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Listeria monocytogenes triggers IL-18 activation and release in intestinal epithelial cells

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Backround: NALP3 (NLRP3) is part of the inflammasome, a multiprotein complex containing caspase-1 which activates proinflammatory cytokines IL-1β and IL-18. An increase in NALP3 and IL-18 expression in intestinal epithelial cells (IEC) was observed in CD patients, suggesting a role of the inflammasome in CD pathogenesis. *Listeria monocytogenes* (LM) is known to be a potent activator of the inflammasome.
Methods: We used LM at a MOI of 1 to induce inflammasome activation and IL-18 secretion in Caco-2 cells. Co-Immunoprecipitation with NALP3 and caspase-1 aimed to reveal complexation of the inflammasome, and IL-18 secretion was quantified by ELISA. IEC derived from patients without signs of intestinal inflammation were used for qRT-PCR and Western Blot.
Results: Infection of Caco-2 cells with LM resulted in IL-18 activation and release after 10h and 24h of stimulation (210.4 pg/ml and 129.1 pg/ml). FACS analysis revealed that the fraction of apoptotic Caco-2 cells being infected with LM was not different as compared to untreated cells. IEC derived from unaffected, non-inflamed patients showed low expression of NALP3 mRNA and protein. Furthermore, isolated cells showed caspase-1 activation as demonstrated by Western Blot analysis.
Conclusion: Wildtype LM are able to activate the inflammasome in cell lines, which subsequently leads to IL-18 activation and release. We will further employ different mutant LM strains that lack various pathogenicity genes.

Endothelial cell and platelet derived microparticles are generated during liver resection in patients

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Background: Plasma microparticles (MPs, <1.5 mum) originate from platelet and cell membrane lipid rafts and regulate inflammatory responses and thrombogenesis. We aimed to evaluated the impact of liver regeneration and hepatic ischemia and reperfusion injury on the source and activity of circulating MPs.
Methods: A total of 20 patients undergoing liver resections were investigated. Plasma samples were collected at various time points prior, during and after surgical procedure up to postoperative day 5 and MPs were isolated. The impact of liver regeneration and ischemia reperfusion injury was assessed by comparing extended versus standard resections and application of pringle maneuver. Endothelial cell (CD31), platelet (CD41) and leukocyte (CD11b) specific surface antigens distinguished the major sources of MPs.
Results: Hematologic baseline characteristics between the groups compared were not significantly different. Significant changes in the fractions of MPs were only found during the surgical procedure and not during the postoperative course. In patients after extended hepatectomy (n=7) absolute numbers of MPs were significantly elevated for CD31+ MPs by factor 4.0 (p=0.023), for CD41+ MPs by factor 2.2 (p=0.016) and for Annexin V factor 2.5 (p=0.019) compared to standard and minor liver resections. Conversely CD11b+ MPs were slightly decreased to 0.53 for CD11b+ MPs (p=ns). After inflow occlusion the fraction of platelet derived CD41+ MPs was selectively elevated to 72.3±11% compared to 56.7±17% (p=0.035).
Conclusion: These findings demonstrate an elevation of endothelial and platelet derived MPs in response to extended liver resection. In patients with short term inflow occlusion the fraction of platelet derived MPs is specifically increased. These plasma MPs possibly represent a specific response to surgical stress and further may exhibit relevant inflammatory and thrombogenic properties.

Granulocyte-Macrophage Colony-Stimulating Factor Elicits Bone Marrow-Derived Cells that Promote Efficient Colonic Mucosal Healing

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Background & Aims: Granulocyte-macrophage colony-stimulating factor (GM-CSF) therapy is effective in treating some Crohn's disease (CD) patients and protects mice from colitis induced by dextran sulfate sodium (DSS) administration. However, its mechanisms of action remain elusive. ***Methods:*** DSS colitic mice were treated with GM-CSF or saline, and clinical, histological and inflammatory parameters were evaluated. Further, the role of bone marrow-derived cells in the impact of GM-CSF therapy on DSS colitis was addressed using cell transfers. ***Results:*** GM-CSF therapy reduced clinical signs of colitis and the release of inflammatory mediators. GM-CSF therapy improved mucosal repair, with faster ulcer reepithelialization, accelerated hyperproliferative response of epithelial cells in ulcer-adjacent crypts in GM-CSF-administered mice relative to untreated mice. We observed that GM-CSF-induced promotion of mucosal repair is timely associated with a reduction in neutrophil numbers and increased accumulation of $CD11b^+$ monocytic cells in colon tissues. Importantly, transfer of splenic GM-CSF-induced $CD11b^+$ myeloid cells into DSS-exposed mice improved colitis, and lethally irradiated GM-CSF receptor-deficient mice reconstituted with wild-type bone marrow cells were protected from DSS-induced colitis upon GM-CSF therapy. ***Conclusions:*** Our study shows that GM-CSF-dependent stimulation of bone marrow-derived cells during DSS-induced colitis accelerates colonic tissue repair. These data provide one putative mechanism for the observed beneficial effects of GM-CSF therapy in human Crohn's disease.

TITLE: Evaluation of endoscopy for localizing transgastric access for NOTES in humans

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Background:
NOTES allows a minimal invasive surgery to reach the abdominal cavity through natural orifices. Up to now access will be mostly attempted through the vagina, colon or stomach. At the moment the preferred way in humans is the transvaginal one. Few publications care about transgastric access.
Aims:
To investigate if it is possible to identify an ideal transgastric access point by endoscopy alone and to recognize hypothetical complications as injury of adjacent organs or major gastric vessels
Methods:
Patients needing a cholecystectomy (*CHE*) were included in the study after informed consent. Acute cholecystitis and ASA Class III or IV were excluded. Before laparoscopic *CHE*, subjects were examined by gastroscopy (all done by one experienced endoscopist) in anaesthesia. Endoscopic transgastric access points (*AP*) were identified by endoscopy alone, endoscopy with diaphanoscopy and also after percutaneous pneumoperitoneum. Ideal access area (*AA*)-pad of 3 cm diameter- was established laparoscopically by experienced surgeons, with respect to the surrounding organs, vessels and omentum.
Results:
31 patients were examined from April to August 2008 (22 female and 9 men). Median BMI was 26 kg/m2. We didn't have any early or late complications neither for endoscopy nor for the *CHE*. Before lap. *CHE*, the insufflation of stomach and gut was not judged troublesome.
The percentage of proper (within *AA*)or safe (≥ 3 cm from major gastric vessels) *AP* are given in the table. We found a clear learning curve for the endoscopist with progress of study.
Anatomical hurdles that we encountered were:
big left liver lobe (6 pat. [19.3%], median BMI 26 kg/m2) covering the stomach and voluminous omentum in overweight patients (4 pat. [12.9%] median des BMI 33 kg/m2)
Conclusions:
• It is possible to identify an ideal transgastric access point by endoscopy alone
• Uncontrolled transgastric access could represent a problem in obese patients
• High volume center will probably have less complications (learning curve)
• The best way to procede seems to be hybrid technique: a supraumbilical percutaneous pneumoperitoneum with laparoscopic supervison of the transgastric access point, probably minimizing access complications, but not completely avoiding scars.

Access points in relation to access area and main gastric vessels

	Endoscopy	Endoscopy + Diaphanoscopy	Endoscopy + Pneumoperitoneum
access points within ideal access area %	35.5	13.8	45.2*
safe access points (≥ 3 cm away from vessels)	83.9	65.5	87.1

*AP endo/pneumoperitoneum vs AP endo/dia significant (p = 0,006, McNemar-Test with Bonferoni correction)

Assessment of Hepatic Steatosis by Expert Pathologists. The End of a Gold Standard

Stefan Breitenstein, Ashraf M. El-Badry, Wolfram Jochum, Kay Washington, Valérie Paradis, Laura Rubbia-Brandt, Milo A. Puhan, Ksenija Slankamenac, Pierre-Alain Clavien

Background:
The presence of fat in the liver is considered as major risk for postoperative complication after liver surgery and transplantation. The current standard of quantification of hepatic steatosis is microscopic evaluation by pathologists, although consistency in such assessment remains unclear. Computerized image analysis is an alternative method for objective assessment of the degree of hepatic steatosis.

Methods:
High resolution images of hematoxylin and eosin stained liver sections from 46 consecutive patients, initially diagnosed with liver steatosis, were blindly assessed by four established expert pathologists from different institutions. Computerized analysis was carried out simultaneously on the same sections. Inter-observer agreement and correlation between the pathologists' and computerized assessment were evaluated using intra-class correlation coefficients (ICC), Spearman rank correlation coefficients or descriptive statistics.

Results:
Poor agreement among pathologists (ICC: 0.57) was found regarding the assessment of total steatosis, (ICC > 0.7 indicates acceptable agreement). Pathologists' estimation of micro- and macrosteatosis disclosed also poor correlation (ICC: 0.22, 0.55, respectively). Inconsistent assessment of histological features of steatohepatitis (lobular inflammation, portal inflammation, hepatocyte ballooning and Mallory hyaline) was documented. Poor conformity was also shown between the computerized quantification and ratings of 3 pathologists (Spearman rank correlation coefficients: 0.22, 0.82, 0.28 and 0.38).

Conclusion:
Quantification of hepatic steatosis in histological sections is strongly observer-dependent, not reproducible, and does not correlate with the computerized estimation. Current standards of assessment, previously published data and the clinical relevance of hepatic steatosis for liver surgery and transplantation must be challenged.

Providing Hepatitis Care To Substance Users

Philip Bruggmann
ARUD Zurich, Switzerland

Increasing numbers of liver related morbidity and mortality calls for an urgent intensification in the provision of HCV therapy for drug-abusing patients. A Hepatitis C antibody prevalence rate of 70% in Switzerland clearly indicates an HCV epidemic in the risk group of substance users. It is important that active intravenous drug users receive treatment whenever feasible to stem the spread of the virus in that population.

Although international guidelines now recommend individual assessment for hepatitis C virus therapy in drug users, many such patients are still not receiving anti-HCV treatment. By including drug users in addiction treatment, e.g. opioid substitution, the patient's circumstances are often stabilized, and that in turn facilitates the initiation of antiviral therapy. Antiviral therapies can be administered with equal success in patients treated with a substituted drug as in non drug users.

Addiction must be regarded as a chronic, relapsing disorder with neurobiological and neurophysiologic implications. Requiring complete abstinence before starting HCV therapy excludes per se a bigger part of this risk group and anticipates a successful fight of this epidemic.

Because of the generally complex psychological and somatic multimorbidity encountered in the substance user HCV patient group, interdisciplinary case management is indispensable. All specialists involved in each case should obtain access to the knowledge bases of the other clinicians treating the patient. Consequently, hepatologists and infectious disease specialists who administer HCV treatment to drug users must become aware of the fundamentals of modern addiction medicine and substitution-assisted treatment. New HCV treatment settings for the substance using risk group are needed in Switzerland to encounter the insufficient present supply. Providing Hepatitis C therapy in addiction centers or in networks are the future challenges in Switzerland.

Performance Evaluation of Rigid, Deflectable-tip Laparoscopes and Endoscope for Single Access Surgery.

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Background: Excellence of vision is a determinant of successful and safe minimally invasive surgery (MIS). With single access surgery (LESS and NOTES) development, vision become a major issue. New instruments may enable to recover structure triangulation, but are insufficient to allow satisfying vision due to absence of scope and instruments triangulation. Flexible or deflectable-tip scopes may improve this issue. We aim to evaluate rigid, deflectable-tip, and flexible scopes regarding their possibilities of exploration and off-axis vision.

Methods: Thirty-four surgeons performed single access exploration of peritoneal carcinosis model. Explorations were done with two rigid laparoscopes (0° and 30°), deflectable-tip laparoscope and flexible endoscope through single port. Sequences of application of the scopes were randomized. Performance of spot detection (mimicking peritoneal carcinosis) by operator, independent observer, and subjective surgeons rating scores were recorded.

*Results: M*ean spots number noted by surgeons was higher with deflectable-tip (11.5, range 7-16) and 30° laparoscope (11.1, 7-15) compared to other scopes ($p<0.01$). All visible spots were noted only with deflectable-tip laparoscope. Mean spots number appearing on screen (noted by observer) was higher for deflectable-tip laparoscope (12.7, 11-16) compared to other scopes ($p<0.01$). Spatial orientation and ergonomics were rated higher for rigid scopes. Deflectable-tip laparoscope was rated as the most appropriate scope for clinical exploratory laparoscopy participants.

Conclusion: Deflectable-tip laparoscope appears to be efficient and promising for single access MIS. Deflectable-tip laparoscope appears to be the most reliable camera for exploratory MIS on this pre-clinical model and should now be tested clinically for cancer staging exploration.

Impact of energy metabolism on weight reduction in bariatric patients

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Background
We tested the impact of preoperative indirect calorimetry and measurement of body composition by densitometry (DEXA) on weight loss of laparoscopic sleeve resection (LSG) and laparoscopic Roux-Y-gastric bypass (LRYGB) to determine which patient is a poor candidate for one of these two mainly restrictive procedures and may need a malabsorptive operation.

Methods
Between 08/04 and 06/08 a total of 207 patients (female 76%, mean age 44 (21-67) years, mean initial BMI 44 (35-65) kg/m^2) were prospectively evaluated with preoperative calorimetry and DEXA. In 145 patients (70%), LRYGB was performed, in 60 patients (30%) LSG. The follow-up time was 20 (6-45) months.

Results
Mean preoperative basal metabolic rate was 1983 (± 394) kcal for patients with LRYGB and 2057 (± 565) kcal for patients with LSG ($p=0.343$) and was reduced in 63% of all patients with no difference between the two operation types. Carbohydrate and fat oxidation did not differ between the two groups. Average excessive BMI loss after 1 year was 75 (14-147)% for LRYGB and 63 (9-121)% for LSG ($p<0.001$) and after 2 years 73 (20-143)% for LRYGB and 67 (13-117)% for LSG ($p<0.001$). There was no significant difference between the two groups regarding measurement of DEXA. There was no strong association between indirect calorimetry or DEXA and excessive BMI loss at any time point.

Conclusion
Preoperative indirect calorimetry and DEXA do not seem to be useful in determining which patient will need a malabsorptive procedure. Longer follow up is probably needed to make a final evaluation of these two methods in the preoperative assessment of morbidly obese patients.

Notch-1 Signaling in Hepatocarcinogenesis

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Background and Aims: Nodular regenerative hyperplasia (NRH) is a liver disease characterized by transformation of the liver parenchyma into small nodules with little to no fibrosis. We have previously reported that knockout of *Notch1* leads to NRH in mice. Notch1 regulates vascular development as well as angiogenesis and is expressed in liver sinusoidal endothelial cells. The aim of our study is to investigate the role of Notch1 in the development of HCC, a highly vascularized tumor. Our hypothesis is that *Notch1* is a tumor suppressor gene since *Notch1* knockout leads to hepatocyte proliferation.
Methods: Mice were injected with the carcinogen diethylnitrosamine (DEN, 0.325-10 μg/g body weight) intraperitoneally at day 14 after birth. *Notch1* was knocked out in all cells 14 days later (inducible *Notch1* disruption using an interferon-inducible *Cre*-recombinase transgene in combination with the loxP flanked *Notch1* gene vs. controls). A second set of mice with hepatocyte-specific *Notch1* knockout was generated by breeding AlbuminCre mice with mice expressing LoxP-flanked Notch-1 alleles; DEN injection was performed 14 days after birth. Mice were harvested at different time points 30 and 40 weeks after DEN injection and livers were analyzed for HCC macroscopically and microscopically.
Results: *Notch1* knockout alone was not sufficient to generate HCC in mice of up to 1 year of age. DEN lead to formation of dysplastic nodules and HCC at week 40 in 10.4% (5/48) of control mice. MxCre Notch1 KO mice developed significantly higher percentage of hepatic tumors 69.2% (9/13, p<0.05). Interestingly, the majority of MxCre Notch1 KO mice developed peliosis hepatis (dilated sinusoids, in 100% of cases) and hepatic angiosarcoma (9/13, 69.2%); no HCC lesions were identified in Notch-1 KO mice. Macroscopic and microscopic examination revealed no other foci of tumors in other organs than the liver. AlbCre Notch1 knockout harvest is ongoing.
Conclusions: Knockout of *Notch1* is not sufficient to induce HCC in our mouse model. However, in liver sinusoidal endothelial cells *Notch1* knockout increases the susceptibility to additional mutations induced by DEN and leads to formation of angiosarcoma. In contrast, Notch1 does not appear to be a tumor suppressor gene in hepatocytes but might play an oncogenic role.

Lack of Consensus regarding Surveillance and Treatment of Genital Warts and Anal Intraepithelial Neoplasia

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Background: The incidence of human papilloma virus (HPV)-related anal infections and invasive anal squamous cell cancer is dramatically increasing. However, there is a lack of standardization regarding diagnosis, treatment and surveillance of patients with anal HPV infections. Therefore, we aimed to inquire the current clinical practice concerning HPV-related anal diseases. **Methods:** An international, Internet-based survey was sent to members of different surgical and dermatological societies. Answers were obtained from 1017 dermatologists and 393 surgeons (n=1410). **Results:** Most dermatologists prefer a non-invasive treatment of genital warts by applying imiquimod 5% in contrast to surgeons (80.4% vs. 28.2%; *P*<0.001) who favor surgical excision (91.3% vs. 56.8%; *P*<0.001). Thirty-two percent of surgeons and 35.7% of dermatologists never perform histology on genital warts (*P*<0.001). To detect dyplastic lesions, 42.0% of the surgeons use acetic acid only, 23.2% use this in combination with high-resolution anoscopy (HRA) and 19.5% apply intra-anal cytological smears. The majority of dermatologists apply acetic acid only (64.6%, *P*<0.001) while HRA is rarely used (16.5%, *P*<0.001). Intra-anal cytological smears are recommended by a third of dermatologists (30.2%; *P*<0.001). Interestingly, the therapy of anal intraepithelial lesions as chosen by surgeons and dermatologists is not influenced by the grade of anal dysplasia but quite exclusively by the immune status. **Conclusions:** Diagnosis, treatment and surveillance of patients with HPV-related anal diseases vary to a great extent between and even among surgeons and dermatologists, thus urging the implementation of clinical guidelines.

Protein Phosphatase 2A Disrupts Genomic Stability And Impairs DNA Damage Repair: A Role in HCC Development

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Chronic hepatitis C can lead to cirrhosis and hepatocellular carcinoma (HCC). We have shown that HCV induces an upregulation of protein phosphatase 2A catalytic subunit (PP2Ac). PP2A inhibits protein arginine methyltransferase 1 (PRMT1). Methylation of histones by PRMT1 regulates chromatin structure and genes transcription. PP2A can also dephosphorylate the c-terminal tail of the H2A variant of H2AX (γH2AX). H2AX phosphorylation is the earliest marker of a cell's response to DNA damage and is required for proper DNA damage repair.

Cell lines and paired human liver biopsies were used to check histone modification marks by Western-Blot. UHCV57.3 and UPP2Ac cells are tetracycline regulated cells that can express the entire HCV open reading frame and PP2A catalytic subunit, respectively. HA-PP2Ac cells are human hepatoma cells stably transfected with an active form of PP2Ac. The mRNA expression of cancer-related genes was performed by quantitative RT-PCR. Repair of DNA damage was tested by Host Cell Reactivation Assay. Nuclear foci formation was visualized by co-immunoprecipitation and by immunofluorescence.

We show that PP2Ac overexpression alters histone modifications and the transcription of a set of HCC-related genes. PP2A reduces γH2AX formation, impairs nuclear foci formation, and decreases the DNA damage repair capacity. We show also that S-adenosyl-L-methionine (SAMe) can correct histone modifications and enhance the capacity of cells to repair damaged DNA.

Our data show a potential role of PP2A in tumorigenesis and cancer maintenance in a biological context of HCV-induced HCC.

The structure and function of the gastro-esophageal junction in health and reflux disease

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Background: The gastro-esophageal junction (GEJ) is the key defence against acid reflux. Most reflux events occur during transient lower esophageal sphincter relaxations (TLESRs); however, the frequency of TLESRs in GERD patients and healthy volunteers (HV) is similar. Rather, TLESRs in GERD are more likely to be associated with reflux events. This finding suggests that changes in GEJ structure rather than function may be responsible for increased frequency of reflux events in GERD
Aim: The function and structure of the GEJ was studied using concurrent high resolution manometry (HRM) and magnetic resonance imaging (MRI).
Methods: 12 normal weight HV (5 women, age 25) and 12 GERD patients (5 women, age 35) with pathological acid exposure on pH-studies but no hiatus hernia. MR images were obtained before and at regular intervals after ingestion of a large, high-caloric mixed meal labelled with Gd-DOTA paramagnetic contrast. Concurrent pressure measurements were acquired by water-perfused, 22 channel HRM assembly positioned across the GEJ (AMS, Melbourne, AUS) with participants in the right lateral position in a 1.5T MRI (Philips, Best, NL). Anatomic scan: 30x4mm transverse slices, bFFE sequence. Dynamic scan with respiratory (diaphragmatic) tracking: 3x8mm oblique slices orientated along the length of the HRM catheter, bFFE sequence over 154s. Opaque markers in the catheter allowed pressure data to be correlated with MRI scans. Gastric and esophageal morphology before and after the meal were reconstructed in 3D and analyzed using specially designed software on IDL and MatLab platforms.
Results: Postprandial reflux events were observed during dynamic scans in 9/12 healthy volunteers and all GERD patients. The occurrence of reflux events on MRI was always accompanied with intra-luminal common cavity pressure events detected by HRM. There was no difference in the number of reflux events in HV and GERD patients (2 (0-5) vs. 3 (2-7)); however the duration was longer in the patient group (11s (3-23s) vs 24s (10-129s)). 3D analysis of GEJ morphology revealed that the gastro-oesophageal insertion angle was similar at baseline (42 vs 41°) but, after the meal, a more acute angle was maintained in HVs than in GERD (43 vs. 55°, p<0.02), proximal retention of gastric contents was more marked and gastric emptying slower in GERD (p<0.05).
Discussion: Concurrent MRI and HRM provided a comprehensive description of GEJ structure and function. Both techniques identified a similar number of reflux events in HV and GERD patients in the right lateral position. Structural differences at the GEJ and altered gastric function were noted between the two groups. Loss of an acute gastro-oesophageal insertion angle on gastric filling and increased proximal retention of gastric contents may increase the likelihood of reflux events in GERD.

Propofol leads to a significant blood pressure decrease during colonoscopy independently of the use of PEG or NaP for bowel preparation

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Background: Propofol is increasingly used as a sedative agent for colonoscopies. Propofol can lead to a blood pressure decrease due to vasodilation. This effect might be increased in dehydrated patients. We wanted to assess blood pressure changes in two patient groups after bowel preparation with Colophos®, an oral sodium phosphate (NaP) or with Klean-Prep®, a polyethylene glycol (PEG) solution.

Methods: 151 patients were randomized to NaP and 158 patients were randomized to the PEG group. The mean arterial pressure (MAP in mm Hg) was measured in 5 minute intervals before, during and at the end of the colonoscopies.

Results:

	NaP n=151	PEG n=158	p-value (NaP vs PEG)
MAP before colononscopy	87	88	0.62
Minimal MAP during colon.	64*	68*	<0.05
MAP end of colonoscopy	74*	76*	0.21
Pat. receiving ephedrine (n)	14	5	<0.05

* p < 0.0001 compared to the MAP before colonoscopy

Conclusions: Both NaP and PEG lead to a highly significant blood pressure decrease in patients sedated with propofol. This effect is slightly more pronounced in patients prepared with NaP. Great care has to be taken to monitor these blood pressure changes during colonoscopy.

Role of the antioxidative enzyme Prdx6 in inflammatory bowel disease

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Background: Inflamed tissue of patients suffering from inflammatory bowel disease (IBD) shows high infiltration of macrophages and neutrophils. Oxidative burst of these phagocytic cells exerts oxidative stress on the tissue and contributes to tissue damage and increased epithelial permeability. On the other hand, reactive oxygen species represent also an important part of the anti-bacterial defense. Peroxiredoxins represent a new family of antioxidative enzymes and Peroxiredoxin 6 (Prdx6) has been shown to be highly expressed in the intestinal epithelium and in macrophages.
Methods: Acute or chronic colitis was induced by administration of 2% dextran sodium sulfate (DSS) with the drinking water in Prdx6 knockout mice and transgenic mice overexpressing Prdx6. Development of colitis was monitored by weight loss, colonoscopy and histological score. Prdx6 protein expression was determined by Western blotting and oxidative tissue damage by Oxyblot.
Results: Prdx6 protein expression was decreased by acute and chronic colitis in wildtype as well as in Prdx6 overexpressing animals. No differences in the development of acute colitis could be observed between wildtype and Prdx6 overexpressing animals but Prdx6 knockout animals displayed lower histological scores in acute as well as in chronic DSS colitis. Prdx6 overexpressing animals on the other hand showed a higher histological score in the proximal colon after induction of chronic DSS colitis.
Conclusion: Our data suggest that effective defense against bacterial translocation by reactive oxygen species might ameliorate the course of DSS-colitis as Prdx6 knockout animals displayed lower histological scores in acute as well as in chronic colitis

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Assessment of obstructive defecation by High Resolution Manometry compared to Magentic Resonance Defecography

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Patients with obstructive defecation may have abnormalities of anorectal function or structure. Standard investigation by manometry shows only fair agreement with patient symptoms and defecography. Agreement between investigations has been recommended for definitive diagnosis. Anorectal high resolution manometry (HRM) may improve diagnostic accuracy by differentiating pressure effects caused by contraction vs. straining and by avoiding artifacts caused by movement of the catheter relative to the sphincter during straining.
Aims: This study compared the findings of HRM with magnetic resonance (MR) defecography in the clinical assessment of patients presenting with obstructive defecation defined by Rome III criteria as straining at stool with the sensation of incomplete evacuation, blockage sensation or digital facilitation.
Methods: HRM was performed by a solid state catheter with 10 circumferential sensors at 6mm separation across the anal canal and 2 placed 5cm proximal in the rectum (Manoscan AR 360, SSI, USA). Resting tone squeeze pressure and dynamic pressure activity during bearing down were analyzed. Findings were referred to MR defecography (1.5T, Philips, NL) performed after insertion of 250ml water based gel labeled with Gd-DOTA paramagnetic contrast as reference standard for pelvic floor anatomy and function.
Results: 25 consecutive patients (23 female; age 23-90) referred with symptoms of obstructive defecation had full investigation. MRI diagnosis revealed anorectal dyssynergia with paradoxical contraction in 7 and structural pathology in 18 patients (rectocele with intususception (n=8), pelvic floor descent with enterocele (n=7) or prolapse (n=4) some cases had both rectocele and pelvic descent). Compared to patients with dyssynergia, those with structural pathology had lower mean resting pressures (59 vs. 93mmHg; p<0.01); however squeeze pressure rises were similar (96 vs. 126 mmHg; n.s.). In functional dyssynergia on MRI, HRM showed paradoxical contraction or failure to increase abdominal pressure without anal relaxation (sensitivity 100% (7/7); specificity 94% (17/18)). One patient with normal findings on MRI but paradoxical contraction on HRM had an anal fissure on examination under anaesthesia. With structural pathology a pattern of high intra-rectal pressure with a steep, positive pressure gradient was observed indicating obstruction in the anal canal.
Conclusion: Diagnostic agreement between anorectal HRM and MR defecography is high and pressure measurements were able to accurately distinguish functional and structural pathology as a cause of obstructive defecation.

Elaboration of a Clinico-Radiological Predictive Score for Identifying Patients with Complicated Small Bowel Obstruction

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Background: Acute mechanical small bowel obstruction (SBO) is a common surgical emergency. We sought to elaborate a dedicated clinical and radiological score to predict the risk for intestinal ischemia in patients with SBO.
Methods: A prospective assessment of patients who presented with CT scan-confirmed diagnosis of mechanical SBO at our Emergency Unit was performed. A logistic regression model helped to identify the most determinant variables and to elaborate a predictive clinical score according to the risk for the patient to undergo small bowel resection.
Results: Between January 2004 and December 2007, 233 successive patients (138 women, 95 men, median age 71 [range 19-96] years) were prospectively evaluated. 95 patients were successfully managed non-operatively, and 138 had emergency laparotomy. Intestinal ischemia was documented in 45 patients who underwent small bowel resection. In multivariate analysis, 6 variables correlated with small bowel resection and were given 1 point each for the predictive score: clinical parameters: 1) a history of pain > 4 days, 2) abdominal tenderness; biological parameters: 3) CRP ≥ 75 mg/l, 4) leukocyte count > 10,000 G/l; CT scan parameters: 5) presence of fluid > 500 cc, 6) reduction of IV contrast uptake in a segment of small bowel. The risk of small bowel ischemia/resection was 4.5% in patients with a score of 0; 7% in patients with a score of 1; 25% in patients with a score of 2; and 100% in patients with a score ≥ 3 (area under the curve: AUC=0.87).
Conclusion: By combining 2 clinical, 2 biological and 2 radiological parameters, we were able to elaborate a score to identify SBO patients at risk for developing intestinal gangrene. This score, underlines the emerging role of CT scan in this situation and may help the clinician in identifying patients who will require resection surgery.

CD133+ cancer stem cells are more prevalent in metastatic than non-metastatic colon carcinomas.

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Background: In many human carcinomas, only a subset of cancer cells, the cancer initiating or stem cells, is capable of initiating tumor growth. The aim of this study was to quantify this specific cell population by $CD133^+$ sorting in human colorectal cancers (CRC) and to correlate the prevalence of this subset with tumor stage.

Methods: Primary tissues were collected from surgical specimens of 20 patients who had biopsy-proven adenocarcinomas of the colon, then were disaggregated into single-cell suspensions and analyzed by MACS using AC133 (anti-CD133) antibodies. Tumor-initiating properties of putative $CD133^+$ CRC cells were confirmed by grafting in nude mice.

Results: The pool of CD133+ cells was 7.8-fold larger in early (Stage 1-2; n=7) CRCs than in normal colon/liver (11.8% ± 1.2 vs. 1.5% ± 0.1, p=0.0008; n=5). The pool of CD133+ cells was 40% larger in advanced or metastatic (Stage 3-4; n=9) CRCs than in early (Stage 1-2; n=7) tumors (16.6% ± 1.6 vs. 11.8% ± 1.2, p=0.04). Injection of 10^5 freshly sorted $CD133^+$ CRC cells resulted in tumor development in 4/4 cases whereas the same amount of CD133- cells did not(0/4).

Conclusion: These results suggest an increment in the numbers of CD133+ stem or tumor-initiating cells in human CRC during tumor progression, making them good targets for developing new anticancer strategies.

Early stage (T1-T2 N0) squamous cell carcinoma of the anus: combined chemoradiation versus radiation therapy alone.

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Background: Combined chemoradiation (CRT) with mitomycin C and infusional 5-fluorouracil is the gold standard for treatment of locally advanced (stages 2-3) squamous cell carcinoma of the anus (SCCA). It has been hypothesized that radiation therapy (RXT) alone at a dose of 60 Gy may represent an alternative option in patients with early stage (T1-2 N0) tumors.

Methods: Between 1976 and 2008, 146 patients with T1 (N=27) or T2 (N=119) N0MO SCCA were treated either by RXT alone (N=71) or by combined CRT (N=75). Median age at diagnosis was 66 years (range 35-94), median tumor size was 3 (range 0.2-5) cm. Uni- and multivariate analysis were performed in order to assess patient-, tumor- and treatment-related factors influencing locoregional control (LRC).

Results: After a median follow-up of 61 (range 4-245) months, 124 (85%) patients were locally controlled. 5-year actuarial LRC and overall survival for the whole population were 81% and 74%, respectively. 5-year LRC was 75% in RXT group vs. 87% in the CRT group (p=0.15). 5-year cancer-specific survival was 85% in RXT group vs. 95% in CRT group (p=0.17). In multivariate analysis, the adjunction of chemotherapy to radiation therapy was the most significant factor influencing LRC (p=0.06).

Conclusion: Combined chemoradiation is superior to radiation therapy alone for managing patients with early stage anal cancer. The latter option must be considered in elderly patients who could not tolerate mitomycin C-based chemotherapy.

Combination of ^{13}C-methacetin breath test by molecular correlation spectroscopy and transient elastography improves diagnostic performance of non-invasive fibrosis assessment in chronic hepatitis C

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Background: Stable isotope breath tests have been developed for the non-invasive assessment of microsomal liver function in patients with chronic liver disease. Among different tests, the ^{13}C-methacetin breath test (MBT) is suitable for the assessment of hepatic functional reserve. **Aims:** To assess prospectively the diagnostic performance of fibrosis detection by MBT in patients with chronic hepatitis C infection using validated molecular correlation spectroscopy with a continuous, online, automatic breath collection and analysis system and to compare MBT results with transient elastography. **Methods:** METAVIR fibrosis score of a liver biopsy specimen obtained within one week of MBT and elastography was used as a reference. 62 patients (42 M, 44.7 ± 13 y., BMI 24.6 ± 3.6 kg/m^2, AST 1.2 ± 0.8, ALT 1.8 ± 1.5 x ULN) with chronic hepatitis C were studied (fibrosis stage F0, n=6; F1, n=35; F2, n=8; F3, n=2; F4, n=11) Each patient received 75 mg of ^{13}C-methacetin dissolved in 50 ml of water. The ^{13}C/^{12}C ratio was determined over 90 minutes by molecular correlation spectroscopy (BreathID, Exalenz, Israel) as delta over baseline (DOB[‰]) and was expressed as maximal DOB (DOB_{max} [‰]). Liver stiffness (FS [kPa]) was measured by transient elastography (FibroScan, Echosens, France). Diagnostic performance of each test as well as the combination of MBT and elastography (DOB_{max}/FS [‰/kpa]) were compared by receiver operator characteristics (ROC) analysis and statistical ROC curve comparisons. **Results:** Mean areas under the ROC curve for DOB_{max} and stiffness values were similar for F≤1 (0.78 vs. 0.85, p=0.3), F≤2 (0.84 vs. 0.89, p=0.5) and F≤3 (0.85 vs. 0.93, p=0.2). Method combination (DOB_{max}/FS) increased the diagnostic performance for both methods depending on the clinical context: F≤1 (0.86: p=0.05 vs MBT, p=0.8 vs. elastography), F≤2 (0.94: p=0.09 vs. MBT, p<0.05 vs. elastography) and F≤3 (0.97: p<0.05 vs. MBT, p=0.07 vs. elastography). **Conclusions:** MBT by continuous automatic molecular correlation spectroscopy is an easy to use and effective method for assessing liver fibrosis, with a similar diagnostic performance compared to elastography. A combination of methacetin breath test and elastography results increases the diagnostic performance of each method alone for non-invasive fibrosis detection in chronic HCV infection.

Confirmation That Endogenous GLP-1 Is A Human Enterogastrone

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Introduction: Previous studies have shown decreased secretion, gastric relaxation and rate of gastric emptying (GE) during exogenous application of GLP-1. In contrast, a GLP-1 antagonist exendin(9-39)amide (EX) did not produce the expected reversal of these observations. **Objectives:** We hypothesized that the effects on gastric function of endogenous and exogenous GLP are equivalent. **Methods:** To assess the effect of (#1) placebo (P), (#2) EX (300 pmol*kg^{-1}min^{-1}) on GE under stimulated GLP-1 release during duodenal glucose perfusion (2.5 kcal/min), and (#3) exogenous GLP-1 (0.25 pmol*kg^{-1}*min^{-1}) during isoglycaemic i.v. glucose infusion (to match study 1 levels). After 60 min infusion, a non-nutrient viscous liquid test meal was ingested. Using MRI, 12 healthy volunteers (8 M, 27±6 y., BMI: 21.7±1.8 kg/m^2) were studied in randomized order #1 or #2 followed by #3. Gastric content volume (GCV) and total gastric content (TGV) were acquired at 10 min intervals after ingestion of a 500ml, viscous, non-caloric drink labelled with 1200µM Gd-DOTA over 50 min. The first scan after the meal defines t_0 and starting volume V_0. The amplitude of volume changes were measured by AUC. **Results**: Before meal ingestion, gastric content and total gastric volumes were similar. After drinking GCV_0 was smallest for EX compared to P and GLP-1 (for GCV: EX: 416±23ml; GLP-1: 456±23ml; P: 499±23ml; E vs. P, p<0.01; E vs. GLP-1, p=0.08; P vs. GLP-1, p=0.06) indicating more rapid initial meal emptying during gastric filling during EX (GCV: EX: 129±23ml; GLP-1: 108±21ml; P: 72±21ml; E vs. P, p<0.01; p=0.35, E vs. GLP-1; p=0.09 P vs. GLP-1). GE by AUCs for GCV after 50 min remained smallest for EX compared to P and GLP-1 (GCV: EX: 16.3±1.5l*min; GLP-1: 17.5±1.2l*min; P: 21.5± 1.1l*min; E vs. P, p<0.001; E vs. GLP-1, p=0.08,; P vs. GLP-1, p<0.01). In all conditions TGV varied with GCV. Intragastric air was not different between treatments. Isoglycaemic conditions were observed throughout the GE phases (EX: 9.7±0.4mM*50min; GLP-1: 9.5±0.5mM*50min; P: 9.8±0.5 mM*50min, p=ns). **Conclusions**: This is the first assessment of endogenous GLP-1 effects on the GI response in which the nutrient delivery to the small bowel and glucose was controlled. The findings confirm that endogenous GLP-1 is a true enterogastrone and inhibits gastric emptying compared to placebo.

Structure-Function Analyses of NS4B, an Essential Component of the Hepatitis C Virus Replication Complex

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Background: Nonstructural protein 4B (NS4B) plays an essential role in the formation of the hepatitis C virus (HCV) replication complex. It is an integral membrane protein that has only poorly been characterized to date, believed to comprise a central part harboring 4 transmembrane passages (TM) flanked by 2 cytosolic parts. However, a precise membrane topology of HCV NS4B is thus far elusive. This work is aimed at enhancing our understanding of the structure and function of this protein.
Methods: Full-length NS4B as well as a comprehensive panel of mutants were fused to the green fluorescent protein and expressed in cultured cells. The impact of point mutations on HCV infection and replication was assessed by the use of cell culture-derived HCV and the replicon system. 3-D structures were determined by nuclear magnetic resonance. Protein-protein interactions were investigated by fluorescence resonance energy transfer and co-immunoprecipitation.

Results: We identified two unexpected determinants for membrane association in the N- and C-terminal parts of HCV NS4B. The first determinant is an amphipathic alpha-helix that can traverse the membrane, likely as an oligomer, thereby constituting a fifth TM. The second is a peculiar "twisted" amphipathic alpha-helix at the C-terminus of NS4B. Both determinants are involved in protein-protein interactions and play important roles in the formation of replication complex.

Conclusions: These results provide the first atomic resolution structures of essential membrane-associated segments of NS4B and highlight their essential roles in the assembly of a functional HCV replication complex.

A Model System for Reversible Bacterial Colonization in Germ-Free Mice

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Postnatal colonization of the intestinal tract triggers the dominant adaptive immune stimulus throughout adult life. The colonized intestinal system accumulates a large proportion of the body's lymphocytes and secretes enormous amounts of commensal-induced IgA. Bacterial intestinal colonization is irreversible, and results in a very dense and complex flora comprised of non-pathogenic commensal microorganisms. Our inability to control the number of live bacteria colonizing the gut is an experimental challenge.

We have developed a transient bacterial colonization system based on genetically modified commensal *E. coli*. These conditionally lethal mutants fail to replicate in vivo, while retaining all known host colonization and survival factors. These bacteria colonized germ-free mice only transiently, but induced highly specific anti-*E. coli* IgA, identical to that observed in wild type *E. coli* mono-colonized mice. This system uniquely allows us to dissect the kinetics, dose-response threshold, and role of immunological memory in intestinal IgA induction by live bacterial cells.

Th_{17}- and memory cell recruitment in NOD2 variants

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BACKGROUND: NOD2 (CARD15) variants have been shown to be the most important susceptibility factor for the development of Crohn's Disease (CD). NOD2 is an intracellular sensor of bacterial muramyl dipeptide and is able to activate the NF-κB pathway. This is followed by the release of macrophage inflammatory protein (Mip)-3α, a chemokine attracting memory T lymphocytes. Previous *in vitro* experiments showed a functional deficit in Mip-3α expression in cells transfected with pcDNA to express NOD2 variant SNP13. Therefore we investigated Th_{17}- and memory cell recruitment with respect to NOD2 variants.
METHODS: IL-17, CD68 and CD45R0 protein expression was analyzed by immunohistochemistry in intestinal mucosa specimens from control patients and CD patients carrying heterozygous NOD2/CARD15 mutations (NOD2/CARD15 SNP8, 12 and SNP13) or the wildtype gene.
RESULTS: Immunohistochemistry showed that cell-cell contacts between macrophages and CD45R0+ memory T cells were not altered in patients with NOD2-wt (34.7 ± 17.8 cells/hpf) and patients with heterozygous mutations in NOD2 (31.8 ± 16.4 for SNP8, 53.0 ± 26.4 for SNP12 and 41.5 ± 20.2 cells/hpf for SNP13). Recruitment of Th_{17}-cells was unchanged in patients with NOD2-wt (12.5 ± 12.8 cells/hpf) and patients with heterozygous mutations in NOD2 (12.4 ± 7.7 for SNP8, 14.2 ± 4.25 for SNP12 and 20.0 ± 12.1 cells/hpf for SNP13).
CONCLUSION: We have tested the ability that bacterial sensing and subsequent recruitment of Th_{17}-cells or memory T lymphocytes is altered in NOD2 variants. Changes in lymphocyte recruitment by Mip-3α is unlikely, because the total number of cell-subsets analyzed and cell-cell-contacts were not significantly altered.

How to manage minimally symptomatic inguinal hernias

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Introduction:
Inguinal hernia is a common problem that has significant associated costs . Although tremendous work led to meaningful data from randomized studies, there is very little data on the most pertinent question: when to operate an inguinal hernia. Referring to the recently reported low risk of incarceration, we wondered if for minimal symptomatic hernias a conservative approach could be advocated.
Method:
Based on results from prospective trials, we identified the range of probabilities for relevant parameters: incarceration, complication or death of surgery, probability to become symptomatic, rate of chronic pain or numbness after surgery and recurrence. Based on these data we built a decision tree integrating the utilities (Quality of life surrogate) for each health state derived from the literature.
We compared 4 strategies: 1. watchful waiting with immediate surgery in case of incarceration or elective surgery in case of symptoms 2. elective operation with open tension-free technique 3. elective operation with mesh 4. elective laparoscopic intervention with mesh. To follow utilities over time, Markov modeling was performed. Sensitivity analysis allowed estimating the influence of each parameter.
Results:
Assuming a 15% yearly rate of minimal symptomatic hernias necessitating elective surgery and a 1.7% risk of incarceration, with a 3.7% mortality, the watchful waiting approach yields the highest utility score after 2 years (1.89 (SD 0.04)) compared to open surgery without mesh (1.856 (SD 0.03), with mesh (1.86 (SD 0.03) and laparoscopic mesh (1.87 (SD 0.02)). Over a period of 5 years, the increase of patients becoming symptomatic and necessitating an intervention leads to poorer utility scores (9.8 (SD 0.14) compared to early laparoscopic surgery (9.83 9 SD0.3)). However, sensitivity analysis showed that watchful waiting is the dominant strategy over a reasonable range of probability for a two years period. Tornado analysis revealed that the rate of hernias becoming symptomatic defines the ideal strategy.
Conclusion:
Decision analysis shows a small gain in quality of life over a two-year period with a watchful waiting approach for minimal symptomatic hernia. Over longer periods, early laparoscopic hernia repair is favorable. The algorithm given allows each institution to estimate their best strategy based on their individual results after surgery.

A common polymorphism in the *ABCB11* gene encoding for the bile salt export pump is associated with progression to cirrhosis in hepatitis C (HCV) infection

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Background: HCV-associated cirrhosis represents the main indication for liver transplantation in Western countries. Clinical factors influence fibrosis progression but cannot accurately predict risk of cirrhosis. Bile acids (BA) contribute to hepatic stellate cell activation. **Aim:** To investigate the role of BA and polymorphisms in BA level-regulating genes on fibrosis progression. **Methods:** 206 chronic HCV patients from the SCCS were recruited for *ABCB11* (*BSEP*) and *NR1H4* (*FXR*) genotyping. Fibrosis stage was available in 178 patients. Exclusion criteria: HBV/HIV coinfection, alcohol >40 g/day, morbid obesity. Control: 110 individuals undergoing liver resection. **Results:** The *ABCB11* 1331C allele was significantly overrepresented in HCV patients compared to controls (allelic frequency 62.9%; OR 0.71). Mean BA levels were increased in trend in the CC compared to TT genotype (14±2 vs. 10±3 µmol/l and significantly elevated in cirrhotics compared to non-cirrhotics (p=0.0001). A significant association between the presence of cirrhosis and *ABCB11* genotype (CC vs. CT or TT, p=0.047) was observed, independent of other risk factors in multivariate analysis (p=0.007). **Conclusions:** The common *ABCB11* 1331CC genotype which is present in 40% of HCV patients renders the carrier susceptible to increased BA levels and is associated with progression to cirrhosis. Our data establishes this polymorphism as a new and frequent risk factor for progression to cirrhosis.

Bile acid(BA) levels as a host factor affecting antiviral treatment response but not viral replication in HCV patients

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Background: Outcome of HCV infection varies and treatment response depends on viral and host factors. *In vitro* studies demonstrated that BA up regulate genotype 1 HCV (HCV-1) replication and interfere with IFN. **Aim:** To investigate the influence of BA concentrations and *ABCB11* transporter polymorphism on viral load and SVR in HCV pts. **Methods:** 198 Caucasian patients with chronic HCV from the SCCS treated with PEG-IFN and ribavirin were included. Control: 110 Caucasian individuals undergoing liver resection. *ABCB11* variant 1331T>C was genotyped and BA levels determined. **Results:** 1331C allele (63 vs. 55%; p=0.04) as well as the CC genotype (40% vs. 26% p=0.017) were over-represented in HCV patients. Median BA levels were increased in trend in the CC vs. TT genotype (7 vs. 4µmol/L; p=0.25). While median BA levels in SVR and non-SVR HCV-1 patients were equal, a significant difference was observed in HCV-2/3 (3 vs. 13µmol/L; p=0.0001). SVR rates for HCV-2/3 with normal vs. elevated BA levels differed 1.6-fold (p=0.002). ROC analysis in HCV-2/3 shows 64% sensitivity and 77% specificity for BA levels of 8µmol/L to predict SVR (AUC=0.80). Treatment response was unchanged within *ABCB11* genotypes for HCV-1, but for HCV-2/3 SVR was increased in the TT vs. CC genotype (100 vs. 67.9%; p=0.15). No correlation between BA levels and HCV RNA was detected **Conclusions:** Our data suggest a role for BA as a host factor affecting treatment response in HCV-2/3 patients only.

Suture free mesh fixation in case of hernioplasty by Lichtenstein: Whats with recurrences and pain? Our 5-years results.

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Background
The hernioplasty by Lichtenstein is a very popular operation. But a higher rate of postoperative pain and chronic irritation is described. The causes postulated are compression of the nerves or irritation by the sutures used for fixation of the mesh. We evaluated a modified method that fixes the mesh with Butyl-Cyanoacrylat (Histoacryl®) instead of sutures.
Methods:
264 patients included. Including criteria: male sex, first manifestation, hernia on one side and elective operation and a hernia size LIII, MII-III, al ML (classification according to Schumpelick). Randomization preoperatively. Fixation of the mesh: PDS 2.0 (Group I), Histoacryl® (Group II). Clinical controls after 3, 12 and an average of 57 months.
Results:
264 study patients. Group I (sutured): 140 patients, group II (suture free): 124. Anaesthesia:82.9% (I), 82.3% (II) local anaesthesia. Postoperative haematoma: 3.6% (I), 2.4% (II). No major complication. Mean hospitalisation time: 3.28 (I) or 3.38 (II) days. Relapse by 5/140 (3.6%) (I), 8/124 (6.5%) (II) patients (p= 0.288). Group I (17.9%) complained after 3 month about much more pain (p=0.075) in the groin region than group II (10%). After 12 months the patients in group I were up to 93.3% without pain and those from group II in about 94.6%. (p = 0.773). After an average of 57 months 13% from group I mentioned complaints, in group II 4.7% (p=0.034)
Conclusion:
We think that the suture free mesh fixation is a promising modification of the hernia repair by Lichtenstein. There are more evaluations necessary and the medial mesh fixation should be modified and done very carefully.

Laparoscopic transgastric pancreatic necrosectomy and pseudocysto-gastrostomy in severe acute pancreatitis: First results of a new technique.

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Background
In patients with severe acute pancreatitis (SAP) infected necrotic tissue and/or persistent symptoms due to fluid collections/pseudocysts are indications for surgical treatment. This has traditionally been done by laparotomy, recently by minimal invasive techniques. We developed a laparoscopic transgastric technique (LTT) allowing for both necrosectomy and fluid drainage into the stomach. The aim of this study was to analyse the results of the first ten patients treated in our institution.
Methods
Retrospective analysis of a prospective database including all consecutive patients treated between 9/2006 and 9/2008.
Results
10 patients, median age 60 years (range 36-81). Aetiology of SAP: alcohol 4, biliary 2, unknown 4. Indication for surgery: infected necrotic tissue and/or persistent symptoms due to necrotic tissue and pseudocysts. Median time between onset of symptoms and surgery: 34.5 days (28-286 days). Median operative time: 155min (60-280), blood loss 125ml (20-500).1 conversion to open surgery (unreachable daughter cysts). 1 patient needed endoscopic dilatation postop. Reoperation: 1 (due to recurrent infection). The median hospital stay preoperative: 25 days (8-159), postoperative 10 days (6-126). Follow up 2 months after surgery (n=8 patients): Enzyme replacement treatment, 1diabetes (treated by diet restriction).
Conclusion
Necrosectomy and pseudocysto-gastrostomy by a LTT is feasible and associated with a short postoperative hospital stay. The LTT may provide a definitive surgical treatment in a single operative procedure if surgery can be postponed beyond week 4 after symptom onset.

Sphingomyelin diet induces apoptosis in intestinal epithelial cells

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BACKGROUND: Recent data suggest cathepsin D (CTSD) to act as a mediator of apoptosis. CTSD activation can be achieved through ceramide hydrolyzed from sphingomyelin (SM) from the plasma membrane. As SM is prevalent in animal products but not in vegetarian food, apoptosis and CSTD activation in colonic epithelial cells (CEC) may be diet-dependent.
METHODS: Acute colitis was induced to C57-BL/6J mice by 2% DSS in drinking water over 7 days. Mice received 4 mg SM resuspended in water by oral gavage. CEC were isolated *ex-vivo* and apoptosis rate was studied by PI-staining. Intermediate and active forms of CTSD protein were analyzed by western blot.
RESULTS: FACS analysis with isolated CEC revealed that the fraction of apoptotic primary CEC under dietary SM was significantly higher than under normal diet. The mean sub-G1 portion increased from 11.4 ± 1.9% to 20.2 ± 3.4%. By western blot we demonstrated that in SM receiving mice CTSD protein expression was increased to 137.6 ± 9.9% ($p<0.05$) for the intermediate form and to 199.6 ± 34.1% ($p>0.05$) for the mature enzyme.
CONCLUSION: Apoptosis of CEC is induced by sphingomyelin diet. When SM was applied to mice, intermediate as well as mature cathepsin D enzyme was activated. The involved mechanism may impair crucial functions of the intestinal mucosa: barrier, defence and nutrient absorption.

Multityrosinkinase inhibition by Sorafenib increases necrosis size after radiofrequency ablation in rat liver but activates compensatory growth signalling

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Background: The most widely employed local ablative treatment for HCC is radiofrequency ablation (RFA). The multikinase inhibitor Sorafenib (S) has shown survival benefits in HCC patients at advanced stages. We hypothesise that S may reduce liver tissue repair after RFA, thereby increasing the anti-tumoral effect. **Aim:** To evaluate effects of S on tissue repair following RFA in rats. **Methods:** Male SD rats (n=5-9) were subjected to ultrasound guided RFA or sham puncture with or without concomitant application of S (5mg/kg by gastric gavage q.d. starting at d-2) or saline. Livers were harvested at d1, 3, 7. Necrosis volume was calculated. Blood/tissue samples (periphery of the necrosis and normal liver) were obtained. Liver function tests were determined. Gene expression of cytokines (IL-6), growth factors/receptors and cyclin genes was quantified using TaqMan PCR. Cell proliferation was determined by PCNA. **Results:** S treatment resulted in significantly larger necrosis volume at d3 (219±24 vs. 88±52 mm; p=0.035) but not any more at d7 (76±37 vs. 47±58 mm3; P=0.50). Increased ALT (2-fold) and LDH (5-fold) are in line with a more extensive liver damage at d3 in the S group. PCNA staining showed reduced hepatocellular proliferation following S after RFA. At d3 and 7 a 6-fold induction of cyclin E expression was observed together with increased HGF (12-fold), EGF (7-fold) and EGFR (10-fold) mRNA expression. IL-6 was induced at d1 in both groups following RFA but persisted as proliferative stimulus only in S until d3 (5-fold increase). **Conclusion:** Our data suggest that S impairs tissue repair after RFA and therefore might improve RFA efficacy. But potential hazards can not be excluded and further studies in humans are clearly needed.

Colorectal Surgery in Senior Patients in 2008

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Background: As senior population is increasing in prevalence in Western countries (15-18%), more and more surgeries will have to be offered to these frail patients. Moreover, the majority of these seniors will once present a colorectal pathology. The aim of this study was to assess the results of major colorectal surgery in senior patients (≥ 70y) in terms off postoperative morbidity & mortality and length of stay.
Methods: All data regarding senior patients who underwent elective colorectal surgery in our institution in 2008 were analyzed.
Results: Median age was 79 (72-93) years, M/F 36/46, ASA ≥ 3: 44%, with a median number of 3 (0-6) treated comorbidities. 82 colorectal procedures were performed (right colectomy 28, left colectomy 6, subtotal colectomy 1, sigmoidectomy 16, proctectomy 2, low anterior resection 12, colostomy 5, Hartmann reversal 10, abdominoperineal amputation 2), with 20% by laparoscopy. Indications for surgery were: adenocarcinoma (52), complicated diverticulitis (20), adenoma (8), abcess (1). Postoperative mortality & morbidity was 0% and 33% respectively (general/surgical 17/16 %). Major complications (>Clavien III) were recorded in only 7%: small bowel perforation (1pt), cystic duct injury with bile leak (1pt), anastomotic leak (1pt), splenic rupture (1pt), incisional hernia incarceration (1pt) and myocardial infarction (1pt). Median duration of postoperative ileus was 4 (1-11) days. Postoperative nasogastric tube was maintained in 37 patients for a median of 2 (1-7) days and did not influence bowel movement recovery or morbidity. Median hospital stay was 13 (4-71) days. 70% of patients were discharged to home while only 30% required a rehabilitation stay. Actuarial survival rate was 98% with a median follow-up of 11 (5-30) months.
Conclusion: Elective colorectal surgery could be safely offered to senior patients but special attention should be applied to medical conditions which explain the high complication rate in this frail population. While return to normal life rate is already high, shorter hospital stay and lower morbidity must be achieved to obtain higher level of independence. In this regard, specifically designed fast track protocol in senior patients will be investigated in a randomized trial.

Use of pegylated Interferon in children with chronic hepatitis B and C: the Geneva and Lausanne experience.

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Aims: To evaluate the efficacy and tolerability of a treatment based on pegylated interferon-alfa 2a (PegIFN), alone for chronic hepatitis B (CHB) and in combination with ribavirine for chronic hepatitis C (CHC), in children. **Methods**: Children with biochemical and histological active CHB were treated with PegIFN 100 μg/m^2/week for 48 weeks. Children with CHC received a combination of PegIFN and RBV (15 kg/kg/d in 2 doses) for 24 or 48 weeks, according to the genotype. Usual adult follow-up was performed during and after the end of the treatment. Treatment was stopped in case of non adequate response. **Results**: CHB group: 15 patients, aged between 4 and 17 y, all HBeAg positive. 5/15 obtained an HBeAg seroconversion with one concomitant HBsAg seroconversion, 4 did not have seroconversion, 2 discontinued therapy after 12 weeks (important transaminases elevation despite reduced doses, no response to treatment as < 3 log viremia diminution), 4 still on therapy. 6/15 experienced leukopenia or elevated transaminase as side effects requiring dose adaptation. CHC group: 10 patients, aged between 3 and 15 y. Seven genotypes 1, three genotypes 3. 7/10 had negative viremia after 24 weeks of treatment (early viral response), no relapse during the follow-up period. In both groups, good clinical tolerance, frequent biological abnormalities leading to dose adaptations, excellent acceptation of a weekly subcutaneous injection even in very young children. **Conclusion**: The treatment was well accepted and with a much better tolerance than in adults. HBeAg and HBsAg seroconversions rates were comparable to those obtained in adults. For CHC, our rate of early viral response is slightly higher in children. As results obtained with treatment are comparable with much less adverse effects, high risk children should be screened for chronic hepatitis B and C and a treatment considered.

Improvement in glucose metabolism after bariatric surgery: Comparison of laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy: a prospective randomized trial

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Introduction: The exclusion of the proximal small intestine is thought to play a major role in the rapid improvement in the metabolic control of diabetes after gastric bypass. In this randomized, prospective, parallel group study, we sought to evaluate and compare the effects of laparoscopic Roux-en-Y gastric bypass (LRYGB) with those of laparoscopic sleeve gastrectomy (LSG) on fasting, and meal-stimulated insulin, glucose, and glucagon-like peptide-1 (GLP-1) levels.
Method: Thirteen patients were randomized to LRYGB and 14 patients to LSG. The mostly non-diabetic patients were evaluated before, as well as 1 week and 3 months after surgery. A standard test meal was given after an overnight fast, and blood samples were collected before and after food intake in both groups for insulin, GLP-1, glucose, PYY, and ghrelin concentrations.
Results: Body weight and body mass index (BMI) decreased markedly ($P<0.002$) and comparably after either procedure. Excess BMI loss was similar at 3 months (43.3±12.1% vs. 39.4±9.4%, $P>0.36$). After surgery, patients had markedly increased postprandial plasma insulin and GLP-1 levels, respectively, ($p<0.01$) following both of these surgical procedures, which favor improved glucose homeostasis. Compared to LSG, LRYGB patients had early and augmented insulin responses as early as 1 week post-op; potentially mediating improved early glycemic control. After 3 months, no significant difference was observed with respect to insulin and GLP-1 secretion between the two procedures.
Conclusion: Both procedures markedly improved glucose homeostasis: insulin, GLP-1 and PYY levels increased similarly after either procedure. Our results do not support the idea that the proximal small intestine mediates the improvement in glucose homeostasis.

Equal effectiveness of laparoscopic sleeve-gastrectomy (LSG) and laparoscopic Roux-Y-gastric bypass (LRYGB): mid-term results of a prospective randomized trial

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Introduction: LSG as an isolated intervention is a promising novel bariatric operation but long-term results are lacking. In this randomized, prospective, parallel group study, we compared mid-term results of LSG with today's gold standard operation, the LRYGB.
Methods: Since 10/06 more than 70 patients have been included in the study. After a minimal follow-up of 1 year data were obtained from all eligible patients: 22 LSG- and 17 LRYGB-patients. Average follow-up time was 18 (12-28) months. Endpoints were: weight loss, reduction in co-morbidity and improvement of quality of life (BAROS- and GIQLI-score), and eating quality (Suter score).
Results: The two groups were similar in terms of initial BMI (LSG=44.2 vs LRYGB=47.8 kg/m^2, $p=0.08$), age (38 vs 43 y.) and female gender (91% vs 71%, $p=0.1$). Excessive BMI loss 6 months postoperatively was 52% for LSG vs 51% for LRYGB, at one year 67% vs 71%, at 18 months 70% for LSG (n=10) vs 75% for LRYGB (n=10), and at 24 months 88% for LSG (n=3) vs 66% for LRYGB (n=4, $p=0.1$). Co-morbidities were cured or improved in the majority of patients. Average BAROS-QoL-score (minimum -3, maximum +3) improved from -0.1 to 1.9 in the LSG group and from -0.14 to 2 in the LRYGB group, the GIQLI-score from 94 to 125 and 95 to 123 respectively, reaching values of healthy individuals. Total BAROS-Score 18 months after either operation was 6.45 and 6.74 reflecting a very good over all result for both groups. The Suter score (1=very poor eating quality, maximum = 27 points) was 24 in the LSG group and 23 in the LRYGB group.
Conclusions: LSG and LRYGB seem to be equally effective at one up to two years postoperatively in terms of weight loss, reduction in co-morbidity and increase of quality of life.

Laparoendoscopic single-site umbilical and ventral hernia repair.

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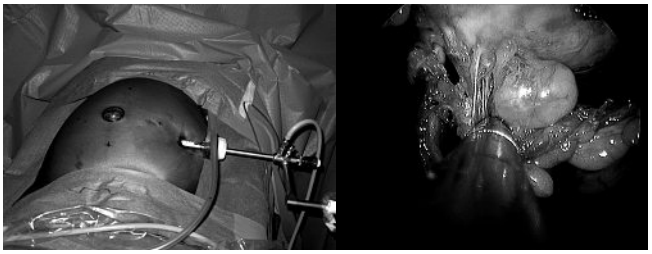
Background: In the era of NOTES (Natural Orifice Transluminal Endoscopic Surgery), surgeons show a growing enthusiasm for hidden scar and scarless surgery. Laparoendoscopic single-site surgery (LESS) may represent an alternative to NOTES, with the advantages to perform surgical procedure with standard laparoscopic instruments. We here report a technique of LESS mesh hernia repair using standard laparoscopic instruments and complying with conventional principle and technique of minimally invasive surgery.
Methods: Preliminary experience of LESS umbilical (11), ventral (4) and incisional (9) mesh hernia repair in 21 patients.
Results: LESS hernia repair was feasible in all patients scheduled for preliminary experience using conventional laparoscopic instruments. Mean operative time was 60 (42-83) minutes. No per-operative or post-operative complications were recorded, except moderate pain at one mesh fixation stitch 2 month after the operation, which resolves spontaneously.
Conclusion: LESS laparoscopic mesh hernia repair is feasible and safe. LESS mesh hernia repair may have the advantage over NOTES approach in terms of infectious risk due to avoidance of trans-visceral access. It has to be determined whether or not this approach would offer benefit to patients, except in cosmetic compared to standard laparoscopic hernia repair.



Robotic-assisted atypical gastrectomy for gastric GIST may avoid non necessary extended gastrectomy.

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Background:
The standard treatment of gastrointestinal stromal tumor is surgical resection with clear margin. No systematic lymph nodes dissection is recommended. Laparoscopic resection of gastric GIST is associated with low morbidity and short hospitalization. However, this approach can be challenging depending on tumor location. Study aim is to evaluate the feasibility of robotic resection for gastric GIST located near the oesophago-gastric or gastro-duodenal junctions.
Methods:
Trocars placement was similar to standard laparoscopic foregut surgery. Depending on tumor location, the short gastric vessels and/or the gastro-colic ligament were divided. Close to tumor implantation, a gastrotomy was performed with harmonic scalpel. The tumor was resected avoiding tumor manipulation, and retrieved in a protective bag through a small laparotomy at the end of the procedure. Stomach was closed with absorbable running suture with special care to avoid lumen narrowing.
Results:
Five selected patients underwent robotic-assisted atypical gastrectomy. Tumor location was distal antrum (n=3) and cardia (n=2). One conversion to open total gastrectomy was necessary due to presence of sarcoma on fresh frozen tissue samples. No antrectomy and/or upper polar gastrectomy were needed although the tumors were located near the pylorus and oesophageal junction respectively. No post-operative bleeding, stenosis or recurrence were recorded. Post-operative morbidity and mortality were 0%.
Conclusion:
Robotic-assisted laparoscopic atypical gastrectomy for GIST is safe and feasible. Use of a robotic platform for accurate dissection and suturing may facilitate resection and avoid more extensive gastrectomy needing reconstruction for tumor located close to oesophageal or duodenal junctions.

Prospective analysis of 72 robotic-assisted gastric bypass.

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Background: The growing obesity epidemic represents a major public health challenge. Bariatric surgery is an effective treatment for improvement or remission of comorbidities, like type 2 diabetes, hypertension, dyslipidemia, thus decreasing mortality. Gastric bypass allows achieving rapid and sustained weigh loss. Starting our program of bariatric surgery in 1997 with open procedures (> 500 cases), we move to less invasive surgery laparoscopy (> 300 cases). The morbidity and mortality of stapled anastomosis remain non-negligible. Aim of this preliminary study is to assess if robotically hand-sewn anastomosis has a lower leak and/or stricture rate.
Methods:
Seventy-two patients with a mean age of 41 years underwent a robotic-assisted Roux-en-Y gastric bypass from May 2006 to May 2009. Mean BMI was 45.1 kg/m2. Mean follow-up was 13 months.
Results:
The operation was performed robotically in 70 cases with hand-sewn anatomosis. Two cases were converted to open surgery due to severe adhesions. Mean length of stay was 6 days. No anastomotic leak or stricture was recorded. One bleeding occurred at the jejunal staples row and stopped spontaneously. No other complication was noted. Mortality rate was 0%
Conclusion:
Robotic-assisted Roux-en-Y gastric bypass is feasible, safe, and potentially superior to standard laparoscopic approach. Robotically hand-sewn anatomosis may have a lower rate of leak and stricture than stapled anastomosis performed by conventional laparoscopy. Randomised trial with larger patient number and longer follow-up are needed to confirm these preliminary results.

Systematic Review of Atraumatic Splenic Ruptures: Etiologies and Risk Factors for Mortality.

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Background: Atraumatic splenic ruptures (ASR) are rare but often life-threatening events. Aim: Characterization of etiological factors and identification of risk factors for ASR-related mortality. Proposal of a new classification. Methods: Systematic literature review (1980-2008, age >18 years). Logistic regression analysis. Results: Identification of 632 publications reporting on 845 patients (m/f ratio 2:1). Mean age was 44.9±16.7 years. In 59 patients (7%) the spleen was normal (*atraumatic-idiopathic* splenic rupture). One, 2 or 3 predisposing etiological factors were found in 711 (84.1%), 69 (8.2%) and 6 patients (0.7%), respectively (*atraumatic-pathologic* splenic rupture). Six major etiological groups were defined: *neoplastic* disorders (30.3%), *infectious* disorders (27.3%), *inflammatory, non-infectious* disorders (20.1%), *drug-induced* disorders (9.1%), *mechanical* disorders (6.8%) and *normal* spleen (6.4%). ASR was diagnosed by laparotomy 42.3%, CT 32.4%, US 18.6%, scintigraphy 0.7%, laparoscopy 0.5%, angiography 0.3% or at autopsy 5.2%. Therapy consisted of total splenectomy 84.4%, splenorrhaphy 0.9% or conservative measures 14.7%. Splenomegaly was found in 55%. ASR-related mortality was 12.2%. Multivariate analysis found splenomegaly (P=0.04), age>40 years (P=0.007) and neoplastic disorders (P=0.008) to be associated with an increased ASR-related mortality. Conclusions: Splenomegaly, advanced age and neoplastic disorders are associated with an increased ASR-related mortality. A new simplified classification distinguishes between *atraumatic-idiopathic* (7%) and *atraumatic-pathologic* splenic ruptures (93%).

Management of peritoneal carcinomatosis by hyperthermic intraperitoneal chemotherapy, a 13 years experience

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Background : Peritoneal carcinomatosis (PC) is a common manifestation of advanced malignancies, associated to bad prognosis. There is presently increasing interest in hyperthermic intraperitoneal chemotherapy (HIPEC) combined with surgical cytoreduction (SC). We report here our 13 years experience for the management of peritoneal carcinomatosis.
Method : Retrospective study of all operative management of PC by SC-HIPEC from 1996 to 2009.
Results : During this period, 53 surgical explorations for PC were performed (22 in the last 2 years). Complete cytoreduction was judged impossible in 7. Median age of the 46 resected patients (31 F, 15 M), was 52 (17-65). Primary cancers were 32% pseudomyxomas, 24% colorectal, 22% ovarian, 17% gastric and 4% mesotheliomas.
Overall morbidity (grade I-IV) was 71%; severe morbidity (grade III-IV) 39%; reoperation was warranted in 20% (3 anastomotic leaks, 4 perforations); perioperative mortality (D60) was 2% (n=1); median hospital stay was 23 days (12-84).
Median follow-up was 13.5 months (1-196), with an overall survival rate of 80%. 8 patients died of disease; 37 patients are still alive, from which 86.6% (32/37) are presently without signs of recurrence.
Conclusion : these results show that, in very selected patients, SC-HIPEC has a profound impact on the prognosis PC; in this context, the high observed morbidity appears easily acceptable; SC-HIPEC has a very promising future in specialized centers.

Results of islet autotransplantation after extended pancreatectomy for benign disease of the pancreas.

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Background: Islet autotransplantation is successful in the prevention of surgical diabetes after pancreas resection for chronic pancreatitis (CP), with insulin independence rates of 44.5% at 1 year. We report our experience with islet autotransplantation after extensive pancreatectomy for the resection of benign tumors of the pancreas.
Methods: Between 1992 and 2008, 12 patients underwent extensive left pancreatectomy for benign lesions located at the neck of the pancreas. One patient had a traumatic pancreatic section. 11 tumours were separated from the specimen and sent for direct pathological examination. After unequivocal diagnosis of benignity, the rest of the specimen was processed and pancreatic digest infused into the portal vein. Isolation results were compared with those obtained from chronic pancreatitis (CP) patients or dead brain donors DBD.
Results: Tumours were 8 cystadenomas and 3 insulinomas. There was no mortality and a low morbidity with one bacteraemia (str. Mitis), no portal thrombosis or pancreatic fistula occured. Mean islet yields were 248'121 IEQ vs 110'290 in CP (p=0.03) and 345'201 in DBD (p=0.89). Normalized to weight of pancreatic tissue processed, we isolated 5'895 IEQ/gram vs 1'457 in CP (p=0.007) and 3'932 in DBD (p=0.005). Median follow-up was 90 months with all patients having positive basal and stimulated C-peptide levels and normal HbA1c. 11/12 patients are insulin-free. One patient died from unrelated causes after 12-years.
Conclusion: Islet autotransplantation after extensive pancreatic resection for benign disease is a successful procedure preventing postoperative diabetes. Morbidity is low and there was no mortality. Therefore this method should be recommended for extensive resection of the pancreas.

Functional Outcome after Perineal Stapled Prolapse Resection (PSP) for External Rectal Prolapse

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Background: A new surgical technique, the Perineal Stapled Prolapse resection (PSP), for external rectal prolapse was introduced by a feasibility study in 2008. This study presents the first results of a larger patient group with functional outcome in a short-term follow-up.

Methods: From December 2007 to April 2009 the PSP was performed on 32 patients with external rectal prolapse. Perioperative morbidity and functional outcome were prospectively documented by different scores.

Results: In all 32 patients, the median age was 80 years (range 26-93); PSP was performed without intraoperative complications. One-third of the patients complained of a recurrent prolapse. 6.3% postoperative complications occurred; The median operation time was 30 minutes (15-65), the median hospital stay 5 days (2-19). The functional outcome of 31 of the patients was available after a median time of 4 months (2-20) The median reduction of the Wexner score was from 16 (4-20) before surgery to 1 (0-14) afterwards, P <0.0001 and no new incidence of constipation was reported.

Conclusion: The PSP is an elegant, fast and safe procedure, with good functional results.

Endoscopic drainage of symptomatic pancreatic fluid collections: results and long-term outcome of a multi-center study.

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Background and aim: This multi-center study examined the immediate and long-term outcome of patients who underwent endoscopic drainage for symptomatic pancreatic fluid collections.

Methods: From October 1997 to September 2008, the clinical data of all patients with pancreatic pseudocysts, abscesses or infected walled-off necrosis who underwent endoscopic drainage were reviewed. EUS-guided puncture was used to access the fluid cavity. Abscess collections which spontaneous perforate into the gastric lumen were directly cannulated under fluoroscopic guidance. Pseudocysts less than 6cm were treated with simple aspiration. Larger pseudocysts and abscesses without any significant solid debris were treated by insertion of both transmural stents and nasocystic catheter initially. Irrigation was performed and the nasocystic catheters were removed once sepsis has resolved. For infected walled off necrosis, additional stepwise balloon dilatation of the gastro/duodenocystostoma was performed, followed by endoscopic transmural debridement until all necrotic debris were removed. Endoscopic retrograde pancreatography (ERP) or magnetic resonance cholangiopancreatography (MRCP) were performed to evaluate for pancreatic duct fistulas, which were initially treated by stenting. Persistent fistulas were sealed using Histoacryl during follow-up ERP. Patients were monitored for resolution of the collections, and recurrence of pancreatic fluid collections in the long-term.

Results: A total of 90 patients (male 61%; mean age 56.1 years [range: 12 – 89]) were treated. The nature of collections were pseudocysts in 22/90, pancreatic abscess in 26/90 and infected walled-off necrosis in 52/90. EUS-guided drainage was performed in 82 patients. Eight patients had spontaneous perforation of abscess collection into the gastric lumen and direct cannulation of the cavity under fluoroscopic guidance was performed. The mean size of the collection was 11.6cm (range: 3 – 20). The treatment modalities included: simple aspiration: 2/90; transmural drainage: 35/90; transmural drainage combined with endoscopic necrosectomy: 53/90. Technical success was achieved in all patients. Procedural complication included bleeding managed conservatively in 12/90, and perforation in 7/90, of which 3 were treated conservatively. Clinical resolution was achieved endoscopically in 77/90, while surgery was required in 4/90 due to perforation, 2/90 due to inaccessible collections and 7/90 due to ineffective drainage. Therapeutic ERP with pancreatic duct stenting was required in 42 patients, of which 3 required endoscopic sealing using Histoacryl injection due to persistent fistulas. During long-term follow up which ranged from 6 – 135 months, surgery was required in 9 patients due to recurrence of fluid collections secondary to recurrent severe pancreatitis.

Conclusion: Endoscopic drainage of symptomatic pancreatic fluid collections is safe and effective, with excellent immediate and long-term results.

Development and Validation of a Prediction Score for Postopeative Acute Renal Failure following Liver Resection

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Objective:

To develop and validate a score to predict postoperative acute renal failure (ARF) after liver resection.

Background:

Postoperative ARF after major surgery is associated with morbidity and mortality. Early identification of patients at risk of ARF is important in order to provide protective kidney treatment.

Methods:

Postoperative ARF was prospectively assessed in consecutive patients undergoing liver resection.. In randomly selected two third of the total number of patients, multivariate logistic regression analysis was used to develop a new prediction score (including a full and a reduced model), based on the preoperative parameters of age, gender, pre-existing chronic renal dysfunction, cardiovascular disease, diabetes, bilirubin and alanine aminotransferase (ALT) levels. In the remaining last third of the patients, the new score was validated by calibrating the accuracy of the score. (ClinicalTrials.gov NCT 00743132)

Results:

Postoperative ARF occurred in 15.1% (86 out of 569 consecutive patients) from 2002 to 2007 and was highly associated with mortality (22.5% vs. 0.8% without ARF, p<0.001). In the 380 (two third of the population) patients selected for the development of the prediction score, preoperatively elevated ALT, pre-existing cardiovascular disease, chronic renal failure and diabetes were the strongest predictors of ARF. Validating the full prediction model (0–22 points) to the remaining 189 patients (one third of the population), the risk could be predicted accurately (mean predicted risk of 11.5% versus an observed risk of 14.8%) without significant differences between predicted and observed risks across different risk categories (p=0.98). Prediction with the reduced model including the four strongest predictors (0-7 points) was almost as accurate as with the full model (11.4% predicted versus 14.8% observed) and also without significant differences across different risk categories (p=0.75).

Conclusions:

The new prediction score (the full as well as the reduced model) accurately predicted postoperative ARF after liver resection. The use of these scores allows early identification of patients at high risk of ARF, and support decision making for protective kidney interventions perioperatively.

Clinical Experience With Adalimumab in a Multicenter Swiss Cohort of Patients With Crohn's Disease

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Background : Adalimumab (ADA) is a fully human monoclonal antibody which binds with a high affinity and specificity to tumor necrosis factor (TNFα). Controlled clinical trials have demonstrated its efficacy and safety in the treatment of moderate-to-severe Crohn's disease (CD). However, long term experience with ADA in real-life clinical practice has rarely been reported. **Objective:** to assess the long term effectiveness and the safety of ADA in a multicenter cohort of patients with moderate-to-severe CD. **Methods**: Fifty five patients, mean age 37.5 years, median disease duration 12.7 years were treated with ADA and followed up over a period of 52 weeks (range 12-96 weeks, median 50 weeks). Thirty eight patients had previously been treated with infliximab (IFX). The ADA induction regimen was 160/80 mg in 31 patients and 80/40 mg in 24 patients. The clinical evolution during treatment was evaluated with the Harvey-Bradshaw Index (HBI) at week (W) 4-6, 12, 24 and 52. Patients were classified in three categories : remission (HBI of 4 or less) , response (reduction HBI of more than 3 points) and non response. **Results**: On week 4-6, the response was demonstrated in 83.6 % patients and the remission was induced in 52.7%. The remission was maintained in 89.6% patients at W12 and 72.4% patients at W24. In per protocol analysis, at W52 half of patients were still in response and half had stopped ADA : 5/18 because of adverse events and 13/18 because of no response or loss of responsiveness. Thirteen patients (23.6%) needed to escalate the dose after a mean interval of 7 months (range 1-24 month). The response rate at W4-6 was not influenced by the sex of patients, the smoking status, the disease duration, the involved intestinal area, previous surgery, previous IFX treatment, the first month's ADA total dose or the first month's ADA dose divided by weight. Interesting, however, the remission rate at W4-6 was significantly higher in patients intolerant (78.9%) to IFX as compared to those who have lose the response (42.1%), to IFX (p-0.02). Overall ADA was well tolerated, 54.5% patients didn't report any side effects. The most common side effect was pain at the injection site (10.9%) followed by asthenia (9%) and infections (7.2%). **Conclusion** : Our results show that ADA can be considered as an efficacious and safe option in patients with moderate-to-severe CD also in long term treatment.

Notch2 signaling promotes biliary epithelial cell fate specification and tubulogenesis during bile duct development in mice

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Background: Alagille syndrome patients, which suffer from bile duct paucity, carry *Jagged1* and *Notch2* mutations, indicating that Notch2 signaling is important for intrahepatic bile duct (IHBD) development. However, the exact function of Notch2 during IHBD development is not known.
Methods: We generated a novel mouse model for the conditional expression of activated Notch2 (Notch2ICD) in hepatoblasts. Differentiation, tubulogenesis and survival of biliary epithelial cells (BECs) during IHBD development was studied from embryogenesis into adulthood using immunohistochemistry and markers for BECs (HNF1β, DBA), hepatocytes (HNF4α) and biliary canaliculi (ZO1).
Results: Notch2ICD expression in bipotential hepatoblasts leads to their differentiation into BECs and to the formation of additional tubular structures in portal regions and ectopic tubular structures in lobular regions. Additional periportal ducts are connected to the biliary canaliculi network and maintained in adult mice, whereas ectopic lobular ducts are lost during postnatal development. Ductal plate cells expressing transgenic Notch2ICD persist into adulthood.
Conclusions: Notch2 signaling regulates BEC differentiation, the induction of tubulogenesis during IHBD development and BEC survival, independent from additional portal cues. However, portal cues are crucial for mediating bile duct maintenance.

FACTS-Survey: First Approved Certolizumab Therapeutic Experience in Switzerland

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Background: Switzerland was the first country to approve the use of Certolizumab pegol (Cimzia®, CZP) in September 2007 for treatment of patients with moderate to severe Crohn's disease. This phase IV study aimed to evaluate indications, effectiveness and safety of CZP in a multicenter cohort of practice-based patients. Methods: A questionnaire was sent to Swiss gastroenterologists in hospitals and private practice to evaluate CZP treated patients at inclusion and week 6. Disease activity was measured by the Harvey-Bradshaw Index (HBI). Results: 50 patients (31F/19M) were included, 56% had complicated disease (stenosis or fistula), CD related surgery was performed in 52%. CZP was applied because of insufficient or loss of response to previous treatments (100% systemic steroids, 96% immunomodulators, 78% infliximab, 50% adalimumab). HBI significantly decreased under CZP treatment (12.6±4.7 week 0 vs 6.2±4.4 week 6, P <0.001), the response and remission rates at week 6 were 53% and 40% respectively. The number of draining perianal fistulae was significantly reduced (P <0.001). The frequency of adverse drug reactions was low (6% certain CZP related). CZP was continued in 80% of patients beyond week 6. Conclusions: CZP was mainly applied to CD patients with complicated disease behaviour (high frequency of surgery, non-response or loss of response to immunomodulators and/or biologic treatment). Despite these negative predictors for treatment response, CZP induced response in 54% and remission in 40% of patients at week 6. This series further provides the first evidence of effectiveness of CZP in perianal fistulizing CD.

Diagnostic Delay in Patients with Inflammatory Bowel Disease

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Background and Aim: The diagnosis of inflammatory bowel disease (IBD) comprising Crohn's disease (CD) and ulcerative colitis (UC) continues to present difficulties. The unspecific symptoms and the limited value of tests are the most common causes of delay in diagnosis. Diagnostic delay in adult IBD patients has not sufficiently been studied in recent years. The aim of the present study was to determine the time intervals between onset of symptoms and diagnosis of IBD and find prognostic factors of delay. **Methods:** IBD patients from an adult, population-based cohort in Switzerland (Swiss IBD cohort study) were included in this study and were asked about their time of first symptoms, the time of diagnosis, visits to general practitioners and gastroenterologists and family history of IBD. **Results:** A total of 909 IBD patients (47.4% male, 52.6% female) aged 43.7 ± 14.6 (range 17-89 y) were included. 523 patients presented with CD, 352 patients with UC and 24 patients with indetermined colitis. Time from first symptoms due to IBD to diagnosis was 113 ± 254 weeks. For CD patients time from first symptoms to diagnosis was significantly longer than for UC patients (154 ± 110 weeks vs. 55 ± 110 weeks, p<0.0001). There was no gender difference in both diseases. The time from the first symptoms to the visit at a general practitioner was 12.8 ± 30.8 weeks (CD 14 ± 36 weeks vs. UC 11 ± 22 weeks, p=ns). The time between diagnosis and first visit to a gastroenterologist was 10 ± 32 weeks (CD 12 ± 39 weeks vs. 7 ± 14 weeks, p=ns). In the 126 patients with a positive family history the time from first symptoms to diagnosis was significantly lower than in patients without family history of IBD (p<0.001). **Conclusion:** In our Swiss cohort, the diagnostic intervals of recognizing inflammatory bowel disease are still unacceptably long. More public awareness work has to be done. Diagnosis is delayed mainly on the level of general practitioners indicating that specific educational measures and programs need to be established.

Interleukin 17 is a Critical Mediator of Vaccine-Induced reduction of *Helicobacter* infection in the mouse model

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Background & Aims: Despite the proven ability of immunization to reduce *Helicobacter* infection in mouse models, the precise mechanism of protection has remained elusive. This study explores the possibility that interleukin-17 (IL-17) plays a role in the reduction of *Helicobacter* infection following vaccination of wild-type animals or in spontaneous reduction of bacterial infection in IL-10 deficient mice. ***Methods:*** In mice, reducing *Helicobacter* infection, the levels and source of IL-17 were determined and the role of IL-17 in reduction of *Helicobacter* infection probed by neutralizing antibodies. ***Results:*** Gastric IL-17 levels were strongly increased in mice mucosally immunized with urease + cholera toxin (CT) and challenged with *H. felis*, as compared to controls (654±455 and 34±84 relative units for IL-17 mRNA expression, p<0.01 and 6.9±8.4 pg and 0.02±0.04 pg for IL-17 protein concentration, p<0.01, respectively). Flow cytometry analysis showed that a peak of $CD4^+IL\text{-}17^+$ T cells infiltrating the gastric mucosa occurred in immunized mice in contrast to control mice (4.7±0.3% and 1.4±0.3%, p<0.01, respectively). Gastric mucosa infiltrating $CD4^+IL\text{-}17^+$ T cells were also observed in IL-10 deficient mice that spontaneously reduced *H. felis* infection (4.3±2.3% and 2±0.6%, p<0.01, for infected and non-infected IL-10 deficient mice, respectively). In wild-type immunized mice, intraperitoneal injection of anti-IL-17 antibodies significantly inhibited inflammation and the reduction of *Helicobacter* infection in comparison to control antibodies (1 out of 12 mice versus 9 out of 12 mice reduced *Helicobacter* infection p<0.01, respectively). ***Conclusion:*** IL-17 plays a critical role in the immunization-induced reduction of *Helicobacter* infection from the gastric mucosa.

Soft tissue navigation: an ex-vivo porcine liver model for multimodality imaging and simulation of deformations to validate techniques for image-guided liver surgery

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Background: Introduction of a porcin liver model for integration of a clinically applicable navigation system for enhancing spatial orientation during complex hepatic resections.

Methods: For data aquisition controlled deformations were induced on three porcine livers with simulated blood flow during image aquisition by CT scanner. Ultrasound images were acquired using a calibrated and optically tracked ultrasound probe (Philips Sonos 5500). From the resulting CT datasets, portal and hepatic veins where segmented semi-automatically using a 2D region-growing algorithm. Surface models were created and vessel centerlines were calculated using a skeletonization algorithm. The ultrasound images were segmented using our automatic vessel segmentation algorithm which provides a parametric vessel representation. The differences between vessel trees reconstructed from CT and segmented vessel from ultrasound were quantified by calculating the Euclidean distances between the centerlines obtained from CT and the vessel center points from the ultrasound.

Results: The deformation predicted from ultrasound imaging can be validated quantitatively using the corresponding CT dataset to develop an integrated hardware/software framework for navigation, interactive display and ultrasound.

Conclusion: Computer assisted surgery is the future of liver surgery by combining CT scans with real time ultrasound images allowing the surgeon to identify the exact position of surgical instruments in liver parenchyma. Our software system is ready to be used in clinical trials.

TRANSABDOMINAL INGUINAL HERNIA REPAIR (TAPP) OFFERS A BETTER LEARNING EXPERIENCE FOR ROBOTIC SURGERY THAN CHOLECYSTECTOMY

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Introduction
In order to learn a new operative technique, interventions should allow the application of the aptitudes gained by the novel method. In addition, the intervention must be performed frequently and should further allow a wide margin of error. Like for laparoscopic surgery, cholecystectomy is considered the optimal operation for the development of robotic surgery skills. We evaluated, if robotic-assisted laparoscopic inguinal hernia repair (TAPP) could qualify as early training intervention for robotic surgery.

Methods
For each of the 35 interventions performed with the DaVinci(r) roboter at our institution, experience of OP personnel, time to set-up the roboter, time to dock the roboter to the patients, duration of the intervention and time of roboter use is monitored. Calculated costs based on time of intervention, time of OR usage, personnel and material costs.

Results
Thirteen robotic-assisted TAPP procedures (11 bilateral, 4 recurrent hernia) were performed. Mean OR time decreased from 123 min (95%CI:87-158) in the first 7 operations to 99 min (95%CI: 62-137) in the last 6 operations (P=n.s.). Docking time and set-up time decreased from mean 18 min (95%CI: 2.7-33) and 34 min (95%CI: 22-46) to 8.4 min (95%CI:3.9-13) and 16 min (95%CI: 12-19), respectively (P=0.011 for the latter, Mann Whitney U-test). One seroma was the only morbidity noted.

Costs of material specific for standard TAPP technique are 1484 CHF compared to 1699 CHF specific for robotic surgery. For cholecytectomies the according costs are 473 CHF for standard and 1479 CHF for robotic interventions.Advantages of robotic TAPP compared to robotic-assisted cholecystectomy are the opportunity to exercise suturing and knot-tying at the closure of the peritoneum, the training of pseudo-haptic feeling (the DaVinci roboter does not give haptic feed-back) handling the hernia sack, peritoneal flap and mesh graft without the risk of major complications. Because, unlike in TAPP, laparoscopic cholecystectomy largely depends on blunt dissection, the use of robotic assistance significantly increases operating time in all but the simplest cases.

Conclusion
In our experience, the transabdominal repair of inguinal hernia (TAPP) offers major advantages at lower costs over choleystectomy to quickly acquire robotic surgery skills necessary for more advanced procedures.

3D vision enhances task performance independent of the surgical method

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Abstract

Background
Despite obvious advantages of minimally invasive surgery, laparoscopy lacks of natural stereoscopic depth perception and spatial orientation. Therefore, these 2 parameters appear to represent mayor downsides of minimal-invasive surgery. Still, the importance and overall negative effect of this lack of natural stereoscopic depth perception and spatial orientation has not been clearly demonstrated. The aim of this study was to evaluate if three-dimensional (3D) visualization improves surgical skills and task performance when compared to two-dimensional (2D) vision.

Material and Methods
Difference between 3D and 2D vision was tested in 34 individuals with different surgical knowledge (n=4: more than 10years surgical experience, n=8: 5-10y.; n=9:1-5y; n=13: no hands-on professional experience).
Each individual performed three tasks (T1-3) in an open, laparoscopic and robotic surgical technique. T1 intended to test three dimensional imaging and spatial relationships by using small rubber rings which had to be placed over soft cones for training simple grasping and positioning. T2 tested dexterity and precision using a suture that had to be passed from instrument hand to hand through flexible small eyelets. T3 tested dexterity in suturing and knot tying of a simulated gaping skin incision. Each task was performed in a 3D mode using binocular vision for open performance, the Viking 3Di Vision System for 3D laparoscopic performance and the daVinci® system in a 3D mode for robotic performance. Subsequently same tasks were repeated in a 2D mode (monocular by means of a blindfold, conventional laparoscopy, daVinci 2D mode).

Results
Loss of 3D vision increased difficulty and time to perform a task independent of the approach. To solve simple tasks in 2D vision it took about 25% longer than in 3D vision. For more complex tasks 2D vision prolonged the procedure in 3D by about 75%. For easy tasks laparoscopic and robotic assisted performance were similar with a trend towards shorter time for performance with the robotic system. For harder tasks performed under 3D vision, robotic-assisted performance was faster than laparoscopic performance. 3D roboter-assisted performance was superior to 2D laparoscopic performance, independent of the difficulty of the task.

Conclusion
The percentage of time reduction by 3D to perform a task was dependent on the difficulty of the task and independent of the modality. The more complex a task, the more 3D vision increased performance compared to 2D vision.
Open approach was superior to laparoscopic or robotic-assisted procedures, independent of the task or vision. For harder than easy tasks performed under 3D vision, robotic-assisted performance is faster than laparoscopic performance. Performance under 2D vision is not significantly different between laparoscopy and robotic-assisted procedures, independent of the difficulty of the task. The importance of vision does not rectify to directly compare laparoscopic surgery with robotic-assisted surgery. The main difference between task performance in laparoscopy and robotic-assisted surgery is the vision!

Calorimetry: a Rapid Method to Detect Ascitic Fluid Infection

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Background: Spontaneous bacterial peritonitis (SBP) is culture-negative in up to 50 % of patients with increased ascitic PMN count. Calorimetry can detect microorganisms by measuring growth-related heat and may be superior to conventional methods using blood cultures (BC). We tested whether calorimetry could detect bacterial growth in ascitic fluid faster and more sensitive than BC.

Methods: Sterile ascitic fluid of 3 liver cirrhosis patients was artificially inoculated with *E. coli*. 10 ml-samples were injected in BC bottles (BactAlert) and 1 ml-samples were filled in calorimetry ampoules, containing 2 ml sterile culture medium. Measurements in the respective devices were started simultaneously.

Results: Time to positivity (TTP) was shorter with calorimetry (mean TTP 4 h) as compared to BC (mean TTP 8.5 h) at same bacterial concentrations. Inocula with 1 cfu/ml were detected by both methods. Ascitic fluid of one patient inhibited bacterial growth in calorimetry ampoules, but not in BC bottles.

Table: Time to positivity of *E. coli* (ATCC 25922) in ascitic fluid

Inoculum (cfu/ml)	TTP (h) BC	TTP (h) calorimetry	Time gain by calorimetry (h)
1.0E+06	5.52	1.20	4.32
1.0E+05	6.72	1.86	4.86
1.0E+04	7.68	2.84	4.84
1.0E+03	8.64	3.83	4.81
1.0E+02	9.60	4.95	4.65
1.0E+01	10.56	6.06	4.50
1.0E+00	11.52	7.52	4.00

Conclusions: TTP was considerably shorter by calorimetry as compared to BC. However, with calorimetry, false negative results may occur. We conclude that factors inhibiting bacterial growth may be present in ascitic fluid (e.g. phagozytes, component), which are inactivated by the BC method (not by calorimetry). The identification of growth-inhibiting factors could improve understanding of the pathogenesis of SBP and detection of microorganisms in ascitic fluid.

Boerhaave's Syndrome G01

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Background:
Boerhaave's Syndrome is a rare condition with mortality up to 40%. It is caused by a rapid rise in intraluminal pressure with following oesophageal perforation, mostly in the distal third. Clinical symptoms following vomiting are thoracic pain, dyspnoea and shock.

Case report:
We describe the case of 80-years old woman. Her personal history is otherwise uneventful and she takes no medication. She presented to our hospital because of acute-onset of thoracic pain and dyspnoea. Symptoms started immediately after forceful coughing because of obstructic feeling during eating "Hirsebrei". Clinically we found two hours after the meal an impressing thoracal und cervical subcutaneous emphysema. The computertomography shows oesophageal rupture in the middle third with proximal dilatation and signs of beginning mediastinitis. We immediately started antibiotic therapy with ertapenem und referred the patient to an experienced oesophageal surgical centre. Intra-operative a 4cm long oesophageal rupture was found infracarinaer and a necrotisizing mediastinitis. Oesophagus otherwise looked well without signs of inflammation or tumor. The site of rupture was sewed and beside an extensive mediastinal cleaning mediastinal und thoracal drainage was installed. 20 Days postoperatively the patient died of mediastinitis.

Summary:
Thoracic pain after vomiting should led to differential diagnosis of spontaneous oesophageal rupture (Boerhaave's Syndrome). If signs of shock or mediastinitis are present urgent surgery therapy is recommended. Even with immediately surgical intervention the Boerhaave's Syndrome has a high mortality due to mediastinitis.

G02

A flexible continuum between adaptive and innate immunity in host-microbiota mutualism

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The paradigm has emerged that minimizing microbial recognition within the specialized intestinal microenvironment is crucial to establishing mutualism and consequently it was unsurprising that animals with deficient innate immunity could contain their microbiota. We examined the development of immune mutualism with the intestinal microbiota in mice with gross innate immune deficiencies and here present data that challenge this view.

Mice deficient in critical innate immune functions such as Toll-like receptor signalling or oxidative burst production fail to contain newly encountered commensal bacteria and spontaneously produce high-titer serum IgG antibodies against their intestinal microbiota. These antibodies functionally compensate for innate bacterial clearance defects and are essential to maintain host-commensal mutualism *in vivo* in the face of innate immune deficiency.

This suggests that relatively severe innate immune deficiency may result in surprisingly mild phenotypes, with disease observed only when compensatory adaptive responses are aberrant. Spontaneous hyper-activation of adaptive immunity against the intestinal microbiota in innate immune deficiency may therefore clarify the underlying mechanisms of inflammatory diseases where immune dysfunction is implicated.

G03

The effect of instruction and motivation on anorectal manometry measurement

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Background: Guidelines recommend instruction and motivation during anorectal manometry; however its impact on findings has not been reported.

Aims: This study assessed the effects of standard vs. full instruction and motivation on the amplitude and duration of external anal sphincter contractions ("squeeze") and bearing down assessed by anorectal high resolution manometry (HRM).

Methods: HRM was performed by a solid state catheter with 10 circumferential sensors at 6mm separation across the anal canal and 2 sensors in the rectum (Manoscan AR 360, SSI). Measurements were acquired first with standard instruction and then with full instruction and motivation. On both occasions resting tone, squeeze pressure and duration during three "squeeze" attempts and rectoanal pressure during three bear downs (x3) were assessed.

Results: 29 consecutive patients (23female; age 25-81) were presenting with fecal incontinence (13), outlet obstruction (11), anal pain (4) and constipation (1). Motivation during "squeeze" had no effect on amplitude (193±80mmHg vs 193±75mmHg $p< 0.9$) but increased duration of anal sphincter contraction (12±5vs sec 15±5sec, $p<0.001$). Effective abdominal pressure rise increased (48±20 mmHg vs 63±23 mmHg, $p< 0.004$)

Conclusions: Full instruction and motivation resulted in more reliable measurement of anorectal function and significantly improved voluntary anorectal functions. Effective explanation of procedures and motivation during manometry is required to ensure consistent results and to provide an accurate representation of patient ability to retain continence and evacuate stool.

HRM provides a detailed description of anorectal function, without artefacts induced by shifts in catheter position.

G04

VARIATION OF UPPER AND LOWER OESOPHAGEAL SPHINCTER PRESSURE DURING STATIONARY HIGH RESOLUTION MANOMETRY

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Background: Normal function of upper and lower oesophageal sphincter (UOS and LOS) is required during swallowing and for anti reflux defence. Measurement of sphincter pressures are key findings in stationary manometry studies. Food intake affects sphincter pressure; however it is unclear whether these measurements remains stable during standard water and bread swallows.

Aims: This study investigated change in sphincter pressure during High Resolution Manometry (HRM) at baseline and after standardized water and bread swallows.

Methods: HRM was performed by solid state catheter with 36 closely spaced sensors (<2cm separation) with application of an electronic sleeve that provided the maximum pressure across the gastro-oesophageal junction as for a standard perfused sleeve sensor in conventional manometry. Measurements of end expiratory sphincter pressure were aquired over 30 seconds, 5 minutes after positioning the catheter at baseline and after 10 water swallows and 10 bread swallows.

Results: 70 consecutive patients (48 female, 22 male; age 17-76) with dysphagia (15), reflux symptoms (38), laryngo-pharyngeal symptoms (10) and before gastric bypass (4). Variation in mean LOS pressure on repeated measurement during the study was 7.5mmHg ±5mmHg.(70%).Although there was a small fall in mean LOS pressure from baseline (7.8mmHg) after water (7.4mmHg) and bread swallows (7.1mmHg), this change was not significant 7.8mmHg vs. 7.1 mmHg (95% confidence interval of the difference baseline vs. end of study: -1.8 to +3.2 mmHg; $p<0.4$). Variation in mean UOS pressure (during the study was 58.2 mmHg ±18.4 mmHg, 30%). A fall in upper oesophageal sphincter pressure was observed at the same time points (71.2mmHg vs. 54.2mmHg vs. 49.1mmHg, $p<0.001$, 95% confidence interval of the difference being -13.5 to -30.5 mmHg).

Conclusion:
Variation of LOS Pressure was very high but over all, was stable during stationary HRM study. In contrast, UOS pressure fell from baseline after water and bread swallows. This change may be due either to adaptation to the manometry catheter or the effects of drinking and eating. Interpretation of UOS pressure requires information about when this measurement was acquired.

Intramural Esophageal Hematoma after Intraoperative Transesophageal Echocardiography - a rare complication G05

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Background: Transesophageal echocardiography (TEE) is a widely-used diagnostic tool, often performed to check valvular function during or after prosthetic heart surgery. Adverse effects of this examination are infrequent. However, serious complications such as esophageal perforation (incidence of 0.01%) or upper gastrointestinal bleeding (0.03%) have been reported. Methods/Results: We describe the case of a 78 year-old man whose clinical conditions deteriorated three days after open-heart surgery for aortic valve replacement. Intraoperatively, TEE confirmed sufficient valvular function. The initial clinical course was uneventful. Liquid diet and oral anticoagulation therapy (OAT) were started two days after surgery. One day later, the patient presented with chest pain, odynophagy and haematemesis. Bleeding was not massive and hemoglobin levels remained stable. Endoscopic evaluation revealed a "blood sausage like" swelling extending over the entire esophagus, a finding characteristic of intramural hematoma. Nil per mouth, followed by gradual return to solid food, and discontinuation of OAT led to a complete recovery of the patient. Discussion: This case report illustrates intramural esophageal hematoma (IEH) as a potential complication of TEE. IEH is characterized by the typical clinical triad of acute chest pain, odynophagy and haematemesis, often preceded by potentially traumatic mechanisms such as retching or vomiting. Some cases follow instrumentation, e.g. upper endoscopy. One third of IEH occur spontaneously. TEE has not been described as a cause so far. A frequent cofactor is antiaggregant therapy or OAT; in our patient OAT was not yet effective, with an INR of 1.1. Since upper endoscopy may run a risk of perforation or hemorrhage, diagnosis is best established by chest CT scan. Most cases resolve uneventfully under conservative treatment. Conclusion: To our knowledge, this is the first case of IEH described following intraoperative TEE. This rare complication should be considered in any patient with acute chest pain, odynophagy and/or haematemesis following TEE.

Iron-deficiency anemia and hematochezia: When is colonoscopy appropriate? G06

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Background: Clinical practice guidelines support the use of colonoscopy in IDA, but formal evidence is lacking. **Methods:** A multidisciplinary multinational expert panel (EPAGE II) developed appropriateness criteria based on best published evidence (systematic reviews, clinical trials, guidelines) and experts' judgement. Using the explicit RAND Appropriateness Method (3 rounds of experts' votes and a panel meeting), 102 clinical scenarios were judged inappropriate, uncertain, appropriate, or necessary). **Results:** In IDA, colonoscopy was appropriate in patients ≥50 years and necessary in the presence of lower abdominal symptoms. In both men and women aged <50 years,, colonoscopy was appropriate if prior sigmoidoscopy and/or gastroscopy did not explain the IDA, and necessary if additional lower GI symptoms were present. In women <50 years with a potential gynecological cause, addition lower GI symptoms rendered colonoscopy appropriate. In patients ≥50 years with hematochezia, colonoscopy was always appropriate and mostly necessary. **Conclusions:** Colonoscopy is appropriate and even necessary for many indications related to iron-deficiency anemia or hematochezia, in particular in patients aged ≥50 years. The main factors influencing appropriateness are age, results of prior investigations (sigmoidoscopy, gastroscopy, previous colonoscopy), CRC risk and sex. EPAGE II appropriateness criteria are available on www.epage.ch.

Appropriateness of therapy for active Crohn's disease: Results of a multidisciplinary international expert panel (EPACT II) G07

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Background: In clinical practice, many decisions for active CD patients need to be taken without high-quality evidence. For this reason, a multidisciplinary European expert panel followed the RAND method to develop explicit criteria for the management of individual patients with active, steroid-dependent (ST-D) and steroid-refractory (ST-R) CD. **Methods:** Twelve international experts convened in Geneva in December 2007, to rate explicit clinical scenarios on a 9-point scale. Median ratings were stratified into three categories: appropriate (7-9), uncertain (4-6) and inappropriate (1-3). **Results:** Overall, panelists rated 296 indications pertaining to mild-to-moderate, severe, ST-D, and ST-R CD. In anti-TNF naïve patients, budesonide and prednisone were found appropriate for mild-moderate CD, and infliximab (IFX) when those had previously failed or had not been tolerated. In patients with prior success with IFX, this drug with or without co-administration of a thiopurine analog was favored. Other anti-TNFs were appropriate in case of intolerance or resistance to IFX. High-dose steroids, IFX or adalimumab were appropriate in severe active CD. Among 105 indications for ST-D or ST-R disease, the panel considered appropriate the thiopurine analogs, methotrexate, IFX, adalimumab and surgery for limited resection. **Conclusions:** Steroids, including budesonide for mild-to-moderate CD, remain first-line therapies in active luminal CD. Anti-TNFs (in particular IFX) remain second-line for most indications. Thiopurine analogs are preferred to anti-TNFs when steroids are not appropriate, except when anti-TNFs were previously successful. These recommendations are available online (www.epact.ch). A prospective evaluation of these criteria in a large database in Switzerland is under way to validate these criteria.

IBD and chronic diarrhea: When is colonoscopy appropriate? G08

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Background: Formal evidence for the utility of endoscopy in IBD and chronic diarrhea is lacking. **Methods:** A multidisciplinary multinational expert panel (EPAGE II) developed appropriateness criteria based on best published evidence (systematic reviews, clinical trials, guidelines) and experts' judgement. Using the explicit RAND Appropriateness Method (3 rounds of experts' votes and a panel meeting) clinical scenarios were judged inappropriate, uncertain, appropriate and necessary. **Results:** Colonoscopy was considered appropriate in IBD when evaluation of the disease had not previously been undertaken or in the case of worsening or absence of improvement of symptoms with adequate treatment. In Crohn's disease, however, the situation was considered an uncertain indication for performing colonoscopy in the absence of medical therapy, whereas in ulcerative colitis it was appropriate if there had been no recent sigmoidoscopy showing severe disease. Colonoscopy was inappropriate for the evaluation of a clinically-improving disease state. Colonoscopy was appropriate for chronic uncomplicated diarrhea of unknown etiology (i.e. infection etc. excluded) of more than 4 weeks' duration, and without prior endoscopic evaluation, independently of patient age. **Conclusions:** Colonoscopy is appropriate for the initial evaluation of the extent of inflammatory bowel disease, and in the case of worsening/absence of improvement of symptoms despite adequate treatment. In severe ulcerative colitis, however, sigmoidoscopy is a valuable, and safer, option. Colonoscopy is appropriate for chronic (>4 weeks) uncomplicated diarrhea of unknown etiology in the absence of previous endoscopies. EPAGE appropriateness criteria are available on www.epage.ch.

Appropriate therapy for fistulizing and fibrostenotic Crohn's disease: results of a multidisciplinary international expert panel (EPACT II)

G09

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Background: Many therapeutic decisions in the management of fistulizing and fibrostenotic Crohn's disease (CD) have to be taken without strong scientific evidence. **Methods:** Twelve international experts convened in Geneva in December 2007. Explicit clinical scenarios, corresponding to real daily practice, were rated on a 9-point scale based on evidence from the literature and panelists' own expertise. Median ratings were stratified into three categories: appropriate (7-9), uncertain (4-6) and inappropriate (1-3). **Results:** Overall, panelists rated 60 indications pertaining to fistulas. Antibiotics, azathioprine/6-mercaptopurine and conservative surgery are the mainstay therapy for simple and complex fistulas. In the event of previous failure of azathioprine/6-mercaptopurine therapy, methotrexate and infliximab were considered appropriate for complex fistula. The panel also rated 72 indications related to the management of fibrostenotic CD. The experts considered balloon dilation, stricturoplasty and bowel resection to be appropriate for small-bowel fibrostenotic Crohn's disease. **Conclusions:** Antibiotics, azathioprine/6-mercaptopurine and conservative surgery are the mainstay of therapy for fistulizing Crohn's disease. Infliximab is a therapeutic option in patients without prior response to immunosuppressive therapy. In case of fibrostenotic Crohn's disease, endoscopic balloon dilation, if feasible, or surgical therapy should be considered. These expert recommendations are available online (www.epact.ch).

Colonoscopy for functional bowel symptoms? Age over 50 matters most, just as for screening

G10

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Background: Functional bowel symptoms (pain + constipation + bloating) are very frequent. Colonoscopy is often performed for such complaints although evidence in favor of use is lacking. Real clinical scenarios made available on the web would be of great help in decision-making in clinical practice as to whether colonoscopy is appropriate for a given patient. **Methods:** A multidisciplinary multinational European expert panel (EPAGE II) developed appropriateness criteria based on best published evidence (systematic reviews, clinical trials, guidelines) and experts' judgement, using the explicit RAND Appropriateness Method (3 expert votes and one panel meeting). 12 clinical scenarios were assessed (9-point scale: 1-3 inappropriate, 4-6 uncertain, 7-9 appropriate). Alarm symptoms were assumed to be absent (rectal bleeding, weight loss, etc.). **Results:** Experts considered colonoscopy appropriate in all patients >50 years with functional symptoms (but without alarm symptoms) in a similar way to asymptomatic average-risk patients. Recent onset of bowel symptoms at <50 years was judged to be an uncertain indication. **Conclusions:** For individuals >50 years, EPAGE II criteria consider colonoscopy appropriate whether patients have functional symptoms or are asymptomatic. In practice, this implies that functional bowel symptoms open the way to opportunistic colonoscopy screening, at least in countries where a systematic screening program does not exist. Appropriateness criteria are available on www.epage.ch.

Appropriate maintenance treatment for Crohn's disease: Results of a multidisciplinary international expert panel (EPACT II)

G11

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Background: Biological therapy has dramatically changed the management of Crohn's disease (CD). Appropriateness criteria for maintenance treatment after medically-induced remission (MIR) or surgically-induced remission (SIR) of CD have thus been updated. Formal evidence is weak for many therapeutic decisions regarding maintenance treatment for CD and thus clinically-explicit and situation-tailored criteria made freely available on the internet will be helpful to physicians in daily decision-making in clinical practice. **Methods:** Multidisciplinary international experts (EPACT II) discussed and anonymously rated virtual clinical indications on the basis of evidence in the literature. Median ratings (on a 9-point scale) were stratified according to three assessment categories: appropriate (7-9), uncertain (4-6 and/or disagreement) and inappropriate (1-3). **Results:** 392 specific indications for maintenance treatment of CD were rated (200 for MIR and 192 for SIR). Azathioprine, methotrexate and/or anti-TNF antibodies were considered appropriate in 42 indications, corresponding to 68% of all appropriate interventions (97% of MIR and 39% of SIR). The remaining appropriate interventions consisted of mesalazine and a "wait-and-see" strategy. Factors that influenced the panel's voting were patient characteristics and outcome of previous treatments. Results favor the use of anti-TNF agents after one failure of any immunosuppressive therapy, while an earlier use is still controversial. **Conclusions:** Detailed explicit appropriateness criteria have been updated for maintenance treatment of CD. New expert recommendations for the use of the classic immunomodulators as well as anti-TNF agents are now available (www.epact.ch). The validity of these criteria should now be tested by prospective evaluation.

Appropriateness of colonoscopy in Europe: Surveillance after polypectomy or CRC resection

G12

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Background: Most colorectal cancers (CRC) arise from adenomatous polyps. Characteristics of polyps removed (low vs. high risk; high risk = large >10 mm, n>3, high-grade dysplasia, or villous) impact on recurrence. Real clinical scenarios made available online would be of great help in decision-making in clinical practice. **Methods:** A multidisciplinary European expert panel (EPAGE II) developed appropriateness criteria based on best published evidence (systematic reviews, clinical trials, guidelines) and experts' judgement (RAND Appropriateness Method, 3 rounds of expert votes, one panel meeting). 93 clinical scenarios were assessed. (9-point scale, 1=very inappropriate, 9=very appropriate). Appropriate indications were rerated and scores of 7 to 9 were termed necessary. **Results:** If index colonoscopy shows hyperplastic polyps, low-risk or high-risk adenomas, surveillance colonoscopy was appropriate after >5, 5 and 3 years, respectively. Histologically incomplete removal of adenomas renders colonoscopy appropriate after >9 months. Piecemeal resection of sessile adenomas was a necessary indication after >9 months. After CRC resection, a first colonoscopy was appropriate >1 year and necessary >3 years. If the last colonoscopy after CRC resection showed no adenomas, low-risk or high-risk adenomas, colonoscopy was appropriate >5 years, >3 years and necessary >1 year, respectively. **Conclusions:** Colonoscopy is considered a valuable tool for surveillance after polypectomy and curative intent resection of CRC. As for timing of surveillance colonoscopy, the main factors to be considered are polyp histology, completeness of resection and time interval since prior colonoscopy. Appropriateness criteria are available on www.epage.ch.

G13

When is it appropriate to instigate screening colonoscopy? Results of a multidisciplinary European expert panel

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Background: The number of screening colonoscopies is constantly growing, yet few countries in the world have implemented a systematic screening program based on colonoscopy. Real clinical scenarios made available on the web would help decision-making. **Methods:** A multidisciplinary multinational European expert panel (EPAGE II) developed appropriateness and necessity criteria based on best published evidence (systematic reviews, clinical trials, guidelines) and experts' judgement using the explicit RAND Appropriateness method (3 rounds of expert votes plus panel meeting). 97 clinical scenarios were assessed on a 9-point scale: 1=very inappropriate, 9=very appropriate). **Results:** In asymptomatic average-risk individuals, screening colonoscopy was appropriate in those aged ≥50 years and then every 10 years up to 80 years of age (if negative). If family history indicates slightly- or moderately-increased risk for colorectal cancer (CRC), it is appropriate to instigate colonoscopy screening at ≥40 years and <40 years, respectively. High family risk implies an appropriate indication for performing a colonoscopy at around 20 years of age, and then every 2 years (hereditary non-polyposis colorectal cancer, HNPCC) or every year (familial adenomatous polyposis, FAP). A positive fecal occult blood test (FOBT) or the discovery of adenomas at sigmoidoscopy are appropriate indications. **Conclusions:** Screening colonoscopy is largely recommended. Start and follow-up of screening colonoscopy depend on risk factors (age, family history, inherited syndromes) for CRC, which is in line with most published guidelines. EPAGE II appropriateness criteria are available on www.epage.ch.

G14

Milzriss nach Kolonoskopie: eine seltene Komplikation

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Einführung:
Milzblutungen nach Kolonoskopien sind eine sehr seltene Komplikation. Bisher wurden weltweit 66 Fälle dokumentiert. Wir berichten über eine Patientin mit einer Milzkapselverletzung durch eine elektive Kolonoskopie vor geplanter laparoskopischer Sigmaresektion.

Fallvorstellung:
Aufgrund einer rezidivierenden Sigmadivertikulitis wurde bei einer 53 jährigen Patientin die Indikation zur laparoskopischen Sigmaresektion im entzündungsfreien Intervall gestellt. Ausser einer laparoskopischen Appendektomie hatte die Patientin keine weiteren intraabdominellen Eingriffe. Einen Tag vor der geplanten Operation wurde unter stationären Bedingungen eine Kolonoskopie in stand by Anästhesie durchgeführt. Dabei konnte das Endoskop bis zum Coecum ohne Probleme eingeführt werden. In der kommenden Nacht klagte die Patientin über Nausea und Vomitus bei normalen Vitalparametern. Die Operation wurde wie geplant am frühen Morgen laparoskopisch begonnen. Dabei zeigte sich frisches wie koaguliertes Blut im kleinen Becken wie auch im gesamten linken Hemiabdomen. Als Blutungsursache fand sich ein Abriss des Ligamentum splenocolicum. Zur Versorgung der Blutung erfolgte eine Laparotomie und es konnte eine milzerhaltende Blutstillung durchgeführt werden. Der weitere Verlauf war komplikationslos. Die geplante Sigmaresektion erfolgte 3 Monate später.

Diskussion:
Eine Milzblutung ist eine ungewöhnliche und sehr seltene Komplikation nach Kolonoskopie. Es muss jedoch bei entsprechender Klinik daran gedacht werden. Sie kann bei nicht zeitgerechter Entdeckung mit hoher Morbidität einhergehen. Die Therapie ist je nach Ausmass der Läsion/Blutung und hämodynamischem Zustand eventuell konservativ oder in den meisten Fällen operativ, wobei ein milzerhaltendes Verfahren angestrebt werden sollte.

Die gastrointestinale Tuberkulose: eine seltene Entität

G15

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Einführung:
Die gastrointestinale Tuberkulose ist ein seltenes Krankheitsbild. Die Diagnosestellung ist schwierig, aber sehr wichtig und kann den Patienten vor einem unnötigen abdominalen Eingriff bewahren. Wir berichten über einen Patienten mit einer ileocoecalen Tuberkulose.

Fallvorstellung:
Ein 59 jähriger aus Serbien stammender Patient, seit 36 Jahren wohnhaft in der Schweiz, leidet seit Jahren an unspezifischen Abdominalschmerzen, welche in den letzten Wochen an Intensität zunahmen. Keine B-Symptomatik. Im Abdomen-CT zeigt sich eine Verdickung der Darmwand ileocoecal DD M. Crohn, Carcinoid. Die Befunde sprechen nicht für ein Karzinom. Die Verdickung coecal bestätigte sich in der Kolonoskopie, das terminale Ileum konnte aber nicht intubiert werden. DD M. Crohn, Zoeliakie, Vaskulitis, Lymphom oder ein Karzinoid. Erst die Biopsie des Coecums zeigte eine granulomatöse Entzündung und Mycobakterien. Eine pulmonale Tuberkulose konnte nicht nachgewiesen werden. Sofort wurde mit der antituberkulösen Therapie mit Rimstar begonnen. 3 Wochen nach Diagnosestellung entwickelte der Patient einen Dünndarmileus aufgrund dieser tuberkulösen Entzündung ileoterminal, welcher erfolgreich konservativ behandelt werden konnte. Nach 4 Tagen konnte der Patienten kostaufgebaut und mit regelrechter Stuhlpassage nach Hause entlassen werden.

Diskussion:
Bei einer ileoterminalen Darmwandverdickung ist eine wichtige in Erwägung zu ziehende Differentialdiagnose zum M. Crohn die gastrointestinale Tuberkulose. Beim M. Crohn ist die Therapie der Wahl Cortison, im Verlauf eventuell auch eine Operation. Bei der gastrointestinalen Tuberkulose kann die Therapie mit Cortison verheerende Folgen haben oder es wird eine nicht notwendige Darmoperation durchgeführt.

G16

DNase X expression in a murine cancer model

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Background: DNase X is a glycosylphosphatidylinositol-anchored membrane DNase, which hydrolyzes endocytosed extracellular DNA and protects cells from invasion by foreign DNA.
Methods: mRNA expression of DNase X was studied in a murine colon cancer model (dextrane-sodium sulfate [DSS] azoxymethane [AOM] colitis model) by real-time PCR. Biopsies were taken every 4 weeks during a colonoscopy with a Coloview mini-endoscopy system. 84 samples were collected. From these 84 samples 11 were morphologically unaffected, healthy tissue and 20 from tumor tissue. DSS/AOM mice were compared with a chronic inflammation model (DSS group) and water control group. DSS mice and water control mice showed no tumor progression.
Results: 9 healthy tissue samples could be analyzed, 2 samples gave no signal. Healthy controls were set to 1 (± 1.21). Tumor tissue showed an expression of 0.46 –fold (± 0.55) in comparison with healthy controls. After the analysis of these 9 healthy tissue samples and the 20 tumor tissue samples, there was no significant difference in DNase X mRNA expression between healthy and tumor tissue.
The water group was used as healthy control group and was set to 1 (± 0.002). DNase X mRNA expression in DSS animals was 0.87-fold (± 0.23) compared with healthy control group. The healthy tissue in DSS/AOM mice showed an expression of 71-fold (± 86) higher than water control group. In DSS/AOM mice the expression in tumor tissue was 32-fold (± 39) higher in comparison with healthy water control. There is a higher expression in DSS/AOM mice compared with mice which only get DSS or water. The expression of DNase X in tumor tissue in the DSS/AOM mice, however, was lower than in healthy tissue of the same mice.
Conclusion: DNase X expression is induced in murine colon cancer. The role of DNase X in tumor progression has to be elucidated.

Gastroenterologic Presentation of Atheroembolic Disease: a Frequently Missed Diagnosis (Results of a 12 year Matched-pair Autopsy Study) G17

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Background and aim: Diagnosis of atheroembolic disease (AD) is challenging, since no specific test is available and AD often masquerades other clinical conditions. The aim of this study was to investigate the relative frequency of autopsy-proven AD over time, to describe the clinical gastrointestinal presentation and to identify risk factors for AD. **Methods**: All autopsy reports of the Department of Internal Medicine and Gastroenterology at University Hospital in Zurich from 1995 to 2006 (n>1900) were screened for AD. For each case a control patient without AD was matched for age, sex and autopsy year. Therapeutic interventions in the last 6 months before death, and clinical and laboratory parameters during the last hospitalisation were retrieved from electronic charts. **Results**: Of the 51 AD patients, who were identified, only 6 (12%) had been diagnosed clinically. The organs most often affected were spleen (37%), lower GI tract (22%) and kidney (71%). Surprisingly, the relative AD frequency decreased over time from 3.5 to 0.5 /100 autopsies, whereas the frequency of clinically suspected AD remained constant. Among clinical signs, skin lesions (livedo, blue toe) and proteinuria were increased in AD patients, whereas no gastrointestinal sign or other laboratory parameter including eosinophilia was different between groups. Vascular interventions within 6 months before death were highly associated with AD (55 vs 14%, p=0.01), and in a multivariate analysis this remained the only significant risk factor for AD. **Conclusion**: Diagnosis of gastroenterologic presentation of AD is frequently missed. In our series no particular clinical sign or laboratory parameter was significantly associated with AD. Vascular interventions represent a highly significant risk factor for AD. The relative AD frequency in autopsy decreased over time. Whether this is due to a selection bias or due to a higher use of protective drugs (aspirin, statins, steroids) remains to be investigated.

Posters Hepatology

H01

Surgical treatment of non-hydatid hepatic cyst, a single centre experience

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Background : Hepatic cysts are rarely symptomatic before 50 years and no treatment is necessary. When the cyst becomes symptomatic, the best therapy is a laparoscopic fenestration. Due to an increase of symptomatic patients, we reviewed our experience.

Methods: Retrospective study of all operative management of symptomatic hepatic cyst from 1996 to 2008.

Results : During this period, 34 interventions in 31 patients for benign hepatic cyst were performed. Median age was 64 years (52-84), with a clear female predominance (4 men/27 women). Symptoms aggravation started 6 weeks before surgery (1-104). 58% of the patients presented with abdominal discomfort, 33% with acute abdominal pain and 9% with other symptoms.
Laparoscopy was performed in 64% of the cases (one conversion due to a difficult diagnosis). We observed single cyst in 33% and multiple cysts in 67% of the patients. The overall morbidity rate was 21% for medical and surgical complications. No death was reported. No major surgical complications were reported, but we observed some major medical complications(2 respiratory problems, 3 cardiac problems, 1 IRA, 1 vascular accident due to a cardiac foramen). Median hospital stay was 5 days (1-18). Histological analysis showed in 91% a simple hepatic cyst and in 9% a cystadenoma. Median follow-up was 8 months (1-100). Recurrence occurred in 12%. A second surgery was required in two patients and one had a simple radiological aspiration.

Conclusion : Fenestration of liver cyst is indicated for all symptomatic simple liver cyst. This technique allowed in 88% of patients a significant improvement of symptoms without long term recurrence. There is no mortality and an acceptable morbidity. Laparoscopic approach is feasible in most of the cases.

Positive Anti-HDV-antibodies in Anti-HBc-negative patients H02

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Background: Screening for B, C and D hepatitis is a standardized procedure in preparation for an immunosuppressive treatment or to check aetiology of a newly symptomatic liver disease. Positive hepatitis D-virus-antibodies should only be observed in patients with hepatitis B-virus-coinfection. Measuring HDV-RNA to clarify an infection cannot be done so far routinely, it is not a compulsory health insurance proceed in Switzerland.

Case 1**:** 34-year old male patient, born in Switzerland, with active Crohn's disease but no evidence of a liver disease. Before starting immune modulating therapy we checked routinely for viral hepatitis. Negative Anti-HBc-antibodies, but positive Anti-HDV-antibodies, measured at two different time points, were found. HDV-RNA was not determined. Three years later Anti-HDV-antibodies became negative. A wrong positive test result is presumed.
Case 2: 73-year old female patient, born in Greece, with known diabetes mellitus was hospitalized with liver decompensation as first manifestation of so far undiagnosed cirrhosis. Screening results for cirrhosis aetiology showed negative Anti-HBc-, but positive Anti-HDV-antibodies. HDV-RNA was not done. The patient died few days later of hepato-renal syndrome. The positive HDV antibody test was interpreted as wrong positive or earlier loss of HBV markers in a self cleared viral co-infection.

Summary: Routine testing for anti-HDV-antibodies in patients with chronic hepatitis B is recommended. Our two cases demonstrate that testing can be confusing. Measuring HDV-RNA would be helpful to clarify the significance of HDV antibody test results.

H03

Phenprocoumon-induced acute hepatitis

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Background: Phenprocoumon (Marcoumar®) is a widely used drug. Most prominent side effect is bleeding complication, rare complications are skin necrosis or hepatotoxicity. Liver damage occurs usually after 6-9 month of intake. There are also described cases of complete hepatic failure which needed liver transplantation.
Case report: We describe the case of a 72-years old man. Because of arterial hypertension he is treated with Perindopril 2mg daily and for polymyalgia rheumatica with 2.5mg prednisone daily, unchanged for several years. Because of dyspnoea and dry cough a CT-scan of the chest was performed. It shows bilateral segmental pulmonary embolism. A therapy with phenprocoumon was started. The day after he felt slightly sick, tired, hat mild epigastric pain and was inappetent. 48 hours after first pill he realized yellow eyes und was sent to our hospital. Chemistry shows hepatic damage (ALAT 381 U/l (N<50U/l), Bilirubin 114 umol/l (N<25umol/l) and an increased number of eosinophilic cells in the peripheral blood count (12.6%, N<5%). Ultrasonography and abdominal computertomography shows no signs of pancreatic neoplasm or gallstones. Infectious hepatitis could be serologically excluded, as well as autoimmune hepatitis. Liver biopsy shows portal and minimal interphase- and lobular hepatitis, cellular und kanalicular cholestasis. Phenprocoumon was immediately stopped at entry. Liver enzymes normalized three weeks later.
Summary: Control of liver enzymes is recommended in patients taking phenprocoumon. In cases of painless jaundice phenprocoumon should be stopped immediately. Diagnosis is made by complete clinical resolving after stop of phenprocoumon. Liver biopsy helps diagnosing by showing typically medication-induced liver damage. Often a peripheral eosinophilic blood count is found. Our patient never had phenprocoumon before. So an acute allergic reaction is discussed. A re-exposition trial is because of mostly severe hepatic failure not recommended.

Advanced age increases the failure rate of non-operative management of blunt splenic injuries.

H04

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Background: The impact on the splenic salvage rate of non-operative management (NOM) and transcatheter arterial embolization (TAE) of high-grade blunt splenic injuries is unclear. Methods: Review of 97 patients with high-grade blunt splenic injuries treated from 2000-2008. American Association for the Surgery of Trauma (AAST) grades III-V were considered to be high-grade. Results: There were 70 men and 27 women. Mean age was 37.3 ± 19.1 years. Injury mechanisms were: fall (n=8, 8.2%), sporting mishap (n=22, 22.7%), motorcycle crash (n=21, 21.7%), motor vehicle crash (n=37, 38.1%) and various (n=9, 9.3%). The AAST grades were: III (n=54, 55.7%), IV (n=35, 36.1%) and V (n=8, 8.2%). 28 patients (28.9%) underwent immediate surgery. NOM was successful in 60 (61.9%, group I) and unsuccessful in 9 patients (9.2%, group II). Patients in group II were significantly older (45.4 ± 15.2 versus 31.9 ± 15.2 years, p=0.02) and had a longer hospital stay (p=0.03). Gender distribution, AAST grade of splenic injury, hematocrit on admission, Revised Trauma Score (RTS), total number of transfused packed red blood cells, use of TAE, Injury Severity Score (ISS), and Trauma Score-Injury Severity Score (TRISS) were similar in both groups. None of the patients died. Conclusions: Advanced age seems to be associated with an increased failure rate of NOM in patients with high-grade blunt splenic injuries. TAE might reduce the failure rate of NOM.

H05

Patient irradiation during endoscopic retrograde cholangiopancreatography

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Background: Endoscopic retrograde cholangiopancreatography (ERCP) is an important therapeutic tool in billiary and pancreatic disorders and relies heavily on the use of fluoroscopy. **Methods:** The aims of the study were to determine patient irradiation during ERCPs and to see if there is any correlation between DAP and fluoroscopy duration or if these two parameters were influenced by the endoscopist experience or by exam difficulty. Diagnostic reference levels (DRLs) were also assessed for ERCPs. Data were prospectively collected from consecutive ERCPs performed during a 3 months period. For each exam, the following data were collected: patients characteristics (age,sex,weight), fluoroscopy duration, DAP, procedure difficulty (easy,normal or difficult) and the operator experience. The ERCPs were carried out by two seniors(>2000 ERCPs) and one junior(<250 ERCPs) operators. The statistical analysis was performed with the non-parametric Mann-Whitney test and the analysis of variance with ANOVA test. **Results:** 92 patients,mean age 65 years were included. The mean fluoroscopy duration was 8.6min (range:0.8-48min) and the mean DAP value was 20.6 Gy.cm^2 (range:2.2-147Gy.cm^2). A good correlation was observed between the fluoroscopy duration and the DAP value, as described by the formula: DAP(Gy.cm^2)=2.5 Gy.cm^{2}xmin-1xT(min)(r^2=0.82) and between the difficulty of the procedure and the two fluoroscopic parameters. The DAP value and the fluoroscopy duration were poorly correlated with patients weight(r^2=0.069). Endoscopist experience did not significantly influence the distribution of DAP(p=0.15) and fluoroscopy duration(p=0.44).

Table 1: Mean fluoroscopy duration and mean DAP value for easy, normal and difficult exams

Exam difficulty	Number of exams	Mean fluoroscopy duration (min) [x]	Mean DAP (Gy.cm^2) [y]
Easy	15	2.8±2.3	7.5±1.0
Normal	44	6.6±0.6	14.9±1.8
Difficult	33	14.3±1.7	34.9±5.2

[x] p= 0.0001 easy vs. normal, p< 0.0001 normal vs. difficult, p<0.0001 easy vs. difficult; [y] p= 0.0027 easy vs. normal, p< 0.0001 normal vs. difficult, p<0.0001 easy vs. difficult.

Conclusion: A good correlation was observed between the fluoroscopy duration and DAP value and these two parameters were significantly dependent on the difficulty of the procedure.

H06

First experiences with single incision laparoscopic cholecystectomy

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Background: Laparoscopic cholecystectomy has become the standard procedure in biliary diseases. Single incision laparoscopic surgery (SILS) will further decrease the operative trauma to the abdominal wall. We now report our first results of SILS cholecystectomy.

Methods: From September 2008 to April 2009, 5 women were treated by single incision laparoscopic cholecystectomy because of symptomatic cholelithiasis or cholecystitis. Patient data, operative time, complications and postoperative course were recorded prospectively.

Results: 5 patients (60.2 years, 43-73) with a mean body mass index of 26.3 kg/m^2 (22.4-32.32) have been operated without complications. In one case an umbilical hernia was closed simultaneously. Mean operative time was 66.2 minutes (46-95). Mean hospital stay was 2.4 days (1-3). In one patient a wound infection was encountered at day 7, while the further postoperative follow-up was uneventful in all cases.

Conclusions: Single incision laparoscopic cholecystectomy is a feasible and safe procedure. While using a combination of straight and angulated laparoscopic instruments extracorporal handling is possible but "clashing" of the instruments remains an unsolved problem. However, in comparison to NOTES, SILS-procedures seem to be easier and faster to learn using instruments and techniques already wellknown from laparoscopy.

H07

NAFLD or NASH - insights from a longitudinal cohort study

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Background: Nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH) are chronic liver diseases with high prevalence. As insulin resistance is the major pathogenic factor, they might reflect the hepatic manifestation of the metabolic syndrome. CK-18 fragments have been proposed as non-invasive markers for disease severity. Treatment modalities remain unclear. We established a longitudinal cohort study to obtain insights into the natural course of NAFLD/NASH.
Methods: Since 2003 patients with a histological diagnosis of NAFLD or NASH were included in a prospective, longitudinal cohort study. Patients are seen yearly. Medical history, weight, waist circumference, blood pressure, abdominal sonography, blood chemistry, fasting glucose and insulin, HOMA-IR, glucose tolerance test, blood lipids and CK-18 fragments are collected.
Results: We included 67 patients: 12 NAFLD and 55 NASH patients, 8 already had cirrhosis. 90% of patients had central obesity, 78% were insulin resistant, 19% had type 2 diabetes mellitus (T2DM) while another 8% developed T2DM during follow-up. BMI, waist, fasting glucose, insulin and HOMA were significantly higher in NASH. Further CK-18 fragments in the sera showed a good correlation with histological classification into NAFLD or NASH. All patients were encouraged to loose body weight and increase physical activity. Nevertheless, no weight loss or improvement in liver enzymes was observed. However, patients that lost weight also improved liver enzymes.
Conclusion: In this cohort, the diagnosis of NASH is associated with central obesity and insulin resistance. CK-18 fragments might be useful for non-invasive risk assessment. Despite diet and exercise counselling, only few patients reduce body weight and improve liver enzymes.

H08

Association between HIV infection and lymphoepithelial cyst of the pancreas

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Introduction
Lymphoepithelial cysts (LECs) of the pancreas are rare benign lesions that can be misdiagnosed as cystic neoplasms. Little is known about their histogenesis. Interestingly, LECs have also been repeatedly described in the parotid salivary glands of HIV-1-infected patients.
Methods
A cystic lesion of the pancreas was discovered incidentally on an abdominal sonography performed in a 48–year old man with urinary stones. The patient had been diagnosed with HIV-1 infection 15 years previously. A 5-cm cyst located in the pancreatic tail was confirmed by CT-scan.
Results
Fine-needle aspiration of the cyst brought keratin-rich material, establishing the diagnosis of LEC. Growth of the lesion to 7 cm developed over 36 months of monitoring, and became associated with pain in the left upper abdominal quadrant. Left splenopancreatectomy was performed. Histologically, a typical pattern of LEC was found in the resection specimen, the wall of the cyst being lined by stratified squamous epithelium surrounded by a band of mature lymphoid tissue with intervening well-formed germinal centres.
Conclusions
Since pancreas and salivary gland share functional and structural patterns, it is likely that the histogenesis of the LECs is similar in both organs. HIV may act as a causative agent of lymphoid infiltration that leads to a ductal obstruction. However, to our knowledge, this is the first documented occurrence of pancreatic LEC associated with HIV-1 infection. Further cases have to be collected in order to better understand the pathogenesis of LEC.

Posters Surgery

S01

Mechanical bowel preparation in elective colorectal surgery in Switzerland – A survey

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Background
The aim of the present study was to assess the use of mechanical bowel preparation (MBP) in elective colorectal surgery in Switzerland.

Methods
All heads of surgical departments in Switzerland were asked to answer an 18-item questionnaire of what arguments there were in favour of or against MBP. 117/140 (83%) responded. Additional data were collected on respondents' experience.

Results
Sixty surgeons (51.2%) used MBP in the form of cathartics (44.8%), enemas (44.9%) or a combination of both (10.1%). MBP was significantly more used for rectal surgery than for left (60% *vs.* 48%; p=0.03) and right colonic resections (60% *vs.* 19%; p<0.001), regardless of open or laparoscopic approach. High-volume colorectal surgeons and high-volume hospitals used significantly less MBP. 42/117 (36%) surgeons considered MBP as useful or very useful. Based on the literature, or because of introduction of fast track protocols or patient comfort, 101/117 (86.5%) have changed the bowel preparation regime during the last ten years in terms of quantity reduction of cathartics and more selective indication for MBP.

Conclusion
In Switzerland MBP is often used in open and laparoscopic rectal surgery but not in right colonic resections. Scientific evidence about MBP has yielded a rethinking about rigorous bowel preparation regimes.

S02

Elective laparoscopic colorectal surgery in the era of mechanical bowel preparation

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Background
We aimed to assess the predictors of outcome regarding major elective laparoscopic colorectal surgery with mechanical bowel preparation in a teaching hospital.

Methods
From January 2004 to July 2008, a total of 526 consecutive unselected patients who underwent elective laparoscopic colonic resection (59.6% female; mean age 61 (35-95) years, mean BMI 26 (18-36) kg/m^2) were prospectively evaluated. All patients were given a mechanical bowel preparation with sodium phosphate.

Results
The indications for colonic resection were diverticulitis (66.5%); adenocarcinoma (12.3%); diverticulosis (8.1%); complicated diverticulitis (6.5%); adenoma (3.1%), and inflammatory bowel disease (0.8%). Overall mortality and morbidity rates were 1.15% and 13.3%, the rates of anastomotic leakage and other septic complications were 5/513 (0.97%) and 49/513 (9.6%). There were no significant differences in morbidity and mortality rates between experience levels of performing surgeons. In univariate analysis younger patients and patients with a lower ASA score had lower mortality and morbidity rates. In multivariate analysis a complication and an ASA score ≥ 3 was associated with increased mortality (p<0.001) and morbidiy (p<0.001).

Conclusion
Elective laparoscopic colonic resections with mechanical bowel preparation are safe with low overall complication rates. Special attention should be turned to older and sicker patients evaluated for laparoscopic colorectal surgery.

S03

Intraperitoneal urinary bladder rupture in the alcoholic patient

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Background:
Isolated ruptures of the urinary bladder following minor traumas are a rare abdominal lesion. Diagnosis and treatment are a challenge to emergency physicians and surgeons.
Method:
This case shows a 46-year-old patient admitted for a minor brain injury after falling during an episode of alcoholic intoxication. Ultrasound and CT scan of the abdomen showed intrabdominal fluid without a parenchymatous lesion. Also a hematuria was significant. The retrograde cystography showed intraabdominal contrast agent. The rupture of the urinary bladder was confirmed by laparoscopy and was intracorporal sutured in double layer technique.
Result:
Without any postoperative complications the patient was discharged after 4 days. The retrograde cystography after 10 days showed no leckage and the urinary catheter could be removed.
Conclusion:
Intraperitoneal bladder rupture is a rare but descripted injury, especially in the alcoholic patient. Diagnosis can be difficult and delayed. Laparoscopic surgery is a safe and minimal invasive therapy.

S04

Outcome after neoadjuvant chemoradiotherapy for locally advanced rectal cancer

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Background: Neoadjuvant chemoradiotherapy (CRT) for locally advanced rectal cancer has resulted in significant downstaging. We analysed the short-term outcome of patients with CRT followed by surgery.

Methods: Patients with distal rectal adenocarcinoma stage uT3 or uT4 were treated by preoperative CRT. At 6 weeks after CRT completion, surgery was performed by either low anterior resection or abdominoperineal amputation with total mesorectal excision.

Results: Between 7/2005 and 12/2007 we treated 63 patients: mean age 65 years (20-82). Complete pathologic response (ypT0, ypN0) has been achieved in 21%. Postoperative adjuvant chemotherapy received 24/63 patients. Overall survival and disease-free survival at 1 year was 98.3% and 93.4%, respectively. There were two tumor-related deaths 4 and 23 months and one tumor-independent death 22 months after surgery. One local recurrence was seen after 35 months (R1 resection). Distant metastases (liver, lung or peritoneum) were diagnosed in 5/63 patients (7.9%) 4 to 16 months after surgery. Downstaging, tumor regression grade and tumor differentiation grade were poor in 4/5 patients with metastasis.

Conclusions: Short-term outcome after neoadjuvant chemoradiotherapy for locally advanced rectal cancer is good. Patients with metastasis 1 to 3 years after treatment have a worse response to CRT and a lower tumor differentiation grade.

S05

Fatal digestive manifestation of a mucormycosis infection

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Background: Mucormycosis is an uncommon disease and usually affect immunocompromised patient. His intestinal form is extremely rare and diagnosis performed only in 23-50% of the infected patients. Combined surgical and medical treatment is necessary to prevent fatal outcome.

Methods: We describe the case of a patient developing a mucormycosis ulcus of the ceacum with his evolution.

Results: 76 years old patient with known metastasis invasion from prostatic origin. Because of a sacral invasion, steroid treatment (12mg/j) was initiated one month before his hospital stay. The patient presented with a left colonic perforation leading to an emergency Hartmann procedure. The post-operative course was marked by digestive hemorrhage from the 5th postoperative day requiring massive blood transfusion (23 blood transfusions within 2 weeks). After multiple investigations (CT scanner, angiography, gastroscopies and colonoscopy) two right colic ulcus were localized as a potential bleeding. Biopsies showed the presence of a mucormucosis infiltration. Immediate iv antifungal therapy was started. The next day, the patient developed a septic shock leading to a new emergency laparotomy. A ceacal perforation is discovered and a right hemicolectomy was performed. After intensive reanimation the patient died in multiple organ failure.
Conclusion: Intestinal form of mucormycosis infection is extremely rare and lead to a fatal outcome if not treated early enough, mortality is up to 85%. Multimodal treatment is needed with antifungal therapy, surgery and management of co-morbid factors to prevent fatal outcome.

S06

Greater omentum torsion, a rare cause of right upper quadrant pain

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Background: Idiopathic torsion of the greater omentum is an unusual cause of acute abdominal pain, leading to false diagnosis. Patients usually presents with acute abdominal pain localising in the right lower or upper quadrant mimicking acute appendicitis or cholecystitis. Most of the time operative indication is fulfilled and patient underwent surgery without additional investigations.
Methods: We are presenting a case illustrated by perioperative pictures and pathological findings.
Results : A 39-year-old man presented in emergency room with acute right abdominal pain. Pain developed within 24h with a clear Murphy sign and right upper quadrant tenderness. Ultrasonography revealed a suspicion of acute cholecystitis with microlithiasis. Laboratory showed a leucocytosis and an elevated CRP. Conservative therapy was immediately initiated. 48h after admission the patient seemed not to respond to the treatment, with increasing pain and an elevation of the CRP. Laparoscopic cholecystectomy was planified. After trocard insertion, the greater omentum was seen to be adherent to the gallbladder (which was normal) and starting to be necrotic. Full abdominal revision showed no other lesions. Greater omentum was removed through the umbilicus from the strangulation area. Patient left hospital 3 days after surgery. Final diagnosis is a greater omentum torsion with necrosis. Removal of the necrotic tissue is the treatment of choice but could be from time to time treated conservatively.
Conclusion: Greater omentum torsion is a rare pathology. A preoperative misleading diagnosis is most of the time reported. CT scan could help to improve diagnosis and lead to a conservative therapy. Laparoscopic resection is feasible and should be performed.

S07

Acute abdominal pain due to massive bladder distension.

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Introduction: Postoperative urinary retention and bladder distension are frequent findings after surgery. However, massive bladder distension as the cause of an acute abdomen is a rare finding. Methods: We report the case of a patient presenting with massive abdominal distension and discuss possible etiologies for bladder distension, including neurogenic bladder dysfunction, leading to this impressive clinical picture. Results: A 65 years old woman was admitted due to diffuse abdominal pain since one week with prolonged distension of the belly. Nausea and vomiting were present since two days. Furthermore, the patient suffered from heartburn, dysphagia and an unusual weight loss of 8 kg in the past 18 months. She had problems urinating with dysuria and an urge incontinence. Past medical history revealed arterial hypertension, low back pain, cigarette smoking and a condition after appendicectomy, hysterectomy and umbilical hernia repair. Clinical examination showed marked abdominal distension with highly suspicion of free fluid on percussion and a body mass index of 15 kg/m2. Laboratory findings showed anemia, a C-reactive protein level of 270 mg/l, elevated kidney parameters and a urinary infection. CT scan revealed a massive distension of the bladder, filling almost the entire abdominal cavity (32x24x14 cm). 7.5 liters of urine have been evacuated after inserting a Foley catheter. The concomitant urinary infection was treated and later, a suprapubic cystostomy was performed under local anesthesia. Upper endoscopy revealed a candida esophagitis. Cerebral CT scan and MRI of the spine did not show any focal lesion. The patient was discharged after an uneventful course. Conclusions: Orthopedic patients are more likely to develop postoperative bladder distension than general surgical patients. Current research results demonstrate the role of analgesics (morphine, NSAID's) in the inhibition of visceral nociceptive transmission. Furthermore, injuries of the central (spinal cord injury, tabes dorsalis, multiple sclerosis, Parkinson's disease, encephalitis) or peripheric nervous system (polyneuropathy, diabetes mellitus) may lead to a malfunction of the urinary bladder and the sphincter muscle and therefore to a neurogenic bladder dysfunction.

S08

Outcome after local transanal resection of T2/T3 rectal cancer.

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Introduction: The basic principle in the treatment of rectal cancer is the complete surgical removal of the tumor together with the lymphatic drainage region (total mesorectal excision). However, local transanal resection of T1 rectal cancer has been advocated under specific conditions. Methods: We report the outcome of two patients presenting with T2/T3 rectal cancer declining a radical operative therapy. Results: Both male patients (73 years and 82 years old) suffered from rectal cancer 2 cm (A) and 4 cm (B) from the anal verge and declined the proposed radical tumor resection after neo-adjuvant radio-chemotherapy (oxaliplatin/eloxatin® and capecitabin/xeloda®; total tumor dose 50.4 Gy). The staging investigations included abdominal/thoracic CT scan and pelvic MRI. Clinical tumor staging in both patients was cT2-3cN0M0. In patient A conventional local transanal resection of the residual tumor was performed two months after completion of the combined radio-chemotherapy. After follow-up of four months no locally recurrent tumor was found. In patient B transanal resection of the locally persistent tumor was performed four months after completion of the combined radio-chemotherapy. The follow-up at two months is uneventful. Conclusions: Because of less toxicity and a lower rate of local recurrence, neo-adjuvant therapies in UICC rectal cancer stages II and III are now preferred over adjuvant strategies in combination with a radical surgical excision of the tumor. Furthermore, local transanal excision of T1 rectal cancer is advocated in selected cases, but offers inferior oncologic results including greater risk of cancer-related death. However, there is very few data in the literature dealing with local excision in patients with T2/T3 tumors. This procedure has to be restricted to patients with prohibitive medical contraindications to major surgery or – like in our two cases – to patients having made an informed decision to accept the oncologic risk of local excision and avoid the functional consequences of rectal resection. We are awaiting the further outcome in both patients. Without surgical intervention the 5-year survival rate after local recurrence of rectal cancer is approximately 4%, after local R0 resection nearly 30%.

S09

Quality of Life after Laparoscopic Toupet Fundoplication

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Background: Laparoscopic antireflux surgery is a well established therapy for GERD. It is currently under discussion as to wether Nissen or Toupet, has better results. In this study we evaluated the quality of life after either laparoscopic Toupet or Nissen fundoplication.

Materials and Methods: Disease-specific symptoms and quality of life were assessed by a questionnaire according to Eypasch in 25 patients who underwent laparoscopic Toupet surgery between 2004 to 2008. Results were compared with a previously analysed group of patients after laparoscopic Nissen fundoplication (N=143).

Results: The questionnaire was returned by 86% of the patients. 87% reported no heartburn and 91% reported no regurgitation in the follow up. After Toupet fundoplication the quality of life index was 120.4 points compared with 120.8 points reported for healthy volunteers. Quality of life index of the laparoscopic Nissen group was 115 points. 94% of all patients were satisfied with the result and would undergo surgery again

Conclusion: Laparoscopic Toupet fundoplication results in high patient satisfaction. Quality of life index is very good, comparable to a healthy population and seems to be superior to the laparoscopic Nissen technique.

S10

Laparoscopy for Small Bowel Obstruction – Don't convert too late

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Background: Laparoscopy is still not well established in the treatment of small bowel obstruction (SBO). **Methods:** Analysis of a prospective nationwide database of the Swiss Association of Laparoscopic and Thoracoscopic Surgery. **Results:** From 1995-2006, 537 patients underwent laparoscopy for SBO. Matted adhesions were the main causes of obstruction (62.6%). Intraoperative complications occurred in 9.5%. Postoperative morbidity and mortality were 14.0% and 0.6%. Thirteen patients (2.4%) were readmitted within 30 days because of early recurrence or complications. The conversion rate was 32.4% (in 53.4% of the conversions due to inability to visualize the site of obstruction or matted adhesions, in 21.3% due to intraoperative complications and in 25.3% for small target incision for resection). Emergency operations were associated with significantly higher conversion rates (43.6% vs. 19.8%, $p<0.001$), but not with increased postoperative complications (15.2% vs. 11.9%, $p=0.17$). Intraoperative complications and conversion were associated with significant increased postoperative morbidity (39.2% vs. 11.3%, $p<0.001$ and 24.7% vs. 8.3%, $p<0.001$). Reactive conversion due to intraoperative complications was followed by the highest postoperative complication rate (48.6%). Morbidity of pre-emptive conversion due to impaired visualization/matted adhesions or for small target incision was significantly lower (20.0% and 26.1%; $p=0.02$ and $p<0.001$). ASA scores >II were also associated with postoperative morbidity ($p<0.001$). However, in multivariate regression analysis, reactive conversion was the only independent risk factor for postoperative morbidity ($p<0.001$; OR 3.97, 95% CI 1.83-8.64). **Conclusions:** Laparoscopic management of SBO is feasible with acceptable morbidity and low mortality but a considerable conversion rate. Early conversion is recommended to reduce postoperative morbidity.

S11

Successful Redo Laparoscopic Antireflux Surgery in Gastroesophageal Reflux Disease

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Background: Laparoscopic antireflux surgery is a well established treatment of gastroesophageal reflux disease (GERD). Recurrent reflux, gas-bloat syndrome or dysphagia may result in a reoperation which is at higher risk of perioperative morbidity and mortality.

Methods: From March 1999 to April 2008, 135 antireflux procedures were performed because of GERD. 19 of these (14%) were redo procedures. Time period between first operation and revision was 674 days (42-1554). Postoperative course, perioperative morbidity and mortality after redo-fundoplication was analysed retrospectively.

Results: The indications for redo procedures were recurrent reflux (n=7), herniation of the wrap (n=9) or scarred adhesions and dysphagia (n=3). All procedures were completed laparoscopically. The mean operation time was 140 minutes (90-285). Three lesions of the wrap and one lesion of the pleura was stated intraoperatively. No postoperative deaths occurred. The median hospital stay was 7 days (3-20). Further follow-up showed no symptoms of GERD.

Conclusions: Redo-fundoplication is technically challenging because of scarred tissue and the risk of esophageal perforation. Reoperation is associated with higher morbidity and mortality. Our results were comparable to the current literature and feasible with low incidence of perioperative morbidity and no mortality.

S12

First technical description of single incision laparoscopic fundoplication (SILS)

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Background: As a real alternative technique to natural orifice transluminal endoscopic surgery (NOTES), single incision laparoscopic surgery (SILS) has applied for different types of surgical procedures. We report the first clinical transumbilical SILS fundoplication in gastro-oesophageal reflux disease.

Methods: A 57-year-old woman with severe gastro-oesophageal reflux disease was treated by single incision laparoscopic fundoplication by a hidden scar in the umbilicus using a SILS™ port. To retract the liver an additional incision in the right upper abdomen was mandatory.

Results: Transumbilical single incision laparoscopic fundoplication was successfully performed by an experienced surgeon with straight and angulated laparoscopic instruments. The operative time was 130 minutes. No intra- or postoperative complications were stated, no conversion was nessecary. The postoperative hospital stay was 3 days. A postoperative contrast study showed no leakage or stenosis.

Conclusions: We could demonstrate that SILS-Nissen fundoplication is feasible with an excellent cosmetic result. A second access is mandatory for sufficient liver retraction. Contemporary instruments need to be redesigned to further improve the options and developments in operative laparoscopy and SILS.

S13

Obstructing rectal cancer: time to tumor resection with and without neoadjuvant therapy

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Background

In patients with bowel obstruction due to rectal carcinoma treatment, therapeutic modalities include application of diverting ileo- or colostomy, neoadjuvant therapy and low anterior resection versus primary low anterior resection alone. We compared these two therapeutic approaches with regard to the percentage of patients completing neoadjuvant treatment / tumor resection concept and to the follow-up.

Methods

Patients operated for stenosing rectal cancer between 2003 and 2008, retrospectively analyzed (n= 21). All patients classified cT3-4. Patients receiving a diverting ileostomy and neoadjuvant treatment (group I), primary operation (group II). Mean age 64.7 (39-93) years.

Results

In group I (n=13) low anterior resection was performed after a mean of 139 (range 93-245) days. 4 out of 13 patients never underwent tumor resection due to multiple liver metastasis (n=3) or a metachronous carcinoma. In group II (n= 9) tumor resection was performed after a mean of 25 (range 1-53) days. In group I 2/13 patients died during the postoperative adjuvant therapy, in group II 2/9. In group I 3/13 patients stopped the adjuvant treatment 240–365 days after the operation, in group II 5/9 patients after 147-1764 days. One patient (group I) is 1135 days after the operation still in complete remission and 5 patients (group I) still receive 183-813 days after the operation recurrent chemotherapy (adjuvant and palliative). In both groups we lost the follow-up of 2 patients. No local recurrences in both groups were registered.

Conclusion

Although 30% of patients with obstructing rectal cancer undergoing pre-treatment with diverting stoma never had tumor resection mortality was not higher compared to patients with primary resection. Moreover motivation for further palliative chemotherapy seemed to be higher in patients with diverting stoma and neoadjuvant therapy.

S14

Iatrogenic Colonoscopic Perforation: A Surgical Point of View and Review of the Literature about 6 Cases.

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Background : Videocolonoscopy is widely adopted, and its use for colorectal cancer (CRC) screening is increasingly popular. Considering a reported perforation rate of about 1 in 1000, a rising incidence of iatrogenic colonic perforations is anticipated.

Methods: We report on an unsual series of 6 patients referred to the emergency surgical unit in 1 week for post-colonoscopy colonic perforation.

Results: The 6 colonoscopies had been performed by 4 gastroenterologists (3 senior practitioners and 1 fellow). Indications were: CRC screening (n= 3), iron deficiency anemia (n=2) and renal allograft work-up (n= 1). The sites of perforation were: sigmoid colon (n= 3), caecum (n= 1), rectum (n=1) and terminal ileum (n=1). The perforation was directly caused by mechanical force in 2 patients, and polypectomy in 4. The delay between the colonoscopy and the emergency referral was longer when the cause of perforation was a polypectomy. One patient received conservative treatment. Five underwent surgery : segmental colon resection with anastomosis (n=3), Hartmann (n=1), and faecal diversion colostomy (n=1). The evolution was favorable for all.

Conclusions : Although a random effect probably accounts for the high density of post-colonoscopy perforations recently observed, this acts as a reminder of this potential risk. Recent evidence based on the tracking of 300000 colonoscopies shows that perforation occurs in 1 out of 1000 procedures, only a minority of which is associated with polypectomy. Endoscopic polypectomy is simple. However for polyps located in terminal ileum or in the lower rectum its risks may outweigh its benefit. High standards of clinical and technical skills is warranted among gastroenterologists to minimize the rate of complications. In 2009, we find it adequate to refute the misconception that surgery is the failure of endoscopy and to admit that these two are complementary rather than opposite. A detailed synthesis of the recent literature on the topic will be presented at the Congress.

S15

Chronic Abdominal Pain and Clinically Atypical Appendicitis In A Young Girl with Intestinal Malrotation

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Background : Intestinal malrotation is a congenital anomaly of rotation and fixation of the midgut and results from absent or incomplete rotation of the primitive intestinal loop around the axis of the superior mesenteric artery during the fifhth and eleventh weeks of fetal development.

Methods: A 17 year-old girl suffered from chronic abdominal pain in the right lower quadrant and in the midline. She had been seen by several physicians but no diagnosis was made. When we saw her in our emergency room, the pain and tenderness were more intense than usual, and located in the midline and in the right lower quadrant.The blood tests were normal except for a mildly elevated CRP. An abdominal ultrasonography and a low dose abdominal CT-scan did not disclose the appendix. We carried out an exploratory laparoscopy. A diagnosis of acute appendicitis associated with intestinal malrotation was made during the procedure. The small bowel laid entirely in the right side of the abdomen, the caecum was in the left lower quadrant and the inflamed appendix was located in the midline. A laparoscopic appendectomy was performed.

Conclusions: Intestinal malrotation is a rare disorder. It is usually diagnosed during the first year of life by causing an intestinal obstruction. In adulthood, it may manifest by various, often chronic digestive symptoms and is rarely associated with an acute abdomen. The diagnosis of intestinal malrotation can be made upon Ct scanography, by noticing the superior mesenteric vein (SMV) rotation sign, i.e. the fact that the SMV is positioned left to the superior mesenteric artery, instead of right. The SMV rotation sign had not been seen in this case because no contrast product was injected during the Ct-scan. In conclusion, malrotation is a rare intestinal malformation which may cause chronic abdominal symptoms in adults, and result in atypical clinical signs in case of appendicitis.

Laparoscopic repair of large incisional hernia

S16

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Background: Incisional hernia repair can be safely and efficiently performed by laparoscopic placement of an intraabdominal mesh. However, treatment of the subset of large hernia is associated with specific problems that we aimed to investigate.

Methods: A total of 300 patients underwent laparoscopic incisional hernia repair at our institution between July 2004 and December 2008. Patients data were prospectively collected and kept in a database. The present study focussed on patients with a hernia diameter of more than 5cm. A total of 71 patients met the study criteria. We used a dual layered mesh and non-absorbable transfascial sutures and/or Titanium tackers were applied every 4cm to fix the mesh into the abdominal wall.

Results: 71 patients underwent laparoscopic incisional hernia repair with a median diameter of 11.5 cm (range 5-50cm). Median age of these patients was 62 years (range 29-87 years). 17% (12/71) of these patients had a recurrent incisional hernia. Conversion rate was 10% (7/71) due to adhesions. Multiple hernial orifices were found intraoperatively in 31% (22/71). Median mesh size was 600cm^2 (range 600 – 1250 cm^2). Median operative time was 180 Minutes (60 – 360 min) and median hospital stay was 6 days (1 – 23 days). Postoperative surgical complications were found in 8 patients (11%): 4 prolonged postoperative pain, 2 re-operations (1 bowel perforation, 1 peritonitis of unknown origin), 1 seroma, 1 surgical site infection. During a median follow-up of 32 months (2 – 54) a recurrence rate of 10% (7/71) was observed.

Conclusion: Our experience show that laparoscopic repair of large incisional hernia is technically feasible and associated with few surgical complications, short hospital stay and low recurrence rate.

S17

Seltene Ursache eines Dickdarmileus - eine Fallvorstellung

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Hintergrund
Die häufigsten Ursachen eines Dickdarmileus sind mit ca. 60% maligne Tumoren, mit je 10-15% divertikulitisbedingte Stenosen resp. ein Sigmavolvulus. Was ist mit den übrigen 10-20%? Literatur dazu ist kaum vorhanden.

Fallvorstellung
Notfallmässige Vorstellung einer 64jährigen Patientin mit fünftägiger Anamnese von Stuhl- und Windverhalt, rezidivierendem Erbrechen sowie zunehmend balloniertem Abdomen. Keine B-Symptome, jedoch gewisse Stuhlunregelmässigkeiten, teilweise mit Bauchschmerzen, aggraviert in den vergangenen 14 Tagen. Keine Medikamente, St.n. Hysterektomie, Adnexektomie und Appendektomie. Mutter mit 63 J. an Darmkrebs erkrankt. Bei Eintritt reduzierter AZ, teils hochgestellte Darmgeräusche, keine Peritonitis. CRP 51mg/l, Lc 10.1 10H3/µl, ansonsten unauffällig. CT Abdomen: Ileus mit 2.5 cm langem, stenosierendem, whs. narbigem Prozess im distalen Sigma, nur diskrete Verdickung der Darmwand, DD Malignom. Es folgt die notfallmässige Laparotomie mit ausgedehnter Adhäsiolyse, Sigmaresektion und Anlage einer Hartmann-Situation. Bereits intraoperativ imponierte die Schleimhaut unauffällig, was sich histologisch bestätigte: Sigmaresektat mit ausgedehnten strangartigen Verwachsungen der Serosaoberfläche, keine Malignität.

Konklusion
Im Dickdarm ist ein verwachsungsbedingter Ileus selten, aber möglich (ein Dünndarmileus ist 75% verwachsungsbedingt). Das CT zur Ursachenabklärung ist limitiert, mit präoperativen Aussagen bezüglich einer onkologischen Genese sollte bis zum sicheren Beweis zurückhaltend umgegangen werden.

The numbers refer to the pages of this supplement.