdominal surgery

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Background. Most of elective operations in abdominal surgery can be performed laparoscopically. For some of them, like cholecystectomy, laparoscopic operation is a golden standard. In emergency abdominal surgery laparoscopic operations are rarely performed.

Methods. Retrospective analysis of patient histories treated at our institute.

Results. It is considered that a laparoscopic operation carries an increased risk compared to open surgery due to inflammatory changes, adhesion, and other characteristics that disrupt anatomical relations. Therefore, authors wanted do display their results in performing laparoscopic operations in emergency surgery in the period from 2002 up to 2009, to perform certain conclusions and recommendations, and rules to keep.

Conclusions. It has been proved that many operations in emergency surgery can be performed laparoscopically, although it is recommended to be performed by experienced laparoscopic surgeons. In the event that an operation cannot be adequately performed, conversion to open operation can be made.

A006

Laparoscopic repair for perforated peptic duodenal ulcer

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Background. Although prevalence of peptic ulcer is decreasing, the number of peptic ulcer perforations appears to be unchanged. This complication of peptic ulcer is traditionally surgically treated. In recent years, a number of papers have been published where the authors managed perforated duodenal peptic ulcer in selected patients using laparoscopic approach. Laparoscopic treatment of perforated duodenal ulcer has been described as safe and advantageous compared to open technique but advantages are still not clear due to small number of cases in published studies. Based on these recommendations we decided to establish our own protocol for laparoscopic treatment of perforated peptic duodenal ulcer.

Methods. We evaluated the first 10 patient in whom we performed laparoscopic repair of perforated duodenal ulcer. All patients were admitted in urgent setting. Standardized preoperative preparation and laparoscopic operation were performed.

Results. There were no conversions to open procedure and no early postoperative complications. Mean length of hospital stay was 5 days. The patients were contacted by phone a year after the operation, and all were satisfied with the operation and the appearance of postoperative scars.

Conclusions. We regard laparoscopic repair of selected patients with perforated duodenal ulcer as a safe and preferable treatment.

A007

Laparoscopic appendectomy in complicated appendicitis: Our experience

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Background. The use of laparoscopic appendectomy in complicated appendicitis (CA) is still somehow controversial. There are still reports on a higher incidence of intraabdominal abscesses, higher rate of conversions, longer operative time and longer hospital stay. The aim of our study was to determine the differences in results of laparoscopic treatment between cases of complicated versus simple acute appendicitis (SA).

Methods. We included 108 patients operated for suspected appendicitis between January and December 2009. Twenty-eight

percent of them had complicated appendicitis with local or diffuse peritonitis. We considered the following variables: mean operating time, rate of conversion, use of antibiotics postoperatively, length of hospital stay and postoperative complications.

Results. In the SA group the mean operating time was 50.7 min, compared to the CA group where the mean operating time was 59.5 min ($p > 0.005$). The length of hospital stay was statistically significant shorter in the SA group. We had no conversion in both groups. No significant differences were observed regarding postoperative complications. However the CA group received antibiotics in a greater percentage (86% compared to 34.9% in the SA group).

Conclusions. The laparosopic approach in complicated appendicitis is a safe and efficacious choice.

A008

Acute abdomen-acute diverticulitis

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If clinical signs support a strong suspicion of peritonitis, surgery is performed without further delay from other investigations. Perforation of a hollow viscus is the most common cause of peritoinitis. Complicated diverticulitis is one of examples. A key presentation of complicated disease is abscess formation. The natural course of this is unclear and therefore treatments range from concervative approach with antibiotics and percutaneous guided drainage/PCD/to surgery. The European Association for Endoscopic surgeons developed a classifications scheme based upon the severity of its clinical presentation. Another classification system was developed by Hinchey and adapted from Kohler. CT classification by Ambrosetti is recently most used. The treatment goal remains to convert patients to elective one-stage resections (laparoscopically). Elective surgery for diverticular disease is acceptable in selected cases despite recent reports which speak in favour of a more conservative approach. In case of clinically present acute abdomen (perforation) surgery is clearly indicated. Depend of a case the possibilities are to perform ''one stage'', ''two stage'' or ''three stage'' operations. We are most likely to perform the Hartmann procedure, which has been advocated as the standard of care for perforated diverticulitis.

A009

Complication of acute diverticulitis

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Background. In this paper we will consider patients who were hospitalized in the urgency and operated under a clinical picture of acute abdomen, caused by complications of acute Diverticulitis, perforation.

It is known that the acute Diverticulitis is the most common complication of colon. Almost always is related to sigmoid colon (Diverticulitis of sigma). The reason for the inflammation is obstruction of diverticul with intestinal content, with consecutive development of inflammation. Because of the very thin mucosa of diverticul, inflammatory process spreads and progresses to perforation.

In the past five (5) years, we have hospitalized in urgency and operated 56 elderly patients. Of diagnostic methods we were mainly using detailed history, physical examination, laboratory analysis and UTZ and CT diagnostic.

Methods. Depending on the local findings, age and condition of the patients, and also experience of the operator, we used following operational methods:

- resection of the diseased segment sigmoid colon, in terms of Hartman's operation in 46 patients;
- resection of the diseased segment sigmoid colon with primary colorectal anastomosis and protective colonostomy in 7 patients;
- resection diseased segment sigmoid colon with primary colorectal anastomosis in 3 patients.

Results. The average time of hospitalization of our patients amounted to 21.7 days. Of the early surgical complications, we had the usual, expected complications, presented in terms of secondary infections of surgical wounds, parastomal phlegmons, dehistientio of stoma suture and dehistientio of laparotomic wound. We had a mortality of five (5) of the patients which is 9%.

Hartman operation is the method of choice for urgent interventions.

We retrospectively analyzed patients operated for acute complications of Diverticulitis colon between 2003rd and 2008th year.

A010

Acute abdomen due to complicated colorectal cancer

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Background. The paper analyzed the patients operated in the five-year period due to complications of colorectal cancers. The purpose of this study was to determine the frequency of occurrence of complicated colorectal cancer in relation to the total number operated for colorectal cancer and to determine the characteristics of patients with complicated colorectal carcinoma.

Methods. Patients were analyzed according to sex and age, tumor localization, Dukes classification, type of surgery, postoperative complications and postoperative mortality. We analysed medical histories of patients, operating protocols, laboratory and pathohistological findings.

Results. We operated a total of 313 patients with colorectal cancer in the period from 01.01.2005 to 31.12.2009. Seventy-eight of them(24.92%) were operated as emergency case because of ileus (66 patients) or peritonitis (12 patients). Most of them were 70–79 years old and more than 1/4 were in Dukes stage D. Palliative surgery was made in 22 patients, definitive operation with or without supporting stoma in 41 patients, and stoma as the first operative act was created in 15 patients.

Conclusions. Twenty-five percent of patients with colorectal cancer required urgent surgery for complications of advanced colorectal carcinoma and 75% of them were older than 60 years. About 25% of patients have already developed distant metastases, and palliative operation is the only option for 28% patients.

A011

Delayed presentation of post traumatic diaphragmatic rupture: A case report

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Background. Traumatic diaphragmatic hernias are closed by blunt toraco-abdominal. The incidence of diaphragmatic ruptures after thoraco-abdominal traumas is 0.8–5% and up to 30% of diaphragmatic hernias presents late. Delayed traumatic diaphragmatic hernia develops after a period of one month following trauma or later. Most patients with delayed traumatic diaphragmatic hernias present with acute gastrointestinal and/or respiratory symptoms, although for the intervening period they can be completely asymptomatic. Diagnosis is often difficult, resulting in delayed presentation and increased morbidity.

Methods. Case report.

Results. We present a case of delayed traumatic diaphragmatic hernia in a 32-year old man presenting 8 years after the initial trauma sustained in a road traffic accident. The chest X-ray interpretation suggested pneumothorax, but the MSCT scan findings showed diaphragmal rupture with herniation of stomach and colon. The surgical treatment was performed through an open laparatomy, the herniated organs were reduced and diaphragmatic defect repaired.

Conclusions. Traumatic diaphragmatic hernia is a diagnostic challenge to both radiologist and surgeon. A possibility of delayed presentation of diaphragmatic rupture should be kept in mind in patients with upper abdominal symptoms whenever there is a history of trauma or blunt injury, regardless the time the trauma happend.

A012

Emergency laparotomies in abdominal trauma

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Background. The purpose of this study is to review a single center experiences in emergency laparotomies in acute abdominal injuries.

Methods. The following analysis data was collected from Clinical Hospital Center Rijeka (CHC) over a 4 year period. All of the patient which underwent emergency laparotomies due to abdominal trauma were included. Following analysis includes demographical data, trauma etiology, surgical procedures etc.

Results. One hundred and one patients were included in this study. Mean age 37 (3–80 years). 57 (56%) patients were classified as polytraumatized and 44(44%) patients had isolated abdominal injury. Average procedure length was 102 min (min: 24, max: 360 min.) and intraoperative mortality rate was 3% (3 patients). All of the surgical procedures were started by a traumatologist and in 67% cases also finished by a traumatologist. The assistance of other specialists was asked as well. With all data presented it is clear that a special consideration was given to abdominal trauma emergency diagnostics as well as surgical management.

Conclusions. In this study we tried to emphasize the relevance of abdominal injuries, its fast and proper diagnostic methods and the frequency of surgical management. We also stressed out the importance of a proper traumatologist education in abdominal surgery principles and the requirements for a multidisciplinary approach in such patients.

A013

Hepatic portal vein gas in adults – etiology, pathogenesis, clinical significance and outcomes: A case report and a systematic literature review

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Background. Hepatic portal vein gas (HPVG) is a rare radiologic finding that has historically been interpreted as an ominous sign; more recent works tend to underline an increasing number of cases associated with benign prognosis. Until now no systematic literature review has been published focused on the real clinical relevance of HPVG.

Methods. A case report is presented followed by a systematic literature review; a computerized search was made on Medline and the most important web search engines for publications discussing portal vein gas up to September 2009. Three hundred and twenty eight articles were identified and 13 were selected for this review as matching inclusion criteria.

Results. Underlying diseases were mostly represented by intestinal ischemia (48%) with a particularly high mortality rate (73%); in non ischemic cases mortality fluctuates through much different values (from 7.1% to 88%) with an overall rate of 26%. Association between HPVG, CT finding of pneumatosis intestinalis (PI), and lactic acidosis achieves best sensibility and positive predictive value in the diagnosis of bowel ischemia.

Conclusions. Patients with gas in the portal network can be divided in three subgroups suitable for different treatment. In ischemic cases surgery is mandatory; iatrogenic, post surgery and post chemotherapy cases are usually manageable conservatively, but for the other patients it's strongly recommended to consider case by case which treatment may be the most proper.

A014

Early cholecystectomy in patients with acute pancreatitis caused by gallstones – yes or no

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Background. During the last 3 years we have chosen to perform a cholecystectomy during the first hospitalization on

an increasing number of patients with acute pancreatitis caused by gallstones.

Methods. By reviewing our hospital records for the period of years 2007–2009. We have found that we have hospitalized 197 patients because of acute pancreatitis caused by gallstones.

Results. Within the first hospitalization we have operated 42% of patients, 35% were cholecystectomied after two to three months after complete resolution of pancreatitis. Approximately 10% of patients had poor operative risk so they were not cholecystectomied at all.

Conclusions. We have not noticed any major complications after early cholecystectomy (7–10 days after the onset of symptoms of acute pancreatitis) and no recidiva of pancreatitis in that group of patients. Because of shorter hospitalization, fewer number of hospitalizations and earlier resumption of normal life, we find that early cholecystectomy is safe and preferred for patients with acute pancreatitis that show resolution of pancreatitis within 7–10 days after the onset of pancreatitis.

A015

Surgical treatment of hepatic infections with Echinococcus granulosus

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Background. Echinococcosis is parasitic disease that affects all organs and tissues in human body. It has special significance in hepatobilliar pathology. Incidence of echinococcosis in Croatia during our observed period was 23 patients per year.

Methods. Our research includes retrospective study of 23 surgical patients of Clinical hospital ''Merkur'' (Zagreb) in period from 2002 to 2009.

Results. Gender ratio was 2:1 in favor of female. Average age was 53 (ranged from 25 to 69). In 14 patients (58%) cyst was located in right lobe, in 6 (25%) patients was located in left lobe and in 4 patients (16%) cyst occupied the left and right segments of the liver. Unilocular cyst was found in 17 patients (70%), 3 and more cysts in 7 patients (30%). Smallest cyst was the size of 2 cm while the largest cyst was about 12 cm. Clear consistency of cyst was found in 16 patients (66%) while turbid and purulent was found in 8 patients (33%). Used surgical methods were: atypical resection of the liver segment (45%), pericystectomy (30%), extirpation (10%), enucleating (10%) and right hepatectomy (4%). We had postoperative complications in 2 patients (8%) (subphrenical collection and abscess). One patient (4%) died due to comorbidity.

Conclusions. Due to observed cases, the authors consider the used surgical techniques to be the most effective with minimal complications.

A016

Our experience in treatment of GIST (Gastrointestinal Stromal Tumor)

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Background. Gastrointestinal stromal tumors, or GISTs, are a relatively uncommon type of cancer that occur in the gastrointestinal tract, 1–3% of all gastrointestinal malignancies. Approximately 50% of GISTs occur in the stomach, 25% in the small intestine, 10% in the colon and 15% other parts of the GI tract. GISTs belong to a class of diseases called sarcomas, cancers that begin in the connective tissues, which include fat, muscle, blood vessels, deep skin tissues, nerves, bones and cartilage. Most cases occur in people between 40–80 years of age. They are typically defined by mutations in the Kit gene or PDGFRA gene, and may or may not stain positively for Kit. The annual incidence of occurrence 1:100 000.

Methods. Insight into the medical archives of our hospitals, we found 9 patients in the past 9 years from diagnosis GISTs.

Results. After the analysis of medical documentation, we came to the conclusion that the length of survival after surgical treatment, is greatly affecting adjuvant cytostatic therapy.

Conclusions. This neoplasm of the digestive system is a rarity and a great challenge in treatment, and requires an interdisciplinary approach to the patient.

A017

Evidence based approach towards hemorrhoids

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Background. Hemorrhoids are a frequent and familiar concern of patients in the physician's setting. Although they are often asymptomatic, hemorrhoids may cause bleeding, prolapse and, less commonly, pain.

Methods. This review gives an update on etiology, causative and aggravating factors and various treatment options for symptomatic hemorrhoids. The approach includes conservative treatments, office interventions, and surgical procedures, depending on the individual constellation of symptoms.

Results. In this presentation, practical guidelines regarding the diagnosis and treatment of hemorrhoidal disease is discussed. Recent advances (stapled hemorrhoidectomy and use of alternate energy sources) are also emphasized.

Conclusions. Careful diagnostic skills are required to recognize the differences between internal and external hemorrhoids and other significant anorectal pathology. With appropriate diagnosis, most hemorrhoids can be treated successfully nonsurgically in an office setting.

A018

Complications of hemorrhoidal disease

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Background. The author describes the various complications associated with hemorrhoids.

Methods. The most common complications noticed were persistent bleeding leading to anemia, pruritus, hygiene problem, thrombosis, incarceration, gangrene, ulceration, fibrosis and suppuration. Rare complications included portal pyemia, subanodermal hemorrhoids, multiple hemorrhoids, associated anal

fistula and abscess, associated polyps, hemorrhoids occurring at the extreme of ages and human myesis occurring in hemorrhoidal wound.

Results. Most of these complications were tackled successfully with a blend of radiowave surgery using a Ellman radiowave generator and supportive therapy.

Conclusions. Hemorrhoidal complication could be acute on chronic. At time, they could be life threatening. Hemorrhoids may present with complications as the first presentation of the disease. Timely diagnosis, relief of pain, use of antibiotics and appropriate surgical intervention with minimum tissue handling to avoid septic complications and close follow-up are called for a favorable outcome. The author also discusses his approach towards these complications.

Reconstructive Plastic Surgery

A019

Primary breast reconstruction after mastectomy – our experience

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Primary breast reconstruction is a well known and widely used technique after surgical treatment of breast cancer. It can be performed using submuscular silicone implants or tissue expanders. It can also be performed with different myocutaneous flaps which usually are used if there is not enough muscle or skin for covering prosthesis. The main goal of primary breast reconstruction is to prevent psychical states like depression and stress after mastectomy. In follow-up period after breast surgery we use specially designed forms to detect quality of life in our patients and our results suggest that patients with primary breast reconstruction have better psychological profile and less depression states than patients who's breast reconstruction was delayed or not performed. Our conclusion is that primary breast reconstruction after mastectomy is a safe and well recommended procedure with good immediate aesthetic and functional result and better postoperative psychological profile.

A020

Oncoplastic breast surgery

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Background. The authors try to analyse the results of modern approach in breast cancer treatment concerning more radical approach in breast surgery with consecutive primary or secondary reconstructions and oncoplastic surgery.

Methods. We have analysed period of last 10 years comparing the number of mastectomies, BCS and reconstructive and oncoplastic procedures. We present our results and discuss early and late complications.

Results. In our County Hospital we perform about 300–350 breast surgery procedures annually including diagnostic and oncologic breast surgery as well as oncoplastic and reconstructive breast surgery. Oncoplastic and reconstructive breast procedures make up to 15–20% of entire number of breast surgery procedures.

In last 10-years period we have analyzed 412 breast reconstructive surgical procedures out of more than 3000 breast operations. The number of early and late postoperative complications is insignificant.

Conclusions. Breast reconstruction is not only aesthetic, but also the functional surgical approach and it is integral part of comprehensive breast cancer treatment. Oncoplastic breast surgery and breast reconstructions has to be planned from the beginning of entire treatment for each patient individually.

A021

Use of an omentum flap for sternal defect reconstruction

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Background. Surgical wound infection remains a major problem in cardiac surgery and occurs mainly after full sternotomy. For covering infected area different methods have been used of which the most common method is transposition of pectoral muscle for covering sternal defect.

Methods. Most commonly we perform laparoscopic assisted omental flap reconstruction of sternal defects. Reconstruction is performed by combined vacuum-assisted closure treatment with laparoscopic mobilization of an omental flap and mesh skin grafts.

Conclusions. In our opinion laparoscopic assisted omental flap transposition combined with meshed skin graft is safe and reliable method that can be used in sternal defect reconstruction.

A022

Therapeutic procedures in complex trauma of the extremities

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Background. The treatment of complex injuries of the extremities, classified as Gustillo III or IV, is a medical and an organizational problem. Trauma of the soft tissues, neurovascular and bone injuries all must be treated in one act. An important prognostic factor is the mechanism of the injury.

Methods. Stabilization of the bone fragments was achieved using Kirschner wires, loops and individual screws. Neurovascular structures were reconstructed using patch-plastic, venous grafts or termino-lateral or termino-terminal anastomoses. Soft

tissue reconstruction employed local flaps, split-skin grafts, free flaps and pedical flaps.

Results. Seven patients were treated in our institution from February 2008 until January 2010, the youngest patient was 17 years old while the oldest was 65 years old. Four patients had lower limb injuries, while three patients were treated for trauma of upper extremities. Except for one patient, all cases required neurovascular reconstruction. In spite of the severity of all the injuries there was no need for secondary amputations. All patients were dismissed with a satisfactory functional result.

Conclusions. The correct method chosen for stabilization of bone fragments and a timely soft tissue reconstruction guarantee a extremity preservation with a satisfactory functional result even in severe trauma.

A023

The management of breast invasive and DCIS tumors at the University Hospital for Tumors Zagreb

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Background. At the University Hospital for Tumors Zagreb we admitted and surgically managed 3230 patients with breast invasive and non-invasive (DCIS and LCIS) patients. Modern treatment and the backup of our diagnostic and oncological teams at the University Hospital for Tumors Zagreb develop good and satisfactory long-term results. With the early detection programme which started in 1994. The size and the number of newely diagnosed primary tumors had been downsized and the number of Newely diagnosed DCIS and LCIS had been increasing.

Methods. In this work we presented our results and the way of treatment in last five years, the number and the sort of operations in patients with breast cancer and DCIS, as well as the protocol of further treatment.

Results. We operated 3230 patients with breast invasive and non-invasive cancer at the Surgical department of University Hospital for tumors in last five years (Jan. 2005–Nov. 2009). In this review we presented the development and current protocol for multidisciplinary approach and treatment of our patients.

Conclusions. In presented numbers we showed that the percentage of patients with DCIS and LCIS operated at the University Hospital for Tumors is about 5%, which is still unsatisfactory compared to 10% in West European and USA patients. All the operations that had been done are analyzed and they show the reality of breast surgery in Croatia today.

A024

Sentinel lymph node biopsy in the treatment of breast cancer

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Background. In the last ten years in most centers dealing with breast cancer surgery was introduced the method of sentinel lymph node biopsy (SLNB) as a replacement for axillary lymph node disection (ALND). Intervention is indicated by unifokal cancer T1–2 and clinically negative axillary limph nodes.

Methods. The six-year period (2003–2008), we have operated 597 female patients in the Department of Surgery, Clinical Hospital Center Rijeka. Eight hundred and eighty eight operations were done, which correspond to an average of 1.5 per patient.

Results. Diameter of breast cancer was 0.1–3.2 cm. Average of 1.7 SLN diameter 0.2–2.8 cm was made. It was diagnosed 437 (73.2%) negative and 153 (25.6%) positive nodes, of which 84 intraoperative, while 7 (1.2%) could not be identificated. Micrometastases occurred in 52 (8.7%) and submicrometastases in 17 (2.8%) cases. Breast conserving surgery was done at 514 (86.1%) and total mastectomy in 83 (13.9%) cases. ALND was performed in 160 (26.8%) patients. One (0.23%)patient was operated due to recurrence in axila after 17 months.

Conclusions. The overall morbidity after ALND is 35–75% and 3–7% for SLNB. The worst postoperative consequences like lymphedema and limited movement at the shoulder in SLNB not occur. We are waiting the results of large randomized prospective studies for the solution of some outstanding questions and the formal proclamation of SLNB as official accepted method.

A025

The ultracision technique in breast cancer surgery. Ligature-free operation – an illusion? Experience of University Hospital for Tumors

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Background. One of the main early complications of breast cancer surgery is postoperative seroma formation. Axillary dissection is associated with prolonged serous drainage that may result in several complications.

Methods. We analyzed whether the use of ultrasound knife may decrease the total amount of drainage from the axilla and shorten the time of surgery in patients requiring curative surgery for breast cancer.

Results. In this work we evaluated the amount of seroma formation, and the role of ultracision technique in axillary dissection in patients with breast cancer. Three hundred and fifty women (median age 59 years, range 33–73 years) requiring surgery for primary breast cancer were analysed to undergo axillary dissection by either using ultrasound knife (HARMONIC SCALPEL®) without using ligatures or electrocauttery (Group A, 200 patients) or not using (Group B, 150 patients) ultrasound knife in a period of 2007–2009. All operations were performed by same surgical team.

Conclusions. Overall, there was no relationship between axillary drainage and both total number of the removed nodes, the time of the surgery was shorter in group A and early postoperative complications, as well as the age of the patients and size of the tumor. Total axillary drainage was higher in group B, whereas the postoperative hospital stay was shorter in group A. In conclusion, our study shows that the use of ultracision technique significantly reduced total axillary drainage in patients requiring

axillary dissection and may shorten hospital stay and number of complications.

A026

Quality of life after breast conservative surgery: 3 years after surgery review

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Background. Surgical treatment of breast cancer has changed significantly in recent years. The preferred method of treatment for many women with early breast cancer is conservative surgical therapy (principally lumpectomy and axillary dissection) followed by breast irradiation. A recent study of patients with early-stage breast cancer found women who undergo breast conservation therapy have improved body image, higher satisfaction with treatment, and no more fear of recurrence compared with women treated with mastectomy.

Methods. We invited all patients who had undergone breast conservative surgery in 2006. They completed quality of life test including a part with a breast appearance. Also we took photos of breast in five standard projections and gave it to 3 plastic surgeons who completed the same breast appearance test.

Results. Most women would undergo the same surgery procedure. Comparison of breast appearance satisfaction made between surgeons and patients gave similar results. Just few patients wanted to make extra cosmetic corrections.

Conclusions. Breast conservative surgery is a good method which preserves breast tissue, breast form and body contour. Women whose breasts are preserved have good social relationship, normal sexual life and good quality of life in general.

A027

Reconstruction of soft tissue defects resulting from chronic infection of total knee prosthesis with gastrocnemius muscle flap

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Background. Most studies report a 1–2% incidence of infection of total knee arthroplasty. The current classification of AAOS (American Academy of Orthopaedic Surgeons) divides prosthetic infections into four types: Type 1 with positive intraoperative cultures, type 2 or early postoperative infection, type 3 or acute hematogenous infection and type 4 or late chronic infection.

Methods. We treated patients with type 4 prostetic infections after total knee artroplasty for degenerative or malignant diseases. Stage one procedures were performed consisting of prosthesis removal, debridement of all involved bony and soft tissues, prosthesis sterilization or replacement and coverage with transposed medial head of gastrocnemius muscle and split thickness skin graft.

Results. All performed reconstructions remain stable without signs of infection to date and all patients are fully mobile and have returned to normal activities.

Conclusions. The use of gastrocnemius muscle flap in reconstruction of a defect resulting after surgical treatment of chronic infected prosthesis after knee arthroplasty in combination with systemic antibiotic use is a good method which provides long term infection absence and good functional recovery in most patients.

A028

Vacuum assisted closer therapy for chronic leg ulcers caused by chronic venous insufficiency

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Background. Successfull treatment of chronic leg ulcers is often a great challenge for both the doctor and the patient. One of the major problems is the distinct chronicity and the propensity for relapse. The patient sustains a loss of quality of life because of pain and social impairment or even social marginalisation. Till today there exists no universal recip to treat a chronic leg ulcer. Both conservative therapy with compression and surgical treatment achieve healing rates of about 75%. This means that up to 25% of chronic leg ulcers stay therapy-resistant.

Methods. In this series of patients, subatmospheric pressure therapy was applied on chronic leg ulcers caused by chronic venouse insufficiency. We evaluated the data of 34 patients with outstanding expansive and therapy-resistant statement of chronic leg ulcers. All wounds were infected, respectively bacterial colonized, six with MRSA. Before applying the V.A.C.-system patients had either debridement, shaving, fasciectomie or fasciotomie and subsequent mesh-graft.

Results. Successful healing of the mesh-graft was obtained without complication in all patients. Within the follow-up (5–21 months) 12 patients, 8 of them with ulcus mixtum, had a relapse.

Conclusions. In conclusion we can say, that V.A.C.-therapy is an efficient and save treatment for chronic leg ulcers, as well in infected wounds, but the relapse rate in mixed ulcers stays elevated.

A029

Effects of ultrasonic and wersajet hydrosurgery debridement on bacterial burden in chronic wounds

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Background. Venous leg ulcer in Europe occurs with an incidence of approximately 2% of the total population. One of the basic therapy is treating wound bed – removing a necrotic and fibrin tissue. Beside classic debridement methods there are two kinds of mechanical debridement – ultrasonic and hydrosurgery debridement.

Methods. We formed two groups of ten patients with chronic leg ulcers in each group. In first group debridement were performed using ultrasonic debridement equipment, and in other group with hydrosurgery debridement equipment. Ultrasonic assisted wound treatment system Söring Sonoca-185 equipment and Smith & Nephew Versajet Hydrosurgery System were used. Before treatment wound tissue biopsy were taken from three wound sites for microbiological examination and measuring of viable bacterial number (CFU). The same procedure was performed immediately after debridement.

Results. Analysis of results showed that viable bacterial number in wound tissue significantly decrease in both group. In 35% there were no bacteria in biopsy, and in other cases CFU were decreased in average of 75%.

Conclusions. Mechanical debridement, when is painstakingly performed, not only remove necrotic and fibrin tissue, it's also significantly reduce viable bacterial number in wound. This results in reduced antibiotic administration and creating adequate environment for wound healing progress.

A030

Our experience in management of Fournier's gangrene

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Background. Fournier gangrene, relatively uncommon surgical condition, is a fulminant polymicrobial necrotizing infection of the perineal, perianal, or genital areas that can rapidly progress to sepsis and death as a result from systemic illness, such as sepsis, acute renal failure, diabetic ketoacidosis, or multiple organ failure.

Methods. This article presents two successfully managed cases of Fournier gangrene, in last three years, on Department for Surgery General Hospital Dr Josip Bencevic in Slavonski Brod.

Results. Two male patient (age 47, 58) with anorectal etiology of Fournier's gangrene were diagnosed and treated on our department. Diabetes mellitus was present as a comorbid condition in one. After urgent surgical intervention, the treatment plan included aggressive resuscitation, repeated planed debridement (5.6), and broad spectum intravenous antibiotics. Diversion procedure (temporary colostomy) were performed in one due to extraperitoneal rectum lesion.

Conclusions. Successful outcome in treatment of a patient with Fournier's gangrene can be achieved by combining aggressive surgical and medical management. Urgent surgical intervention with radical debridement, frequent repeated debridements associated with prompt fluid resuscitation and, rapid initiation of broadspectrum intravenous antibiotic therapy are milestones in treatment of this surgical emergency.

A031

Digital wound image analysis

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Background. Accurate wound measurement is important task in chronic wound treatment, because changes of wound size and tissue types are indicators of the healing progress. Towards elimination of subjective wound parameters estimation, we developed color image processing software witch analyze digital wound image, and based on learned tissue samples perform tissue classification.

Methods. Initially five wound experts classified wound tissue type on 50 randomized digital wound images, and mean percentage of tissue type were calculated for each wound. On these classification we developed advanced statistical pattern recognition algorithm based on color information which were implemented in application. Application also includes the therapy proposition module, implemented as the fuzzy expert system with 36 rules.

Results. Result of the analysis contains the wound image represented in pseudo colors as well as percentage of tissue types within the wound area. Local wound treatment is proposed based on calculated tissue percentages and user defined amount of wound exudation, the depth of wound and infection. Accuracy of digital image analysis is more than 90%.

Conclusions. Developed application for digital wound image analysis gives objective, reliable and reproducible results, allowing unique and objective comparison of treatment results between different methods and different institutions.

A032

Vulvar reconstruction after radical and hemivulvectomy

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Background. Radical and hemivulvectomy is a disfiguring operation affecting womens' self-esteem, self image and quality of life. Reconstructive surgery plays an important role by improving the cosmetic and functional results after major excisional surgery performed as a treatment for invasive vulvar cancer.

Methods. We report 4 cases of vulvar carcinoma that were treated by radical wide local excision and the defects were repaired with gracillis myocutaneous flap. Previous abdominal surgery was a predictor of any complication. After the flap was harvested, it was placed on the defect through the tunnel between the donor and the recipient site and the vulva was reconstructed.

Results. All flaps survived. We had no major complications. The patients were treated with change of the dressing and recovered after skin grafting. The reconstructed vulvar were plump and

elastic. One patient developed a contraction of the introitus vaginae 18 postop, and underwent a second operation. Radial forearm fasciocutaneous flap was used for reconstruction. The result was functional and aesthetically acceptable.

Conclusions. There are many myocutaneous flap methods which have been reported for the immediate reconstruction of large vulvar defects created by deforming radical cancer surgery. Our decisions were made by considering the patient's age, local amount of tissue, patient condition and patient attitude to current problem.

A033

Gastric pentadecapeptide BPC 157 as an effective therapy for transected flexor muscles of upper limb in rat

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Background. Stable gastric pentadecapeptide BPC 157 accelerates the healing of a transected Achilles tendon and a transected quadriceps muscle. We are reporting complete transection of flexor muscles in rats' upper limb and systemic peptide treatment that includes healing of flexor muscles with functional restoration. BPC 157 is effective without a carrier and no toxicity has so far been reported.

Methods. Surgical transection of the flexor muscles in left upper limb was performed in 144 Wistar Albino rats. The flexor muscles were completely transected 1.0 cm proximal to RC (radio carpal) joint. BPC 157 (10 μg/kg, 10 ng/kg) was given intraperitoneally, once daily, first application 30 min after surgery, last 24 h before sacrifice. Control group received normal saline 5 ml/kg. Rats were individually monitored daily and were sacrificed in two events. First, when the grasping test fail to keep weight of 20 g (what is the return of hand function), and when the grasping test fail to keep weight of 250 g (preoperative weight).

Results. BPC 157 improved: (I) muscle strength (extensor postural thrust/motor function index MFI measured with analog scales), (II) function (walking recovery and faster return to function of the hand measured with grasping test), our results show that rats treated with BPC 157 manage to keep the weight of 20 g after 7 days of surgery (hand back functions) and control group after 28 days. Also weight of 250 g, rats treated with BPC 157 can keep 70 day, versus the control group which achieved the result of 160 days, (III) microscopy/immunochemistry (mostly muscle fibers connect muscle segments, absent gap), (IV) macroscopic presentation (stumps connected, presentation close to normal non injured muscles and no post surgery limb contracture).

Conclusions. BPC 157 given intraperitoneally accelerated post-transected muscles healing and also helped to restore the full function (in this case) of the hand.

Endomedular Osteosynthesis

A034

The history of endomedullary osteosynthesis

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Background. Endomedullary osteosynthesis is widespread method of long bone fracture treatment. Early endomedullary osteosynthesis began in ancient times with wooden pins, then ivory pins in 19th century, Kirschner's wires in 1909 (as the first new material in endomedullary osteosynthesis). Hoglund's method with autogenous bone in 1917, Kuntscher's intramedullary nail in 1939, developing through the years.

Methods. Literature review on history of endomedullary osteosynthesis, its place in surgery end its progress in future.

Results. We made historical overview of endomedullary osteosynthesis development, from the early years, through 20th century as the age of great progress (especially regarding Kuntscher's intramedullary nail), till today, with fourth generation interlocked intramedullary nails, etc.

Conclusions. Endomedullary osteosynthesis is widely used, it is a good method of treating long bone fractures, but should not be used outside its indications (i.e. for intraarticular long bone fractures). A proper level of education and appropriate equipment are needed to successfully treat long bone fractures with endomedullary osteosynthesis. Further development is to be expected for all long bone fractures.

A035

Intramedullary nailing of the humerus – Clinical results

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Background. Introduction: In the past two decades intramedullary fixation of the humerus became more popular. Modern nails are successfully used in treatment of diaphyseal fractures involving both humeral joints, pseudarthrosis as well as pathological fractures.

Methods. Since June 2003–June 2007, 116 patients were treated in our hospital with total of 129 humeral nails. There were 111 fractures, 11 pseudarthrosis and 7 pathological fractures in 91 females and 38 males with average age of 53.4 years (18–82). An average injury to operation time was 2.4 days (1–6). We have used 31 PHN (26 standard and 5 long) and 98 UHN (both ante and retrograde).

Results. Healing time for the fractures was 12.8 weeks (8–31) and 20.8 weeks (12–26) for the pseudarthrosis. There were 4 radial nerve palsies (1 primary, 3 iatrogenic) that recovered within 6 months period of time. One patient developed pseudarthrosis and needed reoperation. Twenty-two patients had limited shoulder or elbow function.

Conclusion: Locked intramedullary nailing of the humerus is a method of choice for fracture treatment (especially in polytraumatised patients) and for the pathological fractures. In good hands it allows good fracture alignment and adequate stability. Postoperative rehabilitation period is short, uneventful healing common and functional results encouraging.

A036

Treatment of humeral shaft pseudoarthrosis with intramedullary fixation in older patients with osteoporosis

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Background. For treating humeral shaft pseudoarthrosis recent literature suggests spongioplasty and internal fixation with plates. From 2007 to first half of 2009 we had 5 patients with pseudoarthrosis after conservative treatment of spiral humeral shaft fracture with average age of 85 years.

Methods. After 5 months of conservative treatment consisted of ''U'' splint for 2 and cylinder plaster for 3 months 5 patients had clinical and radiological signs of humeral shaft pseudoarthrosis, followed with elbow and shoulder contracture. As next step in treatment we tried plate fixation, but after failing to place cortical screws in humerus due to heavy osteoporosis, we decided to perform humeral nailing. The treatment consisted of pseudoarthrosis excision and placing unreamed anterograde humeral nail (Zimmer) locked proximaly and distaly, without spongioplasty. Physical therapy started immediately after operation due to elbow and shoulder contracture.

Results. Radiologically evaluated, 4 patients had bone healed after 6 and one patient after 12 months. After 18 months we had no complications regarding humeral nailing, and no complaining for pain in upper arm. Average movements in shoulder joint were reduced for 50%, but given the age and level of activity, patients functional arm status was satisfactory.

Conclusions. Regarding our clinical experience for treating pseudoarthrosis of humeral shaft in elderly patients with osteoporosis, unreamed humeral nailing can be a method of choice. However due to small number of patients our stand requires further studies on more patients.

A037

Radial nerve palsy after intramedullary nailing of humeral shaft fractures

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Background. The secondary radial nerve palsy is not rare condition today as surgical treatment of humeral shaft fractures has increasing popularity. The management algorithm is still unclear, which is particularly true for palsies after intramedullary nailing because of its closed surgical technique.

Methods. During last 3 years a total of 78 patients were treated by intramedullary nail due to humeral shaft fracture at our hospital. We had 4 (5.1%) cases of secondary radial nerve palsy within the group. The ways and results of treatment are analyzed retrospectively.

Results. There was neither intraoperative surgical or postoperative radiological obvious cause of palsy. In 2 patients the early nerve exploration was done and nerve was intact, in one patient with nail dislocation the exploration was done at the time of reoperation within 6 months, the nerve was mechanically damaged so was resected and conduit graft was placed. The last patient was observed without resurgery.

Conclusions. There is always doubt about the reason of secondary nerve palsy after humeral shaft nailing, so we recomend to explore nerve at the time of distal interlocking. In patients with postoperative palsy we recomend the early nerve exploration. It provides finding of possible cause and leads to quicker recovery in cases when some surgical repair has to be done and there is no influence on recovery period in patients with macroscopic intact nerve.

A038

GAMMA – the best solution for trochanteric fractures

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Background. In five years period since VII/05 until VII/09 we have operated 569 proximal femoral fractures (467 trochanteric and 102 subtrochanteric). The youngest patient had 41 and the oldest 98 years. The goal of our work is to show our experiences and conclusions after more than 500 Gamma nails in treating all kinds of proximal femoral fractures.

Methods. We have done all our operations on the Maquet orthopaedic extension table with mobile Siemens Orbic RTG assistance. For implants we have used only Stryker TGN nails II generation. The most often anaesthesia has been the spinal.

Results. The operation time was 11–90 min. For one operation we needed 6–83 expositions, that was 3–41 sec of radiation. We estimated good to excellent result at 551 patients, and bad at 12 patients with 2 lethal results. Blood transfusions was rare needed, only for difficulty subtrochanteric fractures. Average hospital stay has been five days. Financial result is significantly better than other operating methods and it fits with the DTS system.

Conclusions. We estimate that the Gamma endomedular osteosynthesis is technically simply, biomechanically the best, functionally the most effective and financially the most payable method for proximal femoral fractures treatment.

A039

Second generation of long Gamma nail in treatment of subtrochanteric fractures: Potential pitfalls in surgical technique

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Background. Inconclusive results about best fixation method (SHS or intramedullary osteosynthesis) of fractures of proximal femur are still present although both methods of fixations are available for decades. Considering biomechanical properties of subtrochanteric fractures are different from pertrochanteric fractures it is presumed by a lot of authors that real advantage of intramedullary osteosynthesis with second generation of implants would lie in subtrochanteric fractures.

Methods. We retrospectivley reviewed medical records of all the patients operated in our hospital from January 2004 until January 2009 for subtrochanteric fracture of the proximal femur using long Gamma nail. We reviewed their postoperative X-rays for implant related complications.

Results. We operated on 52 patients, average age 76 (ranging 35–91). Implant failure was observed in three patients in early postoperative period where. After reviewing X-rays and fracture types we identified probable causes of implant failure and draw conclusions from it.

Conclusions. We find long Gamma nail to be a useful and probably biomechanically superior device for fixation of subtrochanteric fractures based on a low rate of complications. Low threshold for open reduction, exact positioning of cephalic component, sufficient reaming of the intramedullary canalcanal in order to achieve easy entry of implant are paramount for the success of operation.

A040

The use of the long GAMMA nail in proximal femoral fractures; our experience

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Background. The aim of this study is to evaluate our experience with use of the Long Gamma Nail in the treatment of complex proximal femoral fractures.

Methods. From December 2008 to December 2009 twenty five patients treated with the Long Gamma Nail were reviewed. We analyzed age, sex, type of injury, fracture classification, intra-operative complications, post-operative complications, and survival of the implant and patient. The mean age was 71 (range: 20–83) years, the average length of the operation was 1 hour and 22 min, three (12%) patients were polytraumatized.

Results. Technical success was achieved in all cases. There was no mortality and major complication in our series of patients. In two patients wound hematoma was revealed, blood transfusion was required in 17 (68%) patients, average postoperative stay in hospital was 6 days.

Conclusions. Complex proximal femoral fractures are difficult to treat. The long gamma nail allows early weight bearing and seems effective in treating these fractures. Closed reduction and long Gamma nailing of intertrochanteric-subtrochanteric fractures enables the surgeon to treat these fractures with a minimally invasive procedure and a negligible rate of mechanical complications.

A041

Systemic complications after intramedullary nailing of femur fracture in polytraumatised patients

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Background. When it is a part of polytrauma syndrome, femur fracture very often presents a risk of developing various systemic complications, such as pulmonary embolism, ARDS, acute renal insufficiency, coagulopathy, sepsis etc. Many recent experimental, as well as clinical researches perform the reasonable doubt, that longer and complicated operative treatments may cause disorders of patients general situation and vital parameters.

Methods. One hundred and eighty eight polytraumatised patients were treated in our Center during eight years period, and 55 of them had femur fracture. We analysed the incidence of respiratory (pulmonary embolism, ARDS), renal (acute renal failure) and immunological (SIRS) complications in addiction to operating time and method.

Results. Total number of complications was higher in patients operated within 24 hours after injury. ARDS occurred more often after nailing in early period, while SIRS was present after plating in early period.

Conclusions. Although intramedullary nailing should be the method of choice for an operative treatment of femur fracture, indication in treating femoral fracture in polytraumatized patients, should be separately observed for each patient according to general condition, as well as respiratory, metabolic and hemodynamic values.

A042

Standardizing the osteosynthesis procedures with Gamma nail with minimal intraoperative X-ray radiation exposure

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Background. The development of new operative techniques and minimal invasive procedures is followed by an increased intraoperative X-ray radiation exposure. Along with the development of minimal invasive operating techniques, staff quite commonly and often ignores quantities of intraoperative X-ray radiation to which the surgical team and other medical staff in the operating room are daily exposed to.

Methods. We modified the original operative technique of the osteosynthesis with gamma nail through 5 specific procedures that are precise, standardized and essential part of the operative technique towards reducing the amount of intraoperative X-ray radiation. This modified technique is a result of reviewing the pathophysiology of the fracture and combining it with the experience in other types of intramedular fixation together with the technical abilities of the X-ray device ARCADIS-ORBIC 3D.

Results. Applying the mentioned procedures we are able to do an ostheosynthesis of a pertrochanter or intertrochanter fracture with only 8–10 X-ray shots with the total duration of the radiation exposure of 0.06–0.12 min per each procedure, without increasing the duration of the procedure or the invasiveness.

Conclusions. This operating technique could become a standard method of choice in other hospitals, particularly with more experienced surgeons.

A043

Postoperative results in osteosynthesis with gamma nail with minimal intraoperative radiation

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Background. Since 2007 in the Department of Traumatology of Pula General Hospital, in addition to the standard procedure of Gamma nail osteosynthesis of pertrochanteric and intertrochanteric fractures, a modified technique of this procedure is applied as well, allowing a minimal amount of intraoperative X-ray radiation exposure time in total duration of 0.06–0.12 min per each procedure.

Methods. In order to evaluate the benefits and possibilities of a wide scale use of this modified technique, we conducted a prospective and retrospective study of 36 cases of patients with pertrochanteric fractures and 19 cases of patients with intertrochanteric fractures. The clinical results were compared with a control group of patients treated with the standard procedure. Cases were divided in different groups regarding the type of fracture, age and comorbidity. Early and late postoperative periods were followed up by X-ray and physical parameters.

Results. The results of the study are encouraging because no statistically significant difference in the postoperative results between the patients treated with the standard procedure and the patients treated with the modified procedure has been observed.

Conclusions. This operating technique could become a standard method of choice in other hospitals, particularly with more experienced surgeons.

A044

PFNA as a revision implant

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Background. Proximal femur fractures especially in the elderly patients with poor bone quality still represents a challenge to the traumatologist. Prolonged heeling time in such patients can lead to implant failure. Reosteosynthesis in that case is often complex and demanding.

Methods. From February 2007 to December 2009 we have used PFNA (proximal femoral nail antirotation) as a revision implant in 11 patients with failed primary osteosynthesis of proximal femur fractures. There were 9 women and 2 men. Their mean age was 73 years (range between 50 and 86 years). Eight initial fractures were unstable intertrochanteric fractures and 3 subtrochanteric fractures. In failed fixations used implants were: 95-degree angled blade plate in 10 cases and in one case DC plate.

Results. All patients were operated on traction table under fluoroscopic control. Failed implant was removed and PFNA was inserted in usual manner. Standard nail length (240 mm) was used in 7 patients and long version in 4. After drainage removal (48 hours postoperatively) patients were mobilized. No ''cutting-out'' is noticed, no breakage of the implant, no deep infection. Most fractures united between 4 and 6 months. 2/3 of the patients are satisfied with their walking ability.

Conclusions. In our experience PFNA is an excellent implant for reosteosynthesis of proximal femur fractures, provides adequate stability and enables good union rate.

A045

Unreamed tibial locked nails – our experiences

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Background. Tibial fractures are the most common of all long bone fractures. The treatment of choice for the large majority of displaced tibial shaft fractures is IM nailing. Here we present our experience with the solid tibial nails.

Methods. In the period from 2005 to the end of 2007 we have treated 46 male (mean age 40) and 27 female patients (mean age 52) with tibial fractures (21 open/Gustilo – Anderson gr. I – 9, gr. II – 8, gr. IIIa – 4/and 52 closed fractures). Most of the tibial fractures occurred in traffic incidents. In the group of closed fractures there were 5 patients with pseudoarthrosis and 3 patients with refractures. We performed conversion from external fixator to IM nailing in 3 patients with open fractures. Patients were operated on traction table; unreamed solid titanium nail was implanted under fluoroscopic control. Distal locking screws were inserted by free-hand technique.

Results. Average time of fracture union was 19 weeks. Knee pain was observed in 12% of patients. Breakage of distal locking screws happens in 3 patients. Delayed union in 6 patients was resolved with dynamization. Superficial wound infection was observed in 4 cases and 1 case of deep infection. The majority of patients regained their pre-injury mobility status.

Conclusions. IM tibial nailing with unreamed solid titanium nails is safe method, effective and technically relatively simple with good early and late results.

A046

Intramedullary nailing of tibial fractures: An analyze of 54 cases

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Background. Tibial fracture treatment developed from nonoperative approach to a variety of operative techniques. Introduction of interlocking nails has shown good results and became a standard of care for most displaced diaphyseal tibial fractures. This case series evaluates early outcome of tibial nailing.

Methods. We prospectively followed 54 consecutive adults with 55 tibial fractures (9 open) who were treated with locked IM nail on our department between Jan. 1 2006 and June 30 2009. All fractures were classified by the AO and Gustillo-Andersen classification.

Results. Thirty-four fractures were treated by static and 21 by dynamic reamed locking nail. We report the dynamics of union rate and associated complications using this technique. There were 43 males and 11 females with an average age of 46.1 years (range 17–74 years). Thirty-four patients were treated in the emergency, 17 5–12 days after initial injury, 3 due to nonunion. Fibula fixation was done in 15 cases. Average operating time was 105 min. Followup ranged from 6 months to 4 years with an average of 2 years and included all patients. Primary union occurred in all patients. Two fractures were fixed in greater than 5° of angulation. Pneumonia occurred in 1 case and skin infection in one.

Conclusions. Reamed intramedullary nailing of tibial diaphyseal and metaphyseal fractures is safe procedure with a low rate of early complications with good dynamics of union rate.

A047

Nail position has influence on anterior knee pain after tibial intramedullary nailing

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Background. Anterior knee pain (AKP) is common complication following intramedullary nailing of tibial shaft fracture.

Methods. We evaluated postoperative outcome results of 215 patients, operated in last 4 years, with healed fractures initially treated with intramedullary reamed nails with 2 or 3 interlocking screws on both parts of nail and with use of medial paratendinous incision for nail entry portal. Our aim was to analyze possible relationship between AKP according to the VAS scale, and nail position marked as a distance from tip of nail to tibial plateau (NP) and to tuberositas tibiae (NT), measured postoperatively on L-L knee X–rays.

Results. Two groups of patients were formed on the basis of presence of pain related to AKP (the level of pain was neglected): with pain – Group A and without pain – Group B. The difference between two groups concerning NP and NT measurements appeared and it was statistically significant concerning NT measurement ($p < 0.05$), with high accuracy according to the Classification tree.

Conclusions. We presume that a position of a proximal tip of the nail and its negative influence on the innervation pattern of the area dorsal to patellar tendon could be the key factor of AKP. We conclude that the symptoms of AKP will not appear if a tip of the nail position shall be more than 5.5 mm from tibial plateau (NP) and more than 2.5 mm from tuberositas tibiae (NT).

A048

Intramedullary fixation of forearm fractures – initial experience

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Background. In January 2009, intramedullary fixation of forearm fractures was introduced into everyday practice in the University Hospital of Traumatology Zagreb. Indications for this method include diaphyseal fractures of the radius and ulna, with the exception of fractures of the distal radial diaphysis. In addition to treatment of acute fractures, secondary operative procedures are performed to treat malunions or pseudoarthroses.

Methods. We apply 4 and 5 mm titanium nails manufactured by Troy (Germany) which offer the possibility of intrafragmental compression and proximal anchorage using a guide and a distal free hand.

Results. So far, we have treated five patients using this method: three acute forearm fractures, one refracture of the thumb and an isolated elbow fracture.

Conclusions. Intramedullary fixation may be used to treat forearm fractures.

A049

Evolution of intramedullary osteosynthesis for complex proximal femur fractures treatment

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Background. Authors investigate the evolution of cephalic–intramedullary nails. Authors experience starts on 1997 using a 2° generation nail named Supernail. Authors made a prospective comparative non-randomised study in order to investigate this nail: they compared 40 Gamma nails with 40 Supernail analizing surgical time, X-rays exposition, blood loos, fractures consolidation. Difficult use (due to major surgical time and X-rays exposition), major complications incidence (like iatrogenic fractures and implant fatigue fractures) and undemanding storage (asymmetric nails) led Authors to invent a 2° generation nail named Uninail.

Methods and results. Eighty patients with lateral femur fractures (AO 31 and 32) underwent an operation of osteosynthesis using Gamma 3 nail (40 patients) and Supernail (40 patients). This prospective non-randomised study analized surgical time, X-rays exposition, blood loos, fractures consolidation.

Results were slightly better for Gamma 3 (3° generation nail, smaller and shorter) but not statistically significative.

The second study involves 33 patients with intertrochanteric and subtrochanteric fractures treated with Long Supernail (with an intermediate slot to fix fragments below the lesser trochanter).

Thirty-one patients healed, 1 patient doesn't heal because of technical error, 1 patient underwent another operation of osteosynthesis with graft-plate. Four patients had minor complications and healed. The multicenter study with Uninail is still in progress.

Conclusions. Authors think that 2° generation CMIN is useful for treatment of complex proximal femur fractures. This nail could make easier surgery and nurses work considering high number of patients with this pathology.

The Surgical Treatment of Cerebral Insufficiency

A050

The role of neurosonology in carotid disease

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Neurosonology studies are routinely performed in stroke centers. Their greatest advantage is real-time, bedside evaluation of morphology and hemodynamic of brain vessels. The major goal is to identify large obstructive lesions in the extracranial cerebral arteries by means of carotid color Doppler sonography (CDS) and of intracranial basal arteries by means of Transcranial Doppler (TCD).

Endarterectomy trials for both symptomatic and asymptomatic carotid stenosis that have proven the efficacy in reducing the risk of stroke, have measured the percentage of carotid stenosis from intra-arterial angiography, an invasive and expensive procedure that could require admission to hospital, delay surgery, with strokes developing in the meantime, that should be prevented by early endarterectomy. In the meta-analysis CDS proved to be a sensitive and specific tool for detection of advanced carotid stenosis. Carotid CDS displays certain morphological features of carotid plaques in addition to luminal stenosis associated with heightened risk of stroke. The degree of the diameter of the internal carotid artery stenosis should be set and tested for each laboratory. Guidelines for noninvasive screening for asymptomatic carotid disease have been published.

Neurosonology testing are feasible and noninvasive methods for evaluation of patients with carotid disease.

A051

Carotid artery stenting with and without embolic protection

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Background. Since its introduction in 1994, carotid stenting (CAS) has emerged as a potential alternative to carotid endarterectomy (CEA). Previous large trials have reported that CAS may not provide results equivalent to those of CEA. However, the trend that only experienced endovascular team performs the procedure and with rapid development in new techniques and equipment for carotid artery stenting, the management of carotid stenosis could be soon shifted toward endovascular treatment. Results of ongoing randomized trials are awaited.

Methods. It has been suggested that dislodged debris during CAS may cause distal embolization and stroke. Many so called neuroprotective devices have been developed to minimize the risk of stroke during CAS and their use has now become the standard of care in many hospitals. Since these devices may induce severe intraprocedural complications such as vasospasm and dissections they are not advocated in other hospitals. There are no randomized trials conducted to compare CAS with and without protection devices.

Results. We will present technical aspects and results of CAS in two Croatian hospitals: University Hospital Split and Clinical Center Merkur. We will discuss the use of protection devices in our patients.

Conclusions. CAS in well selected patients is an efficient treatment option for carotid restenosis with a low complication rate and a long term durability.

A052

Minimally invasive approach to carotid endarterectomy

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Background. Carotid endarterectomy (CEA) is the most frequently performed vascular surgical procedure. With advances of new diagnostic and therapeutic modalities the questions of algorithms arise, both in regard to diagnostic workup as well as in planning the procedure.

Methods. The data for all patients who had carotid endarterectomy in five consecutive years (2005–2009) at Sestre Milosrdnice University Hospital were analyzed in regard to diagnostic workup, type of procedure and relevant data during surgery and postoperative course.

Results. The use of Color Doppler Flow Imaging (CDFI) is quite sufficient in most of our patients provided that the CDFI is performed in a high volume center. In the few cases where CDFI was not conclusive an additional imaging procedure was performed. Centers with less experience with CEA tend to produce numerous diagnostic procedures before referring the patients to vascular surgery. The routine use of regional anesthesia proved to be of benefit for patients in regard to early postoperative recovery and avoiding unnecessary shunting. Eversion endarterectomy shortens the duration of the procedure. Most of our patients had no need of treatment in the settings of an ICU.

Conclusions. Our minimally invasive approach in diagnosing and treating ICA stenosis when feasible proved to be of benefit for our patients as well as in regard to economic markers and hospital stay length.

A053

Carotid endarterectomy in local anesthesia – 9 year experience

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Carotid endarterectomy represents an option for stroke prevention.

CEA or ECEA are standard and safe procedures in carotid artery stenosis treatment, with death/stroke rate of 0.5–2.5% and mortality less than 1%.

Operations on the carotid bifurcation can be performed under local or general anesthesia.

Local anesthesia has the advantage of allowing the surgeon to evaluate the patient's cerebral tolerance to trial carotid clamping. It is easy to perform, preserves cerebrovascular reflexes, allows continuous and accurate monitoring of neurological functions during clamping and is very well tolerated by patients.

We shall appoint on all advantages and disadvantages of carotid endarterectomy under local anesthesia and present our 9-year period experience with CEA and ECEA under local anesthesia.

A054

Carotid endarterectomy, single center experience

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Background. Clinical Hospital Center Rijeka covers the need of three regions: Primorsko-Goranska, Ličko-senjska and Istarska region with approximately 400,000 inhabitants. In these regions the stroke is the third main cause of illness with about 870 cases/100,000 people. Fortunately not all patients need intervention, among which, the carotide endarterectomy is steel a gold standard. The aim of this presentation is to analyze the work of one single center and to compare with results in the literature.

Methods. From January 1st 2005 to December 31st 2009, 386 patients underwent carotid endarterectomy. A retrospective statistical analysis of demographic, co-morbidity, type of intervention and anesthesia, as well as early complication were done.

Results. There were 74% of males and 26% females with the mean age of 66.36 years. More than 26% had bilateral carotid stenosis. Before the intervention, 25% had the stroke, and 71% TIA. Simultaneous cardiac surgery underwent 18 patients. The early overall complication rate was 7% among which there were 10 cases of early neurologic deficit.

Conclusions. In comparing these results with the literature, we didn't find statistically significant difference. But more profound studies should be done to improve our work.

A055

Carotid artery stenosis – surgical treatment in KBC Osijek – 5 years period

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Background. During 5-years-period (2005–2009), 959 patients with ACI stenosis were operated in KBC Osijek.

Methods. The reversive technique without shunting was used at 804 of them. One hundred and thirty eight patients were undertaken to endarterectomy with patch-plastica, using intraoperative shunting.

Results. There were 28 early complications (2.51%): 21 stroke (2.1%) and 7 myocardial infarction (0.7%). Six patients of all died. Thirty-two patients developed restenosis. Fourteen of them we treated by endovascular procedure (stenting). Ten patient were reoperated.

Conclusions. We are satisfied with our results in comparison to literature data. An incidence of complications decreases by operative technique improvement.

A056

Carotid endarterectomy – primary closure versus patch angioplasty

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Background. Carotid endarterectomy is one of the most frequently performed, as well as one of the most studied vascular surgical procedures. Its efficacy in stroke prevention was proven to be superior to conservative therapy for established indications by prospective multicentric randomized trials. However, recurrent stenosis has been noted in a significant number of patients, and according to the published data, it has been related to the surgical technique. Conventional carotid endarterectomy can be performed with or without patch closure. Although there is evidence to support the routine use of carotid patching, it is still employed selectively in many centers. Our objective was to review the recent data comparing the primary and the patch closure, to clarify the significance of carotid patching and make a review of the current state-of-the-art.

Methods. A literature review was performed by searching the MedLine, CurrentContents and Cochrane databases for randomized controlled trials, systematic reviews and meta-analyses concerning the comparison between primary closure and patch angioplasty after carotid endarterectomy.

Results. The results of most studies show that, although clamping time is significantly shorter with primary closure, patch angioplasty decreases the risk of recurrent stenosis, as well as of perioperative stroke or death. Furthermore, regression of postoperative stenosis is more strongly associated with patching than with primary closure.

Conclusions. While primary closure may be acceptable in selected patients, data from recent studies support the routine

use of patch angioplasty, as it is superior in terms of perioperative morbidity, mortality and long-term durability.

A057

Perioperative and early postoperative neurological deficit in older patients during carotid artery TEA

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Background. Cerebrovascular accidents, strokes in particular, are among the most frequent causes of death today in developed countries. In the last two decades, stroke was the second most frequent cause of death in Primorsko-Goranska Region in Croatia. In elderly patients, individuals older than 65 years of age have an elevated risk of stroke, mainly because the degree of carotid artery stenosis increases with the age. The most frequent complication of the high percentage carotid artery stenosis is thrombosis in the area of atherosclerotic changes of blood vessels. With increase in age of the population, there is also an increase in the number of risk factors of cerebrovascular accident.

Methods. Between 2004 and 2009, 307 patients underwent carotid endarterectomy in our hospital for high degree of carotid artery narrowing. Clinical neurologic signs were observed during and 3 days after the procedure.

Results. In the group younger than 65 years of age, which consisted of 80 patients, a neurological deficit was noted in 5 patients (6.25%) in the perioperative and early postoperative course. In the group of individuals older than 65 years of age, which consisted of 227 patients, a neurological deficit was noted in 12 patients (5.28%).

A058

Concomitant carotid and coronary artery disease: Indications for simultaneous treatment and operative strategy

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Background. The reports on incidence of the concomitant carotid and coronary artery disease vary depending on patient selection, screening protocols, and criteria utilized. In one large series of patients undergoing carotid endarterectomy (CE), the incidence of severe coronary artery disease (CAD) revealed up to 35%. On the other hand, according to the different reports, the incidence of severe carotid stenosis in patients undergoing coronary artery bypass grafting (CABG) varies from 5% to 12%. The management of patients with such complex pathology is still debated and there are no standard treatment protocols supported by a substantial number of prospective randomized trials.

Methods. Three basic treatment protocols are currently in use: 1. Staged strategy: CE 1st, CABG 2nd; 2. Reversed staged strategy: CABG 1st, CE 2nd; 3. Simultaneous CE and CABG.

Results. The results of the meta-analysis showed that the risk of myocardial infarction (MI) and death was increased in the ''staged strategy'' group, while the stroke risk was significantly higher in the ''reversed staged'' group.

Conclusions. Based on the results of some case series of patients, it would appear that simultaneous CE and CABG produce the least stroke/death rate in a patient with severe concomitant pathology. Considering the rationale for such approach, we present the indications, operative strategy and results from our Institution.

A059

Outcome of simultaneous carotid and cardiac surgery using cardiopulmonary bypass

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Background. Controversy continues about treatment of patients who require carotid endarterectomy and open heart surgery. The aim of this study is to evaluate our experience with high risk patients, who had high grade stenosis over 90% of diameter of carotid artery and underwent simultaneous carotid endarterectomy and open heart surgery.

Methods. From February 2003 to November 2009, 29 patients underwent simultaneous CEA and open heart surgery. Average age of the patients was 68 years; seventeen of them (58.6%) were neurologically symptomatic, and twelve patients (41.4%) had bilateral carotid stenosis. All patients who underwent CEA had lumen diameter reduction of more than 90%. In twenty patients CABG was performed, in eight patients aortic valve replacement and CABG was done, in one patient mitral valve replacement was performed.

Results. Two patients (6.9%) died postoperatively due to sepsis and multi-organ failure. Two patients (6.9%) had postoperative stroke. There were no other postoperative complications regarding bleeding, time of ventilation or stay in ICU.

Conclusions. Our results suggest that simultaneous carotid and cardiac surgery using cardiopulmonary bypass is effective procedure with low mortality and postoperative morbidity, especially taking into account that all patients who underwent carotid endarterectomy had high grade stenosis over 90% of diameter.

A060

Spinal cord protection during thoracoabdominal aortic surgery

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Background. Paraplegia is one of the most devastating complications after thoracic (TAA) and thoracoabdominal aortic aneurysm (TAAA) surgery. Many protective measures for prevention of the neurologic deficit have been devised. Although some of them improved operative results, the threat from paraplegia has not been eliminated. The purpose of this presentation is to review the methods for spinal cord protection, and to present our strategy.

Methods. 6 TAA and 15 TAAA repairs were performed over the interval between 2006 and 2009. Surgical management included ''clamp-and-sew'' technique with CSF drainage in electively operated patients. ''In-line'' perfusion of superior mesenteric artery was used in two patients and temporary axillo-femoral bypass in three. Kidneys were protected by continuous perfusion with cold Ringer's solution (40 °C) during the procedure.

Results. Two patients with ruptured aneurysms died due to multiorgan failure, and one with a symptomatic aneurysm died due to myocardial infarction. Paraplegia occurred in two subsequently deceased patients, while none of the surviving patients developed neurologic deficit.

Conclusions. Although limited, the results of our case series support the selective use of adjuncts and individually tailored patient approach. This approach may produce acceptable results in dealing with this complex pathology even in centers with relatively limited volume of patients.

A061

Embolisation of a traumatic aneurysm of the posterior circumflex humeral artery: a volleyball player disease?

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Upper extremity ischemia in athletes is usually caused by embolism from the proximal arterial segments due to repetitive compression at the thoracic outlet or under the pectoralis minor muscle. The posterior circumflex humeral artery (PCHA), a branch of the third part of the axillary artery, can also be injured by repetitive overhead activity which is common in volleyball players. It is believed that the throwing motions of the dominant shoulder players may cause minor repetitive traumas in the arterial wall of the axillary artery or its tributaries, which can lead to a traumatic aneurysm. Thrombotic occlusion of the aneurysm could be a source of distal embolism and acute hand ischemia. We report a case of a 31-year-old volleyball player who complained of hand and forearm ischemia which was caused by distal embolisation from a thrombotic occlusion of the PCHA. The CTA showed acute occlusion of both main forearm arteries and an urgent embolectomy was attempted. A detailed diagnostic workout showed occlusion of an aneurysm of the PCHA, which was excluded with an endovascular approach. The diagnostic possibilities (i.e. ultrasound, CTA and contrast angiography) and therapeutic options (conservative, surgical and endovasular) are discussed. Although rare, doctors and volleyball players should be aware of this potentially disabling vascular complication.

A062

Repair of false anastamotic aneurysm (FAA) of the femoral artery (FA) by insertion of synthetic bifurcation prothesis: A case study

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Background. FAA of the FA is one of the major complications compromising femoral graft repair. FAA complicates 2 to 5% of graft procedures.

Methods. A 78-year-old male patient, heavy smoker with a history of aortobifemoral bypass (ABF) 17 years ago and cross-over bypass. Bypass was drawn from right branch of ABF prothesis to left deep femoral artery (DFA) due to previous occlusion 7 years ago. Patient was presented with clinical signs of FAA of right FA. Angiography was done which confirmed suspition on FAA 54×49 milimeters (mm) in size. After FAA resection a 14×7 mm bifurcation prothesis was inserted termino-terminaly with preservation of femoro-femoral cross-over bypass.

Results. Cross-over femoral bypass was preserved. Distal pulsation emerged immediately, patient was mobile on second postoperative day. Wound infection hasn't occurred, his walking performance improved from few steps to 150 m until patient's release.

Conclusions. Insertion of bifurcation prosthesis is another useful method in repair of FAA. In our case it was efficient method because it preserved cross-over femoral bypass which is crucial for adequate arterial perfusion of the other leg.

A063

Superficial venous aneurysms of the lower extremity – 22 year experience in surgical department of General Hospital in Bjelovar

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Background. Lower extremity superficial aneurysmatic dilatations are common finding during surgical assessment of chronic venous insufficiency. Large anuerysm of this kind are rare and as such are sporadically reported in literature.

Methods. We performed retrospective analysis of our experience over 22 years. Presentation, pathophysiology and management of these lesions were reviewed and compared with literature.

Results. Two thousand and four hundred and eighty one patients was treated because of the superficial venous insufficiency (varicose veins) in our hospital. According to literature as much as 10% of cases of high-grade varicose veins of the leg are accompanied by single or multiple venous aneurysmatic dilatations. They are especially prevalent in men with high

BMI. Very large aneurysms of superficial veins of the lower extremities are very rare. We documented 7 such aneurysms that clearly dominates clinical finding. We found that those dominant aneurysms, in contrast to concomitant aneurysms described in literature, are more common in older females with higher BMI. We reviewed mechanisms of origin of superficial vein aneurysm proposed in literature and added our observations.

Conclusions. Concomitant aneurysmatic dilatations of superficial veins are common and this can have influence on treatment of varicose veins. Dominating large aneurysms, though being rare finding, should be recognized as possible differential diagnosis of groin or femoral mass.

A064

The role of color duplex sonography in recurrent varicose vein surgery

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Background. The aim of this study is to determine the importance of Color Duplex Sonography (CDS) in recurrent varicose vein after surgery (REVAS).

Methods. We examined 36 legs in 30 patients with REVAS on lower extremities, operated in last five years by different surgeons. Mandatory in all patient ligatures and stripping of grate saphenous vein were performed, also stab phlebectomy. We made two planes scanning with CDS of safenofemoral junction, deep vein and three levels above knee scanning. We also scan popliteofemoral junction and perforate vein for possible pathologic reflux.

Results. In 30 patient we found intact safenofemoral junction with evident safenofemoral reflux (>5 cm patent grate saphenous vein segment with >5 sec reflux). In 27 of them saphenofemoral tributary insufficiency were present. In 3 patients we found only tributary insufficiency on the same level. In 1 case we found accessory saphenous vein with firm reflux. In 2 patients we found under knee perforator insufficiency. Surgery intervention which included crosectomy and high ligation of grate saphenous vein and its tributary were performed in 4 patients. We made ambulatory phlebectomy in 6. Others had no interest for additional surgery intervention.

Conclusions. Preoperative CDS and proper surgery intervention (included crosectomy with high ligation, stripping of grate saphenous vein and additional stab phlebectomy), greatly prevent incidence of REVAS.

A065

Surgical treatment of supraaortic trunk disease: Late graft occlusions

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Background. Surgical treatment of supraaortic trunk disease is largely dependent on the type and extent of the disease process. Transcervical bypass is a procedure of choice for all single arterial lesions, except for those of the innominate artery, and for patients at high risk of thoracotomy. However, for younger patients with innominate artery or multiple lesions, a direct transthoracic approach via median sternotomy is preferred. Supra-aortic graft occlusions remain a special challenge for the vascular surgeon.

Methods. A retrospective analysis of patients treated surgically for diseases of the supraaortic trunks between January 2005 and December 2009 was performed. Results were analysed in terms of graft patency, and patients with late graft occlusions were selected for the report.

Results. Patients who presented with late graft occlusions due to progression of proximal atherosclerotic occlusive disease were successfully treated surgically. Moreover, one of those patients underwent selective fibrinolysis for the acute in-hospital thrombosis of the common carotid artery with cerebral ischemia, prior to reoperation, and successfully recovered.

Conclusions. Results of our case series underscore the importance of individualized and multidisciplinary approach to patients with supra-aortic graft occlusions, while supporting the concept of multiple revascularizations for symptomatic graft occlusions.

Minimally Invasive Pediatric Surgery

A066

Transumbilical single-port laparoscopic surgery in children – our experiences

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Background. Laparoscopic surgery is performed regularly in the Department of Pediatric Surgery, Children's Hospital Zagreb, since 1995.

Methods. Since 2001, we are using single-port transumbilical approach for a range of surgical diseases in children and infants. At the beginning we used 5 mm operative telescope, with 1.8 mm optic and 3 mm instruments, but as of 2004 we are exclusively using 10 mm operating telescope with 5 mm optic and 5 mm working channel for instruments.

Results. We are employing supraumbilical incision for the insertion of 12 mm troacar. At the beginning we have used this technique exclusively for a transumbilical laparoscopically assisted appendectomy. In recent years we have broadened the use of transumbilical approach to many other surgical conditions in pediatric patients: chronic and acute appendicitis, varicocele, intraabdominal cystic lesions, abscess formations, foreign bodies and other miscellaneous conditions.

Conclusions. In our hands, single port transumbilical laparoscopic approach to a wide variety of pediatric surgical diagnoses has proved to be a safe and effective diagnostic and treatment tool. With shorter hospital stay and faster recovery it has definitely found its place and role in every day pediatric surgical practice.

A067

SILS appendectomy versus traditional in 120 children

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Background. Laparoscopically assisted appendectomy (TULAA) was compared with open (OA) and laparoscopic (LA).

Methods. 45 OA, 43 LA and 35 TULAA were performed. Outcomes ($p<0.05$) were postoperative complications, operative time, analgesia requirements, recovery rate, and costs.

Results. Wound infections were recorded in 4 (8.5%) in OA group, 2 (4.6%) in LA group and 4 (11.4%) in TULAA group. The difference in infection rate between procedures was insignificant ($p=0.54$), as well as difference between overall complication rate ($p=0.80$). Median operating time in minutes was 30 in OA group, 39 in LA group and 33 in TULAA. Group's mean differs significantly ($p<0.01$). Significance was found comparing OA vs. LA ($p<0.01$), and LA vs. TULAA ($p<0.01$), but not comparing OA vs. TULAA ($p=0.55$). Rescue analgesia was administered in 25OA, in 19LA and 9 in TULAA, ($p<0.01$). Significance was found between OA vs. TULAA ($p<0.01$), but not between LA vs. TULAA, ($p=0.07$) and OA vs. LA ($p=0.23$). Stabile recovery was achieved in 40 (85.1%) patients in OA, 38 (88.3%) in LA, and 30 (85.7%) in TULAA. The difference between groups was insignificant ($p=0.89$). Average price for used supplies was 16$ for OA and TULAA, 115$ for stapler LA and 91$ for loop LA.

Conclusions. Patients operated by TULAA recorded less analgesic requirements comparing to OA, and shorter operative time and savings for supplies comparing to LA.

A068

Laparoscopic appendectomy in children: results obtained in the period from 1994–2010

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Background. In this retrospective review we have analysed the results of appendectomy with laparoscopic technique in children up to the age of 16 years.

Methods. In the period from March 1994 to December 2009 462 laparoscopic appendectomies were performed on 275 boys and 187 girls, with a mean age of 12.1 (4–16).

Results. Acute catarrhal inflammation was found in 240 (51.9%) patients, gangrenous appendicitis in 112 (24.2%) and perforated appendicitis in 62 (13.5%) patients. 17 (3.7%) appendectomies were performed after the period of conservative treatment of periapendicular indurate. Incidental appendectomy was performed in 31 (6.7%) cases. Since there were no clear or determined anatomic relations 11 patients were converted intraoperatively from laparoscopic to open appendectomies. 24 (5.1%) complications were recorded: during the operations there were 2 hemorrhages from damaged lower epigastric artery, whereas 22 postoperative complications included: 7 wound infections, 7 intraabdominal abscesses, 5 heavy pareses of intestinals, 1 early adhesive ileus and 2 infectiones of respiratory tract. The average hospitalization duration was 3.8 days.

Conclusions. Laparoscopic appendectomy is both a safe and efficient surgery since it includes all the advantages of minimum invasive surgeries. It is the most frequently applied technique of treating appendicitis when performed by experienced laparoscopic surgeons.

A069

Gastroschisis – Silicone bag

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Background. Gastroschisis is visually impressive, life threatening congenital malformation with urgent operative indication. In Clinic for pediatric surgery, Children's Hospital Zagreb, during five years period (2005–2009), we have treated seven patients with gastroschisis.

Results. Silicone bag has been used for protection and gradual replacement of eviscerated intestine into peritoneal cavity.

Inside period of ten days, full thickness abdominal wall closure was enabled, without local infection and without residual ventral hernia. All patients were recovered during three months hospitalisation.

Conclusions. Efficacy and noninvasivity of silicone bag is in simple application; protection of hypothermia, infection and evaporation; gradually replacement of protruded intestine into peritoneal cavity, without significant increase of intraabdominal pressure. Despite that simple and effective surgical treatment, still patients with gastroschisis are seriously endangered with sepsis, necrotising enterocolitis, passage disorders, and prolonged need for partial parenteral nutrition. Thus for survival and full recovery, unavoidable role have anesthetists, neonatologists and gastroenterologists.

A070

Surgical treatment of non-parasitic spleen cysts (NPSCs) in children – our experience

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Background. NPSCs are rarely seen in clinical practice. They occur in approximately 10 percent of all cases of spleen cysts. We would like to present our experience in management of NPSC over the last 10 years.

Methods. From 1999 to 2009 we treated 12 patients with the NPSCs. Preoperative diagnosis was established by ultrasonography and CT. In order to exclude parasitic cysts etiology, in all patients serology tests were made. Most of the patients were operated by open surgery. Laparoscopy was done in 3 patients. Decisions for cyst management were made on position and size of cists.

Results. Five boys and 7 girls underwent surgical treatment. Age of patients was between 2 and 17 years. Size of cysts was between 4 and 12 cm. Total splenectomy was made in 3 patients. Partial splenectomy was made in 6 patients. Laparoscopic unroofing of cyst was carried out in 3 patients. There were no complications during surgery. Most of the patient felt relief of symptoms after surgery. Two patients complained on prolonged pain after operation. Recurrence of NPSC was observed in one patient.

Conclusions. Total or partial splenectomy and resection of cyst using laparoscopy or open surgery are methods of choice in treatment of NPCS. Preoperative planning which is based on position and size of NPCS is necessary for successful surgery without complication during procedure. Laparoscopic unroofing of cyst is a method with high rates of recurrence.

A071

Pectus excavatum – Our experience with Nuss minimally invasive method in the last 9 years

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Background. Method for Nuss is a world recognized methods in the treatment of pectus excavatum. We want to show our experience with this method.

Methods. Since 2000 years we operated 100 children, 67 (67%) boys and 33 (33%) girls. 49 patients (49%) had psychological causes as well as an indication for surgery. Children's age was between 7 and 21 years (average 13.7).

Results. Surgery duration was approximately 74 min. Duration of hospitalization was approximately 12 days. Strong pain was expressed an average of 3 days. In all operated patients pain was not an average of 29 days. Of complications we had 3 plate deformities (3.0%), and in 2 patients (2.0%) result was bad because of poor steel bar. Pneumothorax was expressed in 27 (27%) patients, in 12 (44.4%) needed chest drainage. In 8 patients (8%) we had pneumonia, in 3 patients (3.0%) we had a shift of the tiles and was again required surgery at 2 patients (2.0%). We had 6 months after surgery pericarditis which required hospitalization and pericardiocenthesis. Secretions from the wounds we had in 7 (7%) patients.

Conclusions. The method by Nuss is the method of choice in treating funnel chest because it has many advantages over other methods.

A072

Pectus excavatum – Sulamaa or Nuss as a method of choice?

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Background. Sulamaa operating method is method with costal cartilage resection and osteotomy of the sternum. The method according to Nuss is a minimally invasive method. We compared both methods and determine which method is better and how.

Methods. We operated in the period of 10 years in 65 patients with Sulamaa method and 100 patients with Nuss method in the period of 7 years. Indication for surgery did not differ according to the method of operation.

Results. Advantages of the method Nuss is the following: there is no skin incision in the front chest and scars – cosmetic acceptable method, no cartilage resection or osteotomy of the sternum, pain after surgery is lower intensity and shorter duration, duration of surgery was shorter, minimal blood loss, pain after operative treatment is a lesser intensity and shorter duration, duration of hospitalization was shorter, return to normal life and daily activities was significantly faster, do not require hospitalization in order to implement the new rehabilitation.

Conclusions. Nuss method is better than Sulamaa in many details but surgeon's experience are essential for optimal results using both techniques.

A073

Quality of life in patients with pectus excavatum after mirpe

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Background. This study evaluated quality of life in patients with pectus excavatum before and after minimal invasive repair.

Methods. From 2001 to 2007, 30 patients (19 males, 11 females), 6–18 years of age, with pectus excavatum were operated in our institution. All of them were asked to complete the Pectus excavatum evaluation questionnaire, before and at least six months after surgical repair. Preoperative clinical severity of pectus excavatum was presented by Haller index. For statistical analysis we used ''MedCalc for Windows version 10.0.2''.

Results. Patients reported significant positive postoperative changes. The body image component improved from 3 (2–4) to 1 (1–2), but physical stasus was not significant changed. Twenty-three patients (76.7%) wanted very much to change the image of their chest by surgical procedure, and 7 patients (23.3%) wanted to change the image of their chest by surgical procedure. After surgical procedure 24 patients (80%) were very happy with new body image, and 6 patients (20%) were happy with new body image.

Conclusions. Surgical repair of pectus excavatum can significantly improve the body image difficulties, by patients. Physicians should to consider the pectus excavatum like any other physical deformity because it can results by psychological implications and to have such consequence.

A074

Primary spontaneous pneumothorax in children – our experience

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Background. Primary spontaneous pneumothorax in children is significant clinical problem. The majority of these patients will require immediately surgical therapy.

Methods. Retrospective review of 18 patients with diagnosis of primary spontaneous pneumothorax.

Results. In the last 10 years we had 18 patients with spontaneous pneumothorax. The patient ranged from 11 to 18 years, median age was 16.2 years. We had 14 boys and 4 girls. Pneumothorax occurred on the right side in 11 patients, on the left side in 6 patients and on the both sides in 1 patient. The first choice of treatment was tube thoracotomy. The main symptoms were chest pain, shortness of breath and cough. In 10 children we detected apical bullas; in 4 patients we found giant bullas in the lower part of the lung. In 4 patients we didn't found any pathological sign on the lung. Five patients with spontaneous pneumothorax had tube drainage without recurrence. Seven patients were operated with video–assisted thoracoscopic surgery (VATS). Six patients were operated with open toracotomy. Four of them had giants bullas and one patient had recurrence after VATS.

Conclusions. VATS is effective and safe methods for spontaneous pneumothorax in children. In seven children with pneumothorax we made wedge resection of the apical part of the lung plus mechanical pleurodesis.

A075

Retroperitoneoscopy – useful and efficient approach to a variety of pediatric urological conditions

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Background. Retroperitoneoscopy is relatively new surgical method, utilised in the Department of Pediatric Surgery, Children's Hospital Zagreb since 2007.

Methods. Through a mini-lumbotomy incision, typically placed bellow the tip of 12th rib, we create a retroperitoneal space in which 12 mm troacar is placed and 10 mm telescope inserted. Additional blunt preparation allows utilization of other, working ports in different positions, depending on the size of a child and underlying pathology.

Results. Since 2007 we have operated on 26 children (3 months to 17 years) using this approach. In majority of cases retroperitoneoscopy was used for complete and partial nephrectomy, but we also used it for the un-roofing of cystic lesions of kidneys, division of horse-shoe kidney and drainage of abscesses. In all but one cases retroperitoneoscopic approach proved to be safe and efficient method resulting in shorter hospital stay and faster recovery, with no early or late complications and with excellent cosmetic result when compared to classical lumbotomy.

Conclusions. Although relatively new in our routine, retroperitoneoscopy has already become method of choice for certain pediatric urological conditions with huge potential for further implementation.

A076

Laparoscopic Palomo procedure: Our method of choice for the treatment of varicocele in children and adolescents

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Background. Varicocele is a dilation of pampiniform plexus which may eventually lead to reduction of testicular function and subfertility. Varicocele is found in 40% of subfertile adult males.

Methods. Palomo's laparoscopic procedure is the current method of choice in the treatment of varicocele with shorter operating time, reduction of postoperative pain and shortening of hospital stay.

Results. Between 2001 and 2008 we operated on 151 patients. Criteria for operative treatment were varicocele stage, symptoms and confirmation by ultrasound. Indications for operative treatment included stage III varicocele, stage II varicocele with pain and/or discomfort, and venous dilation $\geq$3 mm by doppler ultrasound. Median age at operation was 15 years (12–21). There was no conversion to open technique. Median operating time was 29 min (16–44). No intraoperative complications were recorded. In the early postoperative period there were no complications. Late complications included hydrocele in 3 patients (2%). Relapse of the disease or testicular hypotrophy or atrophy were not recorded. Average hospitalization time was 1.5 days. All patients returned to everyday activities within 7 days.

Conclusions. Our results confirmed that laparoscopic procedure for the treatment of varicocele is a safe, simple, effective and with positive results when it comes to hospital stay, postoperative pain and return to everyday activities.

A077

Current therapy of vesicoureteral reflux in children

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Background. Vesicoureteral reflux (VUR) is characterized by the retrograde flow of urine from the bladder to the kidneys. VUR may be associated with urinary tract infection, hydronephrosis, and abnormal kidney development.

Methods. From November 2002 through December 2007, the case records were reviewed of 160 patients (61 boys and 99 girls) treated endoscopically by SDIN. There were 211 refluxed urethers altogether. The age range was from 6 months to 15 years, mean 4.7 years. Under cystoscopic guidance, dextranomer/hyaluronic acid copolymer underneath the intravesical portion of the ureter in a submucosal location was injected. Hyaluronic acid and dextran polymer (Deflux) was used.

Results. After first SDIN the success was 76%; after the second injection gained success was 71%, and after the third injenction success was 62%, so through all three endoscopic, procedures success were 93%. Fifteen children submitted surgery.

Conclusions. We can conclude that endoscopic treatment of VUR is a valid alternative to ''open surgery'' and to antibiotic prophylaxis. Endoscopic procedure SDIN, with Dextranomer/hyaluronic acid copolymer is an effective tissue augmenting substance in the endoscopic treatment of all grades of VUR. We recommend the endoscopic treatment for first line treatment in the majority of VUR, for the short hospital stay, absence of significant complications and the high success rate.

A078

Testicular prosthetic implants in boys

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Background. From 1999 to 2009 2 patients aged between 15 and 16 years had prostheses implanted at the Pediatric Surgery Clinic, University Clinic Center, Prishtina, Kosova.

Methods. Each prostheses was implanted through the scrotum, inserted digitally and fixed with sutures. Surgery procedure has takes 30–45 min under anesthesia.

Results. Testicular implants are well accepted. The aim is to stress out the importance of implantation of testicular prostheses, at the required time, intentionally to avoid psychical and somatic consequences for patient.

Conclusions. Postoperative cosmetic results are very good. Both patients were happy with the result of surgery.

A079

A minimally invasive concept in the treatment of unstable fractures in children

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Background. Minimally invasive surgery in treatment of fractures is defined as a surgical intervention by using minimal portals and minimal hardware. The standard treatment of fractures in children is usually conservative. Some of unstable fractures often show poor results after nonoperative management so that these fractures usually require surgical intervention.

Methods. We report 60 children (ages, 3–15 years) who were treated by minimally invasive concepts; close reduction, elastic intramedullary nailing, K-wire, or screws. Small tools are used for reduction procedures and the hardware is inserted percutaneously.

Results. At the time of follow-up 12 months later, functional results were excellent in 55 children, good in five children. There were no serious complications.

Conclusions. According to these results minimally invasive fracture stabilization can be recommended for the treatment of unstable fractures with indication of surgery in children.

A080

Titanium intramedullary nailing for treatment of simple bone cysts of the long bones in children

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Background. Simple bone cysts are common benign fluid-filled lesions usually located at the long bones of children. Pathological fracture is common, and is often the presenting symptom. The objective of the present study was to evaluate the results of titanium intramedullary nailing for the treatment of a simple bone cyst with or without a pathological fracture.

Methods. During the period from 2001 through 2007, flexible intramedullary nailing for the treatment of a unicameral bone cyst was performed in 18 children. Four of these patients were presented with a pathological fracture. The cyst was located in humerus in 14 patients, in femur in 3, and in tibia in 1. The diagnosis was based on typical X-ray imaging and computed tomography. The mean age of the patients at the time of surgery was 9.4 years, and the mean duration of follow-up was 53 months.

Results. Mean hospital stay was 24 hours. At 1–4 weeks postoperatively, all patients were pain free and had full range of motion of the adjacent joints. Radiographic signs of cyst healing were present at 3 months in all patients, and all cysts healed completely. There was no cysts recurrence. No major complications were observed.

Conclusions. Elastic intramedullary nailing has the twofold benefits of continuous cyst decompression, and early immediate stability to the involved bone segment, which permits early mobilization and return to the normal activities of the patients.

A081

Pediatric tibial eminence fractures. Arthroscopic treatment using K-wire

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Background. Fractures of the tibial intercondylar eminence are observed mostly in children and adolescents, often after minimal trauma. The purpose of this paper is to evaluate the use of K-wire fixation for the arthroscopic treatment of tibial eminence fractures in children.

Methods. From January 2002 through January 2009 ten patients were treated arthroscopically because of the intercondylar eminence fracture in a Department of pediatric surgery, University Hospital Split. Arthroscopically controlled reposition was

done, and using mobile X-ray two crossed K-wires were introduced percutaneously from the proximal part of the tibia to the fractured intercondylar eminence. Subjective outcome was obtained using IKDC subjective questionnaire.

Results. Average hospitalization time was 11 days. Average duration of treatment was 12.5 weeks. Average follow-up was 42 months. Follow-up radiographs showed union in all cases. The mean IKDC subjective score was 96/100. Clinically, all patients exhibited a solid endpoint on the Lachman test. The global IKDC objective score was normal in eight knees and nearly normal in two knees.

Conclusions. Arthroscopic reduction and fixation by Kirschner wires or a small fragment screw is the best way for treatment intercondylar tibial eminence fractures, in the pediatric population, because is not crossing the epiphyseal plate.

A082

The light immobilization technique of the child's hand fracture

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Background. Elbow, hand joint and fist fractures happen often at child's age. The choice method by treating fractures is plaster or plastic immobilization that lasts a few days up to more weeks. The defeat of classic immobilization is uncomfortableness, hygiene interference and skin irritation. Joint contractions that interfere the normal function of the joint happen often after the immobilization of long duration.

Methods. By the light immobilization techniques we can avoid the contraction by the early exercises of the injured fracture during the healing stage of the fracture. Light immobilization can be removed in all fracture healing stages because of the passive, and later the active exercises of the position of the fracture.

Results. The materials for this immobilization are adjusted to the anatomic shape of the injured position. They enable the perspiration of the skin. They are lighter than the former materials. They can be removed easily and are water-resistant. They are particularly suitable for finger and fist injuries where they immobilize the injury by their shape, and do not interfere the function of the healthy part of the fist. There are different immobilization materials which define the mobility degree.

Conclusions. The usage of this technique has shown excellent results by children, and it is used more often by adults as well.

A083

Surgical treatment for type III supracondylar humeral fractures in pediatric patients – ten years of follow-up

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Background. Considering the frequency and necessary surgical treatment of type III supracondylar fractures in children, as well as the importance of their proper management, we represent our experience during ten-year period.

Methods. In the period 1999–2008, we retrospectively followed-up 227 surgically treated children. This study included radiographic images of both the antero-posterior and the lateral views, physical examination.

Results. The average age of children was 6.7 years. In 61% boys were injured. In 59% left elbow was injured. In 32% surgical procedure were done by percutaneous closed pin fixation and in 68% by open reduction and fixation with Kirschner wires. Less swelling is recorded in percutaneous fixation. Hospital stay was in average 3 days in percutaneous fixation group, and 7 days in open surgery group. In majority of children range of motion was normal after 3 months. Compilations seen as nerve injury occurred in 1 child, cubitus varus was seen in 6 children and flexion contracture of elbow in 2 patient, all of them in open reduction surgical group.

Conclusions. This work illustrates dominance of open reduction of type III supracondylar humeral fractures in children in our hospital. Percutaneous closed pin fixation was shown to be a safe and effective method.

A084

Suturectomy in infant with craniosynostosis – A case report and literature review

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Craniosynostosis is a premature fusion of one or more cranial vault sutures and is associated with range of skull deformities. In this report authors present a 7.5 months old infant with fusion of sagittal, both coronal sutures, metopic suture and closed frontal fontanelle. Surgical approach recognizes open procedures and endoscopic techniques regarding the degree of severity. Open suturectomy has been done with excellent results and without complications. This is the first surgery of that kind in authors' hospital. Open suturectomy is reliable procedure with good to excellent results and with minimum complications and it has its place in modern neurosurgical practice.

A085

Minimally invasive approach in implantation of VP shunts in treatment of hydrocephalus of pediatric patients

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Background. In operative treatment of hydrocephalus in pediatric patients there are various methods of implantation of

VP drainage systems. The selection of VP system and the way of implantation is determined by type and etiology of hydrocephalus, clinical presentation, patient's age, CT or MR findings, and experience of surgeon.

Methods. At Children's Hospital Zagreb we perform the minimally invasive method of VP system implantation, with short skin incisions, positioning of valve hidden in retroauricular position because of better estethic result, with proximal catheter implanted in occipital horn of lateral cerebral ventricle. In small children the use of pneumatic drill is avoided, but rather sharp dissector is used to trepanate the bone, formnig narrow linear bone opening. During implantation, all unnecessary parts of system are removed, including the enforcing knee, and too long parts of proximal and distal part of system are shortened to appropriate length. We never use the suture for fixing the parts of system, but rather original mechanical connection. The implantation of unishunt is avoided because of inability to adjust the length of proximal catether. During replacement of system, we always replace the entire system and implant it on the same side of the head, which reduces both the number of skin incisions and extension of operation. Direct touch with the system makes only surgeon, and checking of the system is performed not using the saline, but the patients cerebrospinal fluid immediately after implantation of proximal catether. All this decreases the possibilities for development of shunt meningitis, which is very rare at our clinic, below 1%. The goal of this approach is favorable cosmetic effect, with the system completely invisible and hidden below the skin surface of the child. Pediatric surgeon implants distal part of the system intraperitoneally, or, in selected cases in right atrium of the heart, interpleurally, or in azygous vein.

Conclusions. In conclusion, minimally invasive approach enables better functional and cosmetic results. This is very important in pediatric patients, because the normalization of increased intracranial pressure is necessary for optimal psychomotoric development and brain maturation in pediatric patients.

A086

Our experience of hypospadias reconstruction using Bracka's two-staged hypospadias repair

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Background. Although the majority of hypospadiac defects can be repaired in a single-stage operation, the severe cases of hypospadias surgery and patients had undergone unsuccessful repair previously by different techniques requiring a staged procedure. We review our experience of hypospadias reconstruction using Bracka's two-staged hypospadias repair over a period of three years.

Methods. A total of 19 procedures were done in the last three year. Preputial dorsal skin grafts were used in 3 patients, with buccal mucosa in 2 patients and inner preputial skin in 14 patients. In the second stage, neo-urethral reconstruction is done by incising and tubing the grafted area. The mean age of the patients was 14.8 year and the average follow-up after the second stage repair was 8 months.

Results. 18 of the 19 cases had good graft establishment. In 1 patient with dorsal preputial skin grafts, a keloid scarring developed and was later excised and successfully replaced with buccal graft. One patient had meatal stenosis and one fistula formation after the second stage procedure that was subsequently repaired.

Conclusions. Bracka's two-staged hypospadias repair reconstruction gives excellent cosmetic and functional results in all cases of proximal hypospadias and especially a hypospadias revision after failed primary reconstruction.

Complications in Endoscopic Surgery

A087

Application of wound dressing molndal technique after laparoscopic cholecystectomy – Initial comparative study

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Background. Because of a possible delayed wound healing, critical colonization and infection of wounds is a great challenge for surgeons. Colonized and infected wounds are a potential source for cross-infection. Molndal technique of wound dressing has proven to be effective in prevention of wound infection. Also the wound heal better and faster. In our study we wanted to describe the benefits of the Molndal technique wound dressing after laparoscopic cholecystectomy compared to traditional wound dressing technique.

Methods. Molndal technique consisted of wound dressing with Aquacel Ag – Hydrofiber (ConvaTec). Traditional technique was performed using gauze compresses and hypoallergic adhesives. We analyzed the results of 100 patients after laparoscopic cholecystectomy. Fifty patients were treated by Molndal technique and 50 patients by the traditional technique of wound dressing.

Results. In the group treated by Molndal technique only 1 (2%)patient has revealed a wound infection, mostly in the subumbilical incision. In the traditional technique group 7 (14%) patients developed wound infection also predominantly in the subumbilical incision. The difference was statistically significant.

Conclusions. Our results are clearly showing that Molndal technique is effective in preventing the infection of subumbilical incision wound and is to by recommend for regular use at designated site after laparoscopic cholecystectomy.

A088

Instruments related complications and risks in endoscopic surgery

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Background. Endoscopic surgery is associated with the use of complicated equipment and instruments. Appropriate use and knowledge are indispensable. Complications associated with instruments can be divided on: insulation failure, instruments malfunction, infections, inappropriate labeling and lack of adequate instructions for use.

Methods. We have examined complications and risks related to endoscopic instruments by comparing literature data with our results.

Results. Insulation failure, occur very frequent, but more often in reusable (19%) than in disposable instruments (3%). More than 70% of reusable endoscopic sets have at least one instrument with insulation failure. Insulation failure is the most common in distal third part of instruments. Instruments malfunction is difficult to measure. Inappropriate use of instruments increases frequency of malfunctions. New instruments have greater performance compared to reprocessed disposable instruments, especially if they use an energy source. Increase of surgical infection can be expected if reprocessed instruments are used. Majority of instruments do not have proper labels or instruction for use.

Conclusions. Proper use of instruments can reduce incidence of surgical complications. Responsibility is not only on health professionals, but also on the management of hospitals, professional societies and manufacturers or distributors of instruments.

A089

Laparoscopic adrenalectomy

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Background. Laparoscopic adrenalectomy has emerged during 1992 in the treatment of benign adrenal tumours. We are going to present our experience with this standard of care method which we have been used from 2004.

Methods. Retrospectively we collected data from 27 consecutive laparoscopic adrenalectomies, over a period of 67 months at the Department of Urology, Clinical Hospital Centre Split, Croatia. Laparoscopic adrenalectomy was performed by transperitoneal approach with 3 or 4 ports. Indications for surgical treatment were: aldosteronom (8), non-functional adenoma (10), pheochromocytoma (3), glucocorticoid-producing adenoma (2), metastatic carcinoma (2), lymphangioma (1) and myolipoma (1). On CT scans all adrenal tumours were organ confined, without fat tissue invasion and lymphadenopathy.

Results. All 27 treated patients (18 women and 9 men) were aged between 27 and 75 years (median age 53). Right side adrenalectomy was performed in 11 and left side in 16 patients. Average size of tumour was 3.3 cm (smallest 0.8 cm and biggest 7 cm). There were two conversions to an open procedure. No patient required blood transfusions. Drainage were removed during first or second day after surgical treatment and between second and fifth day all patients were released to home care.

Conclusions. Laparoscopic adrenalectomy is safe and effective. It decreases hospital stays with low operation morbidity and better cost benefit ratio.

A090

Iatrogenic bile duct injuries in laparoscopic cholecystectomy: A personal experience

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Background. Iatrogenic bile duct injury (BDI) is a severe and potentially life-threatening complication of laparoscopic cholecystectomy (LC). Several series have described a 0.4% to 1.4% incidence of BDI during LC and more frequently when compared to open surgery.

Methods. The aim of this prospective study was to report on a personal experience with the management of BDI.

Results. Data were collected prospectively from a series of 411 LC with two cases of BDI referred for surgical treatment to our hospital between January 1999 and June 2009. Overall incidence of injury was 0.5%. BDI occurred after surgeon's first 100 LC in both cases and in group of most difficult patients. BDI were recognized postoperatively and required delayed surgical repair (20 and 300 days). Injuries, according to the Strasberg classification, were type E2 and E3. Surgical reconstruction with Roux-en-Y hepaticojejunostomy was carried. None of patients who underwent repair had complications. After operations with follow-up of 5 years and 180 days patients are in excellent condition.

Conclusions. The personal rate of BDI is approximately same as around the world. Following our patients had good results. This complication can occur to even the experienced laparoscopic surgeon. The authors believes that injury to BDI during LC is not results of the practice bellow the standard, but an inherent risk of operation.

A091

Medial-to-lateral approach for laparoscopic colorectal resection

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Background. Laparoscopic colorectal resection is a complicated procedure with a steep learning curve for surgeons performing it. The present study aimed to investigate the impact of the adoption of the standardized medial approach in laparoscopic colorectal resection.

Methods. With medial approach, the procedure is divided into several standardized steps. It begins with proximal ligation of vascular pedicles; subsequent medial-to-lateral exploration of the retroperitoneum for identification and protection of important structures (e.g., duodenum, ureter), followed by mobilization and resection of bowel with anastomosis.

Results. The patient characteristics, operative details, blood loss and complications was retrospectively analysed for laparoscopically operated patients in two years period. Video record will be presented during presentation.

Conclusions. Medial-to-lateral approach for laparoscopic colon resection has a great potential for reducing intraoperative

complications. More proximal division of vascular pedicles might attribute the increased number of lymph nodes harvested in the medial approach group. Benefit of mobilisation of left colonic flexure using this approach is significant.

A092

Intraabdominal infections after laparoscopic procedures

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Background. Laparoscopic approach has reduced the incidence of septic complications, however when they do occur they are a major cause of concern to patient and surgeon. This study aims to determine the incidence and risk factors for intra-abdominal abscess formation after several laparoscopic procedures. We focus also on the approach used in operation for complication treatment.

Methods. A retrospective review was undertaken of all laparoscopic cholecystectomies, appendectomies and colorectal resections during one year period.

Results. Total of 650 cholecystectomies, 150 appendectomies and 50 colorectal resection was analyzed. Acute cholecystits and perforated appendicitis carry a higher risk for septic complications.

Conclusions. Laparoscopic approach can be used in most patients with intraabdominal complications after cholecystectomy or appendectomy. In patients after colorectal resection open approach is more used method.

A093

Complications in video-assisted thoracic surgery

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Background. Video-assisted thoracic surgical procedures for the purposes of diagnosis and management of intrathoracic diseases are being widely and rapidly adopted as a relatively new approach to deal with intrathoracic pathology surgically. The growing popularity of thoracoscopy stems from the belief that a less invasive procedure leads to decreased postoperative pain, decreased postoperative ventilatory impairment, and improved patient satisfaction.

Methods. Also, there are many complications associated with this technique. Complications addressed to these procedures can be divided into three types: anesthesia, instrument and procedure related. Furthermore, different complications can occur perioperatively, postoperatively, or late postoperatively.

Results. In the reviewed literature as in the most frequent complications after VATS procedures are: prolonged air leak, bleeding, infection, postoperative pain, port site recurrence and the need to convert the access in thoracotomy. The complication and mortality rates are generally very low and VATS procedures are considered safe and effective.

Conclusions. This article discusses the complications associated with thoracoscopy.

A094

Complications of arthroscopy of the knee

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Background. Knee arthroscopy is a minimally invasive procedure with less complication risk than endoscopy of the visceral cavities but can have serious and significant consequences when they occur. Complications are more likely to occur with more complex procedures.

Methods. We compared results of the review articles with our results of 571 knee arthroscopy in a period from January 2003 to December 2009.

Results. Literature data shows overall complication rate of 0.56–1.68%. The percentage was higher in the more complex procedures. The most common complications were haemarthrosis (60.1%), infection (12.1%), thromboembolic disease (6.9%), instrument failure (2.9%), complex regional pain syndrome 1 (2.3%), ligament injury (1.2%) and fracture or neurological injury (0.6% each). After 571 arthroscopy preformed in our institution we have had 1 knee infection, 1 donor site bleeding after ACL reconstruction and 7 haemarthrosis before introducing obligatory aspiration drainage of the joint.

Conclusions. No invasive procedure will be entirely free from risk and arthroscopy of the knee is no exception. Patients should be made aware of this fact. Complications are relatively rare but can have serious and significant consequences when they occur. Not all are unavoidable and it is important to exercise due care in all phases of the surgical process, including preoperative assessment, the surgery itself and aftercare.

A095

Laparoendoscopic single site TEP hernia repair – comparison of two techniques: Initial experience

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Background. Single incision laparoscopic surgery (SILS) also known as laparoendoscopic single site surgery (LESS) has been implemented in a variety of laparoscopic procedures. We report our initial experience with LESS total extraperitoneal (TEP) inguinal hernia repair in comparison to standard laparoscopic TEP.

Methods. Between November 2008 and May 2009, 26 single-incision laparoscopic TEP repairs of inguinal hernia and 30 laparoscopic TEP repairs of inguinal hernia were performed for 46 patients. Data regarding patient demographics, type of hernia, operating time, complications, postoperative hospital stay, and recurrence were prospectively collected.

Results. All 46 patients were men, ranging in age from 17 to 84 years. The operating time was 51 (20–100) for unilateral LESS TEP, while it was 52.14 (40–80) for unilateral TEP. There were no intraoperative complications and no deaths. There was one mesh displacement in early postoperative period in LESS TEP group. Average discharge was within 72 hours.

Conclusions. In our experience LESS TEP inguinal hernia repair is safe and feasible in selected cases. There were no statistically significant difference in operating times, hospital discharge or intraoperative complications between two groups.

A096

Single incision laparoscopic transabdominal preperitoneal inguinal hernia repair (SILS): Our early experiences

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Background. Laparoscopic inguinal hernia repair (TEP and TAPP) is a standard method of tension-free inguinal hernia mesh reapir in University Hospital Sestre milosrdnice. Single incision laparoscopic transabdominal preperitoneal inguinal hernia repair (SILS TAPP) is a new method performed in our institution aimed at mininizing surgical trauma and improving cosmetic outcome.

Methods. We present our early experiences in SILS TAPP and compare this approach with conventional TAPP and TEP.

Results. We find no significant difference when comparing SILS TAPP and conventional TAPP and TEP inguinal hernia repair.

Conclusions. In our early experience SILS TAPP, performed by experienced laparoscopic surgeon, is a safe and effective procedure with improved cosmetic result.

A097

Laparoscopic ventral hernia repair

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Background. The aim of this study was to evaluate the effectives and feasibility of laparoscopy for ventral hernia repair.

Methods. This retrospective study included 40 cases with postincisional ventral hernias and primary ventral hernias. The mean age was 47 years (from 31 to 66).

Results. We performed 32 laparoscopic operations for postincisional and 8 operations for primary ventral hernias. The mean operation time was 62 min (35–140) and mean hospitalisation was 4 days (2–33). Postoperative complications was in 2 patients (0.5%). In one patient was termic injury of colon transversum and one postoperative bleeding in patients with liver cirrhosis. Recurent was in 2 cases (0.5%). There was no conversion and no death.

Conclusions. Laparoscopic management for primary ventral and postincisional hernias is safe and effective procedure.

A098

Complications of laparoscopic surgery in General Hospital Vukovar

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Background. Laparoscopic cholecystectomy is the most performed laparoscopic procedure in General Hospital Vukovar. Recently, laparoscopic inguinal, laparoscopic ventral hernia repair and laparoscopic appendectomy were introduced. We performed laparoscopic cholecystectomy in the last ten years, and other laparoscopic techniques have been introduced since 2008. Purpose of this study is to present our data about type and the incidence of complications after laparoscopic surgery.

Methods. A retrospective study was performed from January 2007 until December 2009. We performed 355 laparoscopic cholecystectomy, 110 laparoscopic inguinal hernia repair (TAPP, TEP), 3 laparoscopic ventral hernia repair and 20 laparoscopic appendectomy.

Results. Complications occurred in 4 patients (1.1%) after laparoscopic cholecystectomy procedure. One patient had subcapsular liver haemathoma, one patient had duodenal injury and cholascos had two patients. In this period we had not common bile duct injuries. Subcapsular liver haemathoma was managed with laparotomy and liver tamponade, duodenal injury with immediately laparoscopic suture. Cholascos was managed with laparoscopic exploration and bile drainage. After laparoscopic inguinal hernia repair complications occur in five patients: 3 scrotal seroma and 2 scrotal haemathoma. These complications were managed conservatively. Minimal seroma occurred in one patient after laparoscopic ventral hernia repair, and it was too managed conservatively. We had not complications after laparoscopic appendectomy.

Conclusions. Laparoscopic procedures are a safe procedures, but all of them could be associated with some serious complications. Early identification and management of these complications will minimize a potentially devastating outcome.

Residents Paper Competition

A099

Tetanus immune status of patients presenting to an Irish emergency department

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Background. Tetanus is a serious condition, but readily preventable by adequate immunization. The incidence has therefore declined since the advent of routine vaccination programmes. Tetanus toxoid boosters are frequently used in emergency departments following potentially contaminated injuries when

the patient's tetanus immune status is inadequate or unknown. This carries a significant cost and may be unnecessary in some cases. This study aimed to evaluate the tetanus immune status of patients attending the emergency department.

Methods. Two hundred and twenty-one patients were randomly selected among attendees in August 2008. Tetanus immune status was established using a near-patient testing system for detection of anti-tetanus antibodies (validated for use on capillary blood samples).

Results. Two hundred and twenty-one samples were obtained (123 males, 98 females), age 12–91 years (mean 51). 156 (70.6%) were positive, implying adequate protection, and 65 (29.4%) were negative.

Conclusions. Our results suggest that while younger patients generally tend to have an adequate level of immunity to tetanus (most likely as a result of the introduction of a routine tetanus vaccination programme in Ireland), many older patients, especially females, have insufficient protection against tetanus infection. Continued use of tetanus toxoid when these patients sustain potentially contaminated injuries is advisable. The level of tetanus immunity among the population may change in future.

A100

How to prevent lateral thermal damage on tissue using harmonic scalpel? Experimental study on pigs' small intestine and abdominal wall

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Background. Use of the harmonic scalpel for tissue cutting and hemostasis is a potential alternative to high-frequency current techniques, which can be associated with thermal tissue injuries. When using a harmonic scalpel, the lower amount of energy that is transduced to the tissue reduces the chance of lateral thermal damage.

Methods. Pigs were used as the experimental model. After anesthesia, tissue was coagulated using different application regimens for each group. The width of tissue necrosis was measured from the point of incision by the harmonic scalpel.

Results. The pig abdominal tissues suffered mean thermal damage of 0.0825 (output power 3) and 0.2969 mm (output power 5) when used for 5 s; at 10 s these values were 0.3850 and 0.4793 mm, respectively. In a third experimental condition, with 10 s of application broken down into 2 parts of 5 s with a 5-s pause in-between, these values were 0.1876 and 0.2013 mm, respectively. The small intestine tissues suffered mean thermal damage of 0.1302 (output power 3) and 0.1771 mm (output power 5) at a duration of 5 s. After 10 s of application, these values changed to 0.2655 (output power 3) and 0.2983 mm (output power 5). In the third condition (activity for 5 s, pause for 5 s, activity for 5 s), they were 0.2011 and 0.2258 mm, respectively.

Conclusions. Coagulation necrosis is bigger if the usage is continuous rather than if it is disconnected/reconnected.

A101

Our experience in surgical treatment of cerebral ischemia local vs. general anesthesia

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Background. Analysis of the influence of anesthesia on the outcome and postoperative complications after carotid artery endarteretomy.

Methods. A retrospective study of patients treated at the Department of Vascular Surgery in General Hospital Karlovac during the period of 2004–2009. The analysis included 82 patients operated for significant carotid artery stenosis. Gender and age of patients compared with complications were consider.

Results. The overall incidence of perioperative cerebral complications is 8.53%, with the proviso that the same higher incidence in patients operated in endotracheal anesthesia 9.61%. Percentage of cardiac complications was higher in endotracheal anesteshia 11.53%.

Conclusions. Although less comfortable for the patient and surgeon, local anesthesia reduces the incidence of complications during surgery, and allows better intraoperative monitoring.

A102

Rectal prolapse and cow milk sclerotherapy

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Background. Prolapse of the rectum is a herniation of the rectum through the anus. We evaluate the role and our experience of injection sclerotherapy with cow milk in the treatment of rectal prolapse in children.

Methods. In the last 20 years (1989–2009) we made 67 injections of sclerotherapy with cow milk in 57 children. In this study we included children who failed to respond to conservative treatment and we perform operative treatment.

Results. In our study we included 57 children and in all of the patients we perform cow milk injection sclerotherapy. In 94.7% (54 children) of patients sclerotherapy was successful. In 3 (5.3%) patients we had recurrent rectal prolapse where we performed operative treatment. Below 4 years we had 41 children (72%) and 16 older children (28%).

Conclusions. Injection sclerotherapy with cow milk for treatment rectal prolapse in children is a simple and effective treatment for rectal prolapse with minimal complications.

A103

Management of undescended testis – diagnostic algorithm and therapeutic possibilities

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Background. Undescended testis is among the most common congenital abnormalities of the genitourinary tract. Outcomes of orchidopexy include the existence of a viable, palpabile testis in the scrotum, fertility, as well as decreasing the risk of testicular cancer.

Methods. By reviewing literature and based on our extensive experience in the treatment of undescended testes over the last decades we will provide a diagnostic algorithm as well as present modern treatment possibilities concentrating on laparoscopy.

Results. During the past decade the success rate of orchidopexy for inguinal testes has been 95%. For abdominal testes it was 85–90% in most clinical trials for single or two-stage Fowler-Stephens' orchidopexy. Laparoscopy is also a diagnostic tool when cryptorchidism is the leading diagnosis and no other imaging study visualises the testis. We performed six laparoscopic orchidopexies and four 2-stage Stephen-Fowler's procedures.

Conclusions. Since pediatricians and general practitioners usually perform screening exams it is of high importance that a strict algorithm is established. Laparoscopy, whether diagnostic or therapeutic, has proven to be a method of choice in treating cryptorchidism. The child should be appointed to a specialised pediatric center experienced in pediatric surgery, anesthesiology and laparoscopy if treatment or further work up is needed.

A104

Five years experience of burns treatment in Croatian referral center of the ministry of health and welfare for pediatric trauma

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Background. In developed world burns are still significant cause of morbidity and mortality. They are in fourth place for mortality reasons of unintentional injury deaths among children and among ten most frequently observed reasons for unintentional injury admissions to hospital emergency rooms. Burns may have long-term physical and psychological consequences. In this study we would like to present our experiences of burn management in children.

Methods. We have retrospectively analyzed medical documentation of patients who were admitted to hospital for treatment of burns in period from 2005 to 2009. Patients were stratified by age, sex, burn size, cause of burn, affected body parts and surface.

Results. In the last five years 349 children were treated for burn injury. The mean age was 4.4 years and ratio between boys and girls was 3/2. Seventy-two patients required treatment in the intense care unit. The average duration of hospitalization was 21.2 days. In younger children most common cause of burns were hot liquids. At older children most frequent etiology was flames. The mean extent of burn was 8.54% TBSA. In most patient burns affected several body parts, and the arm was most commonly affected (61%).

Conclusions. Burns are a major source of pediatric morbidity. With the development of awareness among parents and education at the national level, we could contribute to the lower incidence of burns.

A105

Acute scrotum syndrome

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Background. Acute scrotum (AC) is a clinical syndrome, presented with scrotal pain with or without swelling and erythema. It is an emergent condition, requiring scrotal exploration, which is both diagnostics and therapeutic management. Two most common causes are torsion of testicular appendix (TTA) and torsion of spermatic cord (TSC), followed with epididymitis (ED).

Methods. The aim of this retrospective analysis is to discuss the differences between operated children with AC, focusing on the patients age, incidence of AC and the role of ultrasound diagnosis of AC in children.

Results. During the period 2004–2009. we operated on 331 patients with AC, aged from 1 day to 18 years. Scrotal exploration revealed 265 (80%) cases of TTA, 42 (12.7%) cases of TSC, 22 (6.7%) cases of ED and 2 (0.6%) other causes of AC. Preoperative ultrasound was made in 83 (25.07%) cases. In 94.86% AC presents with pain, followed by swelling in 64.35% and erythema in 60.12%. TTA is most common in the age group from 6 to 10 years (48.67%), TSC in the group from 11 to 15 years (61.9%), while ED is most common in the first year of life (36.36%). In 11 (28.57%) patients with TSC, amputation of the necrotic testis was necessary.

Conclusions. Acute scrotum is a common condition in children, requiring urgent diagnosis and treatment. Preoperative ultrasound can be preformed, but the best diagnosis and treatment is urgent surgical exploration of the scrotum.

A106

Liver transplantation after abdominal blunt trauma at 12 yo girl, a case report

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Background. Trauma is the leading cause of morbidity and mortality in the pediatric population. Following the head and extremities, the abdomen is the third most commonly injured anatomic region in children. Abdominal trauma can be associated with significant morbidity and may have a mortality rate as high as 8.5%. The abdomen is the most common

site of initially unrecognized fatal injury in traumatized children. Liver is third most common injured abdominal organ with frequency of blunt organ injury of approximately 15%.

Methods. In this report we want to present a case of 12 yo girl who suffered polytrauma including blunt abdominal trauma and liver rupture followed by liver transplant. On the day of injury due to the extent of liver rupture hepatectomy and portocaval shunt was done and patient was immediately placed on the list for urgent liver transplantation. A reduced graft liver transplantation (left liver lobe) was made on the second day after the trauma and first operation.

Results. In the postoperative course patient was circulatory unstable, continuously on mechanical ventilation, without change in neurological status (GCS 3–4), due to failure of renal function hemodialysis was carried out. Poor liver graft function persists throughout whole postoperative course (6 days).

Conclusions. Liver transplantation is the method of choice in cases when other methods failed to repair rupture of the liver.

A107

Urgent carotid endarterectomy

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Background. Carotid endarterectomy (CEA) after acute stroke was generally delayed 6–8 weeks because of fear of stroke progression. Nowadays, a delay of surgery is proofed to be associated with a risk of recurrent cerebral ischemia. This delay can result with an interval stroke. Natural course of disease in patients with stroke in evolution lead to 80% mortality. Reliable data on the risk of carotid endarterectomy in relation to timing of surgery are necessary to plan CEA most effectively.

Methods. We have analyzed studies available in literature concerning timing of CEA and its risks regarding combined perioperatively and long-term stroke and mortality rate and compared emergency and elective CEA.

Results. Patients undergoing urgent CEA had higher perioperative mortality and stroke rate compared to elective CEA. When CEA is performed due to crescendo TIA within 6 hours and progressing neurological dysfunction and completed nonfluctuating deficits within 12 hours, the results almost always show improvement.

Conclusions. Urgent CEA in patients with recent/crescendo TIA and stroke in evolution and fluctuating neurological deficit brings high operative risk, but those patients also may gain the most benefit from surgery. Careful patient selection and expeditious surgery give a potential for improvement in this limited but highly jeopardized group of patients.

A108

A review of external carotid endarterectomy at the Department of Surgery, Clinical Hospital Center Osijek

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Background. The aim of our review was to assess the effect of the carotid endarterectomy on the patency of the external carotid artery. Treated patients had occluded internal carotid artery (ACI) and stenosis of the ipsilateral external carotid artery (ACE) (>70%).

Methods. Data were retrospectively obtained for all patients who underwent carotid endarterectomy between 1984 and 2009 at the Department of Vascular Surgery, Clinical Hospital Center Osijek. The patency of the ACE was assessed by means of: angiography, ultrasonography and CT-angiography, pre- and postoperatively.

Results. Carotid endarterectomy was performed on 1258 occasions, 20 of which were endarterectomy of ACE in 19 patients. The treated patients included 17 men and 3 women, ranging in age from 53 to 89 years (median, 64.8 years) in the period between 1984 and 2009. One patient died within the period of 6 days after the surgery, one patient had stroke within 24 hours after the surgery, whereas the other patients had good postoperative course in the follow-up period.

Conclusions. This review suggests that endarterectomy of the ACE is effective in patients with occluded ACI and advanced stenosis of the ipsilateral ACE. However, since the small number of treated patients further randomised study is necessary in order to investigate the subject more thoroughly.

A109

Repair of false anastamotic aneurysm (FAA) of the femoral artery (FA) by insertion of synthetic bifurcation prothesis: A case study

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Background. FAA of the FA is one of the major complications compromising femoral graft repair. FAA complicates 2 to 5% of graft procedures.

Methods. A 78-year-old male patient,heavy smoker with a history of aortobifemoral bypass (ABF) 17 years ago and cross-over bypass. Bypass was drawn from right branch of ABF prothesis to left deep femoral artery (DFA) due to previous occlusion 7 years ago. Patient was presented with clinical signs of FAA of right FA. Angiography was done which confirmed suspition on FAA 54×49 milimeters (mm) in size. After FAA resection a 14×7 mm bifurcation prothesis was inserted termino-terminaly with preservation of femoro-femoral cross-over bypass.

Results. Cross-over femoral bypass was preserved. Distal pulsation emerged immediately, patient was mobile on second postoperative day. Wound infection hasn't occurred, his walking performance improved from few steps to 150 meters until patient's release.

Conclusions. Insertion of bifurcation prosthesis is another useful method in repair of FAA. In our case it was efficient method because it preserved cross-over femoral bypass which is crucial for adequate arterial perfusion of the other leg.

A110

Evaluation of the results of transtibial amputation in patients with obliterative arterial diseases (2001–2009)

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Background. Despite the considerable contribution made by reconstructive angiosurgery in treating atherosclerotic vascular diseases, there is a large number of necessary lower-extremity amputations, including amputations due to complications following reconstructive surgery. This paper sums up our experiences and results during the past decade regarding transtibial amputations in patients with obliterative arterial diseases. In the mentioned period we performed 168 major lower-extremity amputations, 104 of which were transfemoral, and 64 transtibial. Our results demonstrate that most patients who underwent transtibial amputations are female (44/20), that the patients' average age is 70.5, whereas more amputations were performed on the lower left leg.

Methods. In determining the optimum level of amputation we mostly make use of measuring blood flow by means of Doppler sonography, arteriography, as well as clinical tests of the area in question, which is still in many cases the crucial factor in assessing the condition of circulation in extremities.

Results. Approximately 80% of our patients who underwent transtibial amputations were able to successfully rehabilitate and remobilize.

Conclusions. Even though transfemoral amputations are still prevalent (a greater possibility of successful stump rehabilitation), we are also successful with patients undergoing transtibial amputations.

A111

Laparoscopy in undescended testes – diagnostic superiority and therapeutic role

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Background. We aim to present exploratory laparoscopy as a method of diagnosis and treatment which offers more possibilities than any other method.

Methods. We retrospectively analyzed 21 patients which underwent exploratory laparoscopy (EL) for undescended testes. All patients were subjected to clinical examination, ultrasound (US) study and exploratory laparoscopy.

Results. Eight patients had positive US findings and 3 had false positive results on EL. In 7 patients the US findings were negative and 2 false negative results. In 6 patients the US was inconclusive. In this group we found 2 viable abdominal testes on EL. Overall, in 12 patients testicular absence was confirmed by EL. In other 9 patients a viable abdominal testis was found and they were subsequently operated on. Six patients underwent laparoscopic orchidopexy immediately after EL. The other 4 patients were treated using the two-stage Stephen–Fowlers method. Postoperative result in all 10 patients was good and on follow-up testes were viable.

Conclusions. We may conclude that US is a helpful and safe screening method, but still unreliable to a certain degree. Exploratory laparoscopy for abdominal testes is currently the best diagnostic method given its therapeutic potential in one act and its superiority to imaging studies.

A112

Our experience with the SILS method

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Background. For the last seventeen years laparoscopic cholecystectomy has remained the gold standard procedure for gallbladder surgery. Today, however, there is a trend of using even less invasive procedures such as SILS (Single Incision Laparoscopic Surgery). With SILS abdominal operations are performed with laparoscopic instruments placed through a single, small umbilical incision. Our goal was to show the initial experiences we have with SILS.

Methods. Data was collected from chart review of 8 patients that have undergone SILS cholecystectomy at our department. The patients were also observed following the procedure and later during regular check-up by the operator.

Results. The median operative time was 72 min. Time of operation and safety of the procedure depended greatly on surgeons experience in laparoscopic surgery. The median hospital stay following procedure was 3.5 days. Average BMI (body mass index) was 30.2 kg/cm^2. None of the patients had any postoperative complications.

Conclusions. The results from the current series show SILS laparoscopic cholecystectomy to be a promising technique. SILS requires experienced laparoscopic surgeons. However, evaluation of the efficacy and safety of this procedure ask for further clinical studies on a greater number of patients. Follow-up of patients is in progress and we will be able to report on any possible late complications in the future.

A113

Laparoscopic appendectomy for residents

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Background. Laparoscopic appendectomy is being performed increasingly, worldwide. To the resident, it provides a valuable opportunity to master basic laparoscopic skills. Studies have shown that laparoscopic appendectomy performed by resident is safe. However, to date, there is no clear evidence for the minimum number of these operations required to achieving proficiency and safety. The aim of this

study is to assess the outcome of laparoscopic appendectomies performed by surgical resident and to evaluate the effect of learning curve on patient outcome.

Methods. All patients undergoing laparoscopic appendectomies performed by one resident during the study period were reviewed.

Results. Data on patient demographics, clinical and histological diagnosis, and outcome variables including operative duration, conversion to open surgery, complications, and length of stay were analyzed. We evaluated the effect of the learning curve by dividing patients into two groups: a first group consisting of the initial 20 patients and a second group consisting of the next 20 patients operated by resident. Variables were analyzed to determine any difference between the two groups.

Conclusions. Operative duration and complications can be reduced with increasing experience of a resident.

A114

Influence of taking oral carbohydrate beverage before an early after laparoscopic cholecystectomy on stress answer

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Background. Preoperative oral carbohydrate can attenuate postoperative insulin resistance and catabolism, and may have the potential to improve postoperative recovery and well being of patient. Intake of clear fluids such as water, black coffee, tea, or fruit juice without pulp is allowed until 2–3 h before the induction of anesthesia in patients without risk factors for pulmonary aspiration.

Methods. First group of patients during the evening before surgery, the CHO group, consumed 600 ml of an iso-osmolar 12.5% carbohydrate-rich drink and 400 ml three hours before procedure. Second group fasted over night. We measured concentration of C reactive protein and cortisol in blood before and after procedure. Also seven different variables were evaluated using anolog-visual scale: anxiety, hunger, vomiting, nausea, pain, thirst, weekness. Elective laparoscopic cholecystectomy was performed in all patients.

Results. Data from all 40 patients were available for statistical analysis, 19 in one and 21 in other group. There was significant intergroup differences in general well-being and C reactive protein analysts in favor of CHO group. There was no significant differences in level of cortisol.

Conclusions. A preoperative carbohydrate beverage improves clinical outcome after laparoscopic cholecystectomy.

POSTER

Acute Abdomen

P001

A case study of a 65-year-old man who presented with features of intestinal obstruction due to clinically undiagnosed urinary retention

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Background. Although rarely reported in literature, mechanical intestinal obstruction due to urinary retention is still presenting in clinics.

Methods. This study reports a case of mechanical intestinal obstruction due to clinically undiagnosed urinary retention and acute abdominal pain. It was suspected to be a case of divertuclar disease and CT scan was arranged when the first AXR shown dilated small intestinal obstruction.

Results. A residual volume of urine on catheterisation was approximately 600, and with catheterization all clinical features of intestinal obstruction were relieved. Further radiological investigation has shown no more sings of intestinal obstruction. Further investigation showed that extrinsic intestinal compression by a dilated urinary bladder aggravated or caused intestinal obstruction. This is rarely reported in the literature.

Conclusions. (1) When diagnoses cannot be made in patients with uncharacteristic presenting features, radiological investigation are instrumental in reaching an outcome. (2) Consider acute urinary retention as a cause of radiological signs of bowel obstruction. (3) The need for broad thinking when co-existing features of different diseases occur, (4) The importance of interpretation and monitoring of radiological findings.

P002

Small bowel and omentum evisceration through drain site: Report of two cases

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Background. Prophylactic use of drains in open or laparoscopic surgery has been debated a long. Actually, most of the metaanalysis demonstrated the absence of indication of drain usage in non complicated cholocystectomy, gastrectomy, hysterectomy and surgery for colorectal cancer. Evisceration through drain site is rare and regards usually appendix and small bowel.

Methods. Case A: A 82-year-old woman underwent laparotomy because of sizable ovaric mass. Operation was uneventful and a 10 mm tube was posted in Douglas. Ten hours later a small

bowel loop herniated through drain site presenting signs of ischemia. Case B: A 84-year-old woman underwent anterior resection for colorectal cancer and a drain tube was posted proximally to the anastomosis. Post-operative course was uneventful. Eight days later the drain was removed and an epiploic segment passed through the remnant drain site.

Results. In both cases, we ascertained functionality of the herniated viscera and we performed a bed-side procedure returning viscera into the abdomen.

Conclusions. Evisceration through the site of the drainage can happen by several conditions such as sudden increase of intraabdominal pressure (cough, vomiting), obesity, comorbidities, poor nutritional status and infection of the site of the drainage. It's recommended the usage of drains, measuring less than 10 mm in external diameter.

P003

Small bowel intussusception due to sizable jejunal intraluminal lipoma in a patient previously treated for lung carcinoma and ear melanoma

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Background. Intussusception is a disease of the infancy and early childhood. In 5% of the cases it may be encountered in adulthood and constitutes the cause of 1% of adult intestinal obstructions. Lipomas of the small bowel are rare benign tumors usually asymptomatic but sometimes presented with hemorrhage, obstruction or they can serve as leading point for intussusceptions.

Methods. A 66-year-old man was transferred to our department from plastic surgery unit, because of colic abdominal pain and vomiting. Patient has a history of aortocoronary bypass 13-year ago, right inferior lobectomy for lung carcinoma 2-year ago and he was recently operated for amelanotic melanoma of the right ear with positive cervical sentinel node exploration. Metastatic disease was suspected. The patient underwent abdominal CT and enteroclysis demonstrating small bowel intussusception.

Results. Laparotomy was performed. Jejunal intussusception was identified 50 cm from ligament of Treitz and an intraluminal sizable mass was palpated. Segmental resection and primary anastomosis were performed. A lipoma was identified. Post-operative course was uneventful.

Conclusions. Abdominal symptomatology in the presence of other neoplasms imposes an extensive medical examination. Intestinal lipomas are rare but they must be taken under consideration in cases of hemorrhage, obstruction or intussusceptions.

P004

Unusual chronic complications of blunt abdominal trauma

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Background. Delayed consequences of blunt abdominal trauma (BAT) such as adhesions or strictures have been described. We report two cases with unusual chronic complications of BAT.

Methods. Case A: A 75-year-old female was admitted because of chronic abdominal pain and a soft tissue mass of the left abdomen. U/S and CT-scan demonstrated a mass of the abdominal wall in contact with the discending colon. Coloscopy excluded intraluminal neoplasm or diverticulitis. Case B: A 43-year-old man presented with voluminous abdominal tumor. Images study revealed cystic mass arising from the head of the pancreas suggesting neoplasm. MRI-MRCP excluded malignancy and suggested a mesenteric cyst or a mesothelioma.

Results. In the first case an en block resection of the mass and of the adherent colonic segment was performed. In the second case a giant mesenteric cyst was removed. The first patient sustained BAT during harvesting olives by hitting sticks six months ago and presented probably a covered colonic perforation and the second by his opponent's knee during a football game, both treated conservatively.

Conclusions. Patients rarely mention a small ''forgotten'' abdominal injury during a medical history registration such as in our cases. History of BAT and histological examination could explain ''unexplained'' abdominal conditions.

P005

Multiple jejunal diverticulosis: Is always resection necessary?

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Background. Multiple jejunal diverticulosis (MJD) is a rare condition of the small bowel. Incidence on autopsy ranges from 1.3 to 4.6%.

Methods. In the period December 2007–December 2009 four cases of MJD were explored. Three females and one male patient were included with a mean age of 72, 75 (55–85) years. Two patients had a free medical history, but were symptomatic (anemia, malabsorption, obstruction and abdominal pain and leucocytosis respectively). The third patient presented fever, leucocytosis and multiple liver abscesses while the fourth, previously diagnosed with rectal cancer, was asymptomatic.

Results. Preoperatively, diagnosis of MJD was posted in three patients with enteroclysis and/or CT scan (cases 1, 2, 4). The first patient underwent laparotomy and the involved jejunum was removed because of multiple giant diverticula. The second patient was treated conservatively. In the remainning cases, MJD was revealed during laparotomy, without dilated hyperthophied segment of the bowel or large diverticula and resection was not performed.

Conclusions. MJD is usually asymptomatic and does not need treatment. When symptoms are persistent or refractory to treatment, resection may be beneficial.

P006

Amyand's hernia (case report)

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Background. Acute appendicitis in an incarcerated inguinal hernia, termed an Amyand's hernia. It is rare condition to be found in approximately 1% of adult inguinal hernia repairs and when it occurs it is often misdiagnosed as a strangulated inguinal hernia.

Methods. We report a case of Amyand's hernia in a 63-year-old man. In hernias sac was adhereted inflammeted appendix and appendectomy was performed. The defect of the hernia was closed primarily.

Results. The postoperative course was uneventful. Emphasis is given to the rarity of the disease.

Conclusions. Appendicitis within an Amyand's hernia is rare, and when it occurs it is usually misdiagnosed as strangulated inguinal hernia which also represents a surgical emergency. The proper treatment should involve appendectomy through the herniotomy with primary hernia repair without the use of any synthetic mesh.

P007

Massive gastric dilatation and necrosis: A case report

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Background. Gastric necrosis caused by ischemia is a rare condition because of the good vascularisation of the stomach. One of the causes is gastric dilatation which is caused mostly by eating disorders.

Methods. A 51-year-old, quadriplegic, female patient without any previous record of anorexia nervosa or bulimia was admitted to the emergency room with acute abdominal pain, in extremely poor general condition (hypotension, the upper extremity pulses were barely palpable, femoral pulses were absent, the lower extremities were cyanotic and cold, abdomen was distended and tympanic, rigid on palpation, the bowel sounds were absent). In laboratory findings leukocyte level was l6 and CRP 127, while other parameters were normal. Radiology (X-ray and CT) showed severe distension of stomach, intestine and bowel with formed fluid levels without the sign of pneumoperitoneum.

Results. Emergent laparotomy was performed at the same day. Intraoperatively we found massive necrosis of proximal 2/3 of stomach with a mass of undigested particles of food in the lumen. Gastrectomy with oesophagojejunal anastomosis was performed. Due to poor condition she was admitted to the ICU and subsequently passed away.

Conclusions. Gastric necrosis is an extremely rare surgical condition due to rich blood supply of stomach. In this lecture we shall present our case report and literature review of probable causes of this uncommon condition.

P008

Laparoscopic appendectomy for acute abdomen caused by acute appendicitis with perforation and peritonitis

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Background. The aim of this study is to evaluate of safety of laparoscopic appendectomy for acute abdomen caused by acute appendicitis.

Methods. Retrospective study include 346 laparoscopic appendectomies performed for perforated acute appendicitis in time period from 22.3 1994 to 31.12 2009.

Results. We performed 346 laparoscopic appendectomy for perforated acute gangrenous appendicitis with local and diffuse peritonitis from overall of 1325 laparoscopic appendectomies which is 26.1%. in 244 cases we found clinical finding of local pelveoperitonitis which is 18.4% and in 102 cases it was found diffuse purulent peritonitis (7.6%). Mean hospitalization was 3.5 days (2–8). Overall postoperative morbidity rare was 7.8% (27 patient). Wound infection of troacaric incision was reported in 12 patient (3,4%) Postoperative intraabdominal abscess was 4 (1.1%). Paralitic ileus rate 2.8% (10) enteric fistula was found in 1 case.There was no death.

Conclusions. Appendectomy with laparoscopic technique for perforated acute appendicitis in patient of all age group a safe and effective operative technique and has all advantages of minimal invasive surgical procedure and enables significantly better intraoperative peritoneal toalete.

Reconstructive Plastic Surgery

P009

Treatment of complicated ankle fracture – case report

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Background. Complicated fractures in general are complex injuries and presume great risks of infection and neurovascular complications. Gustillo division includes four types. Our patient had a Gustillo III fracture. Our patient is a 54-year-old man with complicated trimalleolar fracture of the right ankle with exposed tibial bone and a large skin defect. Injury was caused by a falling tree. After preoperative care, operative treatment was indicated. During the preoperative preparations rectal cancer was diagnosed, and Dixon resection was also performed.

Methods. Tibial and fibular mallear ostheosynthesis, using 2 Kirschner wires, and cerclage were performed respectfully. The skin defect was covered with a free forearm vascular flap.

Results. Inspite of the comorbidity (diabetes mellitus, CABG, femoropopliteal bypass of the right leg) the injured limb was preserved with a good functional result.

Conclusions. The method was absolutely indicated in this situation. Ideally it is performed as one act surgery by a team consisting of a trauma and plastic surgeon.

P010

Surgical treatment of giant basal cell carcinoma of the back

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Background. Basal cell carcinoma (BCC) is the most common cutaneous malignancy and the most common human malignancy in general. Out of all basal cell carcinomas, giant basal cell carcinoma represents less than 1%. Only 10% of all basal cell carcinomas are located on the trunk and majority is located on the head and neck.

Methods. We treated two patients with giant exophytic basal cell carcinoma of the back sized about the same $8 \times 8 \times 6$ cm. Both patients were treated surgically by excisions and coverage of defects resulting after excisions were performed with split thickness skin grafts.

Results. Both patients left hospital with radically removed basal cell carcinomas from the back without signs of tumor recurrence to date.

Conclusions. Simple excision with split thickness skin graft coverage is a good method to treat giant basal cell carcinoma of trunk.

P011

An unusual cause of clubbed nail deformity

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Background. Myxoma and superficial angiomyxoma (SA) are rare cutaneous entities. SA is considered a new and different entity from myxoma because of the lobular structure and of a prominent capillary network. Subungual location of SA is rare and to our knowledge, this is the fourth case reported.

Methods. A 27-year-old female was referred to our department because of the gradual clubbing of the left thumb fingernail. The affected nail was erythematous, sensitive when immerging in cold water and occasionally painful; however palpation did not reveal any pain or fluctuant swelling to the patient. The lesion did not limit the distal interphalangeal joint's activity. She reported no recent trauma of the affected fingernail. Surgical resection was performed, preserving nail bed and matrix to avoid nail ridging.

Results. Pathology report described a SA. Immunohistochemistry staining revealed positive stain for CD34 and negative for S100. Patient did not present signs of recurrence after a 12-month follow-up. The functional and the cosmetic result were excellent.

Conclusions. Superficial angiomyxoma is a rare cause of clubbed nail deformity and considering the high recurrence rate demonstrated by SA, a complete excision and a follow-up are mandatory to avoid recurrence.

P012

Cost-benefit (modified yhec) analysis: Negative pressure wound therapy vs. classical and advanced moist therapy

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Background. Successful treatment of chronic leg ulcers is often a great challenge for both the doctor and the patient. One of the major problems is the distinct chronicity and the propensity for relapse. The patient sustains a loss of quality of life because of pain and social impairment or even social marginalisation. Till today there exists no universal recipt to treat a chronic leg ulcer. Both conservative therapy with compression and surgical treatment achiev healing rates of about 75%. This means that up to 25% of chronic leg ulcers stay therapy-resistant.

Methods. In this series of patients, subatmospheric pressure therapy was applied on chronic leg ulcers caused by chronic venouse insufficiency. We evaluated the data of 34 patients with outstanding expansive and therapy-resistant statement of chronic leg ulcers. All wounds were infected, respectively bacterial colonized, six with MRSA. Before applying the V.A.C.–system patients had either debridement, shaving, fasciectomie or fasciotomie and subsequent mesh–graft.

Results. Successful healing of the mesh-graft was obtained without complication in all patients. Within the follow-up (5–21 month) 12 patients, 8 of them with ulcus mixtum, had a relapse.

Conclusions. In conclusion we can say, that V.A.C.-therapy is an efficient and save treatment for chronic leg ulcers, as well in infected wounds, but the relapse rate in mixed ulcers stays elevated.

P013

Reconstruction of the partial breast defect with autologous fat graft

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The type of correction we used in this partial defect of breast after quadrantectomy is something new and good solution in defects of the upper breast. Upper medial part is the most important part of breast and we used correction with compact fat graft. We used fat graft from inferior part of abdominal wall where the scar is most hidden. Early postoperative result is hypercorrection and the real result can be seen in 6–12 months what we presented in this case report. Fat grafting is a good addition to other corrections of partial breast deformities after breast tumor excision.

Endomedular Osteosynthesis

P014

Treatment of trochanteric femoral fractures: Our initial experience with proximal femoral nail antirotation (PFNA)

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Background. We present our experience with new method PFNA in treatment of trochanteric fractures.

Methods. Between April 2007 and April 2009 we treated 325 patients (avg. age 71) with unstable trochanteric fractures (including 7 pathological, 87% caused by low-energy trauma) using PFNA (13% – PFNA long, 87% – standard 240 mm length). Sixty-nine percent were 31.A2 others 31.A3 type. Follow-up time was at least 6 months. We recorded time from admission to surgery, hospital stay, in hospital mortality, length of operation, operative blood loss, perioperative complications and time for fracture healing.

Results. Mean time from admission to surgery was 2, and of hospital stay 14 days. In hospital mortality was 3%. 35 min was average operation length. Intraoperative blood loss was <100 mL in 93%. We required limited open reduction in 10%, and in 88% of patients we achieved good reduction followed by early mobilization and weight bearing. There were 11 reoperations due to 1 nail breakage, 6 cut-outs and 4 distal locking errors. Other fractures healed within 18 weeks. We had one wound infection and no non-unions.

Conclusions. Treating trochanteric fractures with PFNA we achieved good anatomical reduction and stable fixation followed by early mobilization and weight bearing. We recorded shortening of operative procedure and minimal intraoperative blood loss. Good results were achieved in patients with pathological fractures and severe osteoporosis.

P015

Application of PFNA in healing of high subtrochanteric pathological fracture with case report

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Background. In our department, between March 2007 and December 2009 year, 56 patients with intertrochanteric fractures and 4 patients with high subtrochanteric fractures underwent intramedullary nailing with PFNA. One of the patients had a pathological fracture.

Methods. Case report: 25-year-old man felt sharp pain in his right hip while he was walking down the stairs. After clinical and X-ray examination high subtrochanteric pathological fracture has been confirmed. PFNA was inserted by open approach because of a great dislocation between bone fragments and pathological fracture. Material for the pathohystological analysis was taken intra-operatively.

Results. Patient's early mobilisation and solid union of the fracture was achieved. PHD: cystis femoris.

Conclusions. PFNA is the best choice for optimal stability concerning pertrochanteric, intertrochanteric and high subtrochanteric fractures regardless of the cause of the fracture.

P016

Expert lateral femoral nail in treating femoral fractures – our experience

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Background. In 1958, the AO ASIF formulated four basic principles which have become the guidelines for internal fixation in general, and intramedullary nailing in particular. One of the means of intramedullary nailing is expert lateral femoral nail, indicated in treatment of fractures of the femoral shaft. (32-A/B/C combined with 31-B (double ipsilateral fractures).)

Methods. We analyzed 12 patients treated with the expert lateral femoral nail in our clinic during 2009. We considered age, type of fracture, mechanism of injury, early mobilisation after surgery, radiologic position of the nail and physical status 6 months after surgery.

Results. The average age of patients were 37.75 years, they all had fractures of the femoral shaft, 9 patients sustained fractures as a result of traffic accidents, and 3 patient as a result of falling. Three patients were polytraumatized and treated in the intensive care units. In 10 patients early physical therapy was started after surgery and continued at the rehabilitation ward. Radiologic placement of the nail was satisfactory in all 12 patients. On a 6-months check up 10 patients were walking, with full weight bearing of operated limb.

Conclusions. Our experience showed that expert lateral femoral nail was successful in treating femoral fractures also in younger patients, allowing them early mobilisation and return to every day activities.

P017

Diaphiseal fractures of lower leg – overview of treatment in Rijeka KBC

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Background. Diaphiseal fractures of lower leg are different from all the other fractures because one-third of tibia has no muscles cover and lies directly under the skin. Therefore, most tibial fractures are associated with an injury to the skin and subcutaneous tissues. The status of the skin is assessed first and determines the plan of treatment. The aim of this paper is to give an overview of treatment in Rijeka KBC and to compare it with the literature.

Methods. From January 1st 2008 to December 31st 2009, 123 patients were treated for diaphiseal fracture of lower leg. A retrospective statistical analysis of operative treatment, type of fractures, co-morbidity, anaesthesia, as well as early complications was done.

Results. There were 36% of fractures treated by intramedulary nailing, 46% by plate fixation and 18% by external fixation. 18% were open fractures, 10% of patients were politraumatized, while 90% were done in spinal block.

Conclusions. The state of the soft tissue cover remains the most important factor in the treatment and outcome of diaphiseal fractures of lower leg. In comparison with literature data, our results show no significant difference.

P018

Dislocated talus treatment with minimal invasive surgical methods

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Background. Dislocated talus is an infrequent and difficult injury. Open and closed total talar dislocation make up 0.06% of all dislocation injuries and 2% of all injuries to the talus. Subtalar dislocations make up approximately 1% of all dislocations.

Methods. In this work we present different methods used to treat dislocation of the talus, from percutaneous transfixation with Kirschner wires to percutaneous introduced cannular or cortical screws under fluoroscopic control.

Results. Minimal invasive methods have been shown to reduce possible infections, and size of scarring with satisfactory functional results. Likewise, the possibility of redislocation, which is common using conservative methods, is avoided using these methods for dislocated talus treatment.

Conclusions. Minimal invasive surgery is recommended, whenever it is possible, for the treatment of talar dislocation.

P019

Hospital trauma registry

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Background. Presenting the results of hospital trauma registry with review of POLO chart for polytraumatized patients.

Methods. Analysis of five year hospital trauma registry and patient survey according to POLO (Polytrauma outcome, Trauma outcome profile) scoping psychophysical outcome after sustained polytrauma.

Results. The results show severity of injury according to I.S.S., probability of survival based on TRISS method, and quality of living related to trauma based on trauma outcome profile. The results present functional capacity, physical condition and psychosocial wellfare, as well as personal satisfaction with condition and appearance.

Conclusions. The results show the necessity of trauma registry to be a base for further investigation of polytrauma sequelle. Using the POLO chart, it is possible to estimate more variables influencing the quality of living after polytrauma. Access to those data can specify the quality of polytrauma management and treatment: failures and possible improvements.

P020

Results of 10 years follow-up of cementless total hip prothesis with ceramic on ceramic bearings

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Background. Balkan is well known for its large number of dysplastic coxarthrosis that results from congenital and acquired aliments in childhood. This study is design to demonstrate the function of the hip after total endoprosthesis in patient with dysplastic coxarthrosis.

Methods. This is retrospective study of 470 primary total hip arthroplasty that were done between 1998 and 2008 year. Haris hip score was used for clinical evaluation. Radiographic evaluation was done by recording radiolucent lines seen on anteroposterior and lateral views of the operated hip, in three acetabular zones described by Delee and Charnely and the seven femoral zones dilineated by Gruen.

Results. In the period from 1998 till today we have not recorded any loosening neither acetabular nor femoral component. We registered two superficial infection of hematoma treated by prompt surgical evacuation. We had one case of posttraumatic ceramic head fracture. Functional Harris hip score results are shown in the sheet.

Conclusions. The results of our study support the continued use of cementless total hip arthroplasty with ceramic on ceramic bearings, press – fit acetabular shell and metaphysis ingrowth into femur.

P021

Corrective osteotomy of the malunited distal radius fracture: Use of periosteal bed may reduce the extent of postoperative graft resorption

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Background. The aim of this study was to compare osteotomy for malunited distal radius fracture with embedment of a corticospongious graft into a periosteal flap of the recipient bone (test) with the standard procedure (control) with respect to graft resorption.

Methods. A retrospective assessor-blind analysis of consecutive patients (test: $n = 19$, control: $n = 30$) was performed. Ulnar

tilt, palmar tilt and capitate-ulna distance were assessed from radiographs taken before, two to four days after and over three months after the surgery to determine loss of correction achieved by the surgery and estimate graft resorption during the postoperative period.

Results. In both unadjusted and adjusted comparisons, loss of correction of all parameters was lower in the test group ($p < 0.05$). The odds of ''none to mild'' resorption were greater in the test group with an adjusted odds ratio of 5.43 (95% confidence interval: 1.32–26.5, $p = 0.025$). Total graft collapse occurred in five of 30 controls and in none of 19 test patients.

Conclusions. Graft embedment into the periosteum may improve its preservation.

P022

''New and old'' in picture processing of bone and joint changes in surgical patients

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Background. Development of radiological technology in the past 30 years has changed significantly from previous conventional radiological treatment. The development of CT, MRI, tomosynthesis and use of radioactive isotopes has greatly changed the options of diagnostic procedures for traumatized patients, methods of treatment and insight into the healing of fractures.

Methods. Authors suggest the importance of individual radiologic methods in diagnostic of fractures, their advantages and capability that they provide.

Results. The paper points out the importance of CT tomography, 3D reconstruction, MRI, tomosynthesis and PET in particular traumatic changes and observation of bone healing during callus formation.

Conclusions. Current diagnostic possibilities of osteoarticular system represent and give a completely new understanding of extraarticular and intraarticular bone healing. We can be accurately informed about callus creation, bone remodeling, as well as the creation of posttraumatic arthrosis far earlier than can be observed clinically. We point out the importance and possibilities of individual examinations during the diagnosis and treatment of traumatized patients.

P023

Laparoscopic procedures for paraesophageal hernia

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The lecture bases on literature and own experience in treating paraesophageal hernia. The author presents a current classification of hiatal hernias, morbidity, diagnosis and outcomes of surgical treatment. The detailed description of operative technique with schemes and own movies is shown. The author performed 15 repairs of large paraesophageal hernias. An incarcerated omentum and stomach were found in 2 patients. In most cases simple closure of diaphragmatic defect was applied. Only in 2 cases the use of a mesh was necessary. In one patients a recurrent hernia due to physical exertion occurred in a 3-year follow-up; a successful laparoscopic repair was performed. In the author's opinion the laparoscopic repair of both incarcerated and reducible hernias should be considered as a ''gold standard''.

The Surgical Treatment of Cerebral Insufficiency

P024

Surgical treatment of supra-aortic trunk disease: Late graft occlusions

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Background. Surgical treatment of supra-aortic trunk disease is largely dependent on the type and extent of the disease process. Transcervical bypass is a procedure of choice for all single arterial lesions, except for those of the innominate artery, and for patients at high risk of thoracotomy. However, for younger patients with innominate artery or multiple lesions, a direct transthoracic approach via median sternotomy is preferred. Supra-aortic graft occlusions remain a special challenge for the vascular surgeon.

Methods. A retrospective analysis of patients treated surgically for diseases of the supraaortic trunks between January 2005 and December 2009 was performed. Results were analysed in terms of graft patency, and patients with late graft occlusions were selected for the report.

Results. Patients who presented with late graft occlusions due to progression of proximal atherosclerotic occlusive disease were successfully treated surgically. Moreover, one of those patients underwent selective fibrinolysis for the acute in-hospital thrombosis of the common carotid artery with cerebral ischemia, prior to reoperation, and successfully recovered.

Conclusions. Results of our case series underscore the importance of individualized and multidisciplinary approach to patients with supra-aortic graft occlusions, while supporting the concept of multiple revascularizations for symptomatic graft occlusions.

P025

Management of carotid artery stenosis – 4-year experience

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In this review we present our experience in management of carotid artery stenosis. During last four years (November 2005–December 2009), since the establishment of the Division of Vascular Surgery of the Surgical Clinic at the Dubrava University Hospital, 321 patients underwent carotid artery revascularisation. We analysed the total number of cases, the portion of the symptomatic, as well as the portion of subtotal stenoses in total number of managed cases. The 95% of the open surgical procedures were performed under the locoregional anesthesia. The majority of the patients had some of the cardiovascular comorbidities. Among the managed patients, 34.58% were symptomatic. We divided patients into two groups, regarding the grade of stenosis. The first group were the ones with subtotal stenoses (more than 90% of the carotid lumen). The others were classified as type A, (70–90% of lumen occluded by the plaque). The subtotal stenoses were found in 36.78% of the total man! aged cases. According to our experience 4.98% of all cases were diagnosed as the re-stenoses. The carotid endarterectomy (CEA) was mostly used therapeutic pathway, while only 6.54% underwent endovascular procedures (CAS, carotid artery stenting). The CAS was used in the management of the restenoses, stenosis of common carotid artery and also in the cases of the specific anatomical circumstances.

Minimally Invasive Pediatric Surgery

P026

Osteosynthesis of a comminuted femoral shaft fracture by elastic intramedullar pins in an 11-year boy

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Background. Eleven-year-old boy got wounded falling down from school fence.

X-rays examination: comminuted fracture of femoral diaphysis.

Methods. Percutaneus introduction of pin with reposition was done under X-rays control. Immobilisation was not placed postoperatively. Physical therapy started on second postoperative day.

Results. Clinically and radiographically orderly consolidated fracture. Full volume of movements, eutrophic musculature. Difference in length of extremities was not observed.

Conclusions. Major benefit of this method are minimal operative trauma and fast recovery.

Complications in Endoscopic Surgery

P027

Placing the first troacar in laparoscopic procedure

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Background. Recently we witnessed some complications in placing a troacar which had a fatal outcome. We would like to present the method of placing the first troacar which we use in our hospital, and we believe it is safer comparing to the other methods. In our method, we reach a part of the white line above the navel with grapple by Backhause. After that, we place Veres's needle and achieve pneumoperitoneum. We remove one of the grapple and place the first troacar.

Methods. We took photos of the procedure of placing the Veres's needle and the first troacar. It is observable that fascia is lifting off intraabdominal structures. In the entire number of procedures the percentage of complications is small but present.

Results. In our hospital there was a large number of performed laparoscopic operations. This method of placing the first troacar isn't deprived of complications, but number of complications with fatal outcome has decreased.

Conclusions. There are more ways of placing the first troacar, and we consider this method less hazardous towards a patient.

P028

Laparoscopic cholecystectomy during pregnancy – case report

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Background. Cholelithiasis is diagnosed in 0.07% of pregnancy and in about 40% of these patients surgery may be required. Pregnancy was once considered an absolute contraindication for laparoscopic surgery, but pregnant patients undergoing laparoscopic surgery have been reported increasingly in the past decade. Laparoscopic cholecystectomy can be performed in all tree trimester of pregnancy.

Methods. We report one case of laparoscopic cholecystectomy during pregnancy. Patient had laboratory and ultrasound diagnosis of acute cholecystitis in the second trimester of pregnancy at a gestational age of 26 weeks. First port we placed by Hasson technique, few centimeters cephalad to fundal height. Insufflation pressure was 12 mmHg, and duration of procedure was 85 min.

Results. We had no intraoperative and postoperative complications, and patient was discharged on the second postoperative day. Patient delivered healthy babies at full term.

Conclusion. Pregnancy should not be considered as contraindication to laparoscopic cholecystectomy and can be performed safely, with minimal risk to the mother and fetus.

It requires cooperation between surgeon and the obstetritian, but also surgeon must be skilled in advanced laparoscopic techniques.

P029

Laparoscopic placement of peritoneal dialysis catheter with long preperitoneal tunnel: method and results

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Background. Laparoscopic placement of peritoneal dialysis catheter has shown to be safe and effective due to improved instruments and technique. For the last two years we have placed 9 catheters with new laparoscopic method which we consider to be more efficient than previous.

Methods. The pneumoperitoneum was achieved by using a Veres's needle placed at the left midclavicular subcostal line. First 5 mm trocar was introduced at the same place for mini laparoscopic camera. Under visualization second 5 mm trocar was placed into the left lower quadrant for intraperitoneal manipulations. Last incision was placed 1 cm above the umbilicus, with Kelly clamp peritoneum was reached and then peritoneal dialysis catheter was passed through a preperitoneal tunnel until the tip was placed into the pelvis. Outer end of peritoneal dialysis catheter was pulled out in the left lower quadrant of abdomen at initial place of second trocar.

Results. The mean operating time was 23 min. There was no intraoperative complications and morbidity. At the same time we repaired one umbilical hernia. In 2 cases we had complications such as leakage and catheter occlusion which were successfully solved.

Conclusions. Our experience showed that newly adapted technique of laparoscopic placement of peritoneal dialysis catheter should be a method of choice. Dialysis was successfully started 2 weeks after placement of catheter.

P030

Total parathyroidectomy without autotransplantation in severe refractory renal hyperparathyroidism

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Background. The optimal surgical treatment of patients with refractory renal hyperparathyroidism (RHP) on hemodialysis for end stage renal disease is still a point of controversy. The high percentage of recurrences after subtotal parathyroidectomy (STPTx) or total parathyroidectomy with autotransplantation (TPTx + AT) reactualised the practice of total parathyroidectomy (TPTx).

Methods. Forty-two patients underwent PTx for HPR. There were 23 STPTx, 6 TPTx + AT and 13 TPTx. In the first two standard surgical procedures the percentage of recurrences was 20.7%(6 cases) so in the last 5 years we performed TPTx in a series of 13 patients: 7 men and 6 women with median age 43 years and median dialysis time before PTx of 8.1 years.

Results. Indications for surgery were refractory RHP with grossly elevated iPTH. TPTx was done in 12 patients in the 13th one a completion PTx being performed one year after outward surgery which excised only two glands. Postoperatively the main symptoms and the calcemia markely normalised together with a low PTH level but no one presented permanent hypocalcemia or recurrent HP at 4–60 months after parathyroidectomy.

Conclusions. TPTx + AT proves to be an equally safe and successful as another methods anulating the risk of recurrences and eliminating the hyperparathyroid status especially in patients with an agressive form of RHP without the prospect of renal transplantation.

Residents Paper Competition

P031

Changes in surgical treatment of colorectal cancer in General County Hospital Požega

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Background. The advent of new diagnostic and therapy options has radically changed the treatment of malignant diseases. Surgery of colorectal cancer has also evolved, even in some small county hospitals. This retrospective analysis was performed in order to clarify changing patterns of colorectal cancer surgery in our department.

Methods. We have studied 543 surgically treated patients with colorectal cancer in the past 20 years. Analyzed variables were: age at the surgical moment, sex, localisation of the tumor and type of surgical procedure. Patients were divided into two groups: the first (patients operated from 1990 to 1999) and the second (patients operated from 2000 to 2009).

Results. The total number of cases has risen from 208 in the first group to 335 in the second group. No significant differences were observed in sex, age or tumor site in the two groups. However, significant difference occurred when the types of operations were reviewed. There was a mild increase in number of all types of primary segmental resections with anastomosis, but number of anterior resections of rectum increased beyond expectations (approximately 161%). In contrary, the number of palliative operations for colorectal cancer markedly declined (for about 55%) in the second group.

Conclusions. We conclude that early diagnosis and modern surgical devices have a positive impact on the type of colorectal surgery procedure selection.

Free Topics

P032

A new system of cementless hip replacement with a screw based fixation

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Background. The Scyon Orthopaedics AG has developed a novel concept of cementless stem fixation that highly reduces influence of stress shielding on stability of the THA. The Scyon THR stem provides permanent anchorage through bony ingrowth from the medial cortex without coupling to the lateral cortex. Stability required for ingrowth is implemented by locking mono-cortical screws tapped trough the medial cortex and locked in the stem.

Methods. During implantation of the THA, insertions of Tantalum beads into specific areas of pelvic bone and femur were performed for the purpose of radiostereometric analysis. All patients were invited for follow-up examinations at 6 weeks, 6 months, and 1 year. At every follow-up examination patients underwent to RSA as well as standard X-ray evaluation.

Results. The 1 year follow-up results have shown excellent functional recovery and radiographically notable bony ingrowth from the medial cortex without additional bony integration from the lateral cortex. The average stem subsidence after 6 months was -0.01 ± 0.16 mm and after 1 year -0.14 ± 0.21 mm.

Conclusions. We believe that this new implant may decrease aseptic loosening rate of the THA by a more reliable fixation of the femoral stem, which diminishes stress shielding of the proximal femur.

P033

Anorexia – Cachexia syndrome on the advanced colorectal cancer patients: Our observations

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Background. Cachexia is a complex syndrome characterizing the clinical course of different diseases, either acute and chronic, eventually leading to increased morbidity and mortality: approximately. 20–40% of cancer deaths are thought to be related directly or indirectly to the presence of cachexia. It is more common in pts with lung and upper gastrointestinal tract cancer and less common in breast and lower gastrointestinal cancer.

Methods. In 20 male colorectal cancer pts, pre stratified by weight loss $\geq$10 or weight loss.

Results. Compared to the pts with weight loss.

Conclusions. In CACS of the advanced colorectal cancer-related weight loss and BCM-wasting are associated with systemic inflammation, increased-acute-phase response and reduced levels of IGF-I. A decreased BCM was also related to hypermetabolism. Reduced testosterone levels were present in the pts with severe weight loss, although a significant direct association with a decreased BCM was lacking.

P034

Patency length predictors in femoropopliteal bypasses

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Background. Objective of the work: to establish predictors of patency of femoropopliteal bypasses on the basis of personal experience and medical literature.

Methods. Documentation study and comparative methods have been used as well as graded regressive analysis.

Results. One hundred and forty-seven femoropopliteal bypasses were made in 131 patients. One hundred and four bypasses were made with the great saphenous vein and 43 with the prosthesis. During the postoperative course 48 bypasses got occluded, 26 of which made with the great saphenous vein and 22 with prosthetic graft.

Conclusions. In patients with arterial occlusive diseases of the femoropopliteal segment, on the basis of the patient's age, sex, hormonal replacement therapy, degree of circulatory insufficiency, preoperatively established low runoff index, and the type of femoropopliteal bypass (whether it was made with the great saphenous vein or prosthetic graft, and whether it was an above-knee or below-knee bypass) the length of patency of femoropopliteal bypasses can be predicted.

P035

Analysis of a group of patients suffering from arterial occlusive diseases in the femoropopliteal segment in the Istrian County

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Background. Arterial diseases nowadays represent a widespread phenomenon of epidemic character, and in this work we have tried to analyze certain characteristics of patients suffering from arterial occlusive diseases in the femoropopliteal segment, as these diseases are connected with the possible occurrence of gangrene in legs and consequently with the amputation of the

lower limbs, thus considerably disabling the patients and shortening their lifetime.

Methods. Methods and subjects: Documentation study and comparative method have been used. The subjects were patients operated in the General Hospital of Pula, in the period from January, 1st, 1991 to December, 31st, 2001.

Results. Although a femoropopliteal bypass has been made, in 48 cases the bypass got occluded, and in 26 cases gangrene occurred and an amputation had to be done.

Conclusions. (1) Arterial occlusive diseases in the femoropopliteal segment in the group of patients followed-up in the Istrian County occurred 3 times more frequently in patients living in the urban environment than in those from the country. (2) Almost 50% of patients came with the intermittent claudication and 50% with the critical limb ischemia. (3) Arterial occlusive diseases in the femoropopliteal segment in the group of patients followed-up occurred 2.2 times more frequently in patients from the coastal region than in those from the interior of the County. (4) In the group followed-up the occlusion of arteries in the femoropopliteal segment occurred 5.5 times more frequently in men than in women. (5) After femoropopliteal bypasses have been made almost in 18% of cases gangrene developed and an amputation had to be done.

P036

Indications and contraindications for application of prostheses in femoropopliteal segment of arteries

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Background. The objective of this work is to establish indications and contraindications for the application of prostheses in arterial occlusive diseases of the femoropopliteal segment.

Methods. Documentation study has been used in this research; both domestic and foreign relevant literature has been studied. Comparative method has been also used allowing us to establish differences and similarities of results of researches being made so far.

Results. One hundred and forty-seven femoropopliteal bypasses were made in 131 patients. One hundred and four bypasses were made with the great saphenous vein (70.74%) and 43 with the prosthesis (29.26%). During the postoperative course 48 bypasses got occluded, 22 of which made with the prosthetic graft and 26 with the great saphenous vein.

Conclusions. A prosthetic graft in a femoropopliteal bypass is not recommended in the following cases: young patients below 40 are special risk group, in the below-knee bypass, in patients younger than 65, diameter smaller than 7 mm, with a low runoff index, stage of intermittent claudication. The following elements are in favour of the application of the prosthetic bypass: patients older than 65, with a diameter of 7 mm or more, mainly with patients with limited vein conductivity, above-knee bypass is recommended only with the patients in the stage of critical ischemia, the PTFE prosthesis is recommended only for the above-knee bypasses.

P037

The relationship between factors of risks for arteriosclerosis development and gangrene occurrence after femoropopliteal bypasses

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Background. Based on examination results and medical literature, the aim is to determine if gangrene occurrence after the occlusion of femoropopliteal bypasses is more common with patients having factors of risks for arteriosclerosis development or not.

Methods. The documentation study and the comparative method have been used in the study. The factors of risks for arteriosclerosis development like smoking, diabetes and hypertony have been examined.

Results. The examinees were patients from the Pula General Hospital which underwent surgery in the Department for surgical illnesses in the period from 1 January 1991 to 31 December 2001. One hundred and thirty-one patients underwent surgery in this period. Twenty-one of them were female and 110 male. One hundred and forty-seven femoropopliteal bypasses were made. In the postoperative period 48 bypasses occluded and gangrene occurred in 26 cases so the relationship between risks factors for arteriosclerosis (smoking, diabetes and hypertony) and gangrene occurrence after the femoropopliteal bypasses has been examined.

Conclusions. A statistically important difference in gangrene occurrence with occluded femoropopliteal bypasses between smokers and non-smokers, diabetics and non-diabetics and hypertensive and non-hypertensive patients has not been found.

P038

Results and complications of angular–stable plate fixation of 3-part and 4-part proximal humeral fractures in osteoporotic patients

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Background. Despite recent advances in operative techniques, internal fixation of (3- and 4-part) displaced proximal humeral fractures in elderly patients with osteporotic bone remains contraversial, sometimes followed with poor results. The aim of the present study is to evaluate outcome of internal fixation with locking plate of multiphragmentary proximal humeral fractures in elderly patients.

Methods. The study cohort comprised 59 consecutive patients (average age 70.1) with 3- and 4-part fractures who had undergone open reduction and internal fixation with locked plate at the University Hospital 'Sisters of Mercy'', in Zagreb,

Croatia. All patients were invited for follow-up examinations and underwent standard X-ray examination preoperatively to asses fracture pattern in the operating theatre as well as 6 weeks, 3 and 6 months, 1 year and than annually after surgery to asses fracture healing or complications. Clinical outcomes were measured by Constant score.

Results. The overall complication rate was 27.1%. The mean Constant score after 1 year follow-up for 3-part fractures was 70.2 points vs. 64.2 ($p < 0.0001$).

Conclusions. Despite relatively high overall complication rate, internal fixation with locking plate provides good functional results in treatment of osteoporotic complex proximal humeral fractures.

P039

Comminuted distal lower leg metaphyseal fracture of a professional athlete, and his excellent recovery

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Background. While alpine skiing, a 39-year-old male professional skater fell resulting in a comminuted fracture of his left distal lower leg. He was transported to the nearest hospital, but after amputation was the suggested treatment for his injury he chose to take a taxi to his home hospital, where 13 hours after injury he was immediately taken into surgery.

Methods. Osteosynthesis of the distal left tibia was performed, and the surrounding soft tissues were saved. Intensive physical rehabilitation with a special program for athletes was also prescribed.

Results. Recovery was successful, after 6 months the patient returned to his athletic schedule, with a full recovery without complications after 1 year.

Conclusions. The excellent results of the healed bone fragments and the surrounding soft tissue were due to correct surgical treatment and early mobilization of the patient.

P040

Experiences in department of surgery in Bjelovar with patients in an advance stage of male breast cancer

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Background. Male breast cancer (MBC) is a diagnosis which is, unlikely from the female breast cancer, very rarely found and it is concerned as a disease comprising about 1% of all breast cancers. As compared to women breast cancer, MBC has some similarities and also some particularities related to age, comorbidities, breast volume, diagnostic delay, prognosis and survival.

Methods. Our last patient was a 67-year-old male patient with poor personal health self awareness, alcohol cirrhosis, positive female family history of breast cancer came to our Department due to a tumor mass of his left breast which he carried for the past 7 years without any previous medical checkups. Standard methods of detection were used – physical examination, mammography, ultrasound and cytological examination after needle aspirated biopsy.

Results. With data collected in the period 1980–2009 we found 80 male patients hospitalized and treated due to changes in breast tissue. Pathohistological findings in 68 cases were gynecomastia, in two cases fibro adenoma and in two cases lipoma. Invasive carcinoma has been found in 8 patients aged 60–78 years. Clinical examination showed breast augmentation, retracted nipple and in two patients ulceration. Augmented lymph nodes have been found in 7 patients; one of them had a large bleeding ulceration and in 3 cases we found distant metastasis as well. The breast cancer in five cases was in an advance stage, the age of the diagnosis was in an average 12.5 years later than in women. The shortest age of diagnosis varied from one month to 7 years. Two of the patients had a female breast cancer in close family, one had a history of breast blunt trauma and one was on a hormonal therapy. 62.5% (5 patients) had a breast cancer on their left and 37.5% (3) on their right breast. Pathohistological characteristic of men's breast cancer correspond to women's. The treatment for each patient depended on clinical status of tumor, age and general condition. One of the patient had a radical mastectomy, six of them had MRM and one patient had a simple mastectomy so called ''sanitary ablation'' which had a palliative role with an aim to stop further bleeding from the ulcerated cancer as well as to reduce tumor mass as much as possible.

Conclusions. Male breast cancer is rarely found in comparison to female breast cancer. So fare screening program for MBC doesn't exist. Early signs of the disease are often misinterpreted by the physician and the patient themselves. Treatment of a MBC is often similar to treatment of female breast cancer. Final results of the treatment are not favorable due to the fact that the treatment usually starts too late.

P041

Diosmin as a supplement in varicose vein surgery

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Background. The aim of this study is to show the benefit of combined treatment of vein surgery and Diosmin.

Methods. We examined 46 legs in 42 patients with lower extremities primary varicose veins, operated last year in our hospital. Ligatures and stripping of grate saphenous vein and stab phlebectomy were performed in all cases. In main group with 20 legs we made phlebectomy and prescribed Diosmin (PHLEBODIA 600), one week before and one month after operation. In control group we made only phlebectomy. In all patients we made preoperative and post operative color duplex sonography scanning. During follow-up period we made postoperative evaluation after seven, 30 and 90 days. We observed limphoedema and subcutaneous haemorrhagia. Sub-

jective symptoms like pain (measured by pain severity scale 0–10); limb heaviness and fatigability, better exercise and orthostatic tolerance were noted.

Results. In main group we noticed less subjective symptoms and lower subcutaneous hemorrhage. In follow-up period we noticed better rehabilitation in patient in main group then control group. Quality of life measured with short form show benefit of this treatment between main and control groups.

Conclusions. Phlebodia 600 in pre- and postoperative period after phlebectomy greatly helps patient rehabilitation with lower pain syndrome, postoperative hematomas and quality of life.

P042

Amputation neuroma of the bile duct: a rare cause of hepato-biliary obstruction

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Background. Amputation neuroma is a rare benign bile duct tumor that arises mostly from the cystic duct stump after open or laparoscopic cholecystectomy. It may cause biliary stricture, cholangitis and it is difficult to diagnose it before surgery.

Methods. We report two cases of patients with recurrent cholangitis after surgery for iatrogenic biliary stricture and extrahepatic amputation neuromas.

Results. A 58-year-old man was submitted to open cholecystectomy for gallbladder emphysema, 3 months after he needed hepaticojejunostomy for inflammatory biliary stricture. Two years from last operation he had biliary ristricture. At operation he had neuroma occluding the anastomosis, it was resected and a new Roux-en-Y anastomosis was performed. The second patient, a 54-year-old woman, was submitted to laparoscopic cholecystectomy with iatrogenic injury and subsequent biliary reconstruction. She needed endoscopic biliary stenting for new stricture. The stent was removed after 3 years with new biliary reconstruction. After 12 years from first operation the patient was admitted for recurrent cholangitis and biliary stenosis: at operation a neuroma of the bile duct was removed and hepaticojejunostomy was performed.

Conclusions. Surgical resection and biliary Roux-en-Y anastomosis is still the operation of choice in neuromas of the bile duct.

P043

Triple-negative breast cancer with extracapsular extension of axillary lymph node metastasis: Prognostic importance

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Background. Triple-negative breast cancers (TNBC) are defined by a lack of expression of estrogen, progesterone, and ERBB2 receptors. We compare the clinical features and prognosis of association of triple-negative breast cancer with extracapsular extension of axillary lymph node metastasis.

Methods. From January 2000 to December 2009, 591 breast cancer patients operated in General hospital ''Sveti Vracevi'' in Bijeljina. We selected 301 (50.9%) patients with breast cancer who had metastases to axillary lymph nodes.

Results. Extracapsular extension (ECM) was found in 122 (40.5%). Eighty-three patients (14%) were classified as TNBC. The patients were identified and divided into two groups: 22 patients with triple-negative breast cancer with extracapsular extension of axillary lymph node metastasis (TNBCECM) and 14 patients with triple-negative breast cancer without extracapsular extension of axillary lymph node metastasis (TNBCICM). With a median follow-up of 108 months factors with independent prognostic value for disease-free survival by multivariate analysis included TNBC with extracapsular extension ($p < 0.005$), pN category ($p < 0.01$), and presence of lymphovascular invasion (LVI; $p < 0.005$).

Conclusions. In patients TNBCECM prognosis was significantly worse compared with those who were TNBCICM. These findings have led to the conclusion that TNBC is associated with a more aggressive subtype of cancer.

P044

Metastatic melanoma to gastrointestinal tract: 2 cases with the review of the literature

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Background. Metastatic melanoma is often associated with spread to the GI tract. The incidence of GI metastases is around 4–10% with the distribution in autopsies as follows: liver 68%, small bowel 58%, colon 22%, stomach 20%, duodenum 12%, rectum 5%, esophagus 4%, and anus 1% but these data vary with small bowel being the most frequent.

Methods. Clinically metastases manifest in 7–10% of patients. Metastases may present both at the time of the diagnosis of primary melanoma or even decades later sometimes as the first sign of recurrence. Symptoms mimic those of other GI tumors and suspicion of GI tract metastases in patients who have a history of melanoma should be raised.

Results. We present 2 cases from 2005 to 2009 with metastatic melanoma to GI tract. First was metastasis to small bowel causing intussusception and obstruction with emergent resection 2 years after upper leg cutaneous melanoma. Second case is the third described in the literature to greater omentum with diameter of 20 cm adjacent to transverse colon presenting as abdominal mass with pain without obstructive symptoms 2 years after epipharyngeal melanoma. Elective omentectomy with resection of adjacent transverse colon was performed.

Conclusions. The prognosis is poor with mean survival less than a year and 5-year survival is less than 10% depending on several prognostic factors. Treatment includes surgical resection and/or chemotherapy, and immunotherapy.

P045

Multicystic nefroma: A rare entity causing diagnostic dilemmas

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Background. Multicystic nefroma (MCN) is a rare benign tumor of the kidney. Less than 200 cases have been described in the literature and less than 10 cases have been published in Greek literature up to date. We present the diagnostic and therapeutic approach of a patient presenting radiodiagnostic findings of multilocular cystic mass of the right kidney.

Methods. A 77-year-old man came to the outpatient facilities of our institution referring mild persistent right flank pain. The patient underwent abdominal U/S demonstrating multicystic mass of the right kidney. He also underwent abdominal CT and MRI revealing both multilocular cystic mass at the inferior pole of the right kidney with multiple septa, non particularly enhanced after intravenous administration of contrast essence (diameter: 6.5×5 cm). Imaging study could non exclude the malignant character of the tumor.

Results. The patient underwent nephrectomy. Surgical specimen revealed mulicystic mass of the inferior pole of the right kidney containing serous fluid and pathology report described benign multicystic nefroma.

Conclusions. Preoperative diagnosis of MCN is impossible and surgical treatment is diagnostic and curative. Lack of experience in the treatment of these rare tumors imposes a systematic follow-up of these cases.

P046

Breast cancer surgery and quality of life

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Background. Breast cancer is accountable for 24% of malignancies in Croatian woman with incidence of 2300 cases annually. In most European countries there is a trend of increasing incidence and reducing mortality due to efficacy and quality of screening programs and treatment protocols. Therefore, reduction of morbidity and quality of life has an increased value in choice of treatment.

Methods. This study aimed to identify and examine the effects of cancer stage and type of surgical treatment on quality of life of breast cancer patients at Clinical Hospital ''Sestre milosrdnice'' who underwent surgical treatment with either modified radical mastectomy (MRM) or breast conservative surgery (BCS), plus adjuvant chemotherapy.

Results. In our study we used The European Organization for Research and Treatment of Cancer Core Cancer Quality of Life Questionnaire (EORTC QLQ-C30) with its addition for breast cancer patients (EORTC QLQ-BR23).

Conclusions. Breast conservative treatment was expected to have a better impact on QoL than mastectomies in short term studies. Long term evaluations are to scarce to enable significant reference point.

P047

Revision modular prosthesis in treating gamma nail osteosynthesis complications: Case reports

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Background. Revision modular prosthesis is one of the operative methods of treating a proximal femoral fracture with the loss of median base. The prosthesis consists of three parts: femoral stem, the neck and the head of prosthesis. Modular system allows 168 different combinations of prosthesis lengths and neck angles with different angulation of anteversion.

Methods. In total we implanted 127 short and 20 long gamma nails; during postoperative follow-up we had 3 patients with complications after gamma nail osteosynthesis; 2 cut outs and one secondary offset of fracture fragments. All three complications were treated by implantation of revision modular cementless prosthesis. The average age of the patients was 76.33 years.

Results. An early physical therapy was started in all patients while on traumatology ward and continued later at home. All patients reported decrease of pain in the operated limb.

Conclusions. The use of modular revision prosthesis is a demanding surgical method that acquires good primary stability of prosthesis without presence of median base. Modular system of the neck and the stem allows precise selection of the stem size for the femur, neck length to replace pertrochanteric part and the fractured neck, with precise angulation of anteversion and the neck angle, all necessary to gain satisfactory movement in hip joint.

P048

Surgical treatment of primary hyperparathyroidism

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Background. Primary hyperparathyroidism (HTP) is disease of parathyroid glands with high level of PTH, enlargement of glandular cell mass and disorder of function. Cause of HTP is adenoma, hyperplasia and carcinoma. Clinical signs are hypercalcemia and effects of PTH on the target organs. Skeletal disorders are osteofibrosis and osteoporosis. Renal signs are nephrolithiasis and calcinosis. Signs for diagnosis are hypercalcemia, high PTH and calciuria. Ultrasound, CT, MR, angiography, venous catheterization and biopsy are used for diagnostic. Indication for surgery is symptomatic and asymptomatic HTP.

Methods. In 2005–2010, 21 procedures were performed in patients with HTP (18 females, 3 males). Average age was 63. Sternotomy was performed in patients with mediastinal localization. Minimal invasive video assisted parathyreoidectomy was

performed in 6 patients. Thirteen patients were treated by collar incision.

Results. The extirpation of parathyroid gland by collar incisions was performed in 13 patients. Six were operated by MIVAP. Sternotomy was performed in 2 patients due to mediastinal localization. Hyperplastic gland was found in 17 and adenoma in 4 patients.

Conclusions. The most frequent cause of the HTP is uniglandular hyperplasia, commonest at the elderly women. Collar incision is sufficient method in most of the cases. Mediastinal localization requires sternotomy. Results of treatment are measured by level of the PTH and Ca.

P049

Surgical treatment of the Paget's disease of the breast

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Background. Paget's disease of the breast is malignancy of the nipple-areola complex. It could be associated with an underlying in-situ or invasive carcinoma. The common signs of the Paget's disease are persistent soreness with itching and eczematoid changes of nipple and areola. In more than 50% of the cases are present palpable masses. A standard treatment of biopsy-proven Paget's disease involves mastectomy with the radio-therapy. Some studies have proposed the use of the breast conservation therapy for patients in whom an underlying invasive breast cancer cannot be located.

Methods. Thirteen female patients with the Paget's disease were treated in our clinic in the 2004–2009 period. Average age was 54. Intraoperative analyses were performed in all cases.

Results. In 3 of the cases were found Paget's disease without other pathology. In 5 of the cases Paget's tumor was found as coincidental tumor during the analysis after mastectomy. In 5 of the cases Paget's disease was accompanied with palpable malignant breast tumor and the mastectomy with the axillar dissection were performed in 4 of the cases. In one case Paget's disease was accompanied with small DCIS and only broad excision was performed.

Conclusions. Breast conserving surgery followed with RT is sufficient method for the isolated Paget's disease and associated small in situ carcinoma. In all other cases mastectomy is necessary procedure.

P050

Temperature changes during callus formation

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Background. In fibrous formation phase in bone fractures and during migration to osteoblastic activity blood flow around fracture site increases during callus formation.

Methods. We have examined 25 patients with fractures of distal radius in typical place, and performed a recording with infrared thermographic camera on the 7th day after fracture, 21st day after fracture and after the treatment with conservative immobilization had finished. We used the other healthy hand as comparison. An X-ray examination was made on the same day for comparison with thermographic recording.

Results. During our preliminary research statistically significant temperature changes have been recorded during different stages of callus formation.

Conclusions. Increase in blood flow around the fracture is increasing the temperature of surrounding tissue which can then be detected with infrared thermographic camera. Statistically significant temperature changes have been found during this research.

P051

Benefits of Mölndal technique in treatment of postoperative wounds

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Background. The Mölndal technique was developed in Sweden using a hydrofibre dressing with secondary transparent film dressing and has been shown to reduce the occurrence of postoperative blistering. The technique uses either Aquacel or Aquacel Ag dressings, covered with a film dressing.

Methods. We have evaluated the efficacy of Mölndal technique treatment of postoperative wounds in 10 patients after mastectomy compared with traditional technique used in treatment of another 10 patients after mastectomy. The purpose was to describe the benefits of applying the Mölndal technique, which is 100% composed of sodium carboxymethylcellulose and transparent polyurethane film, in treating surgical incisions compared with using the traditional technique which consists of gauze compresses.

Results. All wounds treated with Mölndal technique using Aquacel or Aquacel Ag dressings in relation with wounds treated with traditional technique using gauzes showed lower incidence of signs of inflammation, less risk of crossinfection, reduced nursing time as a result of fewer dressing changes and reduced skin blistering which can ultimately reduce hospital time for patients.

Conclusions. Mölndal technique showed better results in treating postoperative wounds in relation with traditional technique.

P052

Comparison of incidence before and during the "National program for early detection of colon cancer"

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Background. The subject of this poster is to show the number and distribution of suffering from colon malignancies according to sex, age, stage at the time of diagnosis and the standardized incidence per 100,000 population diagnosed and operated in the department of surgery ''OB Vinkovci'' and comparison of incidence before and during the ''National Program for early detection of colon cancer''.

Methods. We used pathohistological and operational protocols for the collecting of information about surgery and colon malignancies found in OB ''Vinkovci''. In addition, we used statistical methods to calculate standardized incidence per 100,000 population and distribution by sex and age.

Results. We have observed and compared the newly operated patients in the OB ''Vinkovci'' in the period from 2000th to 2007th before the national program and 2008th-2009th during the national program. Before the national program was implemented and we have operated on 299 patients, and during the national program we have operated on 124 patients. The poster shows comparison of the incidence and distribution by sex and age.

Conclusions. Implementation of the ''National Program for early detection of colon cancer'' significantly increased the number of newly discovered patients with colon malignancies, but it should be noticed that distribution by sex and age remained similar.

P053

Intraarticular calcaneal fractures – comparison open versus closed reduction in the same patient (case report)

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Background. The standard treatment of calcaneal fractures (type IV Sanders classification) is open reduction and fixation with lateral plate. Recovery period lasts about 4 months. We presented 23-year-old patient with both calcaneus fractures.

Methods. CT of right calcaneus showed type IV of Sanders classification and on the left is made classical X-ray images evaluated as type V of Rowe. We approached to the treatment of both calcanei in one act. Right – open reduction and fixation with lateral plate, left – closed reduction (with Steinman pins) and percutaneous fixation with K wires (located under the skin).

Results. Postoperation X-ray images – right neat site of fragments and plates, left satisfactory position of K wire of the fragments. Second postoperation day the patient started physical therapy stretching ankle. Motions of right foot are slightly reduced whit greater pain compared to the left. Six weeks after the patient began with slightly but both load calcanei. Twelve weeks after, the patient walked without crutches with full load. Movements in both ankles are completely tidy.

Conclusions. Closed versus open method showed an excellent result, well-preserved tissues, and movement better than the open method, the same period of treatment, with easily remove osteosynthetic material.

P054

Implantation of cardiac pacemaker in Dubrovnik General Hospital

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Background. The aim of this paper is to show our experience in the implantation of the cardiac electrostimulator (pacemaker) in Dubrovnik General Hospital in the period 2006–2009.

Methods. Implantation of pacemakers in Dubrovnik General Hospital began in October 2006. The project began with education surgeons and cardiologists in the domestic and global medical centers, and all resulted in the first implantation in 2006.

Results. Since then, the year in Dubrovnik General Hospital were implantated pacemakers about 100. About 70% of that are VVIR and about 30% are DDD. We educate and ICD implantation, and plans to implant the device for about 5 per year and is now funding is the only reason why we have not yet started with the same. The entire process of implantation of electrodes and electrostimulator fully carried out by the surgical team with a successful collaboration with the Department of Cardiology in our hospital. The paper analyzed previous experiences and results.

Conclusions. Number of annual heart implantation electrostimulator fully justify the performance of these procedures in Dubrovnik General Hospital, regardless of the financial costs that are still clearly lower than that of surgery patients and control of batteries are sent to other medical centers.

P055

Advantages of MRI diagnostics in posttraumatic avascular necrosis (case report)

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Background. Highlighting the advantages of MRI over X-ray images for diagnosis and evaluation of aseptic necrosis of the femoral head and highlighting the difficulty of diagnosis and accurate evaluation of aseptic necrosis of the femoral head using conventional X-ray images.

Methods. 19 Year-old male is presented with limping and sudden pain in right hip after healed mediocervical femoral neck fracture. Months of monitoring and X-ray evaluation did not confirm suspicion of avascular necrosis of the femoral head with certainty. By using MRI, avascular necrosis of the femoral head has been proven and accurately located.

Conclusions. The area of posttraumatic avascular necrosis of the bone has been best shown, exactly located and measured by MRI.

Breakfast with Professor

P056

Synchronous CRLM: Simultaneous or delayed resection?

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Synchronous colorectal liver metastases (CRLM) are detected before or during removal of the primary tumor in 25% of the patients. Hepatic resection for synchronous CRLM, which constitutes the only treatment offering a chance of cure, can be delayed or performed simultaneously with the primary tumor resection. However, the level of evidence to recommend a delayed or simultaneous resection of the primary tumor and of liver metastases still is low as no result of randomized study are yet available.

Several arguments are in favour of a simultaneous resection. They include oncological reasons, comfort of the patients, cost benefit and successful reported retrospective series. From a technical point of view the colorectal resection should be achieved before liver resection : (1) to avoid tissue oedema due to hepatic pedicle clamping and (2) to lead the possibility to postpone liver resection in case of technical problem or septic contamination of the abdominal cavity which may occur during the primary tumor resection.

In 1992 the French Surgical Association (AFC) conducted a multicentric French survey by collecting the data of more than 1800 patients operated on for colorectal liver metastases. The results of this survey showed that the mortality rate after simultaneous and delayed resection were similar in case of minor hepatectomy. However, the mortality rate was significantly higher in the simultaneous group in case of major hepatectomy. Subsequently, the presumed good candidates for an elective simultaneous resection were patients presenting a right colon adenocarcinoma and requiring a minor hepatectomy. Then, due to the development of mechanical suturing devices and the progresses in techniques of liver surgery, the selection criteria for a simultaneous resection were extended to patients presenting with left colon and upper rectal adenocarcinomas, and to those requiring a major liver resection. The early postoperative outcome as well as survival rates were similar after simultaneous or delayed resections.

Our overall experience concerns 245 patients operated on for synchronous colorectal liver metastases (163 with colonic and 82 with rectal adenocarcinoma). Among them, 58 patients underwent a simultaneous resection and 187 a delayed procedure after a mean interval of time of 6.7 ± 0.4 months. In the delayed resection group, 155 patients had their primary tumor resected before they were refered to our institution and in the remaining 32 patients we decided to postpone the liver resection. The length of hospital stay as well as the mortality, morbidity, transfusion and survival rates were similar in both groups.

In order to obtain such results several exclusion criteria for a simultaneous resection should be considered. Indeed, a small future remnant liver volume, an urgent surgery including bowel obstruction or perforation, the presence of a poor general condition and severe associated comorbidities, and finally the presence of unresectable extra hepatic disease constitute absolute contrindication for a simultaneous resection. Some contraindications are relative such as an aggressive cancer disease including more than 5 liver metastases, high preoperative carcinoembryonic antigen level, presence of extra hepatic resectable deposits or altered liver parenchyma particularly alterations induced by chemotherapy (steatofibrosis or sinusoidal obstruction syndrome).

In selected cases of multiple and bilobar liver metastases requiring a two-stage hepatectomy with or without portal vein embolization, a simultaneous resection of the primary colorectal tumor and of the left hemi-liver metastases may be combined together achieving the first-stage hepatectomy. This procedure may be performed by a laparoscopic approach. The role of neoadjuvant chemotherapy, particularly the modern chemotherapy regimens (oxaliplatin, irinotecan, avastin and erbitux), is indicated in the management of synchronous liver metastases. The improvement of the response rates have allowed to extend the indications for a simultaneous resection after a preoperative evaluation of liver function and parenchyma. The results of the ongoing prospective randomized french multicentric trial will help to definitively recommend one or the other surgical approach.

Breakfast with Professor

P057

Innovation in surgery – find your way!

L. Lantsberg

Soroka University Hospital Beer-Sheva, Israel

There is hardly any field in surgery where technical improvements have been pushed forward as heavily as they have been in the field of endoscopic surgery.

Uncontrolled diffusion of new health technologies in surgery could lead to problems and bring harm to the patient during the initiation and implementation of a new technique or technology. For the patient, the most important criteria of an innovation are safety and effectiveness.

Innovation should be studied for safety, efficacy and effectiveness at the earliest time possible while not compromising patients safety. The feasibility and preclinical safety of innovation must be established before it becomes a subject of clinical research. All research involving human individuals or their identifiable data must be reviewed by the appropriate body for ethical approval according to the relevant legal requirements. The initial clinical experience must be prospectively documented and continuously evaluated according to pre-specified criteria covering clinical feasibility, safety and efficacy.

Prior to clinical introduction all necessary prerequisites must have been fulfilled such as the technical feasibility of a given new diagnostic or therapeutic device and/or a new diagnostic or therapeutic method in endoscopic surgery.

The precondition is a perfect preparation of the new device prior to patient approach in both its technical status as well as the surgeons training to appropriately use it.

Certain criteria must be met when the innovation is introduced into clinical practice:

1. extensive preclinical and/or clinical experience of the innovation involved,
2. extensive knowledge on the involved diseases and all alternative techniques,
3. a detailed protocol of the procedure and a detailed documentation of all parameters prior, during and after the procedure,
4. existence of structural and organizational prerequisites for research.

If the innovation is a new procedure or devicer, training must include both preclinical models and clinical experience.

The development of an innovation should be finalized by a systematic scientific report summarizing the current available evidence. In addition to carefully considering any undesired outcomes of an intervention, focus on the evidence of the benefit that you want to achieve by using the innovative procedure.

Make your conclusions transparent to the patient in an honest and understandable way. The patient must be informed of the innovative nature of the procedure before the intervention, even if it is a common practice in other parts of the world already.

The process of obtaining informed consent must include a discussion of treatment alternatives. A complete description of the critical elements of the proposed procedure, the expected outcome(s) and benefit(s) of the procedure, and the foreseeable risks must be included in informing the patient.

The responsible physician must make sure that the patient understands the information, has appropriate opportunity to get his or her questions answered, and has enough time to think it over before deciding.

Medieninhaber und Herausgeber: Springer-Verlag GmbH, Sachsenplatz 4–6, 1201 Wien, Österreich. – Datenkonvertierung und Umbruch: Thomson Press (India) Ltd., Chennai; FRIEDRICH VDV, Vereinigte Druckereien- und Verlags-GmbH & Co KG, 4020 Linz, Österreich. – Verlagsort: Wien. – Herstellungsort: Linz.

Printed in Austria
P. b. b./Erscheinungsort: Wien/Verlagspostamt 1201 Wien