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Falk Symposium 166

GI ENDOSCOPY – STANDARDS & INNOVATIONS

Mainz (Germany)
September 18 – 19, 2008

Scientific Organization:
C. Ell, Wiesbaden (Germany)
T. Ponchon, Lyon (France)
J.F. Riemann, Ludwigshafen (Germany)
P. Sakai, São Paulo (Brazil)
H. Yamamoto, Tochigi (Japan)
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S.J. Spechler, Dallas

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Esophagus
Esophagus: Standards – Zenker’s diverticulum, endoscopic treatment of esophageal and gastric varices, palliative treatment for malignant esophageal obstruction, endoscopic treatment of gastroesophageal reflux disease

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Zenker’s diverticulum

Pharyngoesophageal diverticulum, also known as Zenker’s diverticulum (ZD), is an acquired disease formed by the outpouching of hypopharyngeal mucosa between the inferior pharyngeal constrictor muscle and the cricopharyngeal muscle in an area of junctional muscle weakness known as Killian’s triangle. Its pathophysiology is not well known but is thought to be incoordination between pharyngeal contraction and upper esophageal sphincter relaxation. Evidence also suggests that during swallowing, high hypopharyngeal pressures occur in some individuals because of poor compliance with the upper esophageal sphincter \(^\text{1}\). As a result of this increased pressure, pharyngeal mucosa and submucosa bulge through this weakened area. In the early stages, outpouching of the mucosa may be reversible and may actually recede during muscle relaxation. In the later stages, the diverticulum progressively enlarges and descends into the neck, most commonly on the left side. In some cases, it may even extend down into the superior mediastinum.

Surgical treatment of ZD is a well-established modality and effective in 80–100% of patients. The preferred approach involves the resection of the pouch (diverticulectomy) plus cricopharyngeal myotomy through a left cervicotomy \(^\text{2}\). However, morbidity and mortality rates of this surgery are significant, mainly due to the advanced age of the patients involved and several comorbidities. Despite these factors, in an American Gastroenterological Association technical review on ZD, there was a consensus recommending this type of surgery \(^\text{3}\).

The endoscopic treatment of ZD can achieve the same clinical results as surgical treatment while reducing the incidence of complications and mortality \(^\text{4–7}\). In 1917, Mosher described for the first time the endoscopic treatment of ZD, but this procedure was only disseminated by Dohlman and Mattson in the 1960s \(^\text{8}\). They developed a special rigid, double-lipped laryngoscope, and the ZD bridge was cut by using insulated forceps and a diathermic knife. Van Overbeek et al. \(^\text{9}\) introduced the use of CO\(_2\) laser applying a similar rigid laryngoscope. A variation of this approach is the stapler-assisted method. Endoscopic stapling esophagodiverticulostomy has also been shown by Collard et al. \(^\text{10}\) to be a safe and effective procedure, but always requiring general anesthesia and a special long, rigid diverticuloscope, which is not suitable for patients with a small diverticulum. This procedure may also cause dental injuries in the elderly patients with arthritis who are not able to overextend their neck.

The endoscopic intraluminal treatment of ZD by use of a flexible endoscope is nowadays an alternative to surgical treatment. A monopolar forceps or a needle knife is used to cut the ZD bridge. Argon plasma coagulation (APC) has also been used for this purpose. In order to have a better view during the procedure, devices were developed such as a hood attached to the endoscope \(^\text{11}\) and a flexible overtube called
diverticuloscope\textsuperscript{12}. First human trials describing endoscopic myotomy through a flexible endoscope were published simultaneously by Ishioka et al. and Mulder et al.\textsuperscript{4,5}. They used an electrocautery to incise the septum after placing a nasogastric tube for guidance. Primarily, the best indication for endoscopic therapy has been ZD in old patients with comorbidities\textsuperscript{4}. More than 90\% of patients may have good relief of dysphagia, although 5–15\% of patients will present recurrence due to the residual diverticulum and, in such cases, endoscopic retreatment may be again possible\textsuperscript{13}. Cervical or mediastinal emphysema occurs in 0–23\% of patients and bleeding in 0–10\% of patients following endoscopic cricopharyngeal myotomy\textsuperscript{14}. Mortality is usually caused by complications unrelated to the procedure\textsuperscript{13}. The use of domestic pigs as an animal model for training ZD endoscopic treatment is well established and also helpful to the development of new techniques and accessories\textsuperscript{15}. In our experimental laboratory, the use of harmonic scissors through a flexible overtube allowed a quick and feasible procedure without bleeding and good visualization of the bottom of the diverticulum. Therefore, the use of an animal model for training ZD endoscopic treatment is welcome and quite helpful because it reproduces a similar situation to that found in humans. In addition, this animal model might be helpful in the further development of new ZD treatment techniques and accessories, such as the flexible stapler and the flexible harmonic scalpel.

References:


Endoscopic treatment of esophageal and gastric varices

Esophageal varices screening
Screening for esophageal varices with upper GI endoscopy (EGD) is recommended in patients with hepatic cirrhosis. Capsule endoscopy (CE) is an alternative to EGD. In a multicenter study comparing EGD to CE, the latter was found to have an 84%-sensitivity and 88%-specificity in detecting esophageal varices. Although good tolerance and satisfaction, CE requires further studies to determine its accuracy in the detection of esophageal varices and may be an alternative to patients who are unable or refuse to undergo EGD.

Prevention of the first variceal bleeding (primary prophylaxis)
For patients with portal hypertension (HVPG > 6 mmHg) and no esophageal varices, the use of non-selective beta-blockers was not effective in the prevention of variceal development in addition to related side effects. Therefore, its use in this situation is not recommended.

In patients with small varices and signs of high risk of bleeding (Child C and presence of red rale markings), beta-blockers should be recommended for preventing the first variceal hemorrhage and they may be used in patients not fulfilling criteria for increased risk of bleeding. In patients using non-selective beta-blockers, an EGD follow-up is not necessary. For those who are not under this medication, EGD should be repeated within two years.

For patients with medium/large varices, two therapies are available: non-selective beta-blockers and endoscopic band ligation (EBL). The Baveno IV consensus recommends non-selective beta-blockers for primary prophylaxis and EBL should be considered for patients with contraindications, intolerance or non-compliance with non-selective beta-blockers. EBL is associated with a small but significant lower incidence of first variceal hemorrhage without differences in mortality. However, EBL long-term benefits are uncertain because of the short follow-up duration. The AASLD/ACG (American Association for the Study of Liver Diseases/American College of Gastroenterology) deems both treatments as efficient in the prevention of the first variceal bleeding in high risk of hemorrhage (Child B/C or variceal red rale markings on endoscopy) and considers that the therapeutic decision depends on the characteristics and preferences of patients, as well as local resources and experience. Although EBL is apparently related to less occurrences of first bleeding, non-selective beta-blockers also prevent other bleeding sources in the portal hypertension, such as gastric varices and portal gastropathy, in addition to
suggesting a possible reduction of spontaneous bacterial peritonitis. Studies on the combined use of EBL and non-selective beta-blockers were inconclusive and, given the unacceptable risk-benefit ratio, this approach cannot be currently recommended.

**Treatment of acute variceal bleeding**
The treatment of acute variceal bleeding should at first take into account the protection of airways prior to endoscopy in order to prevent pulmonary aspiration, especially in patients with changes in consciousness level due to hepatic encephalopathy. Orotracheal intubation should also be taken into account for patients with uncontrollable bleeding.

Volemic reposition should be immediately started to prevent complications such as hypovolemic shock and renal failure. Antibiotics, such as quinolone and third-generation cephalosporin, should be administered to all patients for 5 to 7 days because they reduce mortality rates, infection risks and rebleeding rates. Vasoactive drugs (somatostatin or its analogues, octreotide and vapreotide, and terlipressin) should be administered at admission of a patient with suspect of variceal bleeding and kept for 2 to 5 days. Terlipressin is the drug of choice having somatostatin and analogous drugs as second choice.

Endoscopic therapy is usually performed within the first 12 hours. EBL has been considered as the first choice because this is an easier technique with fewer complications than sclerosis requiring an experienced and skilled endoscopist. Some studies demonstrate that in centers experienced in the use of sclerosis, results are found to be similar to those obtained with EBL in the control of acute variceal bleeding.

Failure to control bleeding or rebleeding may be treated again with endoscopic therapy. In selected patients, in special those with HVPG higher than 20 mmHg, the placement of TIPS (transjugular intrahepatic portosystemic shunt) may be an acceptable option because studies point out a significant improvement in survival rates.

**Prevention of variceal bleeding recurrence (secondary prophylaxis)**
The best approach for patients with esophageal varices with prior bleeding episode is the combined treatment of non-selective beta-blockers and EBL. Non-selective beta-blockers protect against bleeding before the eradication of varices with EBL, and also prevent the recurrence of varices after completing endoscopic treatment. The secondary prophylaxis with non-selective beta-blockers should be initiated when the patient has been hemodynamically stable. Endoscopic treatment may be started 1 to 2 weeks after the bleeding episode up to complete variceal eradication. The first follow-up endoscopy may be performed within 1 to 3 months after the eradication and every 6 to 12 months after that. This initial follow-up should be very strict because of the high recurrence of varices within the first two years (approximately 50%).

Sclerotherapy is usually not indicated in secondary prophylaxis. Studies indicate a significantly lower risk of rebleeding with the use of EBL, and fewer sessions are necessary to eradicate varices. Furthermore, complications concerning sclerotherapy are more frequent and severe.

**Gastric varices**
There is less evidence concerning how to deal with gastric varices in comparison with esophageal varices, due to few controlled studies. Although gastric varices bleed less frequently than esophageal varices, bleeding intensity and mortality rates
are higher. Gastric varices occur in approximately 20% of the patients with portal hypertension. Fundal varices (IGV1) are those with higher bleeding and rebleeding rates and non-selective beta-blockers are recommended as primary prophylaxis. The pharmacological treatment for acute bleeding is similar to that for esophageal variceal bleeding. In the initial endoscopic treatment, obliteration of varices with cyanoacrylate injection is recommended. TIPS should be taken into account for patients who do not respond to pharmacological and endoscopic treatments. There is no consensus on primary prophylaxis of gastric varices.

References:


Palliative treatment for malignant esophageal obstruction

Introduction
Palliative therapy for advanced esophageal cancer is frequently necessary for patients with unresectable disease, poor medical condition or local recurrence. Dysphagia, the most disabling symptom, is associated with increasing weight loss,
local discomfort and aspiration pneumonia. Palliative resection is associated with a 20–60% morbidity and 10–33% mortality. Symptoms only develop after 50% or more of the luminal diameter is involved, resulting in late presentation and poor prognosis (5-year survival of 5–10%)². Median survival time for patients with inoperable disease is 4–6 months and rapid and lasting restoration of swallowing is the main goal of palliative treatment³.

Palliative modalities

Surgical bypass
Surgical bypass is advocated by some surgeons on the basis that it results in relief dysphagia better than other palliative modalities. Mortality rate is 40% or higher and food intake is comparable to self-expandable metal stents (SEMS)⁴,⁵.

Chemotherapy (CT) and radiotherapy (RT)
Chemotherapy has been used for metastatic esophageal cancer, but current trials have failed to demonstrate improvement in survival⁶. Dysphagia relief achieved with combinations of cisplatin, epirubicin and 5-FU is 59–89%, and agents such as paclitaxel, irinotecan and lobaplatin may improve rates further⁷. Local chemotherapy administration into the tumor to minimize toxicity is currently under evaluation with cisplatin/epinephrine gel injections⁸. Radiotherapy is divided into external beam radiotherapy (EBRT), brachytherapy and combination radiotherapy. EBRT regimens are based on 30–60 Gy in ten or more fractions given over a 5–6-week period. Results in dysphagia relief are unpredictable and around 50%, also many patients are seen to relapse rapidly after treatment. Brachytherapy is replacing radiotherapy source close to the tumor maximizing the dose while minimizing damage to local structures. Results for swallowing improvement are 61–67%. Like EBRT, it is straightforward, quick and relatively inexpensive, and treatment may be given on an outpatient basis. Combination radiotherapy can improve dysphagia relief up to 90%. Chemoradiation therapy (CT-RT) has effect in local and systemic disease, as well as chemotherapeutic radiosensitization of tumor providing dysphagia relief with acceptable toxicity. Improvement in swallowing is 75–90%, and 60% of patients remain dysphagia free until death. Median dysphagia-free duration is 5 months. Severe toxicity is 12–30% and mortality 2%⁷,⁹. Esophagitis and fistula formation occur in 20–30% of patients and post-radiation stricture in 30–50% of patients². Chemoradiation and radiotherapy do not improve dysphagia immediately requiring a 4–6-week period and thus should not be suitable for patients with expected survival of less than 3 months or suspected tracheoesophageal fistula¹⁰.

Dilation
Dilation may be used with expandable balloons or wire-guided polyvinyl bougies under fluoroscopic control allowing consumption of a soft diet. Blind Maloney dilations are associated with perforation increase in complex strictures. Benefits are usually brief requiring repeated dilations within 1–2 weeks. Dilation is usually performed prior to endoscopic assessment, ablation therapy, and placement of an enteral feeding tube¹,⁸.
**Nd-YAG laser**
The use of laser for obstructing esophageal cancer is a type of thermal ablation. It is not useful for extrinsic compression but may be more appropriate for exophytic, straight, short (< 5 cm), non-circumferential midesophageal tumors. High-power Nd-YAG laser provides dysphagia palliation by thermal necrosis and vaporization of malignant tissue with endoscopic control\(^1\,^2\,^7\).

Tumor is usually ablated in a circumferential retrograde manner (distal to proximal) after previous dilatation allowing treatment of longer lesions, greater improvement in dysphagia, and fewer treatment sessions\(^2\). In general, two to four sessions are required for initial dysphagia relief and further treatment every 4–8 weeks. Technical success may be high as 90%, functional success rate 80%, morbidity 6.7%, and mortality 3.6%.

Disadvantages of laser ablation are equipment cost and availability, besides being technically demanding and time-consuming, requiring repeated treatment. As such, laser ablation is increasingly viewed as a complementary therapy to improve dysphagia before curative surgery, to deal with postoperative recurrence or to manage tumor overgrowth and ingrowth in stent patients\(^7\,^8\).

**Electrocautery**
Monopolar and bipolar electrocautery are infrequently used and have proven to be difficult to control. BICAP has a high perforation rate, needs prior dilation, requires several treatment sessions, and has a 360° dispersion of energy, therefore may only be used in fully circumferential lesions.

Argon plasma coagulation (APC) is a type of monopolar diathermy electrocautery using ionized argon gas. Despite great similarity to and same treatment indications for laser, APC provides lower cost, availability, ease to use, low morbidity, and short learning curve. With limited depth of penetration (2–3 mm), it is also time consuming and requires repeated treatment\(^2\,^7\).

**Injection therapy**
Ethanol-induced tumor necrosis (ETN) is the least expensive endoscopic technique. Aliquots of 0.5–1 ml of 100% ethanol are injected into all visible tumor tissue (mean 8–10 ml per session) resulting in dysphagia relief within a week. Chest pain after treatment is common. If necessary, therapy may be repeated in 3–7 days. It is suitable for small localized exophytic and cervical tumors if reasonable view is possible. Repeated treatment is often necessary and pattern of tumor necrosis is unpredictable\(^2\,^7\).

**Photodynamic therapy (PDT)**
Photodynamic therapy involves the interaction of a photosensitizing agent that preferentially concentrates in tumor tissue in combination with endoscopic low-power laser monochrome light (630 nm) exposure. The photochemical reaction in the presence of molecular oxygen produces cytotoxic, oxygen free radicals that cause microvessel damage, tissue ischemia and necrosis\(^7\,^8\). Depth of penetration is about 5 mm and palliation is comparable to that achieved with Nd-YAG laser, but the procedure is easier to carry out and more comfortable for patients. PDT tends to provide better response for long (> 8 cm) tumors and fewer perforation complications compared to laser (1% vs. 7%)\(^7\). The major problem is light-sensitive drug retention in the skin for about 6–8 weeks after injection, and the need to avoid direct sun exposure during this period of time at risk of severe sunburn. Sunscreens are
ineffective since they do not block visible light. Others drawbacks are the inability to relieve extrinsic compression, frequent need for repeated treatment within 4–6 weeks, and considerable expense associated to the treatment\textsuperscript{2,7,8}. A non-laser (Versa-light – ESC Medical Systems Ltd., Yokneam, Israel) has been applied as a monochromatic light source and was found to be less expensive, easier to move between hospital locations, besides feasible and safe\textsuperscript{11}.

**Endoprotheses and self-expanding metal stents (SEMS)**

The advantages of endoscopic stent placement in malignant esophageal obstruction are instant dysphagia relief, management of tracheoesophageal fistulas, and its applicability to both esophageal cancer and mediastinal compression\textsuperscript{12}. Stent placement technical success is 95–100% and functional success over 83–100%. Procedure-related perforations may occur in 4–7% of patients, chest pain in 10–60%, tumor overgrowth in 6–8.5%, late migration in 10–27%, and mortality in 0–8.5% owing to aspiration, perforation and hemorrhage\textsuperscript{7}.

Covered stents are the treatment of choice for managing tracheoesophageal fistulas, and successful palliation has been achieved in 70–80% of cases, although fistula enlargement or further fistula formation may occur. Patients with associated tracheobronchial stenosis must have respiratory stenosis treated first\textsuperscript{1,13}.

Tumors located in the cervical segment are difficult to manage due to intolerable foreign-body sensation, risk of perforation and migration to hypopharynx. Stenting of the distal esophagus and gastric cardia also constitute a particular problem due to gastroesophageal reflux with a 3–9%-aspiration risk\textsuperscript{7,14}. In comparison with stents placed in more proximally located esophageal tumors, palliation is inferior and may have a higher complication rate. Specially designed stents for cervical segment and SEMS with antireflux valve are available to be placed at these locations\textsuperscript{15,16,17}.

Prior or subsequent radiation and/or chemotherapy may increase the risk of stent-related complications. However, this relationship is still controversial and is currently under evaluation\textsuperscript{14}.

Expandable plastic stents were developed to offer an easier insertion with some decrease in cost\textsuperscript{1,2}. A comparative study with self-expandable plastic stents and self-expandable metal stents demonstrated similar immediate results and late obstruction occurred more often in the metal type\textsuperscript{12}.

Semi-rigid plastic tubes are less expensive, but their insertion procedure is traumatic and associated to high rates of acute complications (5–15%) and mortality (2–4%)\textsuperscript{1,2,12}. Despite immediate improvement in dysphagia, the need for additional interventions is frequent because of higher complication rates, and some authors advocate the use of chemoradiation as first-line palliative therapy for malignant esophageal obstruction\textsuperscript{18}.

**Conclusions**

Chemoradiation and brachytherapy appear to be the first-line therapy for patients with malignant esophageal obstruction with longer estimated survival rate (6 months or more), because of the long-term better quality of life and longer dysphagia-free period. SEMS is suitable for patients who failed to improve or presented recurrence after CT and/or RT treatment, when tracheoesophageal fistulas are present and in patients with estimated survival rate of 3–4 months. Patients with very short life expectancy (few days) do not benefit from most of palliative procedures and less invasive methods should be offered, such as feeding tubes\textsuperscript{19}.
References:


**Endoscopic treatment of gastroesophageal reflux disease**

Gastroesophageal reflux disease (GERD) is one of the most common gastrointestinal disorders and, in the last decade, several endoluminal procedures for its treatment have been introduced. The purpose of endoscopic treatment is to obviate the need for long-term proton pump inhibitor (PPI) and the potential morbidity of surgical or laparoscopic fundoplication.

Endoscopic treatment can be divided into the following procedures:
- Endoscopic suturing and plication (Bard EndoCinch® and Wilson-Cook ESD – Endoscopic Suturing Device®) and full-thickness plication (NDO Plicator®).
- Thermal coagulation with radiofrequency device (Stretta®).
- Injection or implant of biopolymers into the gastroesophageal junction (Enteryx® and Gatekeeper®).
- Emerging techniques:
  - Endoscopic fundoplications (Esophyx®, Hiz-Wiz®, MediGus SRS®, and Syntheon ARD®).

**Endoluminal suturing and plication**

EndoCinch® (Bard Inc., Billerica, MA, USA) device was brought to commercial market in April 2000 for use as an endoscopic antireflux treatment. The procedure consists of 2 to 3 plications 1–2 cm below the gastroesophageal junction (GEJ), under deep or conscious sedation. Clinical evidence has suggested that the plication is mostly anchored by the mucosal layer. The result is thus a weak valve that fails with pressure over time because of loss of sutures. Subjective improvement, such as reduction of PPI and GERD scores, has been the main endpoint. Objective parameters, such as pH study, manometry and endoscopy, are not always considered. Uncontrolled short-term follow-up studies demonstrated a therapeutic benefit mainly considering the clinical parameter. Unfortunately, follow-up periods ranging from 12 to 24 months after EndoCinch® procedure have shown the lack of sustained response meaning unsatisfactory results. According to the manufacturer, over 4,000 patients were treated using the EndoCinch® device for antireflux purpose. This device is still being manufactured and some investigators are using it for the endoscopic treatment of obesity.

ESD® (Endoscopic Suturing Device, Wilson-Cook Medical Inc., Wilson-Cook Medical Inc., Winston-Salem, NC, USA), similarly to EndoCinch® device, does not require an overtube and easily applies sutures. However, sutures created partial-thickness plication and were not effective. In 2004, owing to unsuccessful results, the manufacturer withdrew the ESD® device from the market.

NDO Plicator® (NDO Surgical Inc., Mansfield, MA, USA) device was designed to perform a full-thickness plication. The procedure consists of placing a single suture below the GEJ in the direct endoscopic visualization to create a full-thickness plication and a longer-lasting GE valve. In a short- and long-term follow-up, clinical results were similar to those in previous publications evaluating the effect of
EndoCinch®. Failure in clinical efficacy was attributable to the limitations of a single suture implant, which may be insufficient to create an effective antireflux barrier. In our personal (unpublished) study, we compared two small groups: one comprised of 20 patients treated with single suture and another of 10 patients treated with double suture. No difference in clinical and objective parameters was found in both groups after 12 months. In April 2008, the NDO Plicator® manufacturer ceased its activities and this device is no more available.

**Thermal coagulation – Stretta® procedure**

Radiofrequency energy has been applied for the treatment of disorders, such as aberrant cardiac conduction pathways (Wolff-Parkinson-White syndrome), prostatic tumor and liver solid tumor. Stretta® (Curon Medical Inc., Sunnyvale, CA, USA) device was approved for clinical use to treat GERD in 2000 and consists in the application of thermal radiofrequency at the level of the lower esophageal sphincter (LES) and gastric cardia. The device comprises a special balloon with multiple radially placed nickel titanium needle electrodes. This device delivers controlled coagulation energy (80 V) achieving a target tissue temperature of 85 °C for 2 minutes. Data evaluating Stretta® clinical efficacy vary across published studies, but surprisingly there are series of patients off PPI medication with sustained improvement in 75 to 86% at 48 months after the procedure. Some authors have speculated that the denervation of sensitive nerve endings leads to a decrease in the perception of acid reflux and symptoms. Some patients who did not have esophagitis before the procedure may develop this condition. In November 2006, Curon Medical, Stretta® manufacturer, went out of business and therefore this device is unavailable at the moment.

**Injection/Implant of biopolymers**

Injection of Enteryx® (Boston Scientific Inc., Natick, MA, USA) into the muscle layer at the GEJ for the treatment of GERD was approved in the United States in April 2003. The expected mechanism of action is the alteration in the GEJ distensibility and configuration. Fibrous encapsulation might lengthen the LES, potentially leading to an elevated threshold for the LES relaxation (LESR). Clinical trials of an initial symptomatic multicenter study demonstrated the sustained effectiveness and safety of Enteryx® injections in PPI-dependent patients with GERD. At the 12-month evaluation, improvement in GERD health-related quality of life (GERD-HRQL) symptoms was verified in 78% of patients and in 73% of patients off PPI. At 24-month evaluation, 67% of patients eliminated the use of PPI and 72% reduced PPI dosage in 50% or greater. Probably, due to the occurrence of complications with deaths, the manufacturer voluntarily withdrew this product from the market in September 2005.

The Gatekeeper® Reflux Repair System (Medtronic Inc., Minneapolis, MN, USA) is an expandable hydrogel pellet-like prosthesis, which is introduced into the distal esophageal submucosa to augment the LES. In a European multicenter trial, 40% of patients had achieved a normal pH level and median LES pressure increased significantly, and 53% of patients were off PPI after 6 months. However, at 6 months, only 70% of the prostheses were retained. This system was introduced for clinical use in the European Union in May 2003 and the company itself ceased to manufacture the device in October 2005.
Emerging techniques
Esophyx® (EndoGastric Solutions Inc., Redmond, WA, USA) is a new device developed for GERD treatment through an omega-shaped fundoplication. The technology is promising and preliminary clinical results in 19 patients with nonreducible hiatal hernia have shown significant improvement in the reduction of GERD symptoms, PPI use, hiatal hernia, and esophagitis after 24 months. Nevertheless, clinical evaluation based on a larger patient population is still to be assessed.

Other devices such as Hiz-Wiz®, MediGus SRS® and Syntheon ARD® are currently undergoing FDA review and no clinical trials are available.

Discussion
In the last decade, three different approaches for the endoscopic treatment of GERD have been carried out: intraluminal endoscopic suturing and plication, radiofrequency thermal coagulation, and injection/implant of bulking agents into the lower esophagus. In a short period of time, six different devices and techniques were delivered on the market based on little preliminary data or safety and clinical efficacy. On the other hand, five of these six devices were removed from the market over this same period of time and EndoCinch® is the only to remain in use by some investigators for the endoscopic treatment of obesity. The symptomatic improvement has been shown for the majority of treated patients in short-term follow-up, but variable outcome for the reduced need for PPI and pH studies have demonstrated the normalization of distal esophageal acid exposure only for the minority. In all protocols, patients with significant reflux, esophagitis, hiatal hernia more than 2 cm in size or Barrett esophagus are not typical candidates for this antireflux intervention. These considerations, in our own experience using four different techniques (EndoCinch®, ESD®, Enteryx®, and NDO Plicator®) reinforced the idea that those devices were not for routine use outside the research setting at Sao Paulo University Medical School. Two systematic reviews on this issue were recently published. The authors of both reviews conclude that to date there are not enough scientific and clinical data on safety, efficacy and durability to support the use of endoluminal therapies for GERD in routine clinical practice. Conceivably, some effective endoscopic technique might be available in the future, but no definite indication for endoscopic therapy of GERD is currently available. There are several newer devices under study or in development and further testing and experience will demonstrate their capabilities in the treatment of gastroesophageal reflux disease.

References:


Barrett’s esophagus is the premalignant lesion for the majority of patients with esophageal adenocarcinoma. In order to detect neoplasias at early and curable stages endoscopic surveillance for patients with Barrett’s esophagus has been advocated. High grade intraepithelial neoplasias (HGIN) and early cancer (EC) are often discrete or even macroscopically occult lesions and therefore directed biopsies in combination with four-quadrant random biopsies according to the Seattle protocol are recommended as the gold standard for surveillance. However, four-quadrant biopsies are not only time consuming and expensive, but they also fail to provide precise localization of occult HGIN/EC for targeted endoscopic resection. Therefore, efforts have been made to develop novel endoscopic imaging techniques that may improve the detection of early lesions in Barrett’s esophagus.

The past years provided a considerable increase in the number of high-quality clinical trials that demonstrate the benefits of novel endoscopic imaging techniques when compared with standard endoscopy for detection of esophageal neoplasias. FICE and NBI appear to be exciting additions to the diagnostic armamentarium, allowing detailed evaluation of superficial vascular patterns; however, large, randomized, prospective clinical trials are needed to validate its diagnostic role in this patient population. Although promising, at the present time capsule endoscopy cannot be recommended as a primary screening tool for Barrett’s esophagus in patients with chronic gastroesophageal reflux because sensitivity for Barrett’s mucosa is suboptimal. Accumulating data on long-term outcomes for endoscopic treatment of mucosal Barrett’s carcinoma demonstrate that alternative endoscopic therapies are not only safe, but as efficacious as the traditional surgical approach. Especially at high volume centers these techniques have already replaced esophagectomy. The combination of novel endoscopic techniques, diagnostic and therapeutic, will provide the endoscopist with much needed tools that can considerably enhance the diagnosis and treatment of reflux disease, Barrett’s esophagus, and early esophageal cancer.
Session II

Stomach
Gastric cancer can be cured by local resection as long as the lesions are in the early stage and have not metastasized. Endoscopic resection is a minimally invasive treatment for early-stage gastric cancer, and endoscopic submucosal dissection (ESD) is one type of endoscopic resection that has been developed in the past 10 years. For ESD to be a reliable, curative treatment for early gastric cancer, it is necessary for the endoscopist to detect the lesion early, make a precise pretreatment diagnosis, ensure that the patient has the correct indication for endoscopic resection, and have the skill to perform ESD.

For early lesion detection, endoscopists should pay attention to subtle changes in the surface structure, the color of the mucosa and the visibility of underlying submucosal vessels. When a suspicious change is found, chromoendoscopy with spraying of Indigo Carmine is useful to delineate the lesion. Recently developed technique of color enhancement such as narrow band imaging (NBI) and flexible spectral imaging color enhancement (FICE) could be useful for early detection of gastric cancer. Chromoendoscopy and magnifying endoscopy are also useful for determining the margin of the lesions for pretreatment diagnosis, and endoscopic ultrasonography and magnifying endoscopy are useful for determining the depth of invasion.

For ESD to be successful, local injection of sodium hyaluronate helps maintain mucosal elevation during dissection. Selecting the appropriate knife, using transparent hoods wisely, employing a good strategy that uses gravity, and having good control of bleeding are all needed to make ESD reliable.

In this symposium, recent innovations in the endoscopic techniques relevant to early detection of gastric cancer and endoscopic treatment of early gastric cancer, especially the technique of ESD will be explained.
Session III

Small bowel and bile ducts
Small bowel endoscopy: Standards & innovations

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Capsule endoscopy (CE) has revolutionized imaging procedures in the field of small-bowel diagnosis. CE, which was introduced into clinical practice in 2001, made it possible for the first time to image intraluminal conditions in the entire small bowel with excellent quality. But CE is a purely diagnostic device and therefore excellent for screening.

Push enteroscopy (PE) became the established endoscopic method of examining the proximal part of the small bowel during the 1980s, and with its facilities for biopsy sampling and treatment it has continued to hold its place, even after introduction of CE. However, the insertion depth is generally limited to the proximal jejunum and therefore PE goes along with a limited diagnostic and therapeutic yield. E.g. in case of suspected mid GI bleeding a diagnostic yield of approximately 30–45% can be expected, compared to 40–80% for CE.

Double balloon enteroscopy (DBE), the prototype stage of which was first reported in 2001 by H. Yamamoto and by our own group in 2003, is an endoscopic method allowing complete visualization of the small bowel or at least a substantial part of it. In contrast to capsule endoscopy taking biopsy samples and endoscopic treatment of lesions in the small bowel is additionally possible. Multiple studies have demonstrated the high diagnostic value of this method with approximately 60–80% of relevant pathological findings combined with an acceptable low complication rate (< 1% for diagnostic DBE). Pancreatitis after oral DBE seems to be the most important complication. The major indication is the mid gastointestinal bleeding (MGI) that means that the bleeding source is located in the small bowel. Other conceivable indications (still under evaluation) are Crohn’s disease, polyposis syndromes and in rare cases refractory celiac disease or malabsorption symptoms as well as difficult ileocolonoscopy or ERCP after stomach resection and Roux-Y reconstruction or endoscopy after bariatric surgery. The high diagnostic yield of small bowel DBE goes along with a high therapeutic yield that means the findings of DBE influences therapeutic strategies substantially. Based on the published data an endoscopic therapy (e.g. argon plasma coagulation, dilation, polypectomy) can be performed in 40–55% of the patients for treatment of small bowel lesions. Efforts had been made to make the small bowel endoscopy easier and faster, e.g. development of single-balloon enteroscopy and spiral enteroscopy. Further studies and especially the results of prospective comparing studies have still to be awaited. Therefore, at time of writing CE and DBE appear to be the standard method for diagnostic endoscopy and DBE for therapeutic endoscopy of the small bowel avoiding intraoperative enteroscopy or laparotomy for therapy.
Bile duct system/Papilla of Vater: Standards & innovations

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Diagnostics
Biliary strictures can result from malignant or benign tumors and it is important that if an ERCP is performed that the maximal attempts are made to obtain a tissue diagnosis. Sensitivity of tissue sampling by brush cytology, fine needle aspiration or forceps biopsy is quite low of about 51%, in a combination of all the three techniques it will increase to 68%. Per oral cholangioscopy, a technique that uses a fiberoptic cholangioscope passed through a therapeutic duodenoscope directly into the biliary tract has been shown to improve the ability to distinguish malignant from benign biliary strictures.
To improve the images of the fiberoptic cholangioscope a new endoscopic system based on narrowing the bandwidth of spectral transmittance of red-green-blue optical filters (NBI), was developed. This system may yield clear images of the surface structure and micro vessels of the common bile duct. Ultimately, the value of NBI cholangioscopy will be determined by large multicenter studies.
However, the normal cholangioscopy has some disadvantages. Two endoscopists are needed and the system is very fragile with high repair costs. Spyglass is a newly developed per oral cholangioscopy system which allows a single-operator examination with a four way deflectable steering tip. In a first reported study the majority of patients (63%) had indeterminate strictures. The sensitivity based on biopsy diagnosis was 78%, specificity 100%.
IDUS (intraductal ultrasonography) has a staging accuracy in patients with ampullary neoplasm ranged between 88–93%. IDUS has a high resolution because of the use of high-frequency US (20–30 Hz) and can be performed in a single session with ERCP because the IDUS probe can be inserted via the channel of a side viewing duodenoscope. Previously published data showed correctly diagnosed ductal infiltration by IDUS in patients with ampullary neoplasm in 90%.

PSC
The role of ERCP in diagnostic of PSC has become controversial with the availability of high-quality MRCP because several studies which have compared ERCP and MRCP in these patients showed that MRCP have comparable diagnostic accuracy. In patients who need therapeutic intervention, ERC is the first technique and still the gold standard. The endoscopic therapy is indicated if there is clinical evidence of cholangitis or if a dominant stricture is suspected. Balloon dilatation and short term (10–14 day) stenting is preferable. Cholangiocarcinoma will develop in up to 10–30% of patients with PSC with a life-time risk of 10–15%. Early diagnosis may improve survival as it may permit curative surgical resection. Several endoscopic methods have been evaluated to diagnose cholangiocarcinoma in PSC. Brush cytology, fine needle aspiration and forceps biopsy have low sensitivity and high specificity. Combining tumor markers with cytology may increase sensitivity.

Biliary sphincterotomy
Well established indications for EST are common bile duct stones, acute cholangitis, palliation of ampullary malignancies and facilitation of biliary stent placement. Complication rate is reported of 9.8%. Acute pancreatitis is the most frequent
complication with 5.4%. An alternative procedure to EST is balloon sphincteroplasty especially in patients with coagulopathies and those in whom the endoscopic approach is difficult. (Duodenal diverticulum; BII anatomy) Compared to EST in a meta-analysis of several randomized studies, EBD can cause less bleeding but a higher rate of post ERCP pancreatitis. (7.4% vs. 4.3%) Long term consequences of EST are cautery induced distal bile duct strictures and development of bile duct stones. The overall rate of late symptoms ranges from 6–24%. A correlation between size of EST and late complications cannot be determined.

Stents
In a patient with suspected malignant biliary obstruction the key decision is as to whether the patient is a candidate for curative resection. This is based on the patient’s age and medical condition because aggressive resection is appropriate. If a patient is not resectable palliative stenting for relief of jaundice, pruritus and improvement of life quality should be done. Self-expanding metallic stents (SEMS) have compared favourably with plastic stents for palliation of malignant biliary obstruction. The median patency for metal stents is approximately double than that for plastic stents and the overall cost was substantially lower for metal stents because of fewer reinterventions.

An important development in metal stenting is the covered metal stent. Covered SEMS provide the size advantage of uncovered SEMS with the promise of prevention of tissue ingrowths through the interstices of the metal mesh and the prospect of removability. The potential of durable patency and removability make covered SEMS an attractive option for endoluminal therapy of malignant and benign strictures.

Hilar tumors are often problematic for ERCP. MRCP should be done before because it is very accurate at staging the extent of the tumor without risk of cholangitis. Only a minority of liver, about 25% needs to be drained to relieve jaundice. The rest of problems arise from infection of undrained segments. Plastic stents generally have very poor outcomes in hilar tumors. Unilateral drainage especially with filling both sides of liver-lobes causes infection. Bilateral stents are difficult to place and often migrate.

The goal of best palliative therapy in hilar tumors should be:
- MRCP as the first diagnostic procedure
- draining of the stenotic segments as most as possible by ERCP or PTCD
- drainage by using non covered SEMS
State-of-the-Art Lecture

Milestones in GI endoscopy: A pioneer reflects

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Today, therapeutic endoscopy includes more than 30 methods that are routinely performed in clinical practice. It is estimated that therapeutic endoscopy has replaced approximately 50% of conventional abdominal surgery. The first milestone is the foreign body removal from the esophagus and stomach in the early nineties by Guisez, Starck and Jackson using rigid instrument. Starck is known for his Starck-Sonde formerly used for dilatation of achalasia. The first sclerotherapy of esophageal varices was performed by Swedish surgeon Crafoord and his ENT colleague Frenckner in 1939. Fiberendoscopic injection hemostasis was first performed for bleeding peptic ulcer by Soehendra in 1976. Today, a variety of endoscopic techniques are available with which most of the gastrointestinal bleeding can be controlled avoiding surgery. The use of cyanoacrylate for controlling esophagogastric variceal hemorrhage was first published in 1986 by Ramond in France and Soehendra in Germany. Together with the band ligation, invented by Stiegmann and Goff in 1989, later modified as multiband ligator by Saeed (1996), the management of the most serious life threatening complication of portal hypertension has been revolutionized. In 1969 the first polypectomy in the colon was performed by Wolff & Shinya in the USA, and Niwa in Japan. Today, snare resection is being widely practiced also in other parts of the gastrointestinal tract. EMR in piece-meal fashion has recently been increasingly replaced by en bloc ESD, a sophisticated resection technique that was born in Japan. With this technique, the indication spectrum of EMR for early gastric cancer could be expanded. Another important milestone in therapeutic endoscopy is the introduction of endoscopic papillotomy by Classen in Germany and Kawai in Japan in 1973, just five years after the first endoscopic cannulation by Mc Cune. Balloon dilatation of the papilla, introduced by Staritz in 1983 has enriched the catalog of endoscopic treatment of CBD stones which is today mainly performed in cirrhotic patients with coagulation disorder. By the aid of several lithotripsy techniques, the vast majority of CBD stones can now be removed without surgery. Endoscopic biliary stenting, first performed by Soehendra in 1979 has further opened access to the biliary and pancreatic duct system for more endoscopic interventions. Self expandable metallic stents have been developed not only for the bile duct, but also to be used in the gastrointestinal tract. Another enrichment of endoscopic palliation is the introduction of PEG by Gauderer and Ponsky in 1980. The invention of endoscopic ultrasound in 1980 has led to further development of therapeutic EUS. Double-balloon enteroscope introduced by Yamamoto in 2001 has opened the gate to the small intestine for diagnostic and therapeutic procedures. In this decade, we are witnessing the tremendous movement towards to natural orifice translumenal endoscopic surgery (NOTES) that may be on the threshold of a new dimension of therapeutic endoscopy requiring closer collaboration between gastro-enterologist and surgeon, and perhaps also a new discipline.
Session IV

Endosonography
**EUS: Standards – Esophagus, stomach, pancreas, papilla, colon, rectum**

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EUS is becoming more and more important in assessing a wide range of gastrointestinal diseases. EUS is now widely regarded as the central discipline in endoscopy. Initial enthusiasm over the diagnostic results obtained with 360° cross-sectional radial scanning has settled to a more realistic level, particularly since the advent of computed tomography and magnetic resonance imaging technologies. In combination with fine-needle aspiration using curved linear-array instruments, and with the use of (contrast-enhanced) Doppler and pulsed-Doppler ultrasound and elastography, EUS is finally becoming a state-of-the-art, minimally invasive alternative to exploratory surgery in many situations – not only for diagnostic but also for therapeutic purposes. This is true not only for the upper and lower gastrointestinal walls, where EUS is still the imaging method of choice, but also for the pancreas, bile duct, gallbladder, adrenal glands, and mediastinum when other tests are inconclusive and to determine the extent of certain cancers of the digestive tract and lung.

Endoscopic ultrasound (EUS) was primarily used to examine the walls of the upper and lower gastrointestinal tract. EUS can accurately determine how deeply a tumor has penetrated through the bowel wall. Examining the size, shape, and ultrasound appearance of adjacent lymph nodes is also helpful for determining whether cancer has spread.

Specifically, EUS has been used to detect small pancreatic tumors less than 20 mm in size when other imaging methods are unable to provide a diagnosis. The technique can only be carried out by examiners with a high level of anatomical knowledge, accomplishment, and skill.

Endoanal and endorectal ultrasound is important in the staging of rectal and anal cancer and for identifying recurrent neoplasia after surgery, as well as for assessing the anatomical integrity of the anal sphincters in inflammatory and neoplastic diseases.

EUS is increasingly moving beyond being a mere imaging tool for diagnostic purposes to become an interventional procedure for accurate, cost-effective, and nonsurgical assessment of many diseases – e.g., to guide pseudocyst drainage, celiac plexus neurolysis, and other even more exciting indications.

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Session V

Colon
Large bowel: Standards

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Polyps
Majority of polyps may be removed endoscopically. Small polyps up to 3 mm can be removed using biopsy forceps and polyps 4–8 mm in diameter using cold snaring (without electrocautery). Hot biopsy forceps use should be discouraged. Larger polyps are removed using standard polypectomy snare and preferably coagulation current. Sessile/flat lesions more than 2–3 cm in diameter may require submucosal injection for safe removal. Large polyps involving more than 2 haustral folds and/or significant part of circumference as well as with macroscopic features of malignancy should not be removed endoscopically in standard situations. In order to avoid polypectomy complications proper technique should be employed and patient coagulation status assessed including use of anticoagulant drugs. Proper follow-up intervals should be observed.

IBD
Colonoscopy in IBD patients is used for diagnostic purposes including histology, endoscopic activity scoring, monitoring therapy and in search for dysplasia and cancer in high risk groups. Risk factors include: longstanding and extensive disease, family history of colorectal cancer and coexistence of primary sclerosing cholangitis. Surveillance should start 8 years in pancolitis and 15 years in left-sided colitis after disease onset. Standard procedure includes obtaining multiple biopsies (2–4 biopsies every 10 cm). Examination should be repeated every 1–2 years.

Stenoses
Benign colonic stenoses are usually anastomotic. It is now standard procedure to dilate short stenoses with the use TTS – Through the Scope balloons. It has to be done carefully, step by step usually up to 18–20 mm to avoid perforation. Inflation time is varying between 1 and 5 minutes. Long and tortuous stenoses are more risky and should not be attempted for dilation in standard setting. Inflammatory bowel diseases related stenoses are occasionally considered for endoscopic dilation. Malignant stenoses may require emergency stenting for decompression or as a preoperative measure using self-expandable metallic stents. In selected cases these stents or destruction methods (argon plasma coagulation, laser) may also be used for palliation in extremely poor surgical candidates.

Conventional chromoendoscopy
Staining is used to better visualize surface and borders of the abnormal area. The most popular large bowel staining method is the use of indigo carmine to quickly delineate borders of flat lesions before removal. Furthermore, with the combination of magnification endoscopy, staining may help visualize pit-pattern in attempt to predict histology of polyps.
Session VI

Pancreas
Bilio-pancreatic endoscopy has dramatically changed over the last decade. ERCP was initially playing a central role for both diagnosis and therapy and has seen its role dramatically reduced for imaging of the bilio-pancreatic area why it has become more and more focused on therapy.

The two major diagnostic procedures used for imaging or sampling issue in the pancreatic area are, now, endoscopic ultrasound and magnetic resonance imaging. EUS allows to visualize and sample all parts of the pancreas and has also become the gold standard technique for detection or small common bile duct stones in case of acute (relapsing) pancreatitis.

MRCP has been a revolution for diagnosis and therapeutic planning in the pancreatic area. It visualizes the pancreatic duct in physiological condition, as a projectional image that simulates contrast radiography, giving an information which is widely interpretable as it was the case with diagnostic ERCP before. The major difference is of course that it is not associated with any complication.

In addition, its performance is not only limited to the bilio-pancreatic duct but it can also visualize the parenchyma, the blood vessels rendering possible an all-in-one MR staging or all-in-one therapeutic planning.

The availability of MRCP has significantly reduced the total number of ERCPs worldwide while most of the remaining procedures became purely therapeutic. It can also visualize the pancreatic duct behavior in response to stimulation with secretine, providing a true functional evaluation, not only by determining pancreatic outflow and pathways of secretion but also, as recently described, being able to measure locally the pancreatic blood flow and its variations in response to stimulation.

Acute pancreatitis was the most severe complication of ERCP and its incidence has dramatically decreased with the use of protective stents in case of difficult manipulation or in high risk procedures.

ERCP is not anymore the cornerstone technique for management of pancreatic diseases and therapeutic ERCP is also challenged by EUS guided therapy.
This is clearly not a competition of two different techniques but an additional tool which allows to increase the indications for pancreatic treatment and improve the results. It is now possible to reach almost every peripancreatic collection for sampling or drainage and EUS guided cystenterostomy has become the standard. The possibility to see through the wall has also allowed to develop new techniques to create anastomoses between the gut and the pancreatic duct or to treat persisting pancreatic fistula occurring after surgical or percutaneous drainage.

Typical examples of this evolution are the performance of necrosectomy which is probably the first accepted human application of NOTES and the management disconnected pancreatic tail syndrome which may occur in the setting of acute or chronic pancreatitis or in case of trauma.
Dynamic MRCP is the key technique for identify disconnected pancreatic tail syndrome. Transpapillary drainage of collection is replace at least in part by transmural drainage which allows to create more permanent fistule between the rupture and the gut and follow-up decisions can be made on the results of dynamic MRCP which assesses the pathways of secretion.

Chronic pancreatitis and endoscopic management of stones and strictures remains an area of debates between surgical and endoscopic treatments. Two randomized controlled trials on relatively small numbers of patients favor surgical treatment as initial management, at least on the short term results while another trial suggested that the performance of adequate shock wave lithotripsy, even in the absence of any endoscopic treatment might be an interesting option also in patients with severe pain, providing pain relief and avoiding surgery in more than 50% of the patients at 5 years.

No doubt that pancreatic diseases remain the typical clinical setting were all the physicians involved in patient’s treatment should work together and offer in a multidisciplinary environment the best treatment or combination of therapies. Such convergence of medical care requires extensive manpower and equipments, a feature which can probably only take place in selected tertiary centers.
Session VII

Endoscopy in competition
Endoscopy in competition: Diagnostics

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Gastrointestinal endoscopy is one of the most important developments in medical diagnostic in the last century. Today, especially radiological techniques are in competition with endoscopy. Magnetic resonance cholangiopancreaticography plays an important role in the diagnosis of abnormalities of the pancreatic and biliary tract. In many cases, MRCP supplanted endoscopic retrograde cholangiopancreaticography (ERCP) and percutaneous transhepatic cholangiography (PTC) in the initial diagnostic evaluation and follow-up of diseases of the pancreas, gallbladder, and biliary tract. This is largely due to its noninvasive nature, avoiding possible complications that may occur with more invasive imaging such as pancreatitis, duodenal perforation, as well as the associated risks of sedation.

Virtual colonoscopy is based on computed tomographic or magnetic resonance imaging three-dimensional data sets. Available large, prospective studies comparing computed tomographic colonography and conventional colonoscopy have shown a wide variation in results with a per-polyp sensitivity of maximal 92% for a cut-off size of 6 to 10 mm. Despite promising results, the future of CT colonography as a screening method remains uncertain because potential healthy people are exposed to considerable doses of ionizing radiation. Therefore, it seems reasonable to focus on MRI for colorectal cancer screening.

In summary, the radiological imaging methods are in competition with gastrointestinal endoscopy. These techniques are necessary for a better diagnostic work-up, especially in the staging of gastrointestinal malignancies.
Endoscopy in competition: Therapeutics

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Introduction: Getting a new “order of things” adopted...

“There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new order of things…Whenever his enemies have the ability to attack the innovator, they do so with the passion of partisans, while the others defend him sluggishly, so that the innovator and his party alike are vulnerable”.

Niccolò Machiavelli, The Prince (1513)

A. The endoscopic innovation

The endoscopic technique or practice that is “perceived” as new by clinicians who will ultimately adopt it

Attributes

– Relative advantage(s) of the innovation
– Compatibility (equipment and values)
– Complexity (understanding and use)
– Trialability (hands-on)
– Visibility (visible impact)

B. Endoscopy: Disruptive or synergistic?

A “disruptive technology” or “disruptive innovation” is a term describing a technological innovation, product, or service to “overturn” the existing dominant technologies or products in a market.

Synergy (from the Greek syn-ergo, συνέργος, meaning working together) refers to the phenomenon in which two or more agents acting together create an effect “greater” than that predicted by knowing only the separate effects of the individual agents.

C. Types of endoscopic innovation

Optional: Individual decides and adopts

Collective: Consensus among endoscopists and professional societies drives adoption

Authority-driven: Regulatory agent/government/payer-imposed
D. Endoscopy versus medical therapy

Endoscopic therapies for GERD, dilation of peptic strictures, Barrett’s esophagus ablation, esophageal variceal banding or injection, endoscopic hemostasis for peptic ulcers, endoscopic therapy of achalasia, pyloric BoTox for gastroparesis, hemorrhoidal banding

E. Endoscopy versus chemotherapy


F. Endoscopy versus surgery

Stent palliation of malignant obstruction, endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), PEG/J for enteral feeding and drainage, endoscopic polypectomy, endoscopic management of choledocholithiasis, NOTES.

G. Endoscopy versus radiotherapy

Palliation of malignant strictures, pre-operative EUS staging of rectal cancer; EUS placement of tumor-localizing fiducials, palliative endoscopic tumor hemostasis; iridium-192 brachytherapy of bile duct cancer

H. Conclusions: The endoscopist and the development process

Essential requirements for progress

a. Hands-on practice and exchange
b. Vigilance of needs and problems
c. Innovativeness
d. Re-assessment of “norms”
e. Interactive attitude and dialogue
f. Collaboration
Gastroenterological endoscopy has developed from a purely diagnostic to an increasingly therapeutic discipline. It replaced surgical treatment and led e.g. in therapy of bile duct stones with sphincterotomy to a change of paradigms. Up to now, palliative interventions (e.g. drainages, stents) were the domain. Today, under specific conditions, therapy of early cancer or its precursor lesions in oesophagus, stomach and colon is part of the gastroenterological arsenal.

The development of capsule endoscopy and double-balloon enteroscopy with further development to single-balloon enteroscopy made the previous “black box”, the small intestine accessible even for therapy. Endoscopic ultrasound also is becoming part of the standard armamentarium at an increasing rate with the claim to a minimal invasive method (e.g. drainage of cysts, gastroenteral anastomoses), supported particularly by technical development. The therapeutic amount in endoscopy will increase e.g. with new methods in cancer screening like computed tomography-based virtual colonoscopy without the need for bowel preparation.

The future of gastrointestinal endoscopy will be crucial but not exclusively characterized by further technical development e.g. Plicator® for endoscopic antireflux therapy. Interdisciplinarity will play a more prominent role in gastrointestinal endoscopy. In vivo subsurface morphological and functional cellular and subcellular imaging of the gastrointestinal tract with confocal mini- and endomicroscopy (e.g. for precancerous lesions in the colon) requires collaboration between gastroenterologists and histopathologists. The development of endoscopic submucosal dissection (ESD) and particularly natural orifice transluminal endoscopic surgery (NOTES, e.g. transgastric cholecystectomy) requires a close collaboration between gastroenterologists and surgeons. This will push the jointly begun way of “abdominal” or “visceral centers” over common education and quality management up to the formation of interdisciplinary endoscopic centres.

Basic, clinical and supply research will move away from single actors and go the way to a horizontal cross-linkage (according to J.R. Siewert) through to dissolution of traditional department structures with formation of disease-related centres of excellence. Endo-pathologists and gastrointestinal endoscopic interventionalists could be the consequence.
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POSTER ABSTRACTS

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Development of mucosal lesions in cholangitis. Correlation with the number of mast cells

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Introduction: Hyperplastic and metaplastic lesions are common in chronic cholecystitis. Mast cells play an important role in inflammation and fibrosis and stimulate epithelial cell proliferation and metaplasia. The aim of the present study is to examine the mucosal lesions in the common bile ducts in secondary sclerotic cholangitis provoked by calculous obstruction or chronic pancreatitis.

Methods: Surgically resected specimens from the lower part of the common bile ducts (at 2 cm distance from the papilla of Vater) were collected from 59 patients and examined for routine histology. Immunohistochemistry was performed using mouse anti-tryptase and anti-chymase antibodies.

Results: Patients with chronic exacerbated cholangitis (CEC) had hyperplasia of the surface and glandular epithelium in almost all of the cases. Strong fibrosis was observed in 26.5% and weak in the remaining cases. The inflammatory infiltrate was intensive in 67.6% of the cases and weak in the rest of them. In 23.5% of the cases pyloric metaplasia was detected. The mean numbers of tryptase and chymase positive mast cells were 75.6 cells/mm², respectively. Patients with chronic sclerotic cholangitis (CSC) had surface epithelial hyperplasia in 64% and glandular hyperplasia only in 28% of cases. In the rest of the cases we found reactive atipia. Strong fibrosis was seen in 84% of the samples. Low inflammatory infiltrate was determined in 72% of the patients. In 76% of the specimens pyloric metaplasia was observed. The mean numbers of tryptase and chymase positive mast cells were 23.5 and 23.3 cells/mm², respectively.

Discussion/Conclusion: The chronic inflammation and presence of tryptase and chymase positive mast cells might initiate hyperplastic and metaplastic changes in the common bile duct mucosa in lithiasis.
Endoscopic removal of an ascarid migrated into the biliary tree

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Introduction: Parasitic infestation is endemic in tropical and subtropical area, but rarely can occur in the temperate areas. Occasionally ascariasis may present as biliary tree obstruction.

Methods: We present a case of a female, 52 years old, with a previous cholecystectomy, who was admitted in hospital for recurrent abdominal right quadrant pain, nausea and vomiting. Laboratory tests showed mild leukocytosis and elevated aminotransferases. Abdominal ultrasound examination and MRCP showed a moderate dilatation of the biliary tree with echogen intraluminal images. An initial diagnosis of choledocholithiasis was made. ERCP was performed with endoscopic removal of an ascarid from the biliary tree.

Results: Smooth clinical evolution after endoscopic procedure was noticed. The patient went on for the medical treatment of ascariasis. 2 weeks later the patient had no symptoms and the laboratory tests and radiologic studies were normal.

Discussion/Conclusion: Ascariasis is a rare cause of biliary tree obstruction in temperate zones. Serious complications such as acute cholecystitis, ascending bacterial cholangitis or perforation of the bile duct can occur. The non-invasive tests may misdiagnose ascariasis for biliary lithiasis and ERCP surprisingly reveals the parasite. In addition to specific chemotherapy, endoscopic extraction have been used to remove adult worms from the biliary tract.
Endoscopic sphincterotomy in acute biliary pancreatitis: Choice on organ dysfunction

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Acute pancreatitis develops at 3.5–8% of patients with biliary disease. By that there are specific mechanisms of pathogenesis and features of a choice of medical tactics.

Among 227 patients with acute biliary pancreatitis 180 had mild and 57 – severe course of disease. Three kinds of treatment were applied: conservative, conventional surgical and endoscopic sphincterotomy.

Signs of one system dysfunction are found in 160 (70.5%) patients. Dysfunction of the liver was noted in 144 patients, of cardiovascular system – in 71, of respiratory system – in 6, and kidneys – in 20. Attributes of the central nervous system dysfunction were defined only at severe pancreatitis – in 3 patients. Only liver dysfunction kept up to three days in patients with mild acute biliary pancreatitis in all kinds of treatment, and for 7 day – after surgical treatment. In necrotic pancreatitis multiple organ dysfunction in the same period was kept at conservative treatment in 36.4% of patients, surgical – in 50%, and endoscopic – in 12.5%. At the end of the first week multiple organ dysfunction was defined at conservative and surgical treatment in 18.2% and 13.3% of patients, accordingly. After sphincterotomy multiple organ dysfunction was not observed. The laparoscopic cholecystectomy was the second stage of the management after ERCP. Lethal cases did not observe and in 3 patients the postoperative complications were noted.

Endoscopic sphincterotomy improves the clinical course of multiple organ dysfunction syndrome. Combination of ERCP with papillosphincterotomy and subsequent laparoscopic cholecystectomy is effective in the management of patients with acute biliary pancreatitis.
Acute biliary pancreatitis: Cytokines’ balance in endoscopic papillotomy

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The leading role in progression of pathological process in acute, including biliary, pancreatitis belongs to numerous mediators of inflammatory response, particularly to cytokines. Applying in the clinical practice of endoscopic retrograde cholangio-pancreatography and papillotomy permitted to reevaluate the management of acute biliary pancreatitis. However, its influence on cytokines status still unknown.

Among 227 patients with acute biliary pancreatitis 180 had mild and 57 – severe course of disease. Three kinds of treatment were applied: conservative, conventional surgical and endoscopic sphincterotomy. Plasma levels of cytokines (IL-1, IL-6, IL-8, IL-10, and TNF-alpha) were measured using the ELISA technique in forty-two patients (26 – with mild and 16 – with severe) with acute biliary pancreatitis before and after three and seven days after endoscopic papillotomy.

The increased levels of all pro-inflammatory cytokines were noted in patients with acute biliary pancreatitis. In patients with mild pancreatitis, the significant decrease of IL-8, IL-1-alpha, and TNF-alpha was noted at the third day and at the seventh day – IL-6 and IL-1-beta after papillotomy. The IL-10 levels simultaneously increases after third day. The similar changes were revealed in patients with severe course, however the positive effect was observed some later – at the seventh day.

Endoscopic papillotomy is effective in acute biliary pancreatitis due to inhibition of systemic inflammatory syndrome. This should be considered for the following stage of management – cholecystectomy.
Ursodeoxycholic acid reduces lipid peroxidation and mucin secretagogue activity in gallbladder bile of patients with cholesterol gallstones

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Introduction: Recently it has been postulated that gallbladder mucin hypersecretion observed in the pathogenesis of cholesterol gallstone disease may be induced by biliary lipid peroxidation. Ursodeoxycholic acid treatment reduces mucin concentration and the formation of cholesterol crystals in gallbladder bile of patients with cholesterol gallstones and this effect might be mediated by a decrease of biliary lipid peroxidation.

Methods: In a double-blind placebo controlled trial patients with symptomatic cholesterol gallstones received either ursodeoxycholic acid (750 mg daily) (n = 10) or placebo (n = 12) 10–12 days prior to cholecystectomy. As a marker for lipid peroxidation malondialdehyde was measured in bile together with mucin concentration. In addition, the mucin secretagogue activity of the individual bile samples was assessed in cultured dog gallbladder epithelial cells.

Results: Ursodeoxycholic acid therapy resulted in a significant reduction of lipid peroxidation in bile as determined by the biliary malondialdehyde (µmol/l) / total bile acid ratio (mmol/l) (0.02 ± 0.005 vs. 0.06 ± 0.01; p < 0.001). Furthermore, a decrease in mucin concentrations (0.7 ± 0.3 vs. 1.3 ± 0.5 mg/ml; p < 0.005) and of the mucin secretagogue activity of gallbladder bile (0.9 ± 0.2 vs. 2.2 ± 0.3 times control; p < 0.001) was observed.

Discussion/Conclusion: The reduction of lipid peroxidation and mucin secretagogue activity of gallbladder bile induced by ursodeoxycholic acid treatment may contribute to the beneficial effects of this drug on gallbladder bile composition and symptoms in cholesterol gallstone patients.
Long-term follow-up of endoscopic sphincterotomy in patients with cholelithiasis

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An investigation of long-term (2–12 years) results and outcomes of endoscopic sphincterotomy because of benign pathology in 3594 patients the recurrence of disease of papilla Vater and/or common bile duct in 173 patients was revealed. Late complications included recurrence of stones in 66 (1.880%) patients, stenosis of the sphincterotomy opening in 51 (1.42%), acute cholangitis on the background of biliary obstruction in 36 (1.00%) and recurrent ascending cholangitis without biliary obstruction in 6 (0.17%), biliary pancreatitis in 3 (0.08%), liver abscess in 4 (0.11%) patients, and biliary or ampullary carcinoma in 7 (0.19%) patients. Prognostic factors for recurrent choledocholithiasis were remained gallstone gallbladder, diameter of common bile duct more 15 mm, peripapillary diverticulum, multiple stones in the duct. Prognostic factors for sphincterotomy opening stenosis were incomplete sphincterotomy, peripapillary diverticulum, long narrow distal part of common bile duct, absence of stones in bile ducts. Recurrent ascending cholangitis without biliary obstruction had patients with duodenostasis. Endoscopic management had good results in 84% patients with late complications of sphincterotomy.

Key words: endoscopic sphincterotomy, late results, treatment
A comparison of conventional and ultrasound-guided pancreatic pseudocysts drainage

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Purpose of the study: Pancreatic pseudocysts (PPs) is a common and dangerous complication in up to 20% of patients with acute and chronic pancreatitis. Methods of conventional endoscopic drainage (CED) and endoscopic ultrasound-guided drainage (EUD) are well described. Our aim was to learn the efficacy and safety of CED and EUD in the management of PPs and to determine the better approach for decreasing of intra- and postoperative complication rate.

Materials and methods: Endoscopic transmural drainage was performed in 55 patients with PPs during a period of 8 years. Mean age of the patients was 54 years. Preoperative preparation included ultrasound examination with percutaneous puncture of the PPs, upper GI endoscopy, CT, MRCP. We used such treatment algorithm: patients with bulging lesions without obvious portal hypertension underwent CTD, other patients underwent EUD. We compared short-term and long-term effectiveness and complication rates during 1 and 4 months post procedure.

Results: 43 patients underwent CED and 12 patients had EUD. 7 complications occurred in 5 patients, and consisted of bleeding in one, infection of the collection in one, stent migration in two (with infection in one) and pneumoperitoneum with pneumomediastinum in one. All complications but one could be managed conservatively or with repeated endoscopic procedures (up to three). There were no bleedings in EUD group. It was not PPs recurrence in any patient during the period of follow-up.

Conclusions: Both CED and EUD are effective and safe in the management of PPs with no clear difference between intra- and postoperative complication rate. EUD drainage helps to avoid bleeding during manipulation but the features of the modern ultrasound endoscopes do not guarantee leak proofness of the created fistulas. There is no necessity to use EUD drainage in all patients with PPs elected for endoscopic treatment.
Hilar stricture management in East Kent hospitals

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Introduction: Hilar strictures are complex and a challenge to manage with biliary stenting been the main option. Hence, the management of hilar strictures in the East Kent Hospitals was analysed.

Methods: The reports of ERCP procedures done in East Kent hospitals (Ashford, Kent & Canterbury and Margate) from May 2005 to June 2007 were obtained. The following variables were analysed, age, sex, pre-ERCP imaging, number of ERCPs done in same patient, biliary brushings and results of cytology, the number and type of stents inserted, resolution of jaundice after stent insertion and the number of patients referred for King’s HPB MDM.

Results: There were 21 patients identified from the ERCP reports. The age range was 54–91 years. There were 52% of males and 48% females. 28% of patients had USS, CT scan in 14%, USS and CT scan in 28%, USS and MRCP in 23%. 67% of patients had ERCP once, twice in 28% and thrice in 5%. In 14% of cases PTC was done as ERCP was not successful. A single plastic stent was inserted in 71% and in one patient two stents were inserted. In 28% of patients the plastic stent was converted to metallic stent. Biliary brushings were done in 66% and 33% of cases had positive cytology.

In 78% of cases there was resolution of jaundice and LFTs with no improvement in 22% and results were not available in 3 of the patients. 52% of patients were considered to benefit from referral to King’s HPB MDM and two of the patients had surgery. At the time of this study 19% of cases had died.

Discussion/Conclusion: This study shows that single plastic stent is effective in patients with hilar stricture. These results are similar to studies suggesting single stent as an effective and useful palliative treatment option.
Endoscopic treatment of pancreatic pseudocysts

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One hundred eighty-eight patients with severe acute pancreatitis were treated. The pancreatic pseudocyst was noted in 41 (21.8%) of them. In 23 (56.1%) of patients the pseudocyst localized in the corpus, in 10 (24.4%) – in the head, and in 8 (19.5%) – in the tail of pancreas.

Endoscopic drainage was applied in cases when the cyst close adherent to the duodenal or the stomach wall, detected by computed tomography, bulge in the lumen of the duodenum or the stomach, and pseudocyst exists more than 4 weeks. The endoscopic drainage was performed in 12 (29.3%) of patients: in 9 patients – cystoduodenostomy and in 3 – cystogastrostomy. Diameter of pseudocyst in all cases not exceeded 5 cm. After clarifying of the cyst localization, duodenotomy or gastrotomy was performed with needle papillotomy knife. Length of incision of 1.5–2.0 cm provided the adequate drain of pseudocyst. The emptying of cyst was controlled by ultrasonography. The symptoms of the mechanical jaundice disappeared in 3 patients after cystoduodenostomy. Neither in time nor after interventions of complications did not observe. The recurrence of pseudocyst did not observe during one year.

Thus, the endoscopic intervention is the safe and effective method of management of pancreatic pseudocysts.
Hepatic artery diastolic velocity correlation with liver structural damage detected by endoscopic ultrasonography

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Background: Hemodynamic changes nowadays are described in hepatic circulation even before the signs of hepatic damage. Superior mesenteric artery end diastolic velocity (EDV) elevation was confirmed in patients with alcoholic liver damage [Cosar, 2006]. Endoscopic ultrasonography (EUS) development in the last decade is widened with spectrum of liver examination possibilities. Advantages of EUS mostly are targeted on the relatively small vessels examination. Our study was performed regarding the hepatic artery diastolic studies on patients with diffuse liver parenchyma damage.

Material and methods: In total 88 patients; 41 women and 47 men (mean age 57 ± 4.5 years) with diffuse liver damage detected by US, EUS, MRI, or CT were included for the screening. Patients with active hepatitis, malignancy, heart failure were excluded from the study. 58 patients were selected. The control group consists of the same age members with no signs of liver diseases. In both groups EDV was examined using Color Doppler EUS GF-UC145AL (Olympus) and ProSound SSD5000 (ALOKA).

Results: Patients with diffuse liver damage had relatively smaller hepatic artery size (decrease for -5.82%, p < 0.05), which was related with significant increase of hepatic artery EDV (for 54.9%, p < 0.05). It shows that liver parenchyma damage leads to blood flow increase in the arterial pool. Hepatic artery EDV in patients with cirrhosis was considered that reflect outflow resistance, which can correlate with both sinusoidal resistance.

Conclusions: Hepatic artery EDV correlates with the changes of the liver vascular resistance. Diffuse liver damage is accompanied by an increased resistance of the small arteries. EUS should be considered when a. hepatica vessels are poorly accessible to US or CT and would be used for detection of vascular screening before the liver transplantation.
The influence of cholelithiasis and cholecystectomy on gastro-esophageal and duodenogastric reflux

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Introduction: Dyspeptic symptoms after cholecystectomy is common. It has been suggested that the biliary reflux may account for postoperative symptoms.

Aim: To determine whether cholecystectomy affects duodenogastroesophageal reflux by using pH-metry and bilirubin monitoring (Bilitec) before and after surgery.

Methods: 25 patients with gallstones were included in the study. Ten healthy subjects served as a control group. All the patients underwent pH-metry, Bilitec, and upper digestive endoscopy. Esophageal acid exposure was judge when pH < 4, bilirubin exposure was measured as percent time above absorbance level 0.14 or more, excessive reflux was defined above 5%.

Eight weeks after cholecystectomy, the tests were repeated.

Results: The time percentage of esophagus bilirubin reflux was < 5% in all controls. In 7 patients (28%) before and also in 12 patients (48%) after cholecystectomy the reflux was > 8%; in 3 cases postcholecystectomy the duodenogastric reflux was > 20%.

6 patients (24%) who had a reflux preoperatively persisted with significant postoperative reflux as well; however, the quantitative difference in reflux was insignificant (p = 0.206). 8 patients (32%) who had an insignificant preoperative reflux developed a significant postoperative reflux (p = 0.02).

10 patients did not reveal any bilirubin reflux (reflux < 5%) and no significant differences were detected in esophageal pH compared with control group, before and after surgery.

11 patients (44%) complained of persistent symptoms after surgery, whereas 14 patients (56%) were asymptomatic after cholecystectomy. Only in 7 cases – 3 before (12%) and 4 after surgery (16%) – symptoms were correlated with the presence of biliary reflux.

Discussion/Conclusion: Cholelithiasis does not determine increased biliary or acid reflux compared to the healthy group. Cholecystectomy determine increased duodenogastric reflux and decreased the percentage of time that gastric pH was < 2. Although cholecystectomy itself does cause increased biliary reflux, in most patients with significant duodenogastric reflux symptoms were not correlated with the presence of biliary reflux.
Endoscopic treatment of biliary problems in patients with choledochoduodenostomy

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Background: Side-to-side choledochoduodenostomy (CD) is a commonly performed procedure in cases of common bile duct strictures and injuries, recurrent common bile duct stones, and stones which can not be extracted, but some problems occur in long-term postoperative follow-up.

Aim: We aimed to evaluate patients with CD who underwent ERCP.

Materials and methods: Records of patients who underwent ERCP from January 2000 to December 2005 were reviewed and those with CD were evaluated regarding disease etiology.

Results: 9922 ERCPs were performed during this period and 74 of the patients had CD. Sixty-eight (31 female, 37 male; mean age: 57.7 years [21–80]) of the 74 patients, for whom results were available, were included in the study. The reasons for CD were common bile duct stone in 43 (62.7%), benign biliary stricture in 14 (20.9%) and common bile duct injury in 11 (16.4%). The mean time between the operation and ERCP was 5.5 years (15 days–33 years). The reasons for ERCP were cholangitis (n = 40 [58.8%]), abnormal liver function tests with abdominal pain (n = 26 [38.2%]), and only abnormal liver function tests (n = 2 [2.9%]). These two patients were diagnosed to have secondary sclerosing changes in their cholangiograms. 144 procedures (mean: 2.1 [1-20]) were performed in these 68 patients. Twenty-one patients had secondary sclerosing changes in their cholangiogram, 13 benign biliary stricture above the anastomosis, 9 sump syndrome, 8 anastomosis stricture, 9 stone in biliary tract, 4 hydatid disease communicating with biliary system, 1 pancreatic cancer, 1 Klatskin tumor, and 1 hyperplastic polyps in stomach. All patients underwent endoscopic sphincterotomy. The stones were extracted with balloon and basket. Patients with biliary strictures were treated with stenting. One patient had hemobilia during the procedure that resolved spontaneously. Two patients had mild increase in amylase levels with abdominal pain and their conditions also normalized in 24 hours. Patients with secondary sclerosing changes were treated with Ursodeoxycholic asit (Ursofalk®).

Conclusion: ERCP is an effective and safe option for the treatment of biliary complications developing after CD.
Detection of small polyps by cap fitted colonoscopy compared with standard colonoscopy

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Introduction: Several new methods for colonoscopy are tested to improve detection of small polyps or early (in situ) carcinoma.

Objectives: The present study wants to compare the grade of detection of small polyps by standard colonoscopy (scol) and cap fitted colonoscopy (cfcol), respectively.

Material and methods: 55 patients with positive FOBT were randomized to undergo either scol (27 patients) or cfcol (28), using the same colonoscope, just adding a transparent hood at the tip of the colonoscope.

Results: Polyp and early carcinoma detection rate was significantly higher in the cfcol group (47.2%) vs the scol group (38.1%). Using cfcol polyps were more efficient and easier detected, especially under folds of the sigmoid and transverse colon compared with scol (85.3% vs. 63.5%, p = 0.003).

Discussion/Conclusions: Among other more expensive endoscopic methods (magnification, NBI, autofluorescence etc) colonoscopy using a cap at the tip of the endoscope represents a cheap but efficient method to improve the view and to detect small polyps or early colon cancers by seeing under colonic folds. Adding chromoendoscopy to this technique will improve further more the detection rate of polyps.
Unusual but distinct type of colorectal polyp: Inflammatory myoglandular polyp – Report of 6 cases

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Introduction: In 1992 Nakamura reported a new category of benign colonic mucosal polyps composed of hyperplastic glands, smooth muscle and a variable amount of granulation tissue. Macroscopically this polyp was predominantly located in the left colon and rectum. We present an additional series of six polyps, first of them being already published in 2003.

Methods: Between 2003 and January 2008 we identified in Gastroenterology Center of the Fundeni Clinical Institute, Bucharest, 6 cases of colonic polyps with distinct clinical, endoscopical and histological aspects. The polypectomy specimens were embedded in paraffin and 4 µm sections were stained with HE, van Gieson, mucicarmine, PAS, AB 2.5 and Perls.

Results: This series included 6 patients (4 women and 2 men, age between 35–61 years old). Clinically, rectal bleeding without diarrhea or other gastrointestinal complaints was present in four patients; the other two patients were asymptomatic. Endoscopically the polyps were identified as pedunculated protrusions (4 cases) and sessile (2 cases) located in the left colon, 15 cm to 40 cm from anal margin. The rest of the colorectum and the terminal ileum were inconspicuous, without any signs of mucosal inflammation or diverticula. The size of the polypectomy specimens was 8 mm to 25 mm, with a firm consistency and a smooth reddish surface. Microscopically, the polyps were characterized by proliferation of smooth muscle. hyperplastic glands with variable cystic changes, with mucin secretion and a mild inflammatory reaction; no ulceration was found and the iron stain was negative.

Discussion/Conclusion: This is the fourth series in the literature, after Nakamura, Nagata and Moriyama. Recently, Yamane reported a first case of multiple myoglandular polyps. Clinical presentation, localization, colonoscopic aspects and histology, gave to this type of non-dysplastic polyp a characteristic and unique appearance, distinct from inflammatory polyps. The pathogenesis of these polyps remains obscure.
Rectal bleeding – Clinical aspects

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Introduction: Rectorrhagia is a frequent indication for colonoscopy, and this investigation is essential for the etiological diagnosis. The aim of this study is to evaluate the clinical and etiological pattern in patients with rectorhagia.

Methods: We included 121 patients with rectorrhagia, admitted in our hospital in 2005, who performed colonoscopy for diagnosis. We analyzed the demographical and etiological data on different patient groups, according to etiology and age, the cut off value being 50 years, as a limit age for colonoscopy screening indication.

Results: From a total of 4792 patients admitted in our department on 2005, 121 subjects (2.5%) were diagnosed with rectorrhagia. No differences between gender was observed (the male/female ratio was 0.95) with a mean age 53.74 ± 14.68 years.

The etiology of rectorrhagia was as follows: hemorrhoids (38.84%), hemorrhoids associated to other diseases (8.26%) and non-hemorrhoidal diseases (52.89%). The last patients group have many causes: inflammatory bowel diseases (43.94%), colorectal cancer (22.73%), diverticulosis (7.58%), postpolypectomy (6.06%), irradiation (6.06%), ischemic (3.03%) and infectious (3.03%) colitis, anal fissures (3.03%) and no evident cause (1.52%).

According age, rectorrhagia due to inflammatory bowel diseases was more frequent in the young group (18.18% vs. 8.26%, p = 0.022) and the colorectal cancer in the second (9.92% vs. 2.48%, p = 0.016). For other etiologies, including hemorrhoidal bleeding no significant differences were recorded between these patients groups.

Discussion/Conclusion: The colonoscopy has an essential role in etiological diagnosis of rectorrhagia. No differences were recorded between the two age groups in patients with hemorrhoidal bleeding.

Inflammatory bowel disease has an increased frequency in young adults hospitalised for rectorrhagia and the colorectal cancer is more common in adults after 50 years, with different impact in patients survival.
Endoscopic recto-sigmoid changes during the lactose tolerance test in primary lactose deficiency

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Introduction: Previous studies have indicated a good relationship between the spontaneous symptoms of patients with primary lactose deficiency and the symptoms triggered in these patients during the lactose tolerance test (LTT). The paper aims at analyzing the recto-sigmoidoscopic changes during the LTT.

Methods: 49 patients diagnosed with primary lactose deficiency took the LTT test. The clinical and biochemical parameters were investigated. In the second stage, every patient underwent recto-sigmoidoscopy before, and 20 minutes after lactose was administrated.

Results: We took into consideration the onset of the clinical manifestations triggered by the lactose ingestion. These were precious in the case of 20 patients and delayed in the case of 29. The endoscopic recto-sigmoid changes appeared only at 19 of the patients with precocious clinical manifestations and consisted in marked mucous congestion (19 patients) and mucus secretion (5 patients). Only 5 patients further had diarrhea.

Discussion/Conclusion: 20 minutes after the lactose administration as part of the LTT, the patients with primary lactose deficiency had recto-sigmoidoscopic changes only in association with precious clinical manifestations. These changes consisted in marked mucous congestion and mucus secretion always followed by diarrhea, possibly caused by the splanchnic circulation disturbance determined by the presence of disaccharide in the intestine.
Preoperative serum levels of IGF-I, VEGF and P53 in colorectal cancer patients – Summary of our studies in the field

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Introduction: IGF-I stimulates an expression of vascular endothelial growth factor (VEGF) and also triggers cleavage of P53 in cancer cell lines. In opposition to wild-type P53, mutant P53 increases expression of VEGF. We evaluated serum levels of IGF-I, VEGF and P53 in colorectal cancers.

Methods: Preoperative blood samples of 125 colorectal cancer (CRC) patients and control 16 healthy volunteers were examined with an ELISA-kit for levels of serum IGF-I, P53 and VEGF.

Results: Levels of P53 and VEGF were significantly higher in CRC patients than in controls (p < 0.0006 and p < 0.0001, respectively). P53 associated with VEGF in patients, whose serum values of VEGF were higher than in controls (VEGF[H] > 5.9333 pg/ml) (r = 0.274, p < 0.009). Serum values of P53 and IGF-I negatively correlated with in all CRC patients (r = -0.193, p < 0.04), particularly in deeply invading cancers pT3 or pT4 (r = -0.187, p < 0.05). IGF-I negatively linked with VEGF in exclusively poorly differentiated cancers (G3) (r = -0.339, p < 0.03). P53 positively correlated with VEGF[H] in subsets of poorly differentiated (G3) cancers (r = 0.436, p < 0.02), lymph node positive (r = 0.388, p < 0.007), pT3 and pT4 patients (r = 0.316, p < 0.004) as well.

Discussion/Conclusion: The negative correlation between serum IGF-I and P53 seems to correspond with previous reports on decomposition of P53 by IGF-I. The positive correlation between serum P53 and VEGF suggests a mutation of P53 in colorectal cancer and evaluation of both P53 and VEGF can be auxiliary to distinguish patients with fast spread of cancer growth.
Colonoscopically monitoring of evolution of colonic diverticulosis in patients with symptoms of lower gastrointestinal tract disease

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Introduction: Aim was to study the incidence of colonic diverticulosis in patients with significant symptoms of lower gastrointestinal tract disease.

Methods: A retrospective analysis of 188 patients from Emergency Clinical Hospital Craiova with symptoms of lower gastrointestinal tract disease was conducted between June 2003 and January 2007. The diagnosis was established by colonoscopy, double contrast barium enema and both investigations. Also, we monitoring the number, the localisations and the evolution of diverticula. Statistical analysis use Wilcoxon and Kruskal-Wallis test.

Results: We detected diverticulosis in 39 cases, polyps (45 cases), cancer (62 cases), ulcerative colitis (34 cases), Chron’s disease (26 cases) and hemorrhoidal varices (55 cases). Two or more of this tract diseases was identified in 73 cases. The mean age of patients with diverticula was 54.91 ± 6.76 years. The localisation of diverticula was: sigmoid (78.79% of cases), sigmoid and descending colon (17.95% of cases) and only in 3.26% of cases in whole colon. Multiple diverticula was observed in 31 patients. In 9 cases diverticula caused lower gastrointestinal bleeding witch where diagnosed during urgent colonoscopy. Colonic diverticulosis coexisted in 12 cases with polyps, in 9 cases with cancer, only one case with colitis and never coexisted with Chron’s disease. In 14% of cases, diverticulosis progress to diverticulitis and this risk was higher at patients with long history of disease. We not identified a statistical relationship between number of diverticula, their localisation and clinical manifestations, but the duration of disease was correlated with diverticulitis risk.

Discussion/Conclusion: Colonic diverticulosis is a common condition causing significant abdominal manifestations and coexist with others colon pathologies in over 50% cases.
Endosonographic navigated sigma diverticulitis abscess drainage

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The diverticulosis can be regarded as the most frequent pathological wall change of the large intestine in industrial nations. Even if the diverticulosis actually possesses no disease value, she represents nevertheless the predisponding factor for developing complications. Here the complicated diverticulitis covers all inflammation stages such as peridiverticulitis, fistulas, stenosis, perforation, peritonitis, bleeding and abscess formation.

It was shown that an early operation with sigma- or colon resection has a worse outcome than an operation in the inflammation-free interval.

So far abscess formations were frequently relieved in laparoscopic transabdominell technique, with substantial danger in perforation of neighboured organs and so risks for the patient. We want to describe a new endosonographic navigated punction technique to drain a parasigmoidal abscess.

We report on a 56-year-old patient with diverticulitic complaints and CT-diagnostic secured parasigmoidal abscess formation. The symptoms were of undulating intensity and over three weeks increasing.

The endoscopic placement of three double pigtail catheters and in addition a nasobiliary tube to drain and rinse the parasigmoidal abscess after endosonographic puncture and balloon extension of an artificial abscess fistula into the sigma lumen led over 24 hours rinsing duration to a rapid complaint decrease.

We would like to present and discuss this new drainage technology.
Endoscopic resection of large colorectal polyps

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Introduction: Endoscopic polypectomy is a common technique, but there are discrepancies over which treatment – surgical or endoscopic – to follow in case of polyps of 2 cm or larger.

Aim: To analyze the efficacy and complications of colonoscopic polypectomy of large colorectal polyps.

Methods: 175 polypectomies were performed on 147 patients over a ten-year period. The technique used was that of submucosal adrenaline 1:10,000 or saline injection at the base of the polyp, followed by resection of the polyp using a diathermic snare in the smallest number of fragments. Remnant adenomatous tissue was fulgurated with an argon plasma coagulator. Lately, prophylactic hemoclips have been used for thick-pedicle polyps. Complete removal was defined as when a polyp was completely resected in one or more polypectomy sessions. Polypectomy failure was defined as when a polyp could not be completely resected or contained an invasive carcinoma.

Results: The mean patient age was 68.3 years (range, 4–90 years), with 68 men and 79 women. There were 74 sessile polyps, and the most common location was the sigmoid colon. The most frequent histology was tubulovillous. Most of the polyps (96.6%), were resected and cured. This was not achieved in four cases of invasive carcinoma, and a villous polyp of the cecum. All pedunculated polyps were resected in one session, whereas the average number of colonoscopies for sessile polyps was 1.35 ± 0.6 (range, 1–4). The polypectomy was curative in all of the in situ carcinoma except one. As for complications, 2 colonic perforations (requiring surgery) and 8 hemorrhages appeared which were controlled via endoscopy. There was no associated mortality.

Discussion/Conclusion: Endoscopic polypectomy of large polyps (≥ 2 cm) is a safe, effective treatment, though it is not free from complications. Complete resection is achieved in a high percentage, and there are few relapses. It should be considered a technique of choice for this type of polyp, except in cases of invasive carcinoma.
Correlation between small bowel MRI and ileoscopy in evaluation of ileal Crohn’s disease

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Introduction: Crohn’s Disease (CD) patients frequently have ileal involvement (70%). Barium follow-through has been the standard investigation of the small bowel (SB), but is limited by lack of discrimination between inflammatory and fibrotic strictures and high radiation exposure. Small bowel magnetic resonance imaging (SBMRI) has recently been introduced as a tool for assessment of disease activity. We aimed to assess the reliability of SBMRI in detecting disease activity and correlate with endoscopy and histopathology.

Methods: 186 patients had SBMRI performed (2004–2007). Patients were asked to drink 1.5 L hyper-osmolar solution pre-MRI. 103/186 had SBMRI to investigate possible ileal CD. 86 SBMRIs were performed in 75 patients with either known CD or proven ileal CD at SBMRI. Case-notes were reviewed with documentation of serum and fecal inflammatory markers, endoscopic findings and histopathology pre- and post-SBMRI.

Results: 32/86 (37.2%) of SBMRIs showed active ileal CD and 41/86 (47.6%) quiescent CD, while 11/86 (12.7%) were suboptimal. There was substantial agreement between active ileal CD on SBMRI and CRP (κ = 0.61, p = 0.0004), fecal calprotectin (κ = 0.72, p = 0.047) and histopathology from terminal ileoscopy and surgery (κ = 0.66, p = 0.0006). SBMRI had 75% sensitivity and 93% specificity for active CD when compared with histopathology. Active colonic CD was identified on 6/86 (7.0%). In addition, a total of 26 extra-intestinal findings were detected in the 103 SBMRIs performed for possible ileal CD.

Discussion/Conclusion: SBMRI provides accurate information on ileal CD activity, with close correlation to inflammatory markers, endoscopic findings and histopathology. Detailed analysis is currently underway to further compare SBMRI, endoscopy and histopathology in an expanded cohort of CD patients (n = 250).
How close monitoring maintained colonoscopy standards already achieved in audit

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Colonoscopy remains the gold standard for investigating most colonic diseases. The procedure is more sensitive than radiological imaging and offers a range of therapeutic options. Incomplete colonoscopy, however, limits its advantages especially in pursuit of colorectal/caecal Ca. Published completion rate vary from 55 to 98.8% (1, 2). In 2004 J.E. Ball and others audited colonoscopies in local unit and with the help of audit cycles improved the caecal hit rate from 55 to 92% (3). We successfully completed four audits and improved our Colonoscopy completion rate from 59 to 89% (Gross). We also found that monitoring the practice kept the results around 89%. This is an excellent example of role of audit cycle to achieve acceptable standards and then maintain those standards by close monitoring.

Introduction: Complete colonoscopy means Successful Identification of the caecum and/or ileal intubation during colonoscopy by identifying certain landmarks positively in over 90%. Apart from ileal intubation; tri radiate fold, appendicular orifice and IC valve in combination are reliable markers. Auditing Colonoscopy Completion rate increases awareness in operators and the rate tends to go up.

Results: The fist audit was completed & presented in September 2005. All the colonoscopies performed at LGH between 6th July & 7th September 2005 were audited. Below is the summary of results for all audits. With repeat audit cycles and monitoring not only a colonoscopy completion rate of 90% was achieved but also kept maintained.

Conclusion: We analyzed 2411 Colonoscopies over 28 month’s period. All operators were from Leicester general hospital. The operators were kept anonymous. Data was presented in the quarterly audit meetings. Gross and adjusted hit rate were presented in the meetings and suggestions for improvement were proposed. After the first audit it was suggested that the operators should review their individual completion rate and if their completion rate was well below national guideline they should either cease to do further colonoscopies or attend to training sessions to improve techniques. Subsequently the computer data base was modified and only more objective criteria for caecal identification were accepted as identification points. Soft criteria like digital pressure were asked to be removed from the GI tools. In the third audit the operators were still kept anonymous but each operator was individually audited to get a range of completion rates. Poor performing operators were either asked to leave or go on a training course. 2 operators stopped doing procedures. These measures and series of audits seem to have improved our colonoscopy completion rate close to national standards.
Gene expression profiles from whole blood samples differentiate between inflammatory bowel disease (IBD) types and controls

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Introduction: Genome wide expression profiles may complement conventional endoscopic techniques in the diagnosis of IBD – Crohn’s disease (CD) and ulcerative colitis (UC). The aim of this study was to investigate whole blood gene expression profiles to try to differentiate patients with IBD – CD, UC, and controls (HC).

Methods: 21 UC, 19 CD, and 10 controls (HC) were studied. 2 of the UC patients were newly diagnosed, 15 had quiescent disease and 4 had active disease. In CD 1 new diagnosis, 11 quiescent disease and 7 active disease patients were investigated. 41,058 expression sequence tags (representing 33,296 genes) were analyzed in 50 whole blood samples using the Agilent platform.

Results: Using clustering analysis with all the IBD and HC patients, and probes that had a > or < than 1.5 fold change in expression, HC patients were more prevalent on one side of the dendrogram 1/21 v 9/29 (p = 0.02 OR 1.8). When all of the IBD samples were compared to controls 493 sequences had a fold change of greater than 1.5 (1.7 x 10^{-41} < p < 0.01) and 595 sequences had a fold change of less than 1.5 (4.0 x 10^{-40} < p < 0.01). Using the most dysregulated sequences we were able to predict with a > 90% sensitivity IBD samples from controls. When CD and UC were compared, 293 sequences had a fold change of greater than 1.5 (5.4 x 10^{-27} < p < 0.01) and 301 sequences had a fold change of less than 1.5 (5.2 x 10^{-18} < p < 0.01).

Discussion/Conclusion: Whole blood genome wide expression signature allows us to differentiate between patients with IBD and controls and this may provide complimentary diagnostic evidence of the diagnosis of IBD.
Pyoderma gangrenosum treated with infliximab in inactive ulcerative colitis

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Background: Pyoderma gangrenosum is an extraintestinal manifestation of inflammatory bowel disease. We reported a case of woman who had been diagnosed 9 years ago ulcerative colitis (UC) developed acute severe pyoderma gangrenosum during a flare of UC.

Case report: A 25-year-old woman who had been diagnosed 9 years ago UC was referred to our gastroenterology department with necrotic, painful skin ulcer on her left tibia without any trauma history. She first realized skin lesion two months ago. At that time she had bloody stools 7 times in a day under 3 g per day sulfasalazine therapy. Her colonoscopy revealed active ulcerative pancolitis. In physical examination she had a large lesion of 5 cm diameter on her left tibia. Ulcer had violaceus, inflammatory, undermined borders with pustules on a necrotic base. At admission to hospital laboratory results were as follows: Erythrocyte sedimentation rate was 55 mm/h. C-reactive protein (CRP): 157 mg/l white blood cell: 12700/ml, hemoglobin: 8.6 g/dl, hematocrit: 28%, platelet: 523.000/ml and all biochemical analysis was normal. Stool analysis showed numerous red blood cells with leukocytes, and no trophozoites or ova. There was not any infectious cause in the stool specimen. A biopsy of ulcer showed an intense acute inflammatory infiltrate and lymphocytic vasculitis between the inflammatory infiltrate and normal dermis consistent with PG. Bacterial and fungal cultures were all negative and did not reveal any cause of ulceration. Her bowel complaints regressed after 5 days methylprednisolone (MPZ) treatment (parenteral 40 mg/day), and oral MPZ 32 mg/day was commenced. Under 2 months at that dosage she did not have any bowel disorder but PG lesion on her left tibia did not regressed, MPZ therapy was tapered 4mg decrease per week and ceased. She could not tolerate azathioprine treatment for severe gastrointestinal complaints. Cyclosporine (CYC) 4 mg/kg/day intravenous seven days of infusion regimen followed by oral treatment at 8 mg/kg/day giving a blood level of approximately 250 ng/ml was begun. PG did not regressed under 3 months CYC treatment, either. Infliximab was commenced 5 mg/kg, and reinfusions of infliximab was administered at second and sixth weeks and then continued in each eight week interval up to 11 times. PG lesion regressed significantly after 5 infusions and completely resolved after 11 infliximab regimens leaving some discoloration of the overlying skin surface. After one year later the patient is asymptomatic and has not been suffered any relapse of PG.

Conclusion: Infliximab is effective and safe in refractory pyoderma gangrenosum associated with ulcerative colitis.
Endoscopic and pathological characteristics of 145 cases of colorectal polyps

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Introduction: Our aim was to study the endoscopic and pathological characteristics of the colorectal polyps at a study group of hospitalized patients from Southern Transylvania.

Methods: We have performed a retrospective study on all colonoscopies and rectosigmoidoscopies which were performed at the patients who were hospitalized in the Gastroenterological Department of the Clinical County Hospital from Sibiu, Romania, during August 2005–August 2007. We have selected only those patients who presented colorectal polyps and we analyzed the endoscopic and pathological characteristics of the polyps. A number of 144 colonic polyps were found.

Results: The incidence of colorectal polyps was 16.96% from the total number of colonoscopies and rectosigmoidoscopies which were performed. The medium age of the studied group was 63.76 ± 12.29 years. The gender distribution was 37.5% women and 62.5% men. The medium polyp size was 9.27 mm. Polypoid lesions were located at cecum 1.61%, ascending 8.06%, transverse 8.06%, descending 4.83%, sigmoid 61.29%, and rectum 16.12%. The percentages of the adenomatous, inflammatory and hyperplasic polyps were 48.7%, 35.89% and 15.38%, respectively. Most of the adenomas were tubular (72%); the rest were villous (18%) or tubular-villous (10%). 8.33% from the polyps were dysplastic. At 6.94% the histological exam showed high-grade dysplasia. Most of the polyps (90%) which proved to be with high-grade dysplasia were adenomas.

Discussion/Conclusion: The ages between 50–70 years tend to suffer from colorectal polyps. The incidence in male is higher than that in female. Most of the polyps are solitary; only a few patients develop multiple polyps. Most of the polyps are located in sigmoid. Almost 7% of the polyps found at colonoscopy are with high-grade dysplasia. All colorectal polyps should be excised and undergo the pathological examination. Endoscopic polypectomy can decrease the risk of colorectal cancer.
Prognostic significance of VEGF and cyclin-D1 expression in colorectal cancer

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Introduction: Neoangiogenesis is a crucial step towards tumor progression and metastasis, VEGF being one of the most important proangiogenic factors. Cyclin-D1 is an important regulator of cell cycle, influencing the cell transition from G1-stage to S-stage through the CDK complex. In our study we tried to evaluate the correlation between VEGF and cyclin-D1 expression and tumor extension, postoperative recurrence and survival in colorectal cancer patients.

Methods: Between 2002 and 2003, 83 patients were diagnosed with colorectal cancer stage I to IV TNM in our clinic. Of them, only 74 patients underwent surgical treatment, they consisting our study group. After surgery the resected tumor was sent to pathology department for histological interpretation: histological type, TNM staging, grading, vascular invasion and assessment of VEGF and cyclin-D tumoral expression.

Results: The TNM staging in our study group was: 5.4% patients in stage I, 35.1% in stage II, 39.2% in stage III, 20.3% in stage IV. The overall 5 years survival rate was 64.9% and the recurrence rate was 2.97%/year. High VEGF tumoral expression was associated with metastatic disease (p = 0.0005) and high recurrence rate (p = 0.007) wearer's high cyclin-D expression was associated with poor differentiation (p = 0.0003) and advanced TNM stage (p = 0.00002). Both VEGF and cyclin-D expression was associated with poor survival rate (p = 0.00004).

Discussion/Conclusion: Both VEGF and cyclin-D expression have a significant prognostic value in colorectal cancer, selecting patients for an early, targeted treatment in order to achieve a better survival.
Lower gastrointestinal endoscopic results for 6 years in our internal m. clinic: Evaluation of 1554 patients

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Background/Aim: Endoscopy very important for diagnosis colon diseases. This study was to evaluate lower gastrointestinal system endoscopies results for last six years in our clinic.

Patients and methods: We analyzed 1554 colonoscopies, sigmoidoscopies and rectoscopies which were performed between April 1998 and April 2004 in patients. The parameters colonoscopy completion rate, endoscopic findings and complications were evaluated.

Results: A total of 1554 endoscopies in patients (664 colonoscopies, 682 sigmoidoscopies 208 rectoscopies or unremarkable; 750 males, 804 females mean age 48.72 years, range 13–83) were performed. From 1554 patients Colonoscopy was completed successfully to the cecum in 37.95%. Frequent pathologic findings were: inflammatory colon diseases (n = 128; 11.1%), polyps (n = 120; 7.7%), diverticular disease (n = 28; 1.8%) and colorectal carcinoma (n = 37; 2.4%). The most common findings were internal hemoroid and normal. A complication was observed in a patient (0.64%), one perforation.

Conclusion: Endoscopy of the lower gastrointestinal tract is feasible in colon diseases patients with a low rate of complications. Although the high number of normal findings/hemoroidal diseases (70.6%), the frequent diagnosis of colorectal carcinoma were lower (2.4%).
Colonoscopy as a screening tool for colorectal cancer

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Introduction: Colonic cancer is one of the few types of cancer which can be detected in a pre-malignant stage and prevented. The aim of this paper is the analysis of the colonoscopy results in colorectal cancer detection, especially in high risk neoplastic patients.

Methods: From 2772 colonoscopies performed during a 7 year period, 1282 procedures were performed in patients with high risk for colorectal cancer. This study group included: patients with adenoma (after polypectomy), patients with familial adenomatous polyposis and their family members, extensive and long standing ulcerative colitis, patients after surgical intervention for colorectal cancer, hemoccult positive patients and cases with anemia of unknown etiology (patients beyond age of 55).

Results: From the patients we studied, there were detected 239 cases with colorectal cancer (18.6%). A high risk for colorectal cancer was demonstrated especially in: patients after surgical intervention for colonic cancer (29.1%), colonic polips (24.2%), hemoccult positive patients (16.9%). The tumours were located as follow: in the right colonic segment 31.7%, and 68.3% in the left side of the colon.

Discussion/Conclusion: Endoscopic surveillance is indicated in high risk neoplastic patients. An early diagnosis of colorectal cancer could be made in these patients leading to curative surgery and a better prognosis. Despite colonoscopy appears to be more expensive than other screening tests, it is one of the methods who may reduce colorectal cancer mortality.
Well-differentiated neuroendocrine tumor of sigmoid colon – The case of a 68-year-old woman

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Introduction: Neuroendocrine tumors can manifest with carcinoid syndrome and if they obstruct intestinal lumen, they present symptoms of pain, bleeding and constipation. The aim of this study was to present a case of a 68-year-old woman who presented a sigmoid polyp of suspected morphology in routine colonoscopy.

Methods: Tissue samples were collected during colonoscopy. 5 µm thick slides were stained with hematoxylin and eosin. Immunohistochemistry covered MIB/Ki-67 labelling and a staining for neuroendocrine markers: chromogranin A and synaptophysin.

Results: A 4 mm diameter tumour was found beneath mucosal lining of sigmoid colon. Tumour cells were arranged in predominately solid sheets and ribbon pattern with obvious tendency to form tubuloacini and trabecular framework. Tumour cells were poorly cohesive and some of them lied loosely without contact with neighbouring neoplastic cells. Infiltrative small nests of tumour cells were scattered in submucosa and muscularis propria with no signs of neural or vascular invasion. Shapes and sizes of nuclei were variegated. Moreover, hyperchromasia predominated with loss of salt and pepper appearance of nuclear chromatin. Chromogranin A and synaptophysin were proved positive in neoplastic cells. MIB/Ki-67 labelling index staining was below 1% to indicate low mitotic index and help exclude a malignant nature of the lesion. The final diagnosis was benign, well differentiated neuroendocrine tumor of digestive tract (GEP NET), G1, WHO group 1A.

Discussion/Conclusion: The routine colonoscopy is capable of early tumour detection. Partially infiltrative character of the lesion and variety of histological appearance require unequivocally an immunohistochemical confirmation of its diagnosis.
Case report: Massive gastrointestinal bleeding due to Meckel’s diverticulum containing carcinoid tumor

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The diverticulum ilei or Meckel’s diverticulum is the most common congenital anomaly of the gastrointestinal tract. This persistent part is normally present in early fetal life as the proximal part of the vitellointestinal duct, which usually disappears later.

The incidence of Meckel’s diverticulum in the general population has been estimated to be about two percent (Standring, 2005). Reports from autopsy and retrospective studies range from 0.14–4.5% (Ludfke et al, 1989; DiGiacomo et al, 1993). Although Meckel’s diverticulum occurs equally in both the sexes, it may cause complications more frequently in males (Arnold & Pellicane, 1997; Mackey & Dineen, 1983; Cullen et al, 1994) and therefore is more often diagnosed in males.

Malignant tumours of the small intestine are an uncommon. Carcinoid tumours of the small intestine is a rare condition, representing approximately 20% of all small bowel malignity. It was reported a 55-year-old male patient who was operated for massive gastrointestinal bleeding due to meckel’s diverticulum containing carcinoid tumor. Meckel’s diverticulum and bleeding was seen in exploration. Pathologic examination of the operative specimen revealed a small carcinoid tumors confine to the meckel’s diverticulum. Carcinoid tumors are considered less agressive than the more common intestinal adenocarcinomas. A curative surgical resection was performed by early diagnosis. In suspicion of carcinoid tumor of the small intestine; early laparotomy should be performed despite radiologic and endoscopic examination was normal.

Key words: carcinoid tumour, massive gastrointestinal bleeding, Meckel’s diverticulum

![Fig. 1. Meckel’s diverticulum](image-url)
Esomeprazole-based 10 days triple therapy of Helicobacter pylori infection in children

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Introduction: Recent years the use of proton pump inhibitors (PPI) (omeprazole [O], lansoprazole, pantoprazole, rabeprazole and esomeprazole [E]) is more often, though the performed clinical trials are not very convincing. E, the S-isomer of O, is the first PPI to be developed as an optical isomer.

Aim: To evaluate the effectiveness of 10 days esomeprazole-based triple therapy versus famotidine-based therapy of Helicobacter pylori (H.p.) infection in children.

Methods: In 2000–2006 54 patients (26 girls and 28 boys, 8–18 years, median age of 11.5 years) with upper gastrointestinal syndrome were examined endoscopically and H.p. was detected histologically. They were treated: group A (27 pts) – famotidine 1 mg/kg/24 h + amoxicillin 100 mg/kg/24 h + metronidazole 10 mg/kg/24 h, divided in two doses, for a period of 10 days; group B (27 pts) – esomeprazole 1 mg/kg/24 h + amoxicillin 100 mg/kg/24 h + metronidazole 10 mg/kg/24 h divided in two doses, for the same period. Eight weeks after the treatment a stool antigen test for H.p. was performed. Symptomatic scores were evaluated at the first day of the treatment and 8 weeks after the beginning of the treatment.

Results: Overall eradication rates of triple therapy in group A and group B were 69% and 85%, respectively, which showed statistical difference. At the first day of treatment the symptomatic score in group A and B was similar, at the 8th week it showed a statistical difference (75% vs. 88%). Compliance was good (> 95%) in all children, there were no side effects.

Discussion/Conclusion: Esomeprazole-based 10 days triple therapy is highly effective for eradication of H. pylori infection in children.
Upper gastrointestinal endoscopy in pediatric inflammatory bowel disease

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Introduction: Discrimination between ulcerative colitis (UC) and Crohn disease (CD) may be difficult on ileocolonoscopy alone because of a lack of definitive lesions. Retrospective studies show upper gastrointestinal endoscopy may be helpful in confirming diagnosis in such cases.

Aim: To prospectively determine importance of upper gastrointestinal endoscopy in diagnosis of inflammatory bowel disease (IBD) and assess factors predictive of upper gastrointestinal involvement in IBD.

Methods: All pediatric patients were enrolled prospectively and consecutively over a 2-year period and investigated with an ileocolonoscopy and barium meal follow-through. Children with proctosigmoiditis, later confirmed histologically to be typical of UC, were excluded from the study. The remainder underwent upper gastrointestinal endoscopy. The protocol and methodology were determined a priori.

Results: 68 children suspected of IBD underwent colonoscopy. Of the total, 10 had rectosigmoiditis with typical macroscopic appearances of UC; once this was confirmed on histology these patients were excluded from the study. Of the 52 children (males, 31; median age, 11.1 years) remaining, 23 were initially diagnosed with CD on ileocolonoscopy and 17 (33%) were diagnosed with UC. The diagnosis remained ambiguous in 12 (six colonic, four ileocolonic, two normal colon) on clinical, radiologic and histologic grounds. Upper GI endoscopy helped to confirm CD in a further 11 (20.4%). Two patients were diagnosed with indeterminate colitis. Upper gastrointestinal inflammation was seen in 29 of 54 (22 CD; 7 UC). Epigastric and abdominal pain, nausea and vomiting, weight loss and panileocolitis were predictive of upper gastrointestinal involvement (p < 0.05). However, 9 children with upper gastrointestinal involvement were asymptomatic at presentation (31%). Overall upper gastrointestinal tract inflammation was most common in the stomach (67%), followed by the esophagus (54%) and duodenum (22%).

Discussion/Conclusion: Upper gastrointestinal tract endoscopy should be part of the first-line investigation in all new cases suspected of IBD. Absence of specific upper gastrointestinal symptoms do not preclude presence of upper gastrointestinal inflammation.
Polyps of upper gastrointestinal tract in children

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Introduction: Polyps of the upper gastrointestinal (GI) tract in children are usually small and solitary lesions, recognized as an incidental finding on routine endoscopy. They are generally asymptomatic but they can be responsible for clinical problems and they can present difficulties in clinical presentation, treatment and follow-up.

Methods: We performed a retrospective study of pediatric patients with upper GI tract polyps diagnosed between 2005 and 2007 at our endoscopy unit. Seventy six patients in a series of 4396 consecutive upper digestive endoscopies were identified as having polyps and the endoscopic classification of the lesion, as well as its location, size, histopathological nature and treatment were studied.

Results: Polyps of gastroesophageal junction (GEJ) were recognized in 55 (72.4%) children and gastric polyps were diagnosed in 21 (27.6%). The mean age at diagnosis was 15.3 year. Polyps were more frequent in male than in female patients (ratio 1.3:1). Most polyps were sessile and small (less then 0.6 cm in diameter). Only 24 polyps (31.6%) were more than 0.6 cm in diameter. Lesions were resected after 6 months of follow-up. The histological subtypes included hyperplastic (65.8%), inflammatory (26.3%), fundic gland (5.3%), and heterotopic polyps (2.6%). Spontaneous regression of small (less than 0.6 cm in diameter) polyps was noted in 9 cases (7 cases of hyperplastic polyps of GEJ and 2 cases of fundic gland polyps). No complications were noted by endoscopy or endoscopic resection of lesions.

Discussion/Conclusion: Endoscopy is a safe and efficient method for the diagnosis of upper GI tract polyps in children. Most of polyps in our study were localized at the GEJ, were less then 0.6 cm in diameter and were of the hyperplastic type. Only a small number of polyps (11.8%) can show spontaneous regression. These are essentially polyps for which the pathogenesis can be explained through inflammation (lesions of the GEJ) or drugs (fundic gland polyps and acid suppression).
Esophageal stenosis degree iv after reflux esophagitis

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Introduction: At children, the mechanisms that cause gastroesophageal reflux are the incompetence of lower esophageal sphincter, the prolongation of inferior esophageal clearance and the delay of gastric evacuation, as well as favorable factors such as: the transient relaxation of the sphincter, esophagitis, increased intra-abdominal pressure, cough, persistent respiratory difficulty and hiatal hernia.

Methods: We present a 6.11 year old patient, known with gastroesophageal reflux between the age of 1 and 3, without treatment, with many intercurrent respiratory infections; he presented for difficulties during alimentation with solid-food, vomiting, especially precocious aftermeal, often during acute respiratory episodes.

Results: Gastroscopy: congestion of 1/3 inferior esophageal mucosa, friability, possible esophageal stenosis.

Barium passage: esophageal sleazy walls, with the progression of contrast substance till the inferior third. The stomach is distended superior by a large quantity of air. In Trendelemburg position there is no gastroesophageal reflux marked out; esophagean persistent spasm.

The evolution is favorable under alimentation with semisolid-food and treatment (pump inhibitors, prokinetics, antispastics), with intermittent impossibility of drinking milk; vomiting: early, sporadic, much rare, practically absent during the last 5 months, ascending ponderal curve.

Subsequently at esophagoscopy: intense congestion of the esophageal mucosa, friability, with tendency of bleeding, false membranes, circumferential stenosis which does not allow the complete endoscopic exploration.

At barium passage a stenosis of the lower 1/3 part of esophagus is detected, with the maintenance of the wall’s elasticity.

Discussion/Conclusion: In front of a case with feeding difficulties, trouble swallowing and antecedents of cough and respiratory infections, we have to think about a gastroesophageal reflux with possible consecutive stenosis. When esophagitis develops as a result of acid reflux, esophageal motility and sphincterian function are impaired further, creating a cycle of reflux and esophageal injury.
Endoscopy and pathology characteristic of gastroesophageal reflux disease in children

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Introduction: Gastroesophageal reflux disease (GERD) presents in different ways in children. Clinical symptoms are often nonspecific for esophagitis and the diagnosis is not always straightforward. The aim of this study was to define the role of endoscopy and histology in the diagnosis of reflux esophagitis and to examine the correlations between clinical data, endoscopic findings and histology in children with GERD.

Methods: Forty-one children (median age, 11.8 years; range, 6–16) with a clinical diagnosis of GERD underwent upper gastrointestinal endoscopy. During the procedure 2 biopsies from the distal esophagus 2 cm above the squamo-columnar junction and immediately above the Z-line were taken. The samples were used for grading of esophagitis with routine H&E staining and using classic features (dilated intercellular spaces, basal zone hyperplasia, inflammatory cells) and for mucin staining (PAS-AB). The clinical files were revised for treatment and evolution.

Results: In 4/41 cases with moderate erosive esophagitis a good correlation was found between the endoscopy and histology data. A similar correlation was not reached in 37 cases with endoscopically mild esophagitis, graded on histology as normal (9 cases), minimal (13 cases) and mild (15 cases). Cardiac mucosa was present in 26 patients and carditis was diagnosed in 14 cases. In 11 cases of carditis including 4 cases with active carditis H. pylori was detected in antrum biopsies by rapid urease test but immunostaining in cardiac biopsies remained negative. Intestinal metaplasia was diagnosed in 1 case of active erosive carditis and in 4 cases a focal positive cytoplasmic staining for acid mucins was found using PAS-AB (pH 2.5) method.

Discussion/Conclusion: In our study the histologic grading of esophagitis is often less severe than the endoscopic appearance. Esophageal biopsies increase the diagnostic accuracy of upper endoscopy. Cardiac biopsies are very important in the diagnosis of active carditis. Intestinal metaplasia and changes in mucin content are rare. They could have practical significance to form the group of children requiring high attention and long-term follow-up.
Coincidence of endoscopic and histologic conclusions in gastroscopy for children of different age

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Introduction: Coincidence of endoscopic and histologic conclusions in gastroscopy is usually evaluated as 60–80%, but the influence of age is not precisely established.

Methods: Analysis of endoscopic and histologic conclusions of 793 gastroscopies in children was performed. Endoscopic examinations were done at the Children's Hospital No 4, Minsk, Belarus in 2007, with optical fibroscopes Olympus GIF type PQ20 and XP30.

Results: Patients were divided in 3 groups: group I – children up to 9 years old (n = 88), group II – children 10–14 (n = 287) and group III – adolescents 15–17 years old (n = 418).

Endoscopic signs of gastropathy were determined for group I in 75.0 ± 4.6% cases, for group II – in 91.6 ± 1.6% and for group III – in 95.9 ± 1.0%, but gastritis was not confirmed histologically in 33.3 ± 5.8%, 31.2 ± 2.9% and 23.9 ± 2.1% patients in these groups, respectively. Thus, endoscopic hyperdiagnosis of gastropathy was significantly higher for children than for adolescents (p < 0.05).

At the same time, among patients with endoscopically normal stomach, histologic diagnosis of gastritis was determined in 27.3 ± 9.5% children of group I, 37.5 ± 9.9% – in group II and 35.3 ± 11.6% – in group III. Frequency of endoscopic hypodiagnosis did not depend upon the age.

Conclusions: Coincidence of endoscopic and histologic conclusions is significantly higher for adolescents (group III) (75.6 ± 2.1%) than for children (68.2 ± 4.9% in group I and 68.1 ± 2.8% in group II, p < 0.05). We believe that this difference is predominantly related to hyperdiagnosis of gastric pathology in younger patients.
Does endoscopic signs of hyperplasia in gastric mucosa help to diagnose gastritis in children?

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Introduction: Hyperplasia in gastric mucosa is often diagnosed endoscopically in children, but its diagnostic value is not completely clear.

Results: Hyperplasia (granular or nodular mucosa) in the stomach was determined in 214 (27.0%) from 793 children of 6–17 years old, who underwent upper endoscopy due to dyspeptic symptoms. Such changes were found to be statistically significant more rarely in children less than 10 years old than in older children (18.2 ± 4.1% and 28.1 ± 1.7%, respectively, p < 0.05). Frequency of hyperplasia was 29.3% among children with endoscopic signs of gastropathy. Morphological investigations confirmed the diagnosis of gastritis in patients with hyperplasia significantly more frequently in comparison with children, who had only erythema of mucosa (in 89.7 ± 2.1% cases versus 65.5 ± 2.1%, p < 0.001). At the same time, histological signs of lymphofollicular hyperplasia in gastric mucosa were found only in 17.2% cases without significant difference depending on the age. Nevertheless, children with endoscopic hyperplasia were infected with Helicobacter pylori 2.5 times more frequently than without hyperplasia (65.9 ± 3.2% versus 26.1 ± 1.8%, p < 0.001).

Conclusions: Endoscopic manifestations of hyperplasia are an important predictive sign of Helicobacter pylori-associated gastritis in childhood, but hyperplasia is relatively rarely detected on histology.
Treatment of pyloric stenosis by intrapyloric injection of botulinum toxin – Pilot study

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Introduction: Intrasphincteric injection of botulinum toxin (Botx) represents one of the treatment modalities for pyloric stenosis (PS).

Aims and objectives: the present study tries to compare the effect of two different doses of Botx and to observe the long-term response of the injection in patients with PS.

Material and methods: 7 patients (4 males, 3 females) with PS received doses of 100 U Botox in a single injection. 4 patients were randomized to be reinjected with another dose of 100 U Botx after 30 days. Clinical, radiological and endoscopic assessments were performed at baseline, at one and three months after initial injection of Botx and at the end of follow-up (mean: 6 months).

Results: At one month after initial injection 88% of patients responded to Botx, clinical, radiological and endoscopic improvement could be observed. After three months, however, 3 patients who received only the initial 100 U Botx injections, experienced a relapse of clinical symptoms (regurgitation, vomiting), compared to the four patients who received a second 100 U Botx injection after 30 days. At 6 months follow-up, the 4 patients reinjected with a second dose of Botx were still in remission with good clinical status and endoscopic remission.

Conclusions: Intrapyloric injection of Botx represents a simple and safe method of treatment in PS. Two intraspincteric injections of 100 U Botx 30 days apart seem to be more effective and have the best long-lasting effect in PS. Further studies on larger number of patients must undergo in order to support these conclusions, also comparative studies with other endoscopic procedures (balloon dilation) or surgery.
Endoscopic treatment of gastric bezoars

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Introduction: Gastric bezoars are foreign bodies made by vegetal concretions, hair, drugs and other materials that become fixed in the stomach; they are a challenge regarding the therapy.

Methods: Aim: Study of gastric bezoars diagnosed over a 20 years period, regarding risk factors and therapeutic options. We studied all patients diagnosed with gastric bezoars in Institute of Gastroenterology and Hepatology Iasi, between 1st January 1988 and 31st December 2007. We noticed the following parameters: sex, age, type of bezoar, associated diseases, medical treatment (Coca Cola 15 ml every 45 minutes, 12 hours), endoscopic treatment (techniques, complications, failure).

Results: Upper digestive endoscopy identified 49 cases – 0.068% of all endoscopic investigations made in this period. We found a male predominance (51.17%) and a mean age of 60 years. The most frequent cases were phytobezoars – 34 cases (all of them made of Sinfitum officinale roots), followed by trichobezoars (11), drug bezoars (2) and miscellaneous (2). The bezoars diameters varied between 1 and 10 cm (medium 2-3 cm); 30.6% were multiple bezoars with 2, 3 and 5 fragments. In 42 (85.71%) patients we found associated diseases; the most frequent were: gastric and/or duodenal ulcer (22), previous partial gastrectomy and vagotomy (10), diabetes mellitus (8), gastric cancer (6). 12 patients with phytobezoars ingested Coca Cola with enzymatic digestion in 83.33% cases and complete dissolution in 41.66% cases (in 5 patients we obtained fragmentation of bezoars, 1 patient refused to continue the protocol, and in 1 patient therapy was inefficient). We performed endoscopic therapy (fragmenting and removing with forceps, polipectomy snare, and Dormia basket); the success rate was 88.9%. We noticed only one major complication: impaction of a snare in bezoar, followed by surgical intervention. Female, large and multiple bezoars and trichobezoars were risk factors for endoscopic treatment failure at any age.

Discussion/Conclusion: In our area gastric bezoars are a rare pathology, associated mostly with peptic ulcer, gastric surgery and diabetes mellitus. Medical treatment with Coca Cola and/or endoscopic treatment are safe and efficient in 91.17% of patients.
Upper digestive hemorrhage – Etiology and clinical evolution

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Introduction: Aim of the study: to evaluate the etiology of upper digestive bleeding in patients admitted in our department in 2005.

Methods: We studied retrospectively 118 patients with upper digestive hemorrhage, who performed gastroscopy for diagnosis and treatment. We analyzed the clinical evolution and the possible risk factors for rebleeding in two patient groups, with/without cirrhosis.

Results: From a total of 4792 patients admitted in our department in 2005, 118 patients (2.46%) were diagnosed with upper gastrointestinal bleeding. There were 75 males and 43 females, mean age 57.3 ± 13.4 yrs. A group of 34 patients (28.81%) were cirrhotic and the bleeding site could be localized: 28 by esophageal and/or gastric varices (82.35%) and 6 (17.65%) by other esogastroduodenal lesions. The rest of 84 non-cirrhotic patients (71.19%) presented non-variceal bleeding. Regarding Child Pugh classification, distribution of patients was: A (11.76%), B (41.18%) and C class (47.06%). The admission of patients with/without cirrhosis was decided for hematemesis (11.76% vs. 19.05%), melena (14.70% vs. 32.14%), hematemesis and melena (64.71% vs. 40.48%) and hematochesia (2.94% vs. 1.19%), occult digestive hemorrhage (2.94% vs. 8.33%). Rebleeding occurred in 16 patients (14.03%), more frequent in patients with hematemesis and melena. Rebleeding rate was higher in patients with cirrhosis (32.35% vs. 5.95%, p = 0.0004) mainly in severe status (C [87.5%] vs. B class [12.5%], p = 0.012) in parallel with need for endoscopic reevaluation (35.29% vs. 9.5%, p = 0.0007) and blood transfusions (70.58% vs. 27.38%, p < 0.001). Anemia was present in both groups (85.29% vs. 69.04%, p = 0.069), but severe forms were observed mainly in cirrhotic patients (29.41% vs. 16.67%, p = 0.119). The mortality rate was also higher in the first patient group (11.76% vs. 2.38%, p > 0.05).

Discussion/Conclusion: In the whole study group the non-variceal hemorrhage was more frequent. In cirrhotic patients was predominant the variceal hemorrhage, whose evolution is more severe and rebleeding and mortality rates are higher.
The prevalence of portal hypertensive gastropathy in patients with liver cirrhosis

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Introduction: The aim of this study was to determine the prevalence of portal hypertensive gastropathy (PHG) in patients with liver cirrhosis, and to establish the association between PHG and the severity of cirrhosis and size of varices.

Methods: In a prospective study, upper gastrointestinal endoscopy was carried out to determine the prevalence of portal hypertensive gastropathy, and the presence of esophageal varices. We used Child-Pugh score to determine the severity of cirrhosis.

Results: The study comprised 115 patients, 47 (40.9%) female and 68 (59.1%) male. 55 (47.8%) patients were in Child A class, 34 (29.6%) in Child B and 26 (22.6%) in Child C. Of 115 patients 82 (71.3%) had PHG. PHG was significantly associated with the presence and size of esophageal varices. The prevalence of PHG was more prevalent in those with higher grade of esophageal varices, and the differences was statistically significant (p = 0.001). The prevalence of PHG was higher in those with more severe disease, the association being statistically significant (p = 0.044). From those with Child A class only 61.8% had PHG, comparatively with those in Child B and C (B – 73.5%, C – 88.5%). 15 patients had upper gastrointestinal bleeding from PHG, all this patients having severe PHG, 5 with Child B, and 10 with Child.

Discussion/Conclusion: We concluded that portal hypertensive gastropathy seems to have a higher prevalence in patients with more severe disease, and its frequency increase with the size of esophageal varices.
Triplex-Doppler endoscopic ultrasound assessment of variceal hemodynamics before and after percutaneous ablation of hepatocellular carcinoma (HCC)

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Aim: To assess gastroesophageal variceal hemodynamics before and after percutaneous ethanol injection (PEI) of HCC.

Methods: Triplex-Doppler endoscopic ultrasound (TDEUS) (Olympus GF-UC30P) was performed in 26 patients with HCC before and after PEI. Mean ethanol quantity per injection was 6 ml (3–10 ml) in 12 patients treated with a multisession regimen and 47 ml (30–138 ml) given as a single-session large-amount instillation under general anesthesia (Shot-PEI) in 14 patients with large tumors (> 5.0 cm). Blood flow was evaluated in varices of the fundus, gastroesophageal junction, above-lying 5-cm area and perforating veins. Color map was estimated by color-Doppler with/or without contrast enhancement (SHU 508A), mean velocities and spectral profiles were evaluated by pulse-Doppler.

Results: The color map and variceal staging remained unchanged after both PEI regimens. A tendency for increasing of the mean velocities was registered in the varices and perforants at gastroesophageal junction and the 5-cm above area of the esophagus in half of the patients subjected to the multisession regimen. More pronounced velocity changes were established in all patients after Shot-PEI. Gastric varices showed no hemodynamics changes. Non-significant velocity changes were observed in a control group of patients treated with radiofrequency ablation (RFA).

Conclusion: Shot-PEI could raise blood velocities in esophageal varices. TDEUS-established PEI-induced hemodynamic changes may reflect an increase in intravariceal pressure and further studies are needed to evaluate the necessity of prophylactic pressure-reducing therapy during the period of local tumor ablation. RFA is preferred to Shot-PEI in patients with large esophageal varices.
Role of the endoscopy in the diagnosis of upper gastrointestinal bleeding and evaluation of the precipitating factors

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Introduction: Aim of our study was to evaluate the causes and the precipitating factors of upper gastrointestinal bleeding.

Methods: A retrospective analysis of 168 patients presenting with upper gastrointestinal bleeding at Emergency Clinical Hospital Craiova, between January 2006 and June 2007 was conducted. All the patients underwent gastroscopy for diagnosis and treatment, if necessary. Multiple biopsy specimens should be obtained from any visually suspicious areas.

Results: We studied 94 males and 74 females with upper gastrointestinal bleeding. The mean age was 44.8 ± 2.1 years. The patients present with: hematemesis (124 cases, 73.81%) and melena (82 cases, 48.81%). Most of the cases (81.55%) underwent endoscopy in the first 24 hours from the start of the bleeding. The causes of bleeding were: variceal bleeding (53 cases, 31.55%), gastric ulcer (29 cases, 17.27%), erosive gastritis (26 cases, 15.48%), duodenal ulcer (24 cases, 14.29%), gastric cancer (22 cases, 13.1%), esophagitis (4 cases, 2.38%), Mallory-Weiss (3 cases, 1.79%) and angiodysplasia (1 case, 0.59%). The cause of bleeding was not identified in 6 patients (3.58%). The precipitating factors for hemorrhages were: alcohol drinking in 43 cases, smoking in 31 cases, non-steroidal anti-inflammatory drugs in 18 cases, corticotherapy in 12 cases and anticoagulants drugs in 4 cases. Helicobacter pylori infection was present in 46 patients. Variceal hemorrhage was frequently detected (79% of cases) when alcohol consumption (> 40 g/day) was associated with smoking.

Discussion/Conclusion: Endoscopy is most accurately method for determining the cause of bleeding. Urgent endoscopy is indicated when patients present with hematemesis, melena or postural changes in blood pressure. The precipitating factors for variceal hemorrhage was alcohol consumption and smoking and for the non-variceal bleeding, drugs and Helicobacter pylori infection was the most frequent.
Confocal laser endomicroscopy for detection of intestinal metaplasia

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Introduction: The presence of intestinal metaplasia makes endoscopic surveillance mandatory in order to identify dysplasia and early cancer. Endoscopic screening for intestinal metaplasia is difficult as the diagnosis is confirmed only by histopathological examination of multiple biopsies.

Methods: A pilot study has been conducted to investigate the ability of CLE to detect intestinal metaplasia in vivo, in current clinical practice setting, by detecting the presence of goblet cells in columnar mucosa of esophagus or stomach. CLE has been conducted using 5 ml 10% fluorescein IV using the Pentax® EG-3870CIK confocal endomicroscope. Thirty patients with suspected Barrett’s esophagus or suspected gastric lesion prediagnosed by classic endoscopy have been included in the study.

Results: In the study group there were 9 patients with suspected Barrett’s, 11 with gastric tumors, 6 with chronic gastritis, 2 with atypical gastric ulcers and 2 patients with gastric polyps. The rate of detection of intestinal metaplasia in the study group was 33.3% (10 out of 30 patients). The rate of Barrett’s esophagus confirmation was 12.5% and the rate of detection of intestinal metaplasia in the stomach was 40.9%. The detection or non-detection of intestinal metaplasia led to changes to the subsequent endoscopic surveillance indication for the patients in 53.3% of cases (diagnosis of Barrett’s esophagus, detection of intestinal metaplasia associated to a non-malignant gastric lesion). The detection of intestinal metaplasia in the peritumoral epithelium was found in 4 out of 6 patients with gastric adenocarcinoma and in 0 out of 5 patients with gastric lymphoma or diffuse gastric cancer.

Discussion/Conclusion: CLE is an excellent method for in vivo diagnosis of intestinal metaplasia leading to changings in the indication of endoscopic follow-up of patients. Detection of intestinal metaplasia in the peritumoral gastric epithelium can suggest in vivo the presence of a gastric adenocarcinoma.
Could we assess Helicobacter infection in bloody stomach content?

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Introduction: Invasive tests for H. pylori show low sensitivity during the bleeding episode from peptic ulcers but this is underreported in respect of the stomach content.

Methods: We recruited prospectively 141 patients with peptic ulcer bleeding to access H. pylori with rapid urease test (RUT) and culture. Patients with concomitant acid suppression or antimicrobials and/or prior eradication attempt were excluded. A single endoscopist performed injection hemostasis of ulcers and obtained antral and corpil biopsies at the emergency endoscopy. RUT (AstraZeneca) was read up to the 48th hour. Microbiology specimens were transported in Stuart medium and cultured on selective and non-selective media (BectonDickinson) for 5–8 days. Fisher's exact test, two-tailed significance at 0.05 level and MST 2.0 were used.

Results: Overall, 79 patients had "bloody" content (23 red blood, 56 hematin) and 62 had "clean" content in the stomach. Totally, culture was positive in 117 patients (83.0%). RUT was positive in 120 (85.1%) patients. Twelve false negative RUTs were revealed by culture. The success of H. pylori isolation was 62/79 from bloody and 55/62 from clean content (78.5% vs. 88.7%, p > 0.1). RUT was positive in 66/79 bloody and in 54/62 from clean content (83.5% vs. 87.5%, p > 0.6). As a sub-analysis, H. pylori was cultured in 78.3% from red blood content and in 78.6% from altered blood (p > 0.9). RUT was positive in 73.9% and 87.5% respectively (p > 0.2).

Discussion/Conclusion: In high prevalent region we advocate RUT and culture testing of H. pylori regardless of the stomach content. It seems red blood influences culture more than RUT.
The ‘cut and push’ method of percutaneous endoscopic gastrostomy tube removal in adult patients

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Introduction: The standard method of removing percutaneous endoscopic gastrostomy (PEG) tubes is by repeat gastroscopy and retrieval of the PEG bumper by the oral route. Most PEG manufacturers recommend the endoscopic method of removal except in those tubes with balloon or flexible ends designed for removal by external traction. Modern PEG design has made the ‘bumpers’ of the tubes softer and more malleable. We believe that the endoscopic removal method is not always necessary and use a non-endoscopic approach. “Cut and push”, is a simpler and cheaper alternative to endoscopic PEG removal and has been reported in 1991 (1) and 2000 (2) for tubes of 15Fr or less. This involves cutting the tube at skin level and allowing the internal bumper to pass spontaneously.

Methods: The files of PEG tube removals by the cut and push method over a 5 year period at Ipswich Hospital were reviewed.

Results: Between Feb 2002 and Dec 2007, 89 Fresenius Freka 15Fr tubes were removed by the cut and push method. The age range of patients was 19–98 years (mean of 62.7 years). The average duration of the tube in-situ before removal was 6.7 months (range 1–28). No reported hospital re-admissions or mortality occurred within 30 days of removal. No reports of minor complications occurred either with a mean follow-up period of 26.8 months.

The original indications for the PEG tubes that were removed are Head and neck malignancy (55), Cerebrovascular accident (24), head injury (3) and other miscellaneous causes (7).

Discussion/Conclusion: The necessity to endoscopically remove PEG tubes is based on reported complications in a few case reports (3, 4). The complications were principally small bowel perforation and obstruction. However these reported complications occurred in either children or those with tube sizes of more than 15 Fr. In our hospital, none of our patients with the “cut and push” method of tube removal suffered any complications. We believe that this provides further evidence that PEG tubes can be safely removed using this method. Elderly and neurologically impaired patients are spared an often-long and tedious journey to the Endoscopy unit as well as the hazards of an endoscopy. The saving in resources, in an already overworked system, by reducing endoscopies is also considerable.
References:


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Introduction: Upper digestive bleeding can be nowadays treated by endoscopy in most of the patients. Well equipped Endoscopy Units, with adequate trained personnel, can solve difficult cases of digestive bleeding. The aim of the study was to assess retrospectively, on a 5 years period, the main techniques of endoscopic hemostasis in bleeding peptic ulcers diagnosed in the Department of Gastroenterology, Timisoara.

Methods: During the period 2003–2007 there were admitted 810 patients with upper digestive bleeding, in which it was found at endoscopy a non-variceal source of bleeding. We noticed a male predominance, represented by 513 (64.3%) patients, the rest of 297 (36.7%) being females; the mean age of the patients was 58.73 ± 15.18 years (17–96 years).

Results: Regarding the type of the lesion, it predominated the ulcerous etiology, founded in 82.6% of the cases (669 patients), the rest of 17.4% (141 cases) representing other causes of non-variceal bleeding. From the 669 cases with ulcerous bleeding, 60% of the cases (401 patients) were without an endoscopic treatment and 40% of the patients (268 subjects) needed endoscopic therapy. Regarding the site of ulcerous lesions, from the 669 cases, 301 (45%) were represented by the gastric ulcers, 295 (44.1%) by the duodenal ulcers; in 65 cases (9.7%) the lesions were detected both at gastric and duodenal level, and in 8 patients (1.2%), on gastric stump.

Forrest classification of the ulcers was as follows: type I: 127 cases (19%): I a: 32/669 cases (4.8%) and I b: 95/669 cases (14.2%); type II: 275 cases (41.1%): II a: 125/669 cases (18.7%), II b: 99/669 cases (14.8%) and II c: 51/669 cases (7.6%); type III: 267/669 cases (39.9%).

268 patients (40%) needed endoscopic treatment, either monotherapy – in 160 cases, or combined therapy – in 108 cases. Group of patients with monotherapy (n = 160): mean age was 57.05 ± 15.87 years. The hemostatic methods used for monotherapy for the first therapeutic endoscopy performed to these patients were the following: epinephrine 1/10,000 injection – 119/160 cases (74.4%), with an average number of epinephrine millilitres injected per patient of 8.52 ± 4.43 (1–30 ml); bipolar coagulation – 29/160 cases (18.1%); clips – 10/160 cases (6.2%); ligation band – 1/160 cases, APC – 1/160 cases. Group with combined therapy (n = 108): mean age was 60.31 ± 14.04 years. We used the following therapeutic combinations: epinephrine injection + bipolar coagulation – 73 cases (67.6%); epinephrine injection + clips – 22 cases (20.4%); triple therapy: Epinephrine injection + bipolar coagulation + clips – 9 cases (8.3%); bipolar coagulation + clips –
3 cases (2.8%) and Epinephrine injection + bipolar coagulation + APC – 1 case (0.9%).

Comparing the patients from the group with endoscopic monotherapy vs. combined therapy, we didn't found statistically significant differences (p > 0.05) regarding: mean age (57.05 ± 15.87 vs. 60.31 ± 14.04 years), mean Rockall score (5.41 ± 1.94 vs. 6.07 ± 2.24), mean number of administrated blood units (2.38 ± 1.59 vs. 2.22 ± 1.37), mean number of hospitalisation days (6.75 ± 3.56 vs. 6.56 ± 4.08), rate of rebleeding (22/160 – 13.7% vs. 15/108 – 13.9%), rate of surgery (7/160 – 4.4% vs. 4/108 – 3.7%) and number of deaths. Second look was practiced in 409 cases (61.13%), most frequent at 24 hours from the first endoscopy. Rebleeding after endoscopic treatment was observed in 37/268 cases (13.8%), 11/268 patients needed surgery (4.1%) and a number of 7/268 patients (2.6%) died.

Discussion/Conclusion: Endoscopic treatment achieve hemostasis in most patients, only 4.1% of those treated by endoscopy will be operated. Rebleeding after endoscopic treatment occured in 13.8% patients, and death in 2.6% of the treated patients.
Step-by-step endoscopic treatment of obesity

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Introduction: The bioenterics intragastric balloon (BIB) has gradually become an ordinary method of obesity treatment. Although this technique has proven to be effective and safe, obesity specialists sometimes complain about its varying results after explantation. The endoscopic application of botulotoxin A to the stomach antrum has appeared in recent years to be a promising method of obesity treatment.

Methods: The endoscopic application of botulotoxin A to the stomach antrum following the explantation of BIB to maintain weight losses in the long-term. Set of 10 patients. Application of 500 MU Dysport® into the stomach antrum within one month after the explantation of BIB. Comparison to a base set of 10 patients only subjected to BIB and sham endoscopy without the application of botulotoxin.

Results: The average weight loss after the explantation of BIB was 16.49 kg. The patients subjected to the application of botulotoxin A into the stomach antrum showed a further weight loss of 4.56 kg on average in the following 6 months. There were no undesirable effects due to the treatment. The patients only subjected to BIB put on 5.21 kg on average in the 6 months following explantation. The difference is statistically significant.

Discussion/Conclusion: The endoscopic application of botulotoxin A into the stomach antrum appears to be an effective and safe method to maintain weight losses after the explantation of BIB. Our patients continue to be treated by an obesity specialist. The application of botulotoxin A can also be used on its own in patients showing contra-indication for BIB.
Treatment with selective cyclooxygenase (COX)-2 inhibitors and agonists of peroxisome proliferator-activated receptor gamma (PPARγ) counteracts the physiological and morphological impairment during the course of chronic esophagitis in rats

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Mixed reflux of the duodenal contents with gastric acid has been reported to contribute to the development of esophageal mucosal damage and inflammation but the effect of COX-2 inhibitors and agonists of PPARγ on reflux esophagitis has been little studied. Eighty rats with surgical esophagogastroduodenal anastomosis (EGDA) resulting in chronic esophagitis were randomly divided into 4 treatment groups treated either with: 1) vehicle 2) celecoxib (CELE 10 mg/kg/d i.g.), a selective COX-2 inhibitor 3) pioglitazone (PGL, 40 mg/kg/d i.g.), the agonist of PPARγ and 4) omeprazole, a proton pump inhibitor (OME, 10 mg/kg/d i.g.). At 4 and 8 weeks the lesion index (LI) of esophageal injury the esophageal blood flow (EBF), plasma IL-1β and TNF-α levels and expression of COX-2 and iNOS mRNA were determined. Esophagitis was accompanied by the infiltration of inflammatory cells including plasma cells and lymphocytes, hyperplasia and ulcer formation, the fall in the EBF and the rise in plasma TNF-α and IL-1β levels. COX-2 and iNOS mRNAs strongly upregulated in EGDA animals. OME, CELE and PGL significantly reduced the LI, reversed the fall of the EBF and the expression of COX-2- and iNOS mRNAs in EGDA animals. We conclude that 1) development of the reflux esophagitis is associated with severe morphology changes, an impairment of EBF, overexpression of COX-2 and iNOS, and excessive release of proinflammatory cytokines, and 2) gastric acid suppressive drugs such OME, COX-2 inhibitors (CELE) and PPARγ agonists (PGL) could be clinically useful in the treatment of chronic esophagitis.
Endoscopic treatment of upper digestive tract foreign bodies – 20 years experience

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Introduction: The majority of foreign bodies (FB) will pass spontaneously the gastrointestinal tract. The impaction of FB in the esophagus, stomach or duodenum needs diagnosed and therapeutic upper digestive endoscopy (UDE).

Methods: The aim of the study was to evaluate endoscopic treatment of FB in the upper digestive tract in a 20 years period. We studied all patients with FB ingestion which underwent flexible UDE in Institute of Gastroenterology and Hepatology, Iasi between 1st January 1988 and 31st December 2007. We studied the following parameters: sex, age, type of FB, place of impaction, associated lesions, and endoscopic treatment.

Results: There were 333 patients with male predominance (63.06%), mean age 51.6 ani ± 18.3 SD, 20.1% with voluntary ingestion. UDE found the FB in 81.1% patients. 36 patients didn’t perform endoscopic treatment: 10 patients refused UDE (majority prisoners and psychiatric patients) and in 26 patients treatment was considered non – necessary (small, blunt objects). In 234 patients who performed endoscopic treatment removal of FB was made in 91.02%. There were 8 minimal complications: 7 minor bleeding and 1 epileptic seizure, no perforation and no death. The main endoscopic techniques was extraction with forceps, basket Dormia – especially in alimentary FB and polipectomy snare – especially in metallic FB. Pushing technique was successful in 30 patients: 24 with alimentary FB and 6 with blunt FB: bones, coins. There were a positive correlation (p < 0.05) between failure of endoscopic treatment and young age, prisoners, voluntary ingestion, sharp and long FB, time between ingestion and treatment. There were no significant correlation with age, numbers of FB, main symptom, place of impaction and associated lesions.

Discussion/Conclusion: UDE identifies the FB in 81.1% of patients with positive anamnesis. It has been suggested (American guideline) that only 10–20% of FB may need to remove endoscopically, but in our study more than 70% of patients needed endoscopic treatment. Endoscopic treatment is safe and effective.
A new method for performing pull type percutaneous endoscopic gastrostomy

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Introduction: In the classical percutaneous endoscopic gastrostomy (PEG) procedure, after placing the gastrostomy tube, most of the endoscopists insert the endoscope again to check the position of the tube. It may be difficult to pass the endoscope into the esophagus for a patient lying on his/her back, especially if the trachea is intubated as well. In performing PEG, our aim was to insert the endoscope only once and we modified the procedure accordingly.

Method: A 2 cm long thread with knots on, is tied to the tip of the wire of a snare. A biopsy forceps is advanced into the instrument channel and out of the endoscope and using this forceps the thread of the snare is caught. The snare should not be in the instrument channel, should stay out, near the endoscope. While holding the biopsy forceps with one hand, the endoscope and the snare is inserted till the stomach. Then PEG needle with its cannula around is inserted through the abdominal skin into the stomach as in the classical method. Then the snare is opened, catches and holds the wire, and the snare is removed out of the mouth holding the wire. Afterwards the snare lets the wire free, PEG tube is tied to the wire and the wire is pulled from the abdominal site and the PEG tube is placed while the endoscope is in the stomach, watching the whole procedure. (externally removable PEG tube is advised not to harm the esophagus)

Result: Our method seems promising. It was easily performed in four patients and there was no complication attributable to the procedure which lasted 7 minutes on average.
Aspirin (ASA)-induced gastric adaptation involves an enhance-
ment in epi-lipoxin A\textsubscript{4} and nitric oxide (NO) release

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ASA-induced acetylation of COX-2 leads to biosynthesis of epi-LXA\textsubscript{4} known as “aspirin-triggered LX” (ATL) which exhibit a potent anti-inflammatory and gastro-
protective properties. We examined the effect of exogenous administration of LXA\textsubscript{4} against ASA-induced gastric damage (125 mg/kg in 0.1 N HCl applied i.g. once) and
the involvement of ALT and NO in gastric adaptation to acidified ASA (100 mg/kg/d) given p.o. for 5 days without or with concurrent daily treatment with 1) SC-560 (5 mg/kg i.g.) and rofecoxib (10 mg/kg i.g.) to inhibit COX-1 and COX-2 activity, respectively, 2) L-NNA (20 mg/kg i.p.) and aminoguanidine (20 mg/kg i.p.) to inhibit
NO-synthase (NOS) and iNOS, respectively, 3) AA-861 (5 mg/kg/d i.g.), a potent orally active 5-LOX inhibitor and MK886 (5 mg/kg i.p.), which prevents 5-LOX activation, and 4) baicalein (20 mg/kg i.p.), an antagonist of the 12-LOX activity. Single exposure to ASA produced gastric lesions and decreased GBF and SOD activities while raising mucosal ATL and these effects were significantly attenuated by LXA\textsubscript{4} (10 µg/kg i.g.) and completely abolished by L-NNA and aminoguanidine. After 5 daily exposures to ASA, the lesion area was reduced by 85%, and the rise in the GBF and mucosal ATL levels and these effects of ASA were significantly reduced by rofecoxib, L-NNA, aminoguanidine, AA-861 and baicalein but not significantly influenced by SC-560. We conclude that 1) LXA\textsubscript{4} attenuates ASA-induced gastric lesions via an increase in the GBF mediated by NO, and 2) ATL are essential mediators of gastric adaptation to repeated ASA treatments.
Beneficial effect of nitric oxide releasing aspirin (NO-ASA) versus native aspirin (ASA) against the esophageal damage in rat model of reflux esophagitis

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The effect of selective COX-1 and COX-2 inhibitors administration and the new derivative of ASA-releasing NO against the damage induced by the esophageal reflux has been fully clarified. Acid reflux esophagitis was induced in anesthetized rats by ligating of the pylorus and the limiting ridge between the forestomach and the corpus of stomach. Rats with esophagitis were treated with 1) vehicle (saline), 2) ASA or NO-ASA (40 mg/kg i.d.), 3) celecoxib (10 mg/kg i.d.) and omeprazole (OME, 10 mg/kg s.c.). Four hrs after induction of esophagitis, the damage was graded with lesion index (LI) from 0–5, the esophageal blood flow (EBF) was determined by H2-gas clearance technique, plasma proinflammatory cytokines IL-1β and TNF-α levels by ELISA, histology and mRNA for IL-1β and TNF-α were assessed by quantitative RT-PCR. The esophageal LI and wet weight in esophagitis were significantly higher and the EDF was decreased by 35% as compared with intact. Histology revealed severe edema of the mucosa and submucosa with the infiltration of numerous neutrophils. Both, ASA and indomethacin worsened the LI while celecoxib, NO-ASA and OME significantly reduced it. Strong signals for IL-1β, TNF-α and iNOS mRNAs were detected in rats with reflux esophagitis and these effects were significantly attenuated by celecoxib, NO-ASA and omeprazole.

We conclude that conventional ASA augment the damage induced by gastric reflux while selective COX-2 inhibitor and NO-releasing ASA exert beneficial effect against reflux esophagitis via suppression of neutrophil-dependent expression and release of TNF-α and IL-1β and enhancement in EBF mediated by NO.
Phlegmonous gastritis and jejunal ulcers – A case of Crohn’s disease?

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Introduction: Crohn’s disease affecting proximal gastroduodenal tract is a rare condition and is very difficult to treat. Typical proximal Crohn’s disease is localised in the antrum, pylorus and duodenum, resembling the paving – stone relief pattern and featuring serpiginous ulcerations. Histological finding of a granulomatous inflammation usually supports the diagnosis. In this paper, we present a young male patient with severe gastritis and isolated jejunal ulcers, both findings highly indicative of first manifestation of Crohn’s disease.

Case presentation: A 19-year-old male patient was admitted to our Intensive care unit (ICU) presenting with upper abdominal pain, high fever with chills and vomiting, without signs of peritoneal irritation. Physical examination revealed that patient was extremely weak, pale, hardly mobile, had dyspnea and tachypnea, tachycardia of over 130/min and enlarged neck and inguinal lymph nodes, about 1 cm in size. Laboratory findings were as follows: leukocytes 13.3 x 10⁹/l, CRP 407.4 mg/l, fibrinogen 5.3 g/l, erythrocytes 4.02 x 10¹²/l, hemoglobin 122 g/l, thrombocytes 102 x 10⁹/l, AST 93 U/l, LDH 515 U/l, CK 1595 U/l, CK-MB 35 U/l, iron 1.9 µmol/l, prothrombin time 55%, total proteins 62 g/l and albumins 30 g/l. Other laboratory findings were inside the normal ranges. We begun initial treatment with antibiotics and started a search for the source of the sepsis. All blood and stool cultures were sterile, and urine cultures were positive for E. coli. We excluded possible endocarditis by heart ultrasound. Sternal punction also did not revealed any significant findings, except changes compatible with sepsis. Because patient was formerly perfectly healthy, we suspected some immunology disturbance has occurred and immunology testings were taken. All results (HIV, anti-dsDNA, anti-myeloperoxidase antibodies, anti-protease 3 antibodies, complement components) were negative except antinuclear antibodies (ANA). Multi – sliced computer tomography (MSCT) was performed and showed thickening of the posterior gastric wall and enlargement of spleen and retroperitoneal lymph nodes, up to 1.5 cm in diameter. However, second MSCT examination performed few days later showed no posterior gastric wall thickening, but there were signs of jejunal wall thickening. Abdominal and retroperitoneal lymphadenopathy was still present with the largest lymph node up to 1.2 cm in size. There was also a small pleural effusion. After significant improvement in patient clinical status, he was transferred to gastroenterology department where the initial antibiotic treatment was continued. Upper endoscopy showed changes of gastric mucosa that started exactly on the esophagogastric junction. Gastric mucosa was completely changed, reddened, edematous, inflamed, with multiple erosions, one big posterior scar and narrowing of the gastric lumen in the prepyloric region caused by circular scaring of the mucosa. Esophagus and duodenum were completely intact. We suspected gastric lymphoma and multiple biopsies were taken but did not confirm our suspicion – there were only inflammatory changes and signs of mucosal necrosis and reparation. The diagnosis of phlegmonous pangastritis was made. Endoscopic ultrasonography (EUS) confirmed all the formentioned findings and revealed that the
narrowing of the prepyloric region of the stomach was probably caused by inflammatory changes. There was still lymphadenopathy around the stomach, probably a reactive lymph nodes. Control upper endoscopy performed after two weeks of antibiotic and PPI treatment revealed signs of gastric mucosal reparation, but there were still signs of acute pangastritis and few serpiginous ulcerations in the prepyloric region. We suspected an unusual presentation of Crohn's disease and therefore performed “single-baloon” enteroscopy which showed significant regression of inflammatory changes in the stomach and few isolated jejunal ulcers, highly suspected of Crohn's disease, because the patient has not been taking NSAIDs during one month period before acute illness started. Patient was treated with antibiotics and proton pump inhibitors and few weeks after addmitance, free of symptoms and with significantly improved laboratory and endoscopic findings was discharged from hospital.

**Conclusion:** In spite of histopathologic diagnosis of phlegmonous gastritis, distribution and endoscopic appearance of the gastric and jejunal lesions were highly suspected of unusual first presentation of Crohn's disease.
Indications and complications of percutaneous endoscopic gastrostomy with jejunal extension tube

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Introduction: Percutaneous endoscopic gastrostomy with jejunal extension tube (PEGJ) insertion was first reported in 1984 by Ponsky and Aszoid. This involves the endoscopic placement of a PEG followed by the insertion of a jejunal extension tube through it into the intestine ideally beyond the duodeno-jejunal (DJ) flexure.

Methods: This was a retrospective case note analysis aimed to review the indications and outcomes of all the PEGJs inserted in Leicester Royal Infirmary between 2002 and 2005.

All the PEGJs were Freka PEG tubes (size 15 French) with jejunal extensions (JE) (size 9 French). Long 300 cm rat-toothed forceps were used to guide the tip of the JE beyond the DJ flexure.

Patients were identified through the hospital endoscopy database.

Case notes for 36 patients (15 women) were identified. The mean age was 49 years (± 3 years). Mean body mass index pre-PEGJ was 23 kg/m² (range 18–27.5).

Details of the indications are given in Table 1.

Results: There was a 91% (33 of the 36) success rate of inserting the JE beyond the DJ flexure as reported by the endoscopists. Abdominal X-rays confirmed post-pyloric position in 85% (23 out of 27) of the patients. Early displacement (within 3 weeks) of the tip of the JE occurred in 36% (12 of 33) of the patients. Eight of these were HSCT patients who had uncontrolled vomiting. However, at day 60, forty percent of all the patients still had their PEGJs in place. The insertion site infection rate was 33% in the hematology group compared to 8.3% in the other group. Two patients had pneumonia, one 7 days and the other 11 months after PEGJ insertion. All cause 30-day mortality was 17% (6 of the 36).

Details in Figure 1.

On day 3, 77% of the patients had more than 75% of their nutritional requirements met.

The mean time between PEGJ insertion and HSCT was 13 days ranging from 1 to 34 days).

Discussion/Conclusion: Use of the long forceps ensure a high success rate and correct placement of the JE.

PEGJs offer a reasonable method of providing nutritional support in this difficult group of HSCT patients. Strict guidelines including early PEGJ insertion pre-HSCT and improved control of vomiting would ensure better outcomes.
**Table 1**: Indications

<table>
<thead>
<tr>
<th>hematology (19)</th>
<th>others (17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSCT (16)</td>
<td>cerebrovascular disease (6)</td>
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<tr>
<td>acute leukemia (2)</td>
<td>trauma (3)</td>
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<td>aplastic anemia (1)</td>
<td>tuberculosis (2)</td>
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<tr>
<td></td>
<td>retroviral disease (1)</td>
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<td>malnutrition (2)</td>
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<tr>
<td></td>
<td>lung cancer (2)</td>
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<tr>
<td></td>
<td>motor neuron disease (1)</td>
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</tbody>
</table>

Numbers in brackets indicate total number of patients in that category

**Figure 1**: Complications of PEGJs (n = 36, total events = 49)
Role of endogenous prostaglandins and nitric oxide (NO) in gastroprotective activity of probiotic bacteria *Lactobacillus* against formation of acute gastric mucosal injury in the rat stomach

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Probiotics originally derived from cultured food or milk products exhibit therapeutic properties and were recently shown to enhance the rate of *Helicobacter pylori* eradication but their involvement to the mechanism of gastric mucosal integrity and gastroprotection against acute gastric mucosal injury remains unknown. We studied the effect either of vehicle (saline), Lacidofil containing alive *L. rhamnosus* and *L. acidophilus* on gastric acid secretion in rats equipped with gastric fistula and on the formation of gastric lesions induced by i.g. administration of necrotizing substances such as 75% ethanol (ETH), 200 mM taurocholate (TC) and 25% NaCl. For comparison, heat-killed Lacidofil strain was used. Exposure of gastric mucosa to ETH, TC and NaCl induced widespread hemorrhagic gastric erosions and significantly decreased the GBF accompanied by the rise in the plasma IL-1β and TNFα levels. Lacidofil (10^1–10^9/rat i.g.) dose-dependently inhibited gastric acid secretion and attenuated ETH-, TC- and NaCl-induced gastric lesions and raised the GBF, mucosal PGE2 concentration and plasma gastrin levels. Heat-killed bacteria failed to significantly affect gastric acid secretion, gastric lesions induced by ETH, TC and NaCl and accompanying fall in the GBF. Indomethacin, rofecoxib, a COX-2 selective inhibitor and L-NNA, the NO-synthase inhibitor, completely abolished Lacidofil-induced protection, the effect being restored by concurrent treatment with PGE2 analog (10 µg/kg i.p.) or L-arginine (200 mg/kg i.g.). We conclude that only alive probiotic bacteria exhibits a potent gastroprotection action due to its antisecretory and antioxidizing activities and hyperemia mediated by COX-PG and NO-NOS systems and gastrin that exhibits a trophic effect.
Photodynamic diagnostics of Barrett’s esophagus

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Introduction: The objective of study was to investigate possibilities of photodynamic diagnostics (PDD) for reliable detection of esophageal mucosa dysplastic lesions using hypericin induced photosensitizer Hyperflav (Borshagiwka Pharmaceutical Co., Kyiv, Ukraine).

Method: In 2004–2007 7664 video esophagogastroduodenoscopies were done, from them gastro-esophageal reflux disease is exposed in 53% cases. Barrett’s esophagus was found out endoscopicaly in 114 patients, from them morphologically confirmed in 72% cases.
In all 114 patients the choice of area for biopsy was conducted with chromoesophagoscopy, and in 1–2 weeks with PDD.
PDD of esophageal mucosa was performed afterwards oral administration of encapsulated Hyperflav. A sufficient fluorescence contrast of suspicious versus normal tissue has been obtained after 4–8 hours. Hyperflav peak at 603 ± 3 nm illustrates clearly its considerable accumulation by dysplastic esophageal mucosa and enables target biopsy of lesions.
The control biopsies from unchanged esophageal mucosa were made at both researches.

Results:

<table>
<thead>
<tr>
<th>Method</th>
<th>No. of patients</th>
<th>No. of biopsies</th>
<th>Dysplasia</th>
<th>Normal mucosa</th>
<th>Morphology of control areas</th>
<th>Effectiveness, %</th>
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</thead>
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<td>Chromoesophagoscopy</td>
<td>99</td>
<td>286</td>
<td>83</td>
<td>144</td>
<td>59</td>
<td>111+3*</td>
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<tr>
<td>PDD</td>
<td>85</td>
<td>134</td>
<td>42</td>
<td>83</td>
<td>9</td>
<td>113+1*</td>
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</table>

*Biopsies specified as false negative results

Conclusion: DD demonstrates the advantages before chromoesophagoscopy in the diagnostics of Barrett’s esophagus with more high accuracy and specificity, and also allows to take less number of biopsies.
Trimodal imaging assisted endoscopic mucosal resection of early Barrett’s neoplasia

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Introduction: Early neoplasia in Barrett's esophagus can be inconspicuous. Chromoendoscopy is traditionally used to identify the lesion and mark the boundaries prior to Endoscopic Mucosal Resection (EMR). Recently Trimodal Imaging endoscopy (High resolution endoscopy: HRE, Autofluorescence Imaging: AFI, Narrow Band Imaging: NBI) has been shown to be useful in identifying early neoplasia in Barrett's esophagus.

Aim: To study the performance of Trimodal Imaging endoscopy assisted EMR in Barrett's early neoplasia in a tertiary referral centre.

Methods: Trimodal imaging endoscopy and EMR was done in a single session under intravenous sedation (midazolam, pethidine) using Olympus Lucera-Spectrum video endoscope system and GIF Q240FZ gastroscope. The entire Barrett's segment was first visualised by HRE followed by AFI and suspicious areas were identified. NBI and magnification was used to further confirm the suspicious areas. The outer boundary of the lesion was then marked using the tip of a snare diathermy. EMR was done using the multiband mucosectomy (Duette, Cook Medical) technique. Resection was done as single piece or piecemeal depending on the size of the lesion. The lateral and deep resection margins were assessed by histology review of resected specimen and follow-up endoscopy with biopsies.

Results: Sixteen patients, high-grade intraepithelial neoplasia (HGIN): 13, intramucosal carcinoma (IMC): 3, 8 males, median age of 69.5 (50–77) with Barrett’s esophagus (1–12 cm, median: 3), referred for further work-up including EMR participated in the study. All lesions were successfully identified, using Trimodal Imaging endoscopy without the use of dye spray. Endoscopically, lesions were classified as follows: Paris Type IIb: 9; Type IIa: 4, Type IIa/c: 3. Overall EMR was complete in 13/16 (81.2%) patients with early Barrett's neoplasia. 5/13 (46%) of patients with HGIN had T1 intramucosal carcinoma on EMR histology (the remaining had HGIN). 3/16 (18%) patients (all with pre-EMR HGIN) were considered to have incomplete EMR but operative histology showed only Barrett’s metaplasia in 2 and IMC in 1. Another patient needed one further EMR but histology showed only low-grade dysplasia. There was no disease recurrence on endoscopic biopsies at a mean follow-up of 10.9 months (r: 3–39). All 3 patients with pre-EMR intramucosal carcinomas had complete resection with no recurrence on repeat endoscopic biopsies at a mean follow-up of 7 months (range: 3–12). 3/16 (18%) with post-EMR bleeding were successfully treated with APC/hemoclips.

Discussion/Conclusion: Trimodal imaging endoscopy is a feasible alternative to chromoendoscopy in identifying inconspicuous neoplasia and assisting EMR for the endoscopic management of early neoplasia in Barrett's esophagus.
Esophageal Lugol staining in head and neck cancer patients is beneficial even in low-risk country

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Introduction: Lugol staining (LS) has been proven to improve diagnosis of esophageal early squamous cell carcinoma (SCC) and dysplasia in high-risk group of patients, especially in patients with a history of head and neck carcinoma (HNC). Authors decided to evaluate benefit of esophageal LS in HNC patients in low-risk country for SCC (Czech Republic).

Methods: 83 patients (72 men, 11 women, average age 58 years) were examined in the period from May 2004 to April 2008. Most frequent localization of HNC was larynx (25 patients). In all cases LS was performed at the end of upper GI endoscopy. Lugol-negative areas (LNA) were noticed and biopsies were taken from them.

Results: LNA were found in 25 patients (30%). Neoplastic lesions were diagnosed in 4 patients (5%) (SCC in 2, high grade dysplasia (HGD) in 1 and low grade-dysplasia (LGD) in 1). In 21 patients (25%) only benign lesions were confirmed, majority of them inflammatory changes (14 patients). Patient with HGD was successfully treated with endoscopic mucosal resection (EMR) band and cut. Reflux esophagitis was present in 32 patients (38%) and Barret’s esophagus without dysplasia confirmed in 7 patients (8%). We did not encounter any complications during diagnosis or therapy.

Discussion/Conclusion: Lugol staining should be routinely performed in all HNC patients even in countries with low incidence of SCC. Although majority of LNA were non-neoplastic, we found neoplastic lesions in 5% of patients. HNC patients have also high incidence of reflux esophagitis and Barret’s esophagus.
Transvaginal appendicectomy – Preliminary data from a NOTES procedure on human subject

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Introduction: NOTES seem to be a very promising new direction in the development of noninvasive surgery and therapeutical endoscopy in directions till now reserved only to surgeons.
We present the preliminary data of the first NOTES intervention in humans in Romania, realized in February 2008. The patient, a 23-year-old lady presented in emergency with right abdominal pain and leucocitosys and the clinical suspicion of appendicitis was confirmed by CT.

Methods: The indication was of emergency appendicectomy and a laparoscopic or NOTES procedure was proposed to the patient. Due to aesthetical reasons, she preferred the second one.

Results: The transvaginal endoscopical approach was assisted by a transombilical laparoscoical secondary illumination. The appendix was rapidly localized with the endoscope and after that dissected with needle knife and ligasure procedure, sectioned and extracted transvaginal with a Dormia basket. The places of NOTES incisions were sutured surgically, the total duration, due also to the fact that it was the first one of our team on a human subject was of 84 minutes. The patient was dismissed from the hospital 24 hours after the intervention, without any symptoms.

Discussion/Conclusion: This first NOTES intervention in humans of our team had encouraging results and make us very optimistic of the future development of the method.
Effectiveness of endoscopic submucosal dissection of early-stage gastrointestinal neoplasms

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1Department of Endoscopy, 2Department of Gastroenterology, Kobe University Hospital, Kobe, Japan

Introduction: Endoscopic mucosal resection is unsuitable for larger lesions which require piecemeal resection because of limitation of snare size, and local recurrence increases. A new procedure, endoscopic submucosal dissection (ESD) is expected to enable en-bloc resection regardless of size and shape.

Methods: This study aims to examine the effectiveness and feasibility of ESD. We removed 1635 lesions (esophagus; 138, stomach; 1136, colorectum; 361) in 1367 patients by ESD between June 2002 and July 2007. Our newly developed Flush knife was introduced after May 2005. We retrospectively evaluated the data including en-block complete resection rate, tumor size, time required for resection, rate of complication, and prognosis.

Results: En-bloc resection rate was esophagus; 98.5%, stomach; 97.3%, colorectum; 98.3%. Median tumor size was esophagus; 23 mm (1–72), stomach; 13 mm (1–105), colorectum; 30 mm (6–158). Median size of resected specimen was esophagus; 45 mm (22–90), stomach; 42 mm (14–153), colorectum; 40 mm (16–165). Time required for resection was esophagus; 61 min (25–206), stomach; 53.5 min (11–352), colorectum; 58 min (15–335). Perforation occurred in esophagus; 0%, stomach; 1.9%, colorectum; 1.9%. Postoperative bleeding occurred in esophagus; 0%, stomach; 3.4%, colorectum; 0.8%. After introduction of Flush knife, time required for resection tended to be short, and rate of complication tended to be low. No recurrence was observed in en-block, complete resected cases among lesions appropriate for ESD.

Discussion/Conclusion: The new procedure ESD is very effective and feasible, and Flush knife is considered to be one of useful operative instruments for ESD.
Preliminary results from a ‘virtual’ gastroenterology outpatient clinic

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Introduction: Government initiatives are putting increasing pressure on secondary care to improve outpatient (OPD) efficiency. Many specialists routinely offer their new patients a follow-up OPD appointment where results can be reviewed. However, ‘paper’ clinics in which investigations are reviewed without the patient attending have been used successfully in other specialities, reducing the need for unnecessary follow-up. We looked at its practicality in gastroenterology.

Method: All patients attending gastroenterology OPD were eligible after discussion with the consultant. Investigations were requested, a comprehensive letter dictated and a ‘virtual’ clinic proforma completed detailing the tests requested. A review date was given to the patient.
The ‘virtual’ clinics are consultant led and held twice monthly. All investigations are reviewed with the original clinic annotation; a letter detailing the final diagnosis and outcome is then sent to both patient and GP. Patients can be discharged, further investigations arranged, outpatient review requested or referred to another speciality.

Results: In 7 months, 100 patients have been reviewed in 14 ‘virtual’ clinics. Presenting symptoms included: Dyspepsia/upper GI symptoms (19), IBS/diarrhea/constipation (36), anemia (13), abdominal pain (9), malabsorption/weight loss (9), IBD (4), deranged LFT (5), misc. (5). 86 of these patients [54 (92%) of new referrals] were discharged from the ‘virtual’ clinic, 3 were referred to another specialist, 9 required further follow-up in outpatients, 2 required further investigations and were offered further ‘virtual’ clinic review.

Conclusion: Initial results suggest that many GI patients are suitable for ‘virtual’ clinic and it is likely increase the efficiency of outpatients by reducing the number of follow-up. The ‘virtual’ clinic ensures that results are not overlooked. Long-term follow-up is required & patients’ satisfaction with the service should be sought.
Family study in Peutz-Jeghers syndrome

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Introduction: Peutz-Jeghers syndrome (PJS) is a rare autosomal dominant hereditary disease characterized by mucocutaneous pigmentation, gastrointestinal hamartomatous polyposis and an increased risk for the development of gastrointestinal and extragastrointestinal malignancies.

Methods: Five generations of two PJS families (21–21 patients) were analyzed to summarize the clinical appearance of the disorder by interview, physical examination, laboratory and imaging studies.

Results: Phenotypic variability was observed in PJS both in and between families. In family “A” 13 people were diagnosed as being affected, all of them had melanin spots at birth and the first presenting clinical symptom was colicky abdominal pain (median age 12, range: 2–35) resulting in 14 laparotomies in 9 of the affected persons. 4/13 patients died from small-bowel ileus (median age 7, range 2–31 years), 2/13 from cancer occurred in the GI tract (median age 54 years). In family “B” 7 patients were documented as being affected. The first features were also abdominal cramps (at age 22). The main causes of death were gynecological (1/5) and GI malignancies (4/5) at advanced age, no one died in ileus.

Discussion/Conclusion: The results based on the analysis of the two families suggest that PJS is not a benign disease. It is difficult to predict the outcome of the disorder regarding the variable expression and incomplete penetrance. Therefore we emphasize the importance of checking the pedigree, finding out the leading symptom in the family, hemocult test and routine lab studies should be carried out at every affected individual. If clinical signs and symptoms are present we recommend to perform the complete diagnostic protocol and a yearly follow-up by a gastroenterologist familiar with PJS focusing on the leading symptoms.
A Welsh teaching hospital experience of EMR procedures

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Gastroenterology Department, Llandough Hospital, Penarth, Cardiff, CF64 2XX, UK

Introduction: Endoscopic mucosal resection (EMR) has gained increasing popularity for the removal of lesions including early cancers, but expertise is often concentrated in a few centres.

Methods: We performed a retrospective audit of 162 EMR procedures performed in 107 patients by 3 consultant gastroenterologists between February 2003 & March 2008. Data was collected from trust IT reporting systems and patient notes. Patient demographics, EMR therapies, polyp histology and recurrence rates were recorded. EMR procedures were performed using a submucosal injection of either normal saline or ‘EMR mix’ (colloid + adrenaline + indigocarmine dye).

Results: Mean patient age – 56 years old (range: 46–88). 58% male and 42% female. 54% polyps were removed from the rectosigmoid colon. Mean polyp size – 16 mm (range: 4–60 mm). Adenoma polyp breakdown: 33% tubular, 52% tubulovillous, 14% villous and 1% serrated. The post – EMR polyp recurrence rate was 4%. APC therapy was used in 15% EMR’s for tissue destruction and 9% for oozing from the polypectomy base. 10% EMR’s received endoscopic clips to close the mucosal defect post EMR (usually in the right colon) and 6% for oozing from the polypectomy site. Significant hemorrhage occurred in 1.2% EMR procedures, half of these required further endoscopic therapy. No cases required blood transfusion or surgery. 1 patient presented with a colonic perforation (diverticular segment) distant from the EMR site. Group mortality rate – 0%.

The endoscopic pit pattern correlated with the histopathological diagnosis in 88% cases. 3 cancerous polyps were identified (1 CIS and 2 adenocarcinomas). Two were treated endoscopically, with complete histological excision. The third underwent a sigmoid colectomy for Dukes A adenocarcinoma.

Discussion/Conclusion: Our complication rates are comparable to published data¹. Routine use of endoscopic clips post EMR in the right colon has the potential to minimise the risk of perforation.

Reference:

Azathioprine toxicity in inflammatory bowel disease

Ahmet Uyanikoglu, Filiz Akyüz, Fatih Ermis, Binnur Pınarbasi, Emine Gül, Kadir Demir, Sadakat Özdil, Fatih Besişik, Sabahattin Kaymakoglu, Güngör Boztas, Zeynel Mungan
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**Background/Aim:** The aim of this study was to evaluate inflammatory bowel disease (IBD) patients who were treated with azathioprine (AZA) and followed up in our clinic.

**Patients and methods:** We analyzed IBD patients who were treated with AZA between April 1998 and April 2008 for adverse events, retrospectively.

**Results:** 417 patients; 211 (50.6%) female, mean age 38.63 ± 13.32 years, (range 16-79) were evaluated. 242 (58%) patients had ulcerative colitis (UC), 159 (38.1%) Crohn’s disease (CD) and 16 (3.8%) indeterminate colitis. Mean follow-up period was 42.5 ± 46 months (range 6–288 months). 189 (45.3%) patients used AZA (in CD 66%, in UC 32%). Mean AZA using period was 33.8 ± 32 months (range 6–160 months). Discontinuing rate was 19.6% (37 cases). Causes of discontinuing AZA were as follows: adverse events in 15 patients (3 bone marrow suppression, 2 pancreatitis, 2 hepatotoxicity, 3 malignancy, 5 others), ineffectivity in 12, post operation in 5, other causes in 5. Major toxicity (neutrophenia, hepatotoxicity, pancreatitis, malignancy) was seen in 7/189 patients (3.7%). Non-Hodgkin Lymphoma was observed at 18th month in one UC patient and AZA was discontinued. Fusiform cell tumour at 2nd year and schwannoma at 5th year was observed and AZA was continued after operation.

**Conclusion:** Half of IBD patients use AZA (in Crohn’s disease 62%, in ulcerative colitis 32%) and major toxicity and malignancy development rates during the AZA treatment are low. AZA is safe immunosuppressive agent in IBD patients.
Course and prognosis of ulcerative colitis – Change in the extent of colonoscopic and histological involvement

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²Department of Morphopathology of Medicine and Pharmacy Timisoara, Romania

Introduction: Ulcerative colitis (UC) is a chronic, relapsing inflammatory bowel disorder; longstanding UC is a precancerous condition, as well as the extensive UC (pancolitis). The purpose is to record the clinical characteristics and course of disease in patients with UC; to determine changes in extent of disease assessed by colonoscopy and histological examination (colonic and rectal biopsies).

Methods: 41 patients (28 females, 23 males, aged 19–60) with UC were treated and follow-up in a medical clinic during 10 years. Colonoscopies with biopsies and serum analyses were performed every 12 months and at the time of relapse.

Results: after 1 year there were endoscopical signs of progression in 14.6% of cases; 24.3% showed regression, and 34.1% had a normal colonoscopy. A greater proportion of females than males (2/1) relapsed during one-year follow-up. The extension of the disease after 10 years of evolution was as follows: 12.1% proctitis, 48.7% rectosigmoiditis, 24.3% left side colitis and 14.6% total colitis. The histological changes from diagnosis until the first year follow-up showed progression in 21.9% of cases, 24.3% showed regression and 22% had normal histological findings. Presence of active colitis on histology specimens, in particular lamina propria leukocytes and cryptitis was associated with high relapse rate. At the end of the follow-up period (10 yr) 7.3% of patients developed dysplasia and 4.8% colonic cancer.

Discussion/Conclusion: Colonoscopic surveillance is a standard procedure in many patients with longstanding, extensive UC, in order to avoid death from colorectal cancer. Histological evaluation at the follow-up examination represents the best indicator for long-term prognosis in order to predict the relapse or to detect the mucosal dysplasia and the malignant degeneration.
Airtight magnetic closure of enterotomy as the final step of NOTES procedures – Experimental study

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2Semmelweis University, Faculty of Medicine, Budapest, Hungary

Introduction: Currently, main obstacle with NOTES is the closure of gastric or colonic incision. For this reason, first clinical application of NOTES, a cholecystectomy, was performed transvaginally, where a secure closure is most feasible.

Method: We performed our experiment, with the prototype of a new developed instrument, on slaughtered porcine’s isolated gastrointestinal tract, using standard incision (15 mm). Two silicone tubes were fixed parallel to a flexible endoscope, each containing a rectangular rare-earth magnet (20 x 1 x 5 mm). For manipulating the magnets, two metal guidewires were used. The edges of the incision were grabbed with an endoscopic grasper. As the endoscope and grasper were pulled back, magnets were simultaneously pushed out of the tubes. Consequently the incised part of the gastric wall was tightened between the magnets and gastrotomy was closed. Previously published human studies report that magnetic pressure causes sterile inflammation followed by necrosis of the tissues between magnets. Finally, magnets may be removed endoscopically, or exit the gastrointestinal tract per vias naturales.

Results: The procedures were repeated 20 times, each requiring approximately 3–4 minutes. Most closures were successful, with the magnets losing contact on one occasion, and twice the closure was insufficient. The successfully closed gastrotomy was leak-proof and resistant to 10 mmHg pressure.

Conclusion: Advantages of our method are rapidity and simplicity. In vivo experiments are planned, in addition to designing a new endoscope-compatible device and further investigations to determine the optimal size of magnets.
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