for ability to detect and quantify DSS-induced acute colonic inflammation or chronic colitis in 129SvEv IL-10 null mice. We hypothesized that probes would differ in specificity or sensitivity for detection of inflammation. Methods: DSS-treated mice, IL-10 null mice with chronic colitis, and H2O controls were fed a liquid diet (Nutren 1.0 Fiber:dH2O, 1:1) for 4 days to clear GI tract of solid feces. WT mice were given 3% DSS for 5 days and studied 4 days later, a time of known severe colonic inflammation. Probes were given by retro-orbital injection. *In Vivo* imaging was performed with an FMT 2500 LX imaging system. Intestinal tissues were dissected immediately after *In Vivo* imaging, imaged fresh or after fixation to test if NIRF signal is preserved in fixed tissues. Inflammation detected by probe activation was verified by H&E staining and confocal microscopy. NIRF signal intensity was quantified using 3D region of interest (ROI) analysis *In Vivo* or 2D ROI ex vivo. Results: (1) All 7 probes were tested *In Vivo* and ex vivo in DSS model. Several probes yielded significantly increased fluorescence signal ($p<0.05$) in colon of diseased mice versus H2O controls. Most sensitive probes were used and confirmed in IL-10 null mice. (2) *In Vivo* Cat K 680 FAST (152±14 vs. 82±5 pmol in fluorochromes, $p<0.05$) and MMPSense 680 (134±23 vs. 72±14 pmol in fluorochromes, $p=0.06$) probes yielded significantly higher NIRF signal in inflammation/colitis models vs. controls. Signal was localized to colon by co-registration with MRI. (2) Ex vivo, all 7 probes yielded significant increases in NIRF signal which was highest with MMPSense 680 (193.3% increase vs. controls) and cathepsin based probes (>100% increase vs. controls). (3) Ex vivo fluorescence signal was preserved by appropriate fixation. H&E staining and confocal microscopy confirmed inflammation detected by NIRF probes. NIRF signal intensity and colitis score were strongly correlated ($r = 0.87$). Conclusions: We developed a new *In Vivo* method for valid detection and quantification of GI inflammation using activatable NIRF probes in living animals. Cat K 680 FAST and MMPSense 680 probes were the most sensitive for detection and quantification of acute inflammation *In Vivo* and ex vivo. This approach is useful for *In Vivo* or ex vivo monitoring and quantification of murine inflammatory bowel diseases. 1 Zhang, Gastrointest Endosc 2008 68 520, 2 Marten, Gastroenterology 2002 122 406.

Tu1140

Does Capsule Endoscopy (CE) Have an Added Value in Patients With Perianal Disease and a Negative Work up for Crohn's Disease (CD)?

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Introduction: CD of the small bowel is associated with perianal manifestations such as ano-rectal abscesses and fistulas. Colonoscopy with ileoscopy and radiographic small bowel examinations are relied upon to document the presence of CD of the small bowel. It is well documented in the literature that CE is more sensitive than these methods to diagnose CD of the small bowel. Thus, we suspect that the prevalence of inflammatory small bowel disease is underestimated in this subgroup of patients. Methods: Patients with perianal disease (abscesses, fistulas, recurrent fissures) were evaluated for underlying CD. Patients who had a negative work up defined as a negative colonoscopy with either a normal ileoscopy or a normal small bowel series or a normal CT / MR enterography, underwent a Pillcam study of the small bowel after signing informed consent. Patients using NSAIDs or a history of inflammatory bowel disease or rheumatic disease were excluded. Results: We recruited 26 patients aged 21-61(avg 35.6), 17 males, 9 females. One case could not be evaluated since the capsule did not leave the stomach. In 6 out of 25 (24%) patients with a negative standard work up for Crohn's disease CE findings were consistent with Crohn's disease of the small bowel. Family history of CD, WBC, Hb, ESR or CRP did not predict a diagnosis of CD. Capsule endoscopy findings led to a change in treatment. . Conclusion: In patients with perianal disease and a negative conventional work up to exclude CD, CE leads to incremental diagnostic yield of 24%. This changes management and improves outcome.

Tu1141

Chromoendoscopy With Automatic Lesion Enhancement in Magnetically Guided Capsule Endoscopy: A Feasibility Study

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Introduction: Gastric cancer is the 2nd most lethal digestive neoplasm in the world. Intestinal metaplasia and dysplasia are precancerous signs which can grow to gastric cancers. The identification of these lesions and follow-up of afflicted patients could lead to early diagnosis. Diagnosis via conventional endoscopy is characterized by low interobserver agreement and poor correlation with histopathologic findings. Chromoendoscopy has been proven to significantly enhance the visibility of mucosa irregularities, like metaplasia and dysplasia mucosa. In 2010 magnetically guided capsule endoscopy (MGCE) was introduced. In MGCE a patient swallows an endoscopic capsule, which is navigated by an external magnetic field in a water-filled stomach. The procedure is virtually non-invasive, comfortable for the patient and requires no sedation (Clinical study: Rey et al., 2010). MGCE seems feasible and sufficiently accurate for gastric examination. Known difficulties in the diagnosis of metaplasia in conventional endoscopy transfer to MGCE. Therefore, MGCE may also require the use of stains, similar to chromoendoscopy. Aim: To prove the feasibility of a staining procedure in an MGCE examination of the stomach. Material & Methods: Commercially available endoscopy capsules and pig-stomachs with esophagus were used. The stomachs were stained through the esophagus to simulate the real-world procedure. 100 ml of methylene blue stain of 1.00g/L was introduced through the esophagus. After a time delay of 5 minutes, a 500mL lukewarm water was inserted via the esophagus three times and flushed out of the stomach. The stomach was then filled with 2L of water and the capsule was introduced. Images were manually captured from all anatomical sections. The images were post-processed (enhanced sharpness and broader color-spectrum) for better visualization of mucosal structure. Results: Similarly to the way that chromoendoscopy improves visibility over conventional endoscopy, MGCE with staining agents exhibits more prominent mucosa appearance. As in classic chromoendoscopy, we observed that stained mucosa appears more detailed than unstained mucosa. We also noted that the water is not dyed and hence does not impact the visibility. The applied staining procedure dyed the mucosa sufficiently. This observation holds for different camera poses, lighting conditions and scales. Conclusion: The results demonstrate that the proposed staining procedure can be applied to pig stomachs. Similar to the traditional chromoendoscopy the mucosa appears more detailed. Image processing algorithms can further improve the image quality. Though the visibility of metaplasia and dysplasia is enhanced, other pathologies may be masked. This, however, is acceptable for examinations focused on the detection of mucosa irregularities.

Tu1142

Yield of Spyglass Cholangioscopy-Guided Biopsies in Indeterminate Biliary Strictures: Preliminary Results of a Multicenter French Prospective Study

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INTRODUCTION: Accurate diagnosis of indeterminate biliary strictures remains a clinical challenge in part because of the poor sensitivity of ERCP. Direct peroral cholangioscopy (POC) makes possible targeted biopsies under visual control guidance, and could thus improve the sensitivity of ERCP. The Spyglass® (Boston scientific, USA), single-use cholangioscopy system has been proposed to improve diagnostic capability of ERCP. This prospective multicenter study aims at prospectively evaluate the Spyglass Cholangioscopy (SC) for its diagnostic performance, feasibility and safety in the management of indeterminate biliary strictures. We report here the preliminary results of this ongoing study. METHODS: Since 2009, 42 patients (20 men, median age 67 years) were prospectively enrolled in7 centers. Main inclusion criteria were: presence of a biliary stricture without histological proof after ERCP-directed biopsies and/or brushings, need for a therapeutic decision (medical and/or endoscopic treatment, surgery). Main outcome mesure was the therapeutic modification rate. All patients had morphological exams (abdominal US, CTsan, MRI or EUS). Data including symptoms, biological abnormalities, details of ERCP and SC procedure, histology, complications and follow up were recorded. Patients were followed up during 24 months after the cholangioscopy. RESULTS: All patients underwent an ERCP with SC. Median length of the stricture was 10 mm (range 1-50mm); main biliary locations were the distal CBD (41%), the median CBD (26%), the main confluence (21%) or intra hepatic bile duct (12%). Patients were non symptomatic (n=29) or presented a loss of weight (n=13), jaundice (n= 11), or abdominal pain (n=11). Mean bilirubin plasmatic rate was 32 micromol/l. The median procedure time for POC was 30 minutes with no failure of cholangioscope introduction; balloon dilatation was needed in 2 cases. Quality of vision was deemed excellent (17%), satisfactory (46%), fair (15%) or poor (22%). Targeted biopsies with the Spybite are performed in 76% of cases. Five complications occurred: 3 cases of mild cholangitis, 1 duodenal perforation treated medically, 1 post ERCP pancreatitis. Results of guided biopsies showed: adenocarcinoma (3), high grade dysplasia (3), low grade dysplasia (3), inflammation (15), normal tissues (7). Changes in management after SC are displayed in the table. According to the final histological results after surgery (6 adenocarcinoma, 1 benign lesion) or follow up, diagnostic performances of SC-guided biopsies were: sensitivity 63%, specificity 96%, positive and predictive value of 83% and 88%. CONCLUSION: In this multicenter prospective study, Spyglass® system allowed characterization of previously indeterminate biliary strictures, and led to change in the therapeutic decision in 56% of cases with a sensitivity of 63% and a high specificity.

Changes in management after Spyglass Cholangioscopy

Treatment (N=42)	Before Spyglass	After Spyglass	
Surgery	20	9 (but 7 performed)	
Endoscopic treatment and/or surveillance	21	33	Therapeutic change = 23 patients (56%)
Chimiotherapy	0	0	
Phototherapy	1	0	

Tu1143

Low-Cost Microendoscopy for the Diagnosis of Esophageal Squamous Cell Neoplasia in Northern China: An Evaluation of Interobserver Agreement and Accuracy

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Background: The incidence-to-mortality ratio for esophageal squamous cell cancer (ESCC) in northern China remains a dismal 1:1 due to late diagnosis. Lugol's chromoendoscopy is used for endoscopic screening in high-risk populations, but is limited by its low specificity. Our group has created a low cost, battery-operated high-resolution microendoscope (HRME) that provides subcellular epithelial imaging after the application of topical proflavine (0.01%) to Lugol's unstained areas (Figure 1). Aim: To determine the accuracy and interobserver agreement of experienced and novice endoscopists of identifying neoplasia from these high-resolution images when compared to histopathology. These questions will help determine the feasibility of using this low-cost device as an adjunct to Lugol's chromoendoscopy. Methods: In this IRB-approved prospective clinical trial, 30 patients from the First University Hospital (Changchun, China) undergoing endoscopic screening for ESCC were enrolled. High-definition white light endoscopy followed by Lugol's iodine staining of the mucosa was performed, followed by 1-2 ml of topical proflavine 0.01% to Lugol's-unstained areas. After inserting the HRME through the accessory channel of the scope, 'optical' and tissue biopsies were obtained of each site. A single, expert GI pathologist read the histopathologic biopsies. A total of 163 optical sites were imaged; of these, 45 images were used in a training set of 10 images, a test set of 39 images, and 8 movies. Two "experienced" endoscopists with significant HRME experience (> 50 cases) and four "novice" endoscopists with no HRME experience completed the training and test set in a mixed, blinded fashion. Results: Among all endoscopists, the negative predictive value was 0.89 (95% CI, 0.86-0.93) for still HRME images and 0.94 (95% CI, 0.87-1.00) for movies. Sensitivity for cancer was 0.84 (95% CI, 0.78-0.90) for images and 0.89 (95% CI, 0.75-1.00) for movies and specificity