Poster Abstracts

P01

Psyllium effectiveness on the intestinal transit of the stoma patients

V La Torre, S Arcieri, M Mazzi, A Giuliani, G La Gioia and F La Torre
University of Rome, Viale del Policlinico, 155 Rome, Italy

Main target of this study was to evaluate if combination of the diet with Psyllium, fiber recognized not edible and few fermentable, could engrave on some parameters: meteorism, constipation, abdominal pain, diarrhea, consistence of the material faecal, issue of gas and bad odors, number of evacuations and consumption of knapsacks, incidence on the procedures of irrigation in the colostomy patients, reduction of the 'bowel movements' in the ileostomy patients, dermatitis, electrolytes loss, modifications of bacterial flora.

Methods: Were enrolled in a prospective in the period between 1994 and 2005, twenty two ileostomy patients (4 with a diverting stoma) and 65 with left colostomy (5 with temporary stoma), range 30–94 years, mean age 62.5, 45 males and 42 women. Fifty four were irrigated from a long time (protocol every 24–48 h). Control group constituted by 35 patients with ileostomy and colostomy in follow up in our stoma center in standard dietary treatment (poor fibers diet). The protocol consists of an evaluation of the parameters before the recruitment to the study and a control at 30 days and 60 days from the beginning of the integration with psyllium in doses of 7.5 g/dies with a double administration away from the principal meals.

Results: In 71% of the irrigated patients an increase of the interval among the irrigations than at least 12 h in average (range 24–72). A drastic reduction of the incidence of symptoms (pain) was found in 82% of the colostomy patients. Mild abdominal bloatness with flatulence are reported in 5 patients (1 with protective colostomy) that spontaneously disappeared, while it was necessary to interrupt the treatment. The consistency of the feces significantly improved in 87% of the cases. In 87% of the ileostomy patients, the liquid issues was reduced, with a significative reduction of the use of bags (3 to 2). In 2 patients the integration of psyllium was interrupted because due to an increase of enteric fluid out flow.

Conclusion: These results encourage the integration with fiber of psyllium in the subjects with ileostomy and colostomy, for the positive effects in terms of control and modulation of the intestinal function. The absence of meteorism and of sniffy gas, the improvement of fecal consistency in colostomy and ileostomy patients, with a significative reduction of the discharges in this last ones, would also bring further advantages in economic terms (reduced employ of stoma bags) and in quality of life because an incorrect diet could hedge their social expression.

P02

Anal endosonography in Italy: a survey of technical aspects and diagnostic criteria adopted in 9 qualified Centers

P De Nardi, F Cavallari, HM Dal Corso, A D'Elia, U Favetta, AP D'Urso, C Ratto, GA Santoro, N Tricomi and V Piloni
IRCCS Ospedale S Raffaele, via Olgettina 60, Milano, Italy and Coloproctology Units of Padua, Cuneo, Catania, Rome, Palermo and Ancona

The aim of the present study is to obtain a uniform behaviour throughout the country by all researchers interested in anal endosonography.

Methods: A standard questionnaire investigating: equipment, scanning technique, image display, indications, diagnostic criteria and reports was filled by all participants.

Results: Anal endosonography was performed using a Bruel and Kjaer ultrasound scanner, equipped with a 360° rotating endoprobe and a 7–10 MHz. Image display was standardized so that the left side of the monitor corresponded to the right side of the patient while his back was seen at the lower edge of the screen. Although available in only half of the Centers, 3D imaging was considered by all to improve the diagnostic confidence of most common pathologies i.e., anal tumor, incontinence, perianal sepsis, obstructed defecation, anal pain, congenital conditions. All considered useful hydrogen peroxide contrast enhanced technique for better preoperative diagnosis of complex anal fistulas. Accordingly, 66.6% of participants followed the criteria described by Cho for internal opening identification and 77% adopted the classification of Tarantino-Bernstein for anal tumor staging.

Conclusion: Anal endosonography is performed with a remarkably homogeneous technique throughout the country. Lack of agreement in the classification of anal tumor staging still exists which may adversely affect comparison of results among researchers.

P03

Digital video-proctoscopy

A Nicastro
Dept. of Coloproctology European Hospital, Via Portuense 700, Rome, Italy

Proctoscopy does present some difficulties: positioning, documentation release, long-term results comparison. For such reasons video-colonscopy has been used, the limits being: a poor compliance by patients, short time repetition, costs, poor definition of anal pathology. Since February 2004 digital video proctoscopy has been tested in our unit which is made up of: a digital camera handling, a fibre optic light source, an insufflation canal and a hook for disposable proctoscopy. It is equipped with an LCD monitor and a digital recorder with SD card and ethernet. Videoproctoscopy has been performed as a routine on 120 patients. Such examination did not require specific training: the patient is examined in the Sim's position with the images magnified ×10 being sent to the monitor and recorded on hard disk drive. At the end of the examination, it is possible to display the video again at normal speed or in slow motion and to stop the images, to save them on an SD card and to issue iconographic documentation. We have performed 180 videoproctoscopies with a correct diagnosis of anal, perianal and rectal pathology diagnosing 2 cases of rectal cancer, a solitary ulcer,

8 cases of proctitis and 10 complications secondary to the use of a stapler.
Conclusion: Videoproctoscopy is a very useful tool in everyday practice since it provides an excellent diagnostic discrimination, it is user-friendly, it issues an iconographic documentation (valuable for legal purposes) and it allows repeat examination at any time to follow and test the results of therapy. Last but not least the operator can perform this procedure and research its outcome at a safe distance.

P04

Sentinel node staging technique in patients affected by anal cancer

M Mistrangelo, A Mobiglia, M Bellò, P Cassoni, G Beltramo, E Milanesi, S Sandrucci and A Mussa
Oncological Surgical Department, Via AM Dogliotti 14, Turin (TO), Italy

Anal cancer is a rare neoplasm, representing 1–2% of all bowel cancers. Since 1974 'multimodality treatment' with a combination of RT and CH has become the standard treatment. Synchronous inguinal lymph node metasases are an independent prognostic factors for local failure and overall mortality by a multivariate analysis of EORTC.
Materials and methods: At our Department 19 pts were studied. Biopsy revealed squamous or basaloid neoplasms. Pts were injected with 37 MBq of Tc-99m nanocolloid in the 4 cardinal points around the neoplasm. Scintigraphic images were obtained. A surgical biopsy of SN was performed in all pts. We used a portable manual gamma camera scintiprobe for intraop. detection of SN, with a detection rate of 100%.
Results: No mortality was observed. A seroma occurred in 9 cases. Inguinal metastases were observed in 5 pts (26.3%) and bilaterally in a further in 2 cases. During follow up 2 patients died from progression of their cancers and 2 patients had a local recurrence after RT-CH. Up to now no inguinal metastases were observed in patients initially negative at the first examination.
Conclusion: We consider this technique a simple method for evaluating the inguinal nodal status in order to avoid inguinal RT in N0 pts.

P05

Buschke-Lowenstein tumor of anal and perianal region: diagnosis, staging with sentinel node biopsy and treatment. report of 3 cases

M Mistrangelo, A Mobiglia, M Bellò*, I Castellano†, P Cassoni†, J Maass‡, MC Martina‡ and A Mussa
Oncological Surgical Department, Cso AM Dogliotti 14, Turin (TO), Italy

Giant condyloma acuminatum or Buschke-Lowenstein tumor (BLT) of the anorectal and perianal regions is an uncommon entity. These are slow-growing, expansive, cauliflower-like, destructive lesions. It results in a high rate of recurrence (66%) and malignant transformation (56%). 52% of cases have extensive and infiltrative involvement to the surrounding tissues. No distant metastases usually occur.
Materials and methods: In our Department 3 patients were diagnosed with a BLT. In 2 cases immunodeficiency was evident. The lesions were up to 15 cm in maximal diameter. In one case the scrotum was invaded and in another a lesion in the sacral region was observed. All pts were studied with proctoscopy, CT scan, MRI and lymphoscintigraphy following biopsy of the inguinal sentinel node for potential malignancy. All pts were submitted to extensive local surgical treatment.
Results: No mortality was observed. In one case we observed an anal stenosis treated with local dilatations. One pt. had a small persistence of disease which was treated with cryotherapy and electrocautery. All inguinal nodes were negative on histological examination.
Conclusion: Buschke-Lowenstein tumours are rare but extensive lesions are difficult to treat. Local surgery with electrocautery or laser is the first treatment, even if abdominal perineal resection is subsequently required. This procedure could be considered in cases of extensive lesions or in the event of multiple recurrences.

P06

Clinical appraisal of a novel disposable isostatic anal retractor

F Gaj, A Trecca, G Antonelli and B Zobel
University of Rome 'La Sapienza', via reno 30, Rome, Italy

The authors present the technical features and the clinical outcomes of a novel anal disposable retractor, which allows the surgeon to complete the procedure without an assistant(s).
Methods: A system of rolling rings can be fixed directly to the legs of the patient through small plastic bands. Twenty consecutive patients with miscellaneous benign anal conditions were operated on using the new retractor with no complications.
Results: The rolling function and the stability of the retractor was deemed satisfactory in 6 cases and good in 14. Opening of the device occurred asymmetrically in 20% of the procedures with no negative influence on the surgical procedure. Our surgical team considered the prototype to be ideal with optimal operative space available to the surgeon. No limitations were observed in a number of proctologic procedures and anal suturing was always feasible.
Conclusion: In conclusion, our new anal retractor allows 'single handed' proctologic surgery, excellent clinical results and low costs.

P07

Preliminary experience with porcine dermis in abdominal wall repair

V Hooks III, MA Lawrence and JD Cheape
Colon and Rectal Surgery Associates, P.C., 1348 Walton Way Suite 6500, Augusta, USA

Complications related to the use of synthetic mesh in complex ventral hernias and abdominal wall reconstruction have lead to innovative surgical prostheses for mesh repair and reinforcement. The purpose of the present study is to report preliminary experience wit porcine dermal collagen (PDC) as an abdominal wall repair device.
Methods: The medical records for all patients receiving PDC were reviewed. Primary endpoints were hospital stays, secondary procedures and complications. Forty-four patients received PDC and were included in the study.
Results: Average hospital stay was 5 days (range 1 to 42 days). Follow-up ranged from 1 to 3 months. Procedures include incisional hernia repair ($n = 35$), parastomal hernia repair ($n = 4$), primary reinforcement of stoma formation ($n = 2$), other ($n = 3$). Operative complications include postoperative wound infection requiring I&D ($n = 1$), wound seroma ($n = 2$), death unrelated to PDC ($n = 1$). There were no complications related to PDC.
Conclusion: PDC is a promising alternative to synthetic mesh in complex abdominal wall reconstruction. Longer follow-up and controlled studies are needed to confirm these initial results.

P08

Retrorectal chordoma treated by trans-sacral approach

F Galeotti, P Buffatti, L Losacco, M Longo and E Facci
Ospedale 'S.Maria della Misericordia', Viale tre Martiri 140, Rovigo, Italy

Retrorectal masses are rarely encountered tumors. Chordomas represent nearly 50% of these tumors. Their treatment requires 'en bloc' resection with tumor-free margins and no tumor breach as local recurrence is high even after a resection with negative margins. The approach is conditional on the location of the tumor. Tumors located below S3 can be resected by an exclusive trans-sacral approach, whereas higher lesions mandate a simple or combined trans-abdominal exposure. The Kraske operation has in some cases been replaced by TEM in the treatment of tumors of the middle rectum. The authors report a case of retrorectal chordoma with a history of severe and continuous pain in the coccygeal area and a hard, nodular mass founded on digital rectal examination fixed to the distal sacrum and coccyx. MRI confirmed a lobulated mass filling the presacral space more than 10 cm. in diameter but not infiltrating the posterior rectal wall although totally destroying coccyx and the S4-S5 disk space. En bloc removal was performed by an exclusive trans-sacral approach and the technical details of this operation are shown on video.

Conclusion: Validity of trans-sacral approach for lowly situated retrorectal tumors is confirmed by the present report.

P09

Methylene blue anal tattooing for chronic intractable pruritus ani

F Marino, M Rinaldi, PL Lobascio, VL Troilo, S Stasolla and DF Altomare

Dept of Emergency and Organ Transplantation, Gener, P.za G. Cesare, 11, Bari (Italy), Bari, Italy

Chronic pruritus ani may be caused by unfit personal cleanliness, dietary irritants, drugs, infections, infestations, benign or malignant colorectal or systemic diseases. However in 50–90% of cases it is an idiopathic disease becoming a very troubling condition for both patients and physicians. Methylene blue has been proposed to cure intractable pruritus ani due to its necrotizing effects on the sensitive unmyelinated nerve endings responsible for this sensation.

Patients and method: 4 patients (2 men, median age 41) suffering from idiopathic chronic pruritus ani lasting for at least 6 months and refractory to any conservative treatment entered the study. No antibiotic prophylaxis and sedation was used. The patients were placed in Jack-Knife position and 2–5 ml of a solution composed by 1% methylene blue, 2% lignocaine and hydrocortisone was injected intra-dermally in the perianal skin.

Results: one patient had early severe anal pain which disappeared within two days. One month later, a second methylene blue intradermal injection was required to achieve complete relief of the symptom in 2 patients, 1 patient had only a significant alleviation of the pruritus while in the last patient the symptom persisted. After six months of follow up, no local or systemic complications occurred and remission of the pruritus ani persisted in the 3 patients.

Conclusion: Methylene blue anal tattooing appears to be a safe and effective treatment for chronic idiopathic pruritus ani refractory to other treatments.

P10

Negative prognostic factors in complicated colonic diverticular disease: a retrospective study

R Bellomo, F Binotto, A Papadia, C Francescutti, M Flamia and A Infantino

Surgical Unit, Via Savorgnano, 2, San Vito al Tagliamento, Italy

Morbidity and mortality for patients operated on for colonic diverticulitis are well studied; aim of this work is to verify if in a community hospital the prognostic factors are confirmed.

Methods: 71 patients (1987–2005), 33 male (46.5%), mean age 64.9 ± 15.9 years (32–99) have been operated on in emergency [45 (63.4%)] or as emergencies [26 (36.6%)] because of colonic perforation in 60 cases (84.5%), two of them with a colo-uterine and a colo-vaginal fistula; haemorrhage in 5 cases (5.6%); and acute diverticulitis 7 (9.9%). Following Hinchey's classification 5 patients (7.04%) were in stage 0 (haemorrhage), 22 in stage I° (30.9%), 16 II° (22.5%), 21 (29.6%) III° and 7 (9.9%) IV°. Preoperative ASA score: 1° in 11 patients(15.5%), 2° in 34 (47.9%), 3° in 16 (22.5%) e 4° in 10 (14.1%).

Results: one stage surgery has been performed in 39 cases (59.9%) and in two stages in 32 (45.1%), with a correlation between Hinchey and two stage surgery ($P < 0.0001$). Postoperative mortality and morbidity were 11.3% and 25.4% respectively, mainly in ASA score ≥3 ($P = 0.03$). Negative prognostic factors resulted (χ^2 test and multivariate analysis): age >70 yrs ($P < 0.04$), Hinchey's ($P = 0.03$) and ASA scores ($P < 0.00001$).

Conclusion: The study confirms the negative factors influencing morbidity and mortality in patients operated on for acute complicated colonic diverticular disease.

P11

Outcome of asymmetric excision and primary closure for pilonidal sinus (The Karyadakis procedure)

V Congiu, L Zorcolo, F Capra, F Scintu, L Marongiu and G Casula

Department of General Surgery, Coloproctology Cent, Via Is Guadazzonis 3, Cagliari, Italy

Most procedures for the management of pilonidal disease carry substantial persistence/recurrence rates. Asymmetric excision with primary closure aims to reduce healing time by closing the cavity, and the risk of recurrence by avoiding a mid-line suture and by levelling the natal cleft. Our aim was to evaluate outcome of Karyadakis procedure at our Institution.

Methods: Data prospectively collected from December 2002 to April 2005. Complications, healing time and follow up were considered.

Results: 67 patients (56 males) had this operation. Mean age was 26 years; 64% were simple sinuses, 26% complex with multiple tracks, with 10% recurrent cases. All received local anesthesia; mean operative time was 63 min. The wounds healed after 8–14 days in 48 (72%) patients. Ten patients had a partial break-down of the wound, which healed in <30 days. In 9 cases an extensive dehiscence due to infected collection occurred: 5 (7.5%) needed surgical revision and mean healing time was 90 days. At follow-up (median 17 months, range 1–30) none developed recurrence; 46% considered very satisfied from the procedure and another 49% moderately satisfied.

Conclusion: The Karyadakis procedure is relatively simple and it gives favorable results in terms of healing time and recurrence. It represents a valid option both in simple and complex pilonidal disease.

P12

The treatment of chronic anal fissure – our experience

B Brankovic, G Stanojevic and M Nestorovic

Surgical Clinic, Clinical Center Nis, Bul. Zorana Djindjica bb, Nis, Serbia and Montenegro

Chronic anal fissure is one of the most common anal diseases. Lateral sphincterotomy is the most frequent way of treatment. The aim of this paper is to show our experience in the treatment of chronic anal fissure.

Methods: Prospectively we analyzed 32 patients treated at our department for chronic anal fissure between 01. 01. 2000 and 31. 12. 2004. The following data were collected: type of treatment,

presents of associated anorectal pathology, time of healing, postoperative complications, degree of incontinence, and recurrence. Follow-up period was 6–48 months.
Results: 15 men and 17 women were included. In 7 cases conservative treatment failed, and in rest open technique of lateral sphincterotomy was employed as the first line treatment. The most common associated pathology was as follows: haemorrhoids (5 patients), rectal polyp (4 patients), and fibropapilloma (1 case). In all synchronal operation was performed. 97% healed in 4.5 weeks, and 100% in 7 weeks postoperatively. Urinary retention and hemorrhage were seen in 2 cases (6.25%), where haemorrhoidectomy was added. In the first 3 months minor fecal incontinence occurred in 5 cases (15.62%), as loss of flatus control in 3 and soiling of clothes in 2 patients. These complications remained in 3 patients after 12 months. No permanent loss of flatus or faecal control and recurrence has been reported to-date.
Conclusion: According to our experience anal sphincterotomy with or without other anorectal procedures can be safely practiced with minimal percentage of complications.

P13

Treatment with rifaximin, mesalazine and Lactobacillus GG in symptomatic diverticular disease

C Brini, S Pontone and LG Paolo Pontone
Dipartimento Scienze Chirurgiche, v.le del Policlinico 155, Roma, Italy

Diverticulosis is a common disease in Western countries. Acute diverticulitis results from infection and inflammation extending into the colon wall and adjacent organs.
Methods: From September 2004 to January 2005 we observed 78 patients, 52 male and 26 female, mean age 60.3, range 39–83 years. Patients were affected by abdominal pain, diarrhoea, nausea, emesis and general illness. Patients were divided in two groups: 39 underwent to medical therapy with rifaximin 200 mg bd and mesalazine 800 mg bd for 7 days/months; 37 underwent to medical therapy with rifaximin 200 mg bd, mesalazine 800 mg bd for 7 days/month, followed by recolonizing therapy with Lactobacillus GG/6 ml /day for 12 days/months.
Results: Two (2) patients underwent to colonic resection due to perforation with diffuse peritonitis. Three months after medical therapy, patients underwent clinical assessment and colonoscopy.
Conclusion: We observed that patients treated by rifaximin/ mesalazin and Lactobacillus had e lower rate of clinical symptoms and endoscopic signs than the other group. We conclude that cyclic antibiotic, mesalazin and recolonizing treatment is effective, safe and well-tolerated in the treatment of diverticulosis and in prevention of its complications.

P14

Recto-sigmoid bezoars. Two case reports and review of the literature

AT Panov, KT Kjossev, IB Iliev, S Shalamanov, SR Petkov and GG Nonchev
Military Medical Academy, Department of Abdominal Surgery, P.O.Box 159, Sofia, Bulgaria

The word 'bezoar' is derived from the Arabic 'bazehr' or 'badzehr', or from the Persian 'panzehr', and has been originally defined as a counter-poison, or antidote. The term's modern use refers to any concretion of swallowed foreign bodies that is not digested by gastric juice. The majority of bezoars are found in the stomach followed by the small intestine; affection of the colon is rare with 35 clinical reports. We present two clinical reports of patients, presented with the signs of large bowel obstruction. In the first case of 40-years old man, the plain abdominal x-ray followed by barium enema led to a diagnosis of recto-sigmoid bezoar. Repeat enemas and digital evacuation resulted in passage of concretion containing vegetable matter. The second patient underwent emergency laparotomy; the 'cherry-pit' concretion was too large to be managed less invasively.
Conclusion: Our review of 35 reported cases with colonic bezoars demonstrates that a common etiology is lacking at this time. The condition requires high index of suspicion where the diagnosis can confirms by radiologic investigation. If conservative treatment with enemas, endoscopic fragmentation or digital evacuation fails, surgery is unavoidable.

P15

Perioperative and postoperative complications and results of stapled hemorrhoidopexy

L Scevola, A Adami, A Delbello and N de Manzini
UCO di Chirurgia Generale, Strada di Fiume 447, Trieste, Italy

Stapled hemorrhoidopexy (SH) has become a successful technique thanks to patients' satisfaction due to lower postoperative pain and quick hospital discharge. Therefore complications, even severe, can occur; we report our cases and their management from 1998 and April 2005.
Methods: 325 patients have been operated for haemorrhoidal disease classified in degree III and IV with the SH, under general or locoregional anaesthesia.
Results: Average surgical time has been 20 minutes and hospital stay of 32 hours. Overall complications have been 8.6%: 2 cases of bleeding, in the first series, one re-surgery but no blood transfusions; 3 patients referred severe pain due to thrombosis and sub mucosal haematoma, reoperation was necessary for two; 1 case of dyschezia for a very low anastomosis treated with anoplasty; 3 cases of urinary retention; 18 patients experienced urgent evacuation lasting up to 35 days post surgery with a negative clinical examination, patients improved with local mesalazine and corticosteroid; 4 cases of anal stricture solved by digital dilatation.
Conclusion: We suggest that the SH morbidity is low; complications such as bleeding, pain or dyschezia, are often linked to technical mistakes and practice and need early reoperation; anal mucosal stenosis can be digitally dilated, while urgency of defecation is improved by anti-inflammatory drugs.

P16

Acute anal pain caused by foreign body

F La Torre, V La Torre, G Guerriero, M Mazzi, A Giuliani, S Pontone, G La Gioia
University of Rome, Viale del Policlinico 155, Rome, Italy

The authors present three cases of acute anal pain caused by a foreign bodies behind the sphinteric zone. Clinically, the symptoms are common to more frequent anal disease, such as fistulas, perianal abscesses, etc . . . Several complications, such as abscesses, can develop once a foreign body is deeply pierced into the tissues, because of a too late diagnosis. The anorectal digital evaluation can make the diagnosis. Immediate clinical resolution can be achieved even in local anaesthesia, by the early foreign body removal. 1: Thirty years-old male patient, complaining anal pain during bowel movements. During the first anorectal evaluation we suspect the presence of a hard and sharp foreign body behind the internal anal sphincter. The patient underwent a surgically intervention in local anaesthesia and by a transanal approach a little and sheep's bone stopped behind the sphinteric zone after transiting through the anal mucosa, was removed. 2: 28 years-old male patient presenting to our observation complaining anal pain, associated in the last fifteen days to the appearance in the same aching zone, of a tumour, secreting purulent fluid. The patient then underwent a diagnostic evaluation, showing an anterolateral left, perianal abscess with a

likely transphinteric transit; Suspecting a perianal fistula, evolved to an abscess, the patients underwent a surgical intervention of fistulectomy in general anaesthesia. During the intervention a half toothpick was found inside the abscess. 3: 36 years-old female patient, complaining acute anal pain during bowel movements. At digital evaluation we suspect a foreign body in the anal sphincter. The patient, then, underwent a surgical intervention foreign body extraction, resulting in clam shell, localized behind the sphinteric zone of the anal canal.

Conclusion: We should suspect the presence of foreign body in patients presenting anal pain without any signs or symptoms showing other anorectal disease, such as perianal abscess, ulceration, fistulas, etc ... Although in very rare cases being 3 to 24 months observation, a little and sharp foreign body can transit through the anorectal mucosa, stopping behind the sphinteric zone. As showed in our cases, transanal extraction under local or general anaesthesia is feasible with very low morbidity.

P17

Compartment syndrome and the Lloyd-Davies position: a case report

G Sciaydone, A Giuliani, C Di Stazio, I Guadagni and F Selvaggi
I Division of General Surgery Second University of Naples, Salita Moiariello, 18, Naples, Italy

Lower limb compartment syndrome (CS) may occur after colorectal procedures during which patients' lower limbs are elevated for prolonged periods of time. A 42-year old man with ulcerative colitis underwent a restorative proctocolectomy with J-pouch anal anastomosis in the Lloyd-Davies Position with 15° of head-down tilt. The procedure lasted 160 minutes. On postoperative day 1, he complained of a sudden onset of constant right calf pain with no response to analgesic (Ketorolac, Trometanine). The calf was cold, swollen and mildly hard and dorsiflexion of the foot was poorly tolerated. We suspected a deep vein thrombosis. Doppler ultrasound showed extensive superficial oedema of the calf with no venous thrombosis, suggesting a diagnosis of CS. Tc-scan confirmed posterior compartment involvement. The patient was scheduled for emergency fasciotomy, which was done with two incisions on both sides of the leg. After fasciotomy the local condition of the leg improved but he developed multicompartment muscle necrosis requiring delayed necrosectomy. The patient was discharged 17 days after surgery with daily dressings for 6 weeks and did not develop neurovascular complications on follow-up.

Conclusion: CS is caused by raised pressure causing ischaemia within a muscle compartment. Early diagnosis and treatment of compression syndrome are essential to minimize long-term neurovascular morbidity.

P18

Primitive pneumatosis cystoides coli: a possible source of misdiagnosis. Report of two cases

L Zorcolo, F Capra, G D'Alia, F Scintu and G Casula
Department of General Surgery, Coloproctology Cent, Via Is Guadazzonis 3, Cagliari, Italy

Pneumatosis Cystoides Coli is an uncommon condition usually associated with other gastrointestinal or pulmonary diseases. The primitive form is even rarer and it usually involves the left colon. Pathogenesis is unclear, but the most accepted explanation postulates that gas is forced into the bowel wall by mucosal breaks. Pneumatosis is often asymptomatic and does not require surgical treatment, unless complicated.

Case report: We present two cases of pneumatosis coli: in the first patient a colonoscopy revealed numerous sessile polyps, ranging in size between 1 and 3 cm, distributed throughout the transverse and right colon. They were covered by hyperemic but otherwise normal mucosa. Because of the aspects of the lesions and their typical localization in the right colon, a lipomatous polyposis was suspected and the patient underwent laparotomy. Manual examination and intraoperative colonoscopy could not demonstrate the lesions previously seen. Several months later, another patient was found to have similar lesions at colonoscopy. At that time a correct diagnosis was made by pricking and deflating one of the polyps with an endoscopic needle.

Conclusion: Pneumatosis Coli is rare; its clinical importance is that it may be misdiagnosed, as occurred in one case that we have illustrated. When suspected its diagnosis is straight forward.

P19

Necrotizing gangrene of the genitalia and perineum: a report of three cases

M D'Avolio, A Ferrara and C Chimenti
S. Vito e S. Spirito Hospital Alcamo ASL 9 Trapani, F. Crispi street n.116 (hospital), SS. Salvatore street n.302/a (home), Alcamo, Italy

Necrotizing gangrene of the genitalia and perineum is a fulminant uncommon aerobic and anaerobic polimicrobial soft-tissue infection, spreading along subcutaneous planes and results in tissue necrosis. Ano-rectal abscess, genito-urinary infections and cutaneous injures are the most common sources of infection; diabet, cancer, immunodepression are increasing risk factors. Despite increased experience in treating this condition by mean of surgery (incision, drainage and debridement of overt necrosis areas), critical care and hyperbaric oxygen, a high rate of morbidity and mortality (30–50%) have been reported. Early diagnosis and aggressive treatment are necessary to improve outcome. We report three cases who were admitted at our Surgical Endoscopy and Colorectal Surgery Unit. The patients, M 2 and F 1 aged between 51 and 72 years, were admitted with fever, intensive local pain and hiperglycaemia; sepsis was present in one of the patients. All of them were diabetic and the source of infection was a traumatic hand injury of the genitalia skin (followed by local suppuration) in two cases and ano-rectal abscess in one of these. Visit showed local signs of cutaneous necrosis, swelling and crepitus, with involvement of low abdomen in two cases. Non specific alterations of many laboratory values such as leukocytosis >15.000, hyperglycaemia >330 mg/dl, elevated creatinine and anaemia were presents in all of the cases. CT of the abdomen and pelvis was executed in two cases: soft tissue thickening with surrounding fat stranding, gas dissecting along fascia planes and infected fluid collections with involvement of extraperitoneal spaces of the pelvis and low abdomen were CT findings. Debridement of necrosis areas, multiple incisions and drainages with local disinfections by H_2O_2 and iodopovidone, empiric broad spectrum antibiotic therapy, blood transfusion, critical care and hyperbaric oxygen were admnistred in all patients; colostomy was performed in the patient with ano-rectal abscess at admission.

Conclusion: The length of hospitalisation was 50–60 days in two cases and delayed complication have not been reported. The patient who had signs of sepsis at admission died after 30 days. Necrotizing soft-tissue infections of the genitalia and perineum is a rapidly progressive disease with high rate of mortality. Early diagnosis, prompt surgical excision and drainage, aggressive antibiotic therapy and critical care are necessary to improve survival.

P20

Simple advancement flap anoplasty for chronic anal fissure

P Giordano, L Ovens, P Grondona, T Porret and PJ Lunniss
Whipps Cross University Hospital, Whipps Cross Road, Leytonstone, London, UK

Aim of the study was to assess the outcome of simple advancement flap anoplasty in patients with idiopathic chronic anal fissures resistant to conservative management, irrespective of anal canal tonicity.

Methods: Under anaesthesia the edges of the fissure were excised and the base of the fissure cleaned by curettage. Adjacent perianal skin was mobilised by longitudinal incisions, the flap advanced to cover the base of the fissure and secured with 3/0 interrupted absorbable sutures. 32 fissures were treated in 31 patients (16 male), mean age 39 years (range 24–72). 4 patients had undergone previous interventions (2 sphincterotomies, 2 anal dilatations). 27 operations were performed under general, 4 under spinal anaesthesia, and 1 under pudendal nerve blockade.

Results: 23 patients were allowed home within 24 hours of surgery. 2 patients suffered urinary retention. One patient had a partial break down of the flap that was successfully redone. At a mean follow up of 20 months (range 2–60) all wounds had healed, with no residual or recurrent fissures. There were no reports of any deterioration in continence.

Conclusion: Simple advancement flap anoplasty is a safe, easy and effective sphincter sparing technique for the management of medically resistant chronic anal fissure.

P21

Closed ambulatory lateral internal sphincterotomy: a quick, safe and effective technique for chronic anal fissures

F Marino, M Rinaldi, VL Troilo, P Lobascio and DF Altomare

Dept of Emergency and Organ Transplantation, Policlinico, pzza G Cesare, 11, Bari, Italy

Lateral internal anal sphincterotomy (LIS) is a well recognized treatment for treating chronic anal fissure although it can potentially damage anal continence. Reversible chemical sphincterotomy may be achieved by anal application of nitric oxide donor or calcium channel blockers ointments or botulin toxin injection but their superiority over LIS has never been demonstrated.

Methods: LIS was performed in 153 consecutive patients affected by chronic anal fissure unresponsive to medical treatment, in the outpatients clinic under local anaesthesia using a closed technique. The procedure was performed by 5 different surgeons including 3 young surgeons in training. Patients were interviewed by phone after at least 6 month of follow-up to enquire about any anal dysfunction.

Results: After a single LIS procedure, complete healing was achieved in 121 patients (79%). Twenty five of the remaining 32 underwent the same procedure again after anal manometry and 16 of them healed. Overall, 137/153 patients (89.6%) obtained complete healing from LIS after a mean follow-up of 21 months. Only 3 patients complained of transitory incontinence to gas (2) or liquid faeces (1).

Conclusion: Ambulatory closed lateral internal anal sphincterotomy is a safe and effective treatment for chronic anal fissure, with a very low risk of anal incontinence.

Hemorrhoids

P22

Doppler-guided haemorrhoidal artery ligation (THD*) is a valid treatment option for II-III degrees haemorrhoidal disease

L Amadio, A Infantino, R Bellomo, F Galanti, CA Tonizzo and LP Cerone

Surgical Unit, via Savorgnano, 2, San Vito al Tagliamento, Italy

Aim of this prospective, longitudinal study is to evaluate the efficacy of THD* in a single Coloproctologic Unit.

Methods: Thirty consecutive patients, 25 male (83.3%), mean age 48.2 ± 12.8 years (32–85), with symptomatic II (9) and III degree (21) haemorrhoids, were treated with THD* under local anaesthesia and sedation (propofol i.v.) (56.7%), spinal (33.3%) or general anaesthesia (10%). The procedure lasted 36 min ± 7.6 (20–50) and the mean number of ligations was 8.3 ± 1.14 (6–11). All the patients were discharged on the same day. The mean follow-up was 13.6 ± 4.7 months (6–22). The main preoperative symptoms were bleeding (96.7%) and pain (66.7%).

Results: Five (17%) patients needed analgesic (Ketoprofene) in the early postoperative period. After one week pain was still present in 4 patients but only one patient occasionally used analgesics because of haemorrhoidal thrombosis. Three patients complained of haematochezia. After 6 months 4 cases (13%) had a partial relapsing prolapse: 2 of these had only protrusion without other symptoms, one complained of pain and occasional bleeding during defecation, and one of anal discomfort. On overall FU pain and bleeding improved significantly ($P < 0.001$).

Conclusion: Our preliminary experience demonstrated that THD* is feasible, simple and quick, with few minor complications and 87% of the patients were 'cured' at 6 months.

P23

Systematic review of controlled trials comparing the long-term outcome of conventional haemorrhoidectomy with stapled haemorrhoidopexy

L Ovens, P Nastro and P Giordano

Whipps Cross University Hospital, Whipps Cross Road, Leytonstone, London, UK

The aim of the study was to determine whether conventional haemorrhoidectomy (CH) or stapled haemorrhoidopexy (SH) have, in the long-term, any advantage of safety and efficacy over the other. MEDLINE, EMBASE, and Cochrane Library databases were searched.

Methods: Controlled trials with a minimum follow-up of 12 months were selected and a list of long-term clinical outcomes extracted. Meta-analysis was calculated if possible. Ten trials recruiting 748 patients were analysed. Follow-up ranged from 12 to 56 (mean 25.3) months.

Results: There were 13 (3.5%) recurrences in the CH group and 34 (9%) in the SH group ($P = 0.0023$). Persistent pain at defecation was only reported by 3 out of 138 patients in the SH group ($P = 0.2$). There were 13/198 anal stenoses in the CH group and 7/199 in the SH group ($P = 0.17$). Faecal urgency was reported by 7/75 and 9/81 patients in the CH and SH group respectively. Faecal continence deteriorated in 19/215 (9%) patients in the CH group and in 15/217 (7%) patients in the SH group. Patient satisfaction was similar in both groups.

Conclusion: CH and SH are both safe procedures with similar long-term morbidity. However, SH carries a significant higher incidence of recurrences.

P24

Early and late hemorrhage after stapled mucosal prolapsectomy for hemorrhoidal disease

G Leoni, M Gasparini, S Ardit, A Sommariva, M Renier, B Gnocato and C Tremolada

U.O. Chirurgia Generale, Ospedale SS. Giovanni e Paolo, Venezia, Italy

Postoperative hemorrhage is the most important complication after stapled mucosal prolapsectomy for haemorrhoidal disease.

Methods: Between November 2000 and April 2005, 207 patients underwent stapled prolapsectomy: 21 patients were reported having

second-degree haemorrhoids, 146 third, 40 fourth-degree. Average operating time was 36 minutes. Haemostasis was secured with interrupted 3/0 sutures in 200 cases, ranging from 1 to 12 stitches.

Results: Bleeding was reported in 6 patients (2.8%). Three patients had immediate hemorrhages: one patient needed two transfusions and a reoperation with haemostatic stitches at the suture line 6 hours after the first operation, the second one had the hemorrhage stopped by saline infection at the suture line, hemorrhage stopped spontaneously in the third patient. Three patients blade after discharged and were readmitted 4, 5 and 10 days after the operation, one with a pre shock state for a recurring bleeding and needed blood transfusion, two with loss of respectively 6 and 3 grams of haemoglobin. All these patients were reoperated under general anaesthesia and haemostatic stitches at the suture line were necessary to control an arterial bleeding.

Conclusion: In our experience the patients reported on follow-up checks a high rate of satisfaction due to or low or absent pain, and returned soon to their normal routine. However, postoperative arterial bleeding remains an unpredictable complication also with an accurate haemostasis control.

P25

PATE 2000 for hemorrhoidal scoring disease: a clinical study on 930 symptomatic patients

F Gaj and A Trecca

University of Rome La Sapienza, Via Reno 30, Rome, Italy

The Italian Society of Colorectal Surgery prompted in 2000 a new classification system for hemorrhoids, named PATE 2000 Sorrento, able to define all the main characteristics of the disease. The new system should be able to predict the real extent of haemorrhoids throughout a specific index in order to help the decision making of the best therapeutical option.

Methods: The Authors present the results of a national multicenter study on 930 patients with symptomatic hemorrhoids. Nineteen patients (2%) were not classified with the old classification of hemorrhoids, while PATE 2000 Sorrento was successful in classifying all the patients. These data were statistical significant.

Results: The new classification let us to establish a specific score of the disease. Four hundred and thirty-nine patients showed a score between 2 and 24 (media 10.3 + 3.7), while 489 between 5 and 28 (media 17 + 5.9). In order to better evaluate the clinical role of the score coming from PATE 2000 Sorrento, the Authors analyzed the correlation between the score itself and the therapy chosen by each single center. The highest values of the score always corresponded to the choice of surgical hemorrhoidectomy, while for the lower values each center seemed in doubt between medical therapy and other less invasive procedure such as sclerotherapy or rubber band ligation. These data was statistical significant ($P < 0.0001$).

Conclusion: On the basis of our findings, PATE 2000 Sorrento seems to confirm its scientific and clinical relevance and could be used as an useful tool for the choice of the best treatment for each single patient.

P26

Local anaesthetic injection in multiple hemorrhoidal ligation: when is it really useful?

M Nervi, P Berti and P Miccoli

Dipartimento di Chirurgia, Via Roma 67, Pisa, Italy

Postligation discomfort is not uncommon after multiple hemorrhoidal ligation (MHL) and extended multiple hemorrhoidal ligation (EMHL). This study aims to define the role of local injection of bupivacaine/lidocaine in decreasing postoperative pain.

Methods: 362 patients treated by MHL/EMHL were reviewed. A local anaesthetic injection was performed in 129 patients; in 81 patients we used bupivacaine and in 48 patients lidocaine. The number of ligations per session and position of the rubber band above the dentate line were recorded. Patients were assessed for pain at 30 minutes, 24 and 48 hours and at 7 days after ligation.

Results: Patients treated with local anesthetic injection had less pain at 30 minutes; no significant difference in pain assessment was observable at 24, 48 and 7 days. Pain was significantly higher at 24 and 48 hours in patients whose ligation was more distal; when ligations were performed well above the dentate line, pain was independent of the number of ligations. Bupivacaine was slightly but not significantly superior to lidocaine at 30 minutes and 24 hours after ligation and in patients with distal ligation sites; no difference was recorded after this period of time.

Discussion: Postoperative pain after MHL and EMHL seems greater depending on the site of ligation rather than on the number of ligations performed per session. Routine use of anaesthetic local injection may be useful only in the immediate postoperative period, but no advantage can be recorded after 48 hours.

Conclusion: Local anaesthetic injection is useful in the immediate postoperative period and is recommended in patients undergoing distal ligation sites who are more at risk for increased early and longer-lasting pain.

P27

Transanal haemorrhoidal dearterialization

C Tagariello, PP Dal Monte and M Saragò

Villa toniolo, via toscana n. 34, Bologna, Italy

Transanal haemorrhoidal dearterialisation (THD) is a non-excisional surgery for the treatment of piles that consists of ligation of the distal branches of the rectal arteries, with decongestion of the haemorrhoidal plexus.

Methods: The procedure was carried out using a disposable proctoscope with a Doppler probe, specifically designed for this purpose. Just distal to the tip of the Doppler probe there is a small window to allow suturing of the 6 rectal arteries 3 cm above the dentate line. For prolapsed haemorrhoids we add a non-excisional haemorrhoidopexy using the same instrument (personal technique).

Results: Over 5 years, 237 patients (114 females; mean age 53) underwent this procedure without postoperative severe pain. 206 patients were followed-up for a minimum of 7 months (mean follow-up 41 months), including 104 with second degree, 111 with third degree and 15 with fourth degree haemorrhoids. In 131 (94.2%) patients presenting with bleeding and in 118 (93.6%) patients with prolapse, the operation cured their symptoms. In 16 patients we experienced failure requiring further surgery.

Conclusion: THD is a safe and effective procedure with minimal postoperative pain which has the potential to become the treatment of choice for all degrees of haemorrhoids.

P28

Transanal haemorrhoidal dearterialisation for the treatment of second and third degree haemorrhoids – preliminary experience

P Nastro, L Ovens and P Giordano

Whipps Cross University Hospital, Whipps Cross Road, Leytonstone, London, UK

Transanal haemorrhoidal dearterialisation (THD) consists of ligation of the distal branches of the rectal arteries. The aim of the study was to assess the short-term efficacy and safety of THD for the treatment of second and third degree haemorrhoids.

Methods: Patients with second or third degree haemorrhoids and failed conservative treatment were offered THD. The procedure was carried out under general anaesthesia as a day case. Using a dedicated proctoscope fitted with a fine Doppler probe, all the terminal branches of the haemorrhoidal arteries were located and

sutured. Patients were followed-up at 2 and 8 months. From January 2004 to February 2005, 26 patients (19 male; mean age 54) underwent THD. 3 to 8 arteries per patient were ligated.
Results: No patient experienced severe pain in the immediate postoperative period. There was 1 submucosal rectal haematoma, which was managed conservatively. All patients but one returned to work within four days. At a mean follow-up of 4 (range 2–8) months, the operation completely resolved or markedly improved the symptoms in all patients.
Conclusion: THD is a safe and effective procedure. With minimal postoperative pain and quick recovery, THD has the potential to become the treatment of choice for second and third degree haemorrhoids.

P29

Pain in the Milligan-Morgan (M-M) technique, vs. laser (surgical fiber) vs. stapled circumferential mucosectomy (S). The author's experience

F Ferrari, A Carpino, M Cannistrà and R Sacco
Az.Osp. 'Mater Domini'-Catanzaro, Via M. Iannelli, 47, Catanzaro, Italy

The objective is to asses the progression of post-operative pain following hemorrhoidectomy in respect to different techniques
Methods: 60 patients are classified and grouped according to the PATE 2000. Group 1–15 patients with circumferential prolapses, P4E4, -treated according to the M-M with laser. Group 2–15 patients with circumferential prolapse, P4E4, treated according to the S. Group 3–15 patients with triple prolapse, P3E3, treated according to the M-M with laser. Group 4–15 patients with circumferential prolapses, P4E4, treated according to the M-M. The quantification of pain is noticed with each type of surgical intervention and is registered according to V.N.S every 24 h, and the number of analgesic donations (Ketorolac 30 mg).
Results: In hemorrhoids classified as P4E4, the pain is better controlled in the stapled Group: after 48 h the V.N.S media is 2.3 (r.2–3) with $P = 0.0473$, in contrast to the Group 1 which is 3.3 (r.2–5) and Group 4 which is 3.9. In hemorrhoids P3E3, is noticed that after 48 h the V.N.S media is 2.8 (r.2–4) with $P = 0.0473$: this data is the same as stapled group.
Conclusion: Post-operative pain is better controlled in hemorrhoids classified as P4E4 with stapled technique. In hemorrhoids classified P3E3, the use of Milligan-Morgan with its variants appears to be advantageous because of less expenses and the control of pain is the same. A few Authors do not perform the stapled technique in P4-E4 cases because of a high incidence of recurrences.

P30

Extended multiple hemorrhoidal ligation for treatment of I-III grade hemorrhoids

M Nervi, P Berti and P Miccoli
Dipartimento di Chirurgia, Via Roma 67, Pisa, Italy

In recent times, techniques of multiple hemorrhoidal ligation (MHL) have been proposed with improved outcome in terms of prolapse reduction and need for repeat ligation. We propose a modified technique aiming to further reduce the residual prolapse in grade III hemorrhoids.
Methods: 362 patients from the years 2003–2004 were included. 158 of them were treated by conventional ligation (CL) positioning <3 rubber bands in a single session; 204 patients were treated by extended MHL (EMHL) positioning 3 rubber bands on the internal hemorrhoidal vessels plus 2–3 ligations of the interposed mucosa.
Results: Postligation pain and need for analgesia was slightly increased in the EMHL group, but this difference was not statistically significant ($P > 0.05$). Secondary hemorrhage, fever, and transient urinary retention were uncommon in both groups. Recurrent bleeding (>3 months after the first ligation session) occurred in 23 patients in the CL group and in 11 patients in the EMHL group. Persistent or recurrent prolapse was observed in 28 patients in the CL group and in 9 patients in the EMHL group. All recurrencies were treated by repeat ligation. Surgery was eventually needed in 3 patients in the CL group. EMHL has the aim not only to interrupt the hemorrhoidal internal veins but also to correct the underlying prolapse. A circumferential ligation line is obtained by 5–6 ligations proximally in the anal canal. Postoperative pain seems greater dependent more on the ligation site than on the number of ligations performed per session.
Conclusion: Rubber band ligation is an efficient and safe way to treat I-III grade hemorrhoids; EMHL seems to improve the outcome with minimal or no increase of postoperative pain and complications. A circumferential ligation line above or at the level of the anorectal ring allows a significant improvement of the hemorrhoidal prolapse and decreases the risk of recurrent bleeding and the need for repeat hemorrhoidal ligation.

P31

Complications after stapled haemorrhoidopexy

M Longo, E Facci and F Galeotti
Surgical Dep. Rovigo Hospital-Italy, v.le Tre Martiri 140, Rovigo, Italy

Since 1999 we performed stapled haemorrhoidopexy with PPH stapler in selected cases of haemorrhoids. The results obtained, the follow up of maximum 62 months (mean 38 months), the data reported in literature allows us to consider reliable such procedure even though it is not complications-free.
Methods: We carried out stapled haemorrhoidopexy in selected cases of 2° degree (29 patients), in patients with haemorrhoids of 3° degree (167) and in a less number of patients of 4° degree (20).
Results: The main clinical problem that we have reported is mild postoperative bleeding; we observed postoperative hemorrhage within 24–36 hours with need for surgical review in 6 patients (3%), peri-postoperative hemorrhage cured with medical therapy, such hemostatic balloon, sclerosis, etc. in 6 patients (3%); more important rectal hemorrhage at distance (from 8° to 13° day) in 3 patients (1%), mild rectal hemorrhage in 19 patients (9%). The entity and duration of anal pain are indicators of scientific evidence in most of the literature and in our case records; we report disabiling anal pain in 5 patients (2%). Recurrent hemorrhoids which needed a second operation were served in 4 patients (2%), stenosis of the suture with stapler in 3 patients (1%). We have also observed unusual complications such as pararectal hematoma spontaneously drained through a partial dehiscence of the anastomosis (1 case) and a pararectal abscess appeared in the 8° postoperative day which developed into transphinteric fistula; we also reported temporary soiling and urgency.
Conclusion: It is worth mentioning that there is a tendency of more frequent postoperative mild bleeding (24–36 hours) in the learning curve surgical technical period. At the moment we are mainly concerned about the sudden rectal hemorrhage between the 8th and 13th postoperative day. We are in accordance with the other aspects which have been mentioned, in the past few years, by the scientific literature.

P32

A new technique for the treatment of hemorrhoids

F Gaj, A Trecca, M Garbarino and G Flati
University of Rome La Sapienza, Via Reno 30, Rome, Italy

Nowadays proctologist has the opportunity to perform various different surgical techniques for the treatment of hemorrhoids. Cir-

cumferential mucosectomy with stapler, diathermic hemorrhoidectomy with high frequency devices or HLA doppler II system significantly modified the classical indications for the treatment of the disease. On the other hand general consensus on how to choose each therapeutical option is still lacking causing confusion among specialists and inappropriate use of health care resources. For these reasons the Authors propose herein a new technique for the treatment of hemorrhoids based upon a new modality of classification of the disease, named PATE 2000 Sorrento. The transfixed correction of hemorrhoids makes the contemporary treatment of third degree internal pile/s in association with Milligan Morgan procedure for forth degree piles possible in a simple, definitive and safe session. This technique seems to represent a valid alternative to stapled hemorrhoidectomy on one hand and/or classical open or closed hemorrhoidectomy associated to rubber band ligation on the other hand. The Authors describe in this paper the technical feasibility of their technique.

Conclusion: They underline the good clinical results of their initial experience on 20 consecutive patients.

P33

Sutureless haemorrhoidectomy with Ligasure Precise®

X Oelgadillo and M Merlini
Hôpital Géneral de La Chaux de Fonds, rue de Chasseral 20, La Chaux de Fonds, Switzerland

Hemorrhoidectomy is frequently associated to significant postoperative pain. New techniques try to reduce pain after surgery.

Methods: We evaluate the LigaSure Precise® (LSP) vessel sealing system as a painless alternative to partially open haemorrhoidectomy. From January 2003 to January 2005, 74 patients with grade III-IV symptomatic haemorrhoids were prospectively assigned to undergo haemorrhoidectomy with the LSP vessel sealing system, haemorrhoidectomy was performed according to Milligan Morgan technique. Patients with coexisting perianal disease, previous perianal surgery, thrombosed hemorrhoids were excluded. We determined the operation time, postoperative pain, time-off work, follow-up was at 1, 3, 6 and 12 weeks, and the return to normal activity. There were no significant differences in age, gender or clinical symptoms compared to international concepts. Twenty-nine women, 45 men, range 24–86 years (mean age 49.8).

Results: The mean operative time for the procedure was 19.3 ± 3.5 minutes. There was also a significant decrease in pain evaluation (Visual Pain Scale) on post operative days 1 and 2. There was also significant decrease in analgesic requirement and a lower incidence of wound swelling. No complications were described. Finally a shorter difference in the period of time-off work were noticed but there was no a statistical significance ($P < 0.01$).

Conclusion: The LSP system may be used safely to achieve a radical ablation of haemorrhoids. It results in less postoperative pain, it is a short operation time procedure and result in less post operative pain and painkillers consumption. Although the healing time is longer. This technique is advantageous with less discomfort in the early postoperative period, an! d a lower morbidity rate.

P34

Doppler-guided haemorrhoidal arterial ligation – HAL – our experience in 201 cases

P Setti, S Robert, M Matteo and L Ernesto
U.O.Chirurgia. P.O.Oglio Po, Istituti Osp.Cremona, via Aldo Moro 59, Colorno, Parma, Italy

HAL is one of the more recent surgical techniques for the treatment of symptomatic haemorrhoids. Particular features of its use include the possibility of day-surgery performance, rapid recovery of the patient, minimal post-operative pain and the minimally invasive nature of the procedure.

Methods: After having carried out 10 pilot cases in 2001, in 2003 the HAL technique became one of the routine procedures we perform for the treatment of haemorrhoids. Since then and up to April 2005 we have treated 201 patients, of which 42.8% were females, 57.2% males, 73.4% aged between 30 and 70 years of age, 70.2% second degree haemorrhoids and 20.9% third degree haemorrhoids. In 12% of cases we carried out up to 6 ligations whilst in 88% of cases up to 12 ligations.

Results: Excluding the appearance of anal fissures in 2 of our cases there were no other early complications registered. The procedure was carried out under local anaesthesia combined with conscious sedation. Four patients operated on early during our experience had spinal anesthesia and upon request of one patient HAL was carried out under general anaesthesia. Of the cases treated in the 2001 there was a median of 45 months follow-up where one case had a repeated procedure for recurrence of symptoms. Of those operated on in 2002 all are asymptomatic after a medium follow-up of 15 months with >95% of the patients registered as successful treatments. In our patients, out-patient elastic post-operative band ligation was performed in 3.48% of cases.

Conclusion: In our experience HAL was shown to be effective for the treatment of haemorrhoids. It is well accepted by patients treating bleeding even in third degree.

P35

Local anaesthesia for Doppler guided haemorrhoidal arterial ligation

R Sabag, P Setti, M Molfetta and E Laterza
U.O. Chirurgia P.O. Oglio Po (CR), V. Staffolo 51, Vicomoscano, Cremona, Italy

Doppler-guided haemorrhoidal arterial ligation (HAL) is considered a painless surgical technique for the patient. The anoscope used during surgery is similar to a normal instrument used during clinical outpatient proctological examination. Little anaesthesia is necessary to overcome the minimal discomfort mainly due to the duration of surgical act (around 30 min). Conscious sedation and local anaesthesia is enough. At the beginning of our experience only deep sedation was carried out. Ahead with time and selecting patients according to the grade of anxiety we started reducing the use of major sedatives. Successively we introduced a combined approach of local anaesthesia with conscious sedation. The local anaesthesia consisted of a 2% xylocaine solution injected with a needle-free delivery system at the four cardinal points of the mucocutaneous margin in the intersphincteric space. 0.3 ml of solution was injected each time. Imbibition of the anorectal region was then carried out with a sterile wet gauze using the rest of the anaesthetic ampule gently inserted through the anus. Conscious intravenous sedation is carried out with short-acting benzodiazepines.

Conclusion: Doppler guided HAL requires minimal anaesthesia. The combined approach of local anaesthesia and sedation seem to us as valid as deep sedation and permits to handle the patient in one day-surgery regimen. In terms of patient safety more experience is needed before recommending the HAL as an outpatient approach.

CROHN'S DISEASE

P36

Biochemical and haematological factors do not predict the course of Crohn's disease

P Roy and D Kumar
St George's, University of London, Division of Gastroenterology, Cranmer Terrace, London, UK

Key biochemical and haematological parameters such as C-Reactive Protein (C-RP), Erythrocyte Sedimentation Rate (ESR) and haemoglobin are often used as a marker of disease activity in Crohn's Disease. We investigated whether such markers could help to predict the eventual differentiation of disease (stricturing or fistulating) in newly diagnosed patients.
Methods: A retrospective review was undertaken of 52 newly diagnosed patients who subsequently underwent surgery for Crohn's disease at our institution between 1996 and 2005. Serial readings for C-RP, ESR, leucocyte count and haemoglobin were obtained from first presentation at out-patients to first surgery and analysed to see whether these parameters were predictive of findings at laparotomy.
Results: 27 patients subsequently were found to have stricturing disease at operation; the remaining 25 had fistulating disease. The median levels obtained for C-RP, ESR, leucocyte and haemoglobin were compared between both cohorts, and not found to be statistically different (P values ranged from 0.151 to 0.561).
Conclusion: Common biochemical and haematological parameters are not useful tools in Crohn's disease for predicting whether the disease will follow a stricturing or fistulating pattern.

P37

Intervention-free interval following strictureplasty for Crohn's disease

P Roy and D Kumar
St George's, University of London, Division of Gastroenterology, Cranmer Terrace, London, UK

Strictureplasty is now established as a bowel-sparing alternative in the surgical treatment of complicated Crohn's disease. However, in single foci of disease, limited resection is still preferred, as subsequent re-operation rates are low. This study investigates whether reconstructive surgery may confer extended disease-free states in patients with uncomplicated Crohn's disease.
Methods: A retrospective review was undertaken of 26 patients who underwent surgery for small bowel Crohn's disease between 1996 and 2004. A total of 96 strictureplasties were performed. The mean number of strictureplasties carried out per patient was 3.1.
Results: Median follow-up was 41 months. Four patients developed complications, requiring re-operation. 73.3% of patients undergoing strictureplasty alone and 79.7% undergoing strictureplasty with concomitant resection were disease-free at 41 months. If the follow-up were continued, the same proportion of patients remaining intervention-free would be observed at an interval of 70 months or more. Four patients developed further disease requiring additional surgery. 25% of these patients were disease-free at 41 months.
Conclusion: Our results show that strictureplasty alone or with concomitant resection can confer disease-free periods of 41 months or more in 73.3% of patients, suggesting that strictureplasty can be utilised as an alternative to limited resection in uncomplicated Crohn's disease.

P38

Strictureplasty for active Crohn's disease

P Roy and D Kumar
St George's, University of London, Division of Gastroenterology, Cranmer Terrace, London, UK

The safety and efficacy of strictureplasty in the treatment of obstructive Crohn's Disease is well-proven. Most of these studies use strictureplasty to treat fibrotic strictures while limited resection is usually preferred to treat active disease strictures. This study investigated the complication, recrudescence rates and disease-free intervals in patients undergoing strictureplasty for active disease strictures.
Methods: A retrospective review was undertaken of 14 patients undergoing strictureplasty alone or combined with limited resection for active Crohn's disease between 1996 and 2004. A total of 73 strictureplasties were carried out. The mean number of strictureplasties carried out per patient was 5.2.
Results: Median follow-up was 41 months. One patient developed complications requiring further surgery. Three patients developed further disease requiring surgery. Overall, 73.8% of patients undergoing strictureplasty were disease-free at 41 months, extending to 70 months or more if an extended follow-up interval were observed.
Conclusion: Our results show that the use of strictureplasty in active disease strictures is safe, well tolerated, and has similar, if not better, complication rates when compared with limited resection. Reconstructive surgery in 73.8% of these patients confers disease-free intervals of three and a half years or more, comparing favourably with those reported following small bowel resection.

FISTULAE

P39

Infliximab in the treatment of chronic idiopathic anal fistulas: preliminary report

D Cuicchi, BD Via, F Lecce, PF Almerigi, R Lombardi, R Focaccia, M Campieri and B Cola
General Surgery-Prof. Cola, S.Orsola-Malpighi Hospital, via Massarenti 9, Bologna, Italy

Surgical treatment of complex anal fistulae could be complicated by faecal incontinence. Long-term loose seton is an alternative option to avoid sepsis without compromising the quality of life of the patient. Aim of this study was to evaluate the efficacy of Infliximab locally injected in the closure of chronic idiopathic anal fistulae (CIAF).
Methods: Five patients with CIAF were enclosed (4 male; age 52 yrs) with longstanding (median 2 yrs, range 2–3) transphinteric (n = 4) or suprasphinteric (n = 1) complex fistulae. Crohn's disease was excluded by endoscopy, histology and radiology. All patients were previously treated with metronidazole 1 g/d for at least 3 months and with loose setons for 2 yrs (median, range 2–3). Infliximab 10 mg was injected, under anesthesia, in and near the internal and external opening and along the fistulas track. The patients were evaluated under anesthesia (EUA) before and at every infusion and with endoanal ultrasound (EAU) every other infusion. The patients received a median of 4 infusions (range 3–5).
Results: A complete healing of fistulae, confirmed with EUA and EAU, was obtained in 3 out of 5 patients with a median follow-up of 4 months (range 2–4). In 1 patient the closure of internal opening was obtained without complete closure of the fistula track. One patient had no response.
Conclusion: Infliximab could be a safe and alternative option in the treatment of CIAF unresponsive to traditional medical and surgical treatment.

P40

Three-dimensional endoanal ultrasonography in the assessment of fistula in ano

P Nastro, F Hetzer, M Scott, PJ Lunniss and P Giordano
Whipps Cross University Hospital, Whipps Cross Road, Leytonstone, London, UK

The aim of this study was to evaluate the clinical usefulness of three-dimensional endoanal ultrasonography (3D EAUS) in the preoperative assessment of anal fistula.

Methods: Twenty-five patients (17 male; mean age 41) with fistula in ano were assessed prospectively by conventional endoanal ultrasound, 3D EAUS and physical examination under anaesthesia before undergoing surgical treatment. The findings of physical examination, conventional endosonography and 3D EAUS were compared with surgical findings.
Results: Surgical findings demonstrated a fistula in 22 patients, an internal opening in 23 and a secondary track in seven. 3D EAUS identified a fistula track in all 25 patients, an internal opening in 24 patients and a secondary track in 6 (four false positive). In all 22 patients found to have a fistula at surgery 3D EAUS correctly identified the location of the primary track and internal opening. 3D EAUS detected only 2 of the 7 secondary tracks demonstrated at surgery. Compared to physical examination and conventional endosonography 3D EAUS was significantly more accurate in the assessment of the primary track ($P < 0.05$) and internal opening ($P < 0.05$).
Conclusion: 3D EAUS is better than physical examination and conventional endosonography in the assessment of anal fistula, but does not image secondary extensions well.

P41

Surgical management of complex anal fistulae

M Pescatori, M Spyrou and PD Nardi
UCP Villa Flaminia e Ospedale S Raffaele, via Olgettina 60, Milano, Italy

The aim of present this study is to assess clinical and functional outcomes of complex anal fistulae.
Methods: between January 1993 and December 2004 one hundred patients, 58 male, mean age 47 (range 17–58) underwent surgical treatment for complex anal fistula. Cryptoglandular disease was the most common cause (84), followed by Crohn's disease (22) and trauma (2). Based on Park's classification there were 71 transphincteric, 10 suprasphincteric, 6 extrasphincteric and 13 recto-vaginal fistulae. Surgical procedures included: 84 fistulectomy, 28 cutting seton, 22 advancement flap, 3 sphincteroplasty and 3 anoplasty; in 3 cases a colostomy was added. Mean follow-up was 36 months (range 1–122) for 95 patients. Functional results were evaluated by Wexner and Pescatori incontinence score.
Results: the procedure was successful in 88 patients (92%); recurrence was observed in 7 patients (7.4%). Six patients (6.3%) complained of postoperative incontinence with Wexner incontinence score ranging between 2 and 14 (mean 7.5) and Pescatori score between 2 and 5 (mean 3.2).
Conclusion: surgical treatment of complex anal fistula is still controversial because of the risk of recurrence and of continence disturbance. Different surgical strategy should be used in relation of different kinds of fistula. Patients are best managed in dedicated Coloproctology Units.

P42

Combined therapy with infliximab and seton for perianal fistulising inflammatory bowel diseases (IBD)

L Guidi, I De Vitis, S Semeraro, C Ratto, I Roberto, F Faustini, A Papa, R Urgesi, G Gasbarrini and G Fedeli
Medicina Interna, Università Cattolica Sacro Cuore, Largo A. Gemelli, 8, Rome, Italy

Healing of the skin before the closure of perianal fistulas has been shown after infliximab treatment in Crohn's disease (CD. Setons could reduce the abscess risk in these patients. Aim of this study is to evaluate the efficacy of the treatment with infliximab and setons for complex perianal fistulas in IBD and to define the optimal time for seton removal by endosonography.
Material and methods: Ten IBD patients with complex perianal fistulas received infliximab plus azathioprine. Eight had CD and two pouchitis after colectomy for ulcerative colitis. Perianal sepsis was eradicated when necessary and setons were placed before infliximab therapy. Setons were removed after evidence of fistulous tracts healing at endosonographic examination.
Results: At 6 weeks all CD patients had a partial response of perianal disease and the mean PDAI score decreased from 10.75 to 4.75. Complete response was achieved in all patients (8/8) after a median time for endosonographic healing and subsequent seton removal at 28 weeks. 7/8 patients maintained the response with a mean follow up of 39.8 weeks. The 2 patients with pouchitis showed no response of perianal disease.
Conclusion: Combined therapy with infliximab and setons with endosonographic control showed high efficacy in the management of CD patients with complex perianal fistulas.

P43

Accuracy and usefulness of endoanal ultrasonography in the preoperative work-up of anorectal fistulas

C Margiani, L Zorcolo, F Capra, L Marongiu, F Scintu and G Casula
Department of General Surgery, Coloproctology Cent, Via Is Guadazzonis 3, Cagliari, Italy

Accurate delineation of fistula tracts and extensions and their relation to the sphincters is the key to reducing recurrence and preventing impairment of continence after surgery for fistula-in-ano. Our aim was to define the value of endoanal ultrasonography (EAUS) in the diagnostic work-up and its usefulness in operative decision-making.
Methods: Analysis of 192 consecutive patients who presented at our institution with fistula-in-ano. All were preoperatively studied with EAUS (B-K, 10-Mhz probe). Fistulas were classified as superficial in 19 (10%), intersphincteric in 73 (38%), transphincteric in 94 (49%) and suprasphincteric in 4 (2%).
Results: All patients were operated on by the senior author. Operative findings agreed with EAUS in 152 (79%) patients. EAUS overestimated the diagnosis in 9 (5%) cases and underestimated it in 31 (16%). All but 5 superficial or intersphincteric fistulas were layed open whilst the remainder were treated with a loose seton. Transphincteric or suprasphincteric fistulas were treated with loose setons in the majority of cases (61.5%) whereas 35 (32%) low transphincteric fistulas were layed open and 2 (2%) high fistulas were treated with fibrin glue. In 19 (10%) of complex fistulas, previous or new intraoperative images were helpful in surgical decision-making.
Conclusion: EAUS is a useful and reliable tool in the preoperative evaluation of fistula-in-ano. Moreover, in certain circumstances, the ability of performing it during surgery can optimise the treatment in complex situations.

OBSTRUCTED DEFECATION

P44

Iceberg score and occult diseases in patients with obstructed defecation: results of a prospective study

A Pulvirenti D'Urso, M Spyrou and M Pescatori
Garibaldi Hospital, Catania, Italy

Obstructed defecation (OD) is usually evaluated by grading symptoms, not associated diseases. Rectocele and internal prolapse are likely to be the target of surgical treatment, which carries frequent

recurrences. But OD is an Iceberg syndrome, characterized by underwater rocks or occult diseases. The aim of the p! resent study was to provide a score for such diseases.
Methods: One hundred consecutive constipated patients (81 females, mean age 54 years) underwent perineal examination, psychological assessment, proctoscopy, anovaginal US, manometry and defecography at our Units. Their symptoms were graded using a modified 1 to 20 Wexner score. Both evident (e.g. rectocele) and occult (e.g. anismus) diseases were prospectively evaluated by the novel 1 to 12 Iceberg score.
Results: Fifty four patients had both mucosal prolapse and rectocele, colpocystocele was present in 53 cases. Nearly all patients (91%) had at least two occult pathologies, 66 patients had at least three of them, anxiety/depression, anismus, colpocystocele and rectal hyposensation being the most frequent (66, 53, 44 and 33% respectively). The mean Iceberg score was 4.4 (range 2–7), the mean Wexner score was 11.0 (range 2–20). Pelvic floor rehabilitation was indicated in 77 patients, rubber band ligation in 14, psychological counselling in 15, surgery was carried out in 14 patients.
Conclusion: Iceberg score may help to better assess patients with obstructed defecation. Psychological distress, anismus and rectal hyposensation should be also treated conservatively, as they are likely to affect the outcome of surgery which is indicated for a minority of the cases.

P45

Rectocele repair with biologic mesh

C Elbetti, DG Zanieri*, R Migliari†, R Gattai‡ and C Fucini‡
**Sezione Disfunzioni del Pavimento Pelvico Ospedale S.Donato Arezzo, †Sezione Urologia Osp. La Gruccia Montevarchi, ‡Chirurgia Generale II – Università degli Studi di Firenze Sezione Sezione disfunzioni del Pavimento Pelvico, Via Giusti 3, Campi Bisenzio (FI), Italy*

A new surgical procedure to repair rectocele using a biologic mesh (Veritas Collagen Matrix- Synovis) is described.
Methods: Fifteen patients, mean age 67 yrs (range 55–75) with symptomatic rectocele, were treated in 2 yrs. Concomitant cystocele grade II or III, vaginal vault prolapse, uterine prolapse and stress urinary incontinence was present in 11, 5, 3 and 8 patients. Surgical procedure: in lithotomy position, a midline incision of the vaginal wall from the apex to the posterior fourchette was made. The anterior rectal wall was prepared superiorly and inferiorly to expose the area of rupture of rectal muscular layers and to identify the intact muscular wall. The area of weakness in the muscular layers was sutured with absorbable stitch and the anterior rectal wall was plicated with running suture longitudinally to reduce the bulging and to fix the redundant rectal mucosa. The biological mesh was tailored and fixed to the endopelvic fascia and to the posterior rectal wall. Concomitant pelvic diseases were treated at the same time.
Results: Follow up (3 to 24 months). No complication was observed. Obstructed defecation symptoms were resolved in 12 of 15 patients.
Conclusion: If these results will be confirmed in larger series with a longer follow up, this surgical technique could be considered a valid alternative to current surgical procedures.

P46

Delorme's procedure improves outlet obstruction due to rectal intussusception in selected patients

A Infantino, R Bellomo, F Galanti, CA Tonizzo and S Scappaticcio
S. Vito al Tagl. Hospital, via Savorgnano, 2, S. Vito al Tagliamento (PN), Italy

In selected cases Delorme's procedure has been demonstrated to cure outlet obstruction caused by rectal intussusception. Aim of this study is to evaluate the efficacy of this treatment in highly selected patients in a Coloproctologic Unit.
Methods: Thirty patients, 27 female, mean age 54.8 ± 12.8 yrs (32–75) complaining of obstructed defecation syndrome, confirmed by defecografy, were operated on after unsuccessful medical treatment lasting at least 2 months. The mean followup was: 37 ± 20 months (range 5–85).
Results: The mean operative time was: 121′ ± 29 (55–170′) and the mean mucosal excision length 16 ± 2.3 cm (11–21). There was no mortality and minor morbidity occurred in 12 patients. Postoperative stay was 6 ± 2.2 days (3–14). No relapse of prolapse has been found. The main pre and postoperative symptoms significantly improved as follows: excessive straining: 66% vs 25% ($P <$ 0.000); incomplete evacuation: 69.4% vs 38.8% ($P < 0.000$); digitation or perianal manoevre: 30.6% vs 2.7% ($P < 0.001$); blood loss: 44.4% vs 11.1% ($P < 0.001$); anal pain; 47.2% vs 16.6% ($P < 0.000$); rectal tenesmus: 58.3% vs 11.1% ($P < 0.003$).
Conclusion: Outlet obstruction due to rectal intussusception can be successfully cured in 30% patients and significantly improved in 63.3% patients by the Delorme's procedure if meticolous selection of patients is performed.

P47

Recurrent rectal prolapse

V Bianco, GM Buonanno, G Picardo and G Romano
AORN San G. Moscati, Chirurgia I, Viale Italia 10, Avellino, Italy

Recurrence of rectal prolapse is a great challenge for the colorectal surgeons, however, despite an overall recurrence rate greater than 15 percent (0–60%), few authors have dealt with this problem.
Methods: All the published data have been drawn from retrospective series as the choice of operation was based on surgeon experience and patient status. Fengler, Hool and Pikarsky reported respectively 14, 29 and 27 patients operated on for recurrent rectal prolapse, the operation included both trans-abdominal and perineal procedures. Recently, the Stapled Trans-Anal Rectal Resection (STARR) has been proposed to treat patients with rectal mucosal prolapse and obstructed defecation.
Results: The re-recurrence rate was respectively 0, 20.7 and 14.8% but no patient improved in terms of continence or constipation after the second operation. One patient developed bowel ischemia after anterior resection following a previous perineal resection.
Conclusion: Trans-abdominal procedure seems to be associated with a lower recurrence rate, nevertheless in high risk and elderly patients a less invasive perineal procedure should be preferred. Surgical management of recurrent prolapse can be expected to resolve the prolapse but not necessarily constipation or incontinence that might have multifactorial etiology. STARR procedure might play a role but no data have been reported so far.

P48

Which operation for rectocele?

G Ezio, A Realis Luc, G Clerico and M Trompetto
Policlinico di Monza, Via Ivrea 41, Monza (MI), Italy

Symptoms directly related to rectocele include problematic defecation, an inability to completely evacuate the distal rectum without straining or digitation and constipation. Indications for surgery are failure of medical treatment, the feeling of a vaginal mass requiring digital help for evacuation, low back pain, recurrent vaginal ulcerations due to pessary use, or fecal incontinence.
Methods: We reviewed our experience over a 10-year period, between 1995 and 2004 and evaluated our current practice. The aim was to assess trends in choice of operation, recurrence rates and functional results. Traditionally an endorectal approach for

type I rectocele, an extensive levatorplasty for type II and a levatorplasty associated with a rectopexy for type III rectocele have been used. A stapled prolapsectomy has been recently introduced. We have now developed a hand sewn endo-rectal prolassectomy (ERPP) using a specially designed operative anoscope associated with a levatorplasty A total of 249 procedures were performed.
Results: Median age of patients was 56.1 years. A total of 88 cases of type I, 95 of type II and 66 of type III rectocele were identified. We performed 122 levatorplasties of which 34 were associated with manual or stapled prolapsectomy and 127 manual or stapled endoanal repairs. There was no perioperative mortality. We didn't observe septic complication in these 249 cases treated with a mean follow-up of 57.7 months. Twenty-four minor complications (9.6%) and seven recurrences (2.8%) occurred. Postoperatively, constipation disappeared or improved in 90.1% of patients. The mean Straining Score decreased in all the procedures from 10.4% to 0.9%. Overall constipation improved in 92% of the patients.
Conclusion: If singularly considered all the approaches present a good medium- or long-term effectiveness in correcting the prolapse and the symptoms of obstructed defecation. Our actual attitude considers four approaches: ERPP approach for type I rectocele, Levatorplasty for type II rectocele with a pexy to the sacrospinal ligament in cases of vaginal vault prolapse and Transvaginal levatorplasty associated with an ERPP for type III rectoceles.

P49

Endorectal prolapsectomy for treatment of rectocele and rectal intussusception

G Ezio, A Realis Luc, G Clerico and M Trompetto
Policlinico di Monza, Via Ivrea 41, Monza (MI), Italy

Stapled endorectal resection has introduced the concept of rectal mucosal prolapse or intussusception in association with the rectocele in generating symptoms of obstructed defecation. Unfortunately a limit of this technique is in the instrument itself that doesn't allow a visual control of the procedure leading frequently to residual symptomatic rectocele or prolapse. Furthermore an anterior endorectal approach or a levatorplasty are sometimes not enough for simultaneous posterior mucosal prolase or an associated rectal intussusception. A new approach to treat rectocele associated with rectal intussusception has been developed: the endorectal prolapsectomy or ERP.
Methods: Using a specially designed disposable anoscope fixed to a Martin arm the rectal intussusception or prolase is easily visualised. The self-lit anoscope is provided with a mobile retractor, through the anoscope the rectal submucosa is infiltrated with 1 : 200 000 adrenaline saline solution and a circular mucosal incision 2 cm above the dentate line is started. The mucosa is dissected for 8 to 12 cm according the rectal intussusception or prolase. The circular rectal muscular layer is then plicated using 8 absorbable 2–0 stitches. A muco-mucosal suture completes the endorectal anastomosis. The procedure can be used in association with a levatorplasty in type II or III rectoceles. Safety of the technique has been evaluated in 53 patients with a median age of 52.4 years.
Results: Preliminary results are encouraging with a good anatomical and functional correction of the obstructed defecation. We didn't observe any septic complications but three minor partial anastomotic dehiscences occurred (5.6%). Postoperatively, obstructed defecation disappeared or improved in 51 patients (96.2%) with a mean follow-up of 14.7 (3–32) months. Similarly the procedure has been successfully used in repairing residual symptomatic rectocele and rectal intussusception or rectal painful syndrome following stapled endorectal resection or levatorplasty.
Conclusion: The new procedure is added to the armamentarium of surgical treatment in rectoceles associated with rectal intussusception, proving to be cost-effective and helpful to relief the disabling symptoms of obstructed defecation.

P50

Outlet obstruction following STARR procedure: case report

G Sciaudone, A Giuliani, C Di Stazio, I Guadagni and F Selvaggi
I Division of General Surgery, Salita Moiariello, 18, Naples, Italy

We report the case of a woman with worsening of constipation after Stapled Trans-Anal Rectal Resection (STARR) for rectocele.
Methods: Female patient, 21 years old with chronic constipation (1 evacuation every two weeks) lasting from 9 years, necessiting laxatives and digitations and with a sensation of incomplete evacuation. On physical examination she presented with a rectocele without genital or urological prolapse. Anorectal manometry showed increased threshold and maximum tolerated volumes and pudendal neuropathy was observed at electromyography (Pudendal Nerve Terminal Motor Latency). Defecography confirmed the diagnosis of rectocele and rectal mucosal prolapse without perineal descent. The patient underwent the STARR procedure and was discharged on postoperative day two.
Results: Six months later she presented with severe constipation with the need for enemas with a worse condition than pre-operatively. Defecography showed a left posterolateral rectal wall pseudodiverticular cavity (24 × 33 mm) with incomplete elimination of barium enema on defecation. Rectoscopy confirmed this finding. The patient underwent transanal diverticulectomy and rectal wall direct repair.
Conclusion: The STARR procedure can produce new and difficult to treat complications. This surgical technique should be reserved for expert colorectal surgeons with proven experience in transanal surgery.

P51

Transanal surgical therapy of obstructed defecation

R Ferrara, R Polato, A Aden and F Martin
Surgical Department, Via L. Boehler 5, Bolzano, Italy

The transanal surgical therapy of obstructed defecation is still debated. The results of specific surgical procedures such as Block, Sullivan and Sarles, performed for symptomatic rectocele, are discordant. Moreover in cases with extended operations for treatment of occult endorectal or endoanal prolapse, the need for an easier procedure with lower surgical impact has arisen.
Methods: Our experience consist in 150 cases treated in 60 months. Surgical treatment was performed using automatic circular stapler. Patients was affected by obstructed defecation (Agachan-Wexner score: range 0–30; >8 pathological value). 10 received a STARR (stapled transanal rectocele resection), 15 a transanal occult prolaps resection (2 high semicircular sutures) and 125 a mucosal rectal prolapse resection for haemorrhoids.
Results: In the occult endorectal group we performed two semicircular sutures to avoid rectal stenosis. In the 25 patients treated for obstructed defecation the preoperative average score was 12.1 (mean 12); the postoperative average score was 3.8 (mean 3). No major complication occurred. We observed 1 anal fissure, 3 urgency cleared up in a month and one complete recurrence in a patient irradiated for an anal cancer. The mean stay in hospital was two days. The need of analgesic therapy was prevalent in patients treated with STARR and was limited to the first 3 days after the operation.
Conclusion: Authors are firmly convinced that the (apparent) low number of these cases is due to accuracy of preoperative selection of patients, based mostly on symptoms: the presence of rectocele or occult prolaps without symptoms is a contraindication to the (this, transanal) surgical therapy. On the other hand when symptoms are associated with rectocele, we cannot rule out other causes of expulsive stipsis. The preoperative functional studies, as well as

endosonography and defecography, may include other diagnostic investigations to exclude presence of major diseases.

P52

Rectocele transanal repair using endo-GIA: early outcome

M D'Avolio, A Ferrara and C Chimenti
S. Vito and S. Spirito Hospital, F. Crispi street n. 116, Ss. Salvatore street n. 302/a, Alcamo (TP), Italy

Surgical treatment of symptomatic isolated rectocele by colorectal surgeons is based on endorectal techniques. Results depend on a correct etiologic evaluation of associated syndrome. The aim of this study is to present preliminary results of an original endorectal technique applied to selected patients.

Methods: Between November 2002 and January 2004, 15 females (mean age 57; range 38–73 years) underwent transanal rectocele resection by a 60 mm endo-GIA and successively plication of the anterior rectal wall at our Surgical Digestive Endoscopy and Colorectal Surgery Unit. All patients had a primary isolated anterior medium sublevator rectocele with obstructed defecation symptoms. They were studied prospectively according to a fixed protocol. Standard questionnaire, defecation diary, clinical examination, defecography and anal manometry were performed preoperatively. Stool frequency was <3 at week in all patients. Postoperative follow-up included clinical examination and symptoms questionnaire with defecation diary at 1 week, 1 month and three months; defecography at three months.

Results: The time required to repair the rectocele was approximately 20 min; mean postoperative hospital stay was 37 hours. We observed: low or moderate post-operative pain in all cases, 1 case of acute urinary retention, 2 cases of fever during 1st postoperative day, 11 cases of transitory evacuatory low bleeding, 5 cases of temporary urgency. Abolition of excessive straining, feeling of incomplete evacuation, enemas or digitations to complete bowel emptying was obtained in all patients; stool frequency at three months was 7 at week in 10 patients, 5–6 at week in 3 patients and 4–6 in 2 patients ($P < 0.001$). Defecography at three months did not show relapses.

Conclusion: Surgical endorectal repair of isolated rectocele is simple and effective and has a low rate of postoperative complications. However, complete investigations of impaired defecation and selection of patients are needed to achieve satisfactory results. Transanal rectocele repair with linear stapler applied in selected patients is safe and easy to perform. Early outcome have been reported in this study.

P53

Surgical treatment of rectal prolapse: comparison between Delorme's operation and abdominal rectopexy

ML Boella, P De Nardi, N Osman and C Staudacher
IRCCS S. Raffaele, via Olgettina 60, Milan, Italy

The aim of present study is to compare the results of the two surgical procedures in terms of complications, recurrences and functional results.

Methods: From January 1996 to November 2004, 39 patients, 40 females (95.2%) mean age 63.7 years (range 23–97 years) underwent surgical treatment of rectal prolapse: we performed 24 Delorme's operations (group 1) and 15 abdominal rectopexies (group 2). Mean follow up was 40 months (range 6–99), and includes 37 patients (95.2%).

Results: The following variables were significant: age, 73.5 and 52.2 years respectively ($P < 0.001$), and the kind of anesthesia: regional in 87.5% of the patients group 1, and 100% of the patients group 2 ($P < 0.001$). No differences in complications, post operative stay and recurrences were found. In both groups we observed a decrease in postoperative incontinence and constipation rate even if in group 2 the overall prevalence of constipation remained high.

Conclusion: Both operations were effective in the treatment of rectal prolapse with a low incidence of complications and recurrences. The functional problems, constipation and incontinence, may persist after the intervention without significant differences.

P54

Role of levatorplasty in total rectal prolapse treatment using perineal approach

A Serventi, P Sallustio, P Lobascio and GA Binda
Ospedalie Galliera, Via Mura delle Cappuccine 14, Genova, Italy

There are approximately one hundred surgical procedures described for the treatment of complete rectal prolapse, performed by either a perineal or an abdominal approach. During the last decade, results about mortality and residual function have raised a renewed agreement for the perineal operation. The aim of this study is to evaluate the role of associated levatorplasty in Delorme and Altemeier procedures.

Methods: Between 1994 and 2004 we treated 44 patients with a perineal procedure (mean age 76). Faecal incontinence and constipation were present in 75% and 59% of patients, respectively. The surgical procedure was performed in 21 cases with the Delorme technique (in 10 with associated levatorplasty), while in 23 using Altemeier technique (in 18 with levatorplasty).

Results: Mean hospital stay was 7 days with a morbidity of 18% and mortality of 2%. Levatorpalsty group had no significant difference in length of hospital stay and morbidity. At a mean follow-up of 38 months, faecal incontinence and constipation improved in 64% and 65% respectively. Recurrence rate was 10% and 40% in pts with or without levatorplasty respectively.

Conclusion: Perineal approach is safe and effective with good functional results. Associated levatorplasty carries a lower recurrence rate and should be offered to patients when perineal approach for rectal prolapse is selected.

P55

Long terms results of posterior colpoperineorraphy for symptomatic rectocele

CA Asteria, A Garcea, M Zuckermann and L Gerard
Dept. Clinical Pathophysiology, Surgery Unit, Via Morgagni 85, Florence, Italy

The aim of this study was to review our experience with women complaining of impaired defecation with rectoceles using selective criteria for operative repair and to critically evaluate long-term results.

Methods: All 40 females operated on during a five-year period, between 1997 and 2002, were reviewed in the clinic. In these women criteria for repair included impaired defecation not responsive to diet with bulking agents, a wide vaginal bulge requiring digital support and/or the need for rectal digitation for evacuation. On defecography we investigated the depth of the rectocele with internal anterior rectal wall prolapse and the presence of barium retention. All Patients had a transvaginal repair, with a transverse incision, 1 cm. above the introitus. Four patients had a concomitant stapled rectal resection (STARR), one patient had a TVT. Hospital stay averaged 3.7 days (range 1–8 days).

Results: Complications such as dyspareunia were never reported, suggesting that the incision used was suitable. Follow-up was available after a median of 62 months (range 36–96 months). Standardized interviews showed that 27 questioned women out of 40

(67.5%) felt there was significant improvement. Examination and evacuation proctography showed a marked reduction in the size of the rectocele in 22 women, (55%) even though there was no significant difference between women who either did or did not report satisfaction with the operation and the percentage reduction in rectocele depth. (22.5 vs.17.5% respectively; $P = 0.95$).
Conclusion: The outcome of colpoperineorraphy depends on careful selection of operative cases.

P56

Is symptomatic rectocele a gynaecological or a proctological problem? Our clinical experience

C Angelo, M Buscaglia, C Raviolo and M Felline
Azienda Ospedaliera San Carlo Borromeo, Via Pio Secondo 3, Milan, Italy

Rectocele is a herniation of the anterior rectal wall into the vagina, frequently asymptomatic, sometimes associated with significant symptoms including constipation with difficulty in evacuation. This problem has been traditionally treated by gynaecologists. The aim of this study was to evaluate the results of transvaginal and transanal associated treatment for symptomatic rectocele.
Methods: Between January 2000 and December 2004, 32 females with symptomatic rectoceles causing obstructed defecation were treated. The mean age was 62.8 years (range 39–79). All patients were submitted to defecography and sphincter analysis. Patients had mechanical bowel preparation, intravenous broad spectrum antibiotics and prophylactic heparin. The patients were placed in the lithotomy position and routinely catheterised. The gynaecological equipe performed a posterior colporrhaphy. The proctological team performed one of these procedures: 9 Delorme, 11 Sarles, 4 PPH procedures. The choice among these 3 techniques was due to the type of internal rectal prolapse.
Results: In 2 cases Delorme's procedure was associated with anterior levatorplasty to correct sphincter weakness. The post-operative course was uneventful in all cases but two: one patient had vaginal haemorrhage, conservatively treated; one patient developed a recto-vaginal fistula after high steroid doses for neurological reason. Mean follow-up was 21 months (range 4–58). Surgery resulted in a significant reduction in the frequency of vaginal bulging, incomplete evacuation and straining. There was no cases of dyspareunia. Twenty-three patients reported an excellent, 4 a good, 4 a moderate, 1 a poor outcome after surgery.
Conclusion: Rectoceles are a common finding on physical examination particularly in older multiparous women. Only few patients have symptoms and need surgery. Constipation is a common symptom in developed countries. Only few constipated patients need surgery. For these reasons there is a real danger of over-treatment. Recently many studies have stressed the need of a correct selection of cases for surgery. Posterior colporrhaphy alone is unsuitable to treat the obstructed defecation. It is especially useful to correct the cranial segment of the rectocele. The transanal approach corrects the internal prolapse. The symptomatic rectocele is a complex problem sometimes needing the synergy of two different specialists: the proctologist and the gynaecologist.

P57

A prospective evaluation of patients with obstructed defcation by means of anal, vaginal and dynamic perineal US

L Bruscianot, M Pescatori[†], V Napolitano*, V Maffettone*, G Rossetti*, G del Genio*, G Russo* and A del Genio*
*[†]UCP Roma, Via Cila 40 Aversa 81031 CE, Naples, *I Div Gen Surg SUN Naples, Via Pansini 5 80100 Napoli, Italy*

Outlet obstruction (OO) may be due to organic and functional causes, sometimes hidden, and surgery carries a high recurrent rate. The purpose of our study is to describe endoanal, endovaginal and perineal US patterns, in order to support the traditional diagnostic techniques and to improve the results of the treatment.
Methods: Ninety-two consecutive patients (77F) mean age 51 years (range 21–71), with OO were prospectively evaluated. All patients underwent endoanal and endovaginal US with rotating probe; 24/92 dynamic transperineal US with linear probe; 73 underwent anal manometry and 31 enterocolpo-defecography.
Results: Endoanal US patterns were as follows: non relaxing or paradoxical contraction of puborectalis muscle on straining (anismus) 44.5%; Rectal mucosal prolapse, appearing as an area of mixed echogenicity, 61%; Internal sphincter's hypertrophy (diameter >4 mm) 6.5%; Recto-anal intussusception appearing as a double hypoechoic circle of the muscular layer 4%; Solitary rectal ulcer syndrome appearing as a filling hyperechoic area, mimicking a polypoid lesion, 2.2%; Sphincter tears mostly anterior 20%. The transvaginal US patterns were as follows: Rectocele/enterocele, a hypoechoic oval area, displayed downwards on straining, may be detected between rectum and vagina 12%; Anismus, with the advantage that the vaginal probe not pressing on the pubo-rectalis does not affect muscle dynamics 44.5%. The dynamic transperineal US allows to visualize all pelvi-perineal compartments at rest during straining and defecation including recto-anal angle. Morphofunctional lesions associated with outlet obstruction have been found in 54% of the patients.
Conclusion: In conclusion, anal, vaginal and dynamic perineal US may be helpful to evidentiate both functional and morphologic lesions related to OO and to detect patients with hidden sphincter tears which might become clinically evident following an endoanal operation.

P58

The visco-elastic capacity of the rectum in the STARR

S Bracchitta, F Pluchino, G Boscherini, G Fotia and A Liaci
Clinica del Mediterraneo, via Carducci 66, via Ettore Fieramosca 100, Ragusa, Italy

This study evaluates the pressure values and the physical laws which regulate the pre and post- operative results encountered in S.T.A.R.R. and to compare them with healthy subjects.
Methods: From January 2002 to December 2004, 69 patients were considered to be operable for rectocele, the average age of the patient was 50.7 years (range 34–73), 63 were female and 6 male. S.T.A.R.R. was utilized for all the patients treated.
Results: From the asymptomatic reference group, to the patients with symptomatic rectocele, the rectal pressure and expulsion capacity was re-evaluated after 72 ± 10 days of the operation. A median increase of the pressure at rest was noted at 32.8 mmHg and in the expulsion phase of 43.7 mmHg compared to the pre-operative data.
Conclusion: The functional response of the rectum, post S.T.A.R.R. is not only attributed to the rectilinear nature of the rectum or the elimination of the mucosal prolapse, but also to the physical laws of La Place and Bernoulli. The post-operative intra-rectal manometric values show an increase in the basal pressure and under pushing in as much as the rectum is narrower and the walls are thicker with the consequent diminishing visco-elastic capacity.

FECAL INCONTINENCE

P59

Significant improuvement of quality of life and health status following sacral neuromodulation in fecal incontinence patients

C Ratto, DF Altomare, E Ganio, E Falletto, A Masin, A Stazi, RD Villani, G Pelliccioni, V D'Onofrio and A Infantino
Catholic University, L.go Gemelli, 8, Roma, Italy

Sacral Neuromodulation (SNM) is a surgical option for patients with fecal incontinence (FI). Italian Group for Sacral Neuromodulation (GINS) includes FI patients treated with SNM in a Registry.

Methods: Since 1996, 88 FI pts. (73 females; mean age: 58.8 (range: 23–81) years) were implanted with a permanent SNM device and included in GINS Registry. FI etiology was classified as: neuropathy (idiopathic, 40 pts. iatrogenic, 9 pts.), sphincter alterations (limited lesion, 17 pts, congenital malformation, 2 pts.), secondary to rectal surgery (for cancer (±chemoradiation), 11 pts., for prolapse, 2 pts.), undetermined (7 pts.). Anorectal manometry, Cleveland Clinic score (CCS) system, and questionnaires on quality of life (QoL) and status of health (SF36) were compared between baseline and last follow up.

Results: SNM determined significant reduction of CCS (from 15.2 to 6.5, $P < 0.0001$). QoL and SF36 scores showed significant increase in whole population and each pts subset. However, anorectal manometry values did not demonstrate significant differences between baseline and follow up. Idiopathic neuropathy patients group had significant decrease of urgency volume (from 129.7 to 95.6 ml, $P = 0.02$).

Conclusion: SNM should be considered a safe and effective therapy for selected FI patients with significant reduction of CCS and positive impact on patients QoL and health status.

P60

Initial clinical results using Coaptite® for the treatment of fecal incontinence

G Ezio, A Realis Luc, G Clerico and M Trompetto
Policlinico di Monza, Via Ivrea 41, Monza (MI), Italy

The purpose of this pilot study was to evaluate the efficacy of Coaptite as a bulking agent for the treatment of fecal incontinence in adults. Coaptite is an injectable slurry of spherical synthetic calcium hydroxylapatite particles in an aqueous-based gel carrier that was developed as a durable urological bulking agent.

Methods: Patients with passive fecal incontinence for solid or liquid stool due to internal anal sphincter (IAS) dysfunction were selected for treatment. Under local anesthesia, the 20 gauge injection needle entered the skin about 2.5 cm from the anal margin and was directed by an anally placed digit. Three or four injection sites of one ml each were evenly distributed on the anal ring. Prophylactic antibiotics were used along with analgesia and bulk laxatives. The outcome assessments were based on the Cleveland Clinical Florida Fecal Incontinence Scoring (IS) System diary based scoring, endoanal ultrasound, safety parameters monitoring and FIQL analyses. Twenty-four patients with a mean age of 62.7 years were treated (17 with four and 7 with five to six injection sites). Three patients have been treated in 2 steps. The initial mean follow up was 11.9 months.

Results: Thirteen of 16 patients (81.2%) with at least 9 months follow-up had marked improvement. The overall IS score decreased significantly from 8.3 to 2.6 ($P = 0.0002$). There were no cases of sepsis, complaints of pain at the injection sites or other complications. FIQL was administered in 11 patients with an overall improvement from 2.35 to 3.42 at 3 months and to 3.55 by 6 months.

Conclusion: From this preliminary pilot data, it has been concluded that the perianal use of Coaptite is safe and that these results are more than satisfactory and provide key insights to conducting an expanded multi-center study.

P61

Effect of sacral nerve modulation in chronic constipation

A Masin, C Ratto, E Ganio, S La Manna, G Naldini, A Infantino, S Mancini, P Lolli, M Indinnimeo and M Basile
State University, Via Giustiniani, 2, Padova, Italy

Sacral neuromodulation (SNM) has been proposed in patients with chronic constipation (CC) to improve defecation.

Methods: Thirty four pts (27 females, mean age 53 yrs [range 23–76]) affected by CC were treated with SNM and enrolled in the Italian group for sacral neuromodulation (GINS) registry. Based on physiological tests, CC was classified as colonic inertia (CI, 16 pts.) and ano-rectal dyssynergia (ARD, 15 pts.); 3 pts were not classifiable. Mean follow-up was 18.3 months (median 12.0, range 3–48). Wexner's scores (CSS), manometric values and SF36 questionnaire scores were compared between baseline and last follow-up. 3 pts (12.0%) were explanted for various reasons and excluded from analysis.

Results: Mean CSS value decreased from 14.0 ± 8.3 to 7.5 ± 4.9 ($P < 0.001$) in the whole population, from 10.1 ± 9.2 to 4.0 ± 3.4 ($P < 0.05$) in the ARD group and from 17.2 ± 6.6 to 10.5 ± 4.0 ($P < 0.0001$) in the CI group. The rectal volume for urge sensation decreased from 182.1 ± 99.3 ml to 132.4 ± 69.2 ml ($P < 0.05$): in the CI group from 199.8 ± 94.2 ml to 137.4 ± 65.1 ml ($P < 0.05$), while in the ARD group this was not significant. SF36 scores for physical functioning showed a significant increase (from 52.8 ± 32.8 to 68.0 ± 24.2, $P < 0.05$).

Conclusion: SNM seems to be a promising option for intractable CC and shows both clinical and psychological benefits.

P62

Sacral nerve modulation in ano-rectal disorders: study on 50 patients

A Masin, B Scagnet, E Melega, G Dodi, M Lise and D Nitti
Clinica Chirurgica II, Università di Padova, via N. Giustiniani, 2, Padova, Italy

Sacral nerve modulation (SNM) is an option for patients with functional ano-rectal disorders.

Methods: In this study we considered the outcome of short term evaluation (PNE test) in order to identify changes in ano-rectal physiology. Fifty patients (45 F 5 M, mean age 55 years) undergone PNE test were included: 25 suffering from fecal incontinence (FI); 17 with chronic constipation (CC) and eight with chronic pelvi-perineal pain (CPP). After the positive outcome of the PNE test, 15 had the definitive implant (DI). All patients had complete ano-rectal physiology studies.

Results: Statistically significant findings at manometry in FI group were the improvement of the maximal squeeze pressure ($P = 0.01$) and the complete threshold ($P = 0.009$) after the PNE test; no significant changes in the CC group were found. An altered excitatory reflex was evoked in 14 (28%) patients after the PNE test. We also compared the group of patients with DI and the group of not-implanted patients: in the DI group the rectal compliance at baseline was higher than in the not-implanted and improved after the test. A statistically significant higher percentage of sphincter denervation was found in the DI group than in the not-implanted group (Chi square = 0.035).

Conclusion: SNM had good clinical results, but predictive factors for outcome are needed.

P63

Gender, etiology and scoring of fecal incontinence: results of a prospective study in over 1000 patients

F Boffi and M Pescatori
Coloproctology Unit, Villa Flaminia Hospital, Rome, Italy

Women are thought to have weaker anal sphincters and severe fecal incontinence (FI) is likely to require surgery, while mild or moderate FI is better managed conservatively. Establishing a correlation between gender, etiology and severity of symptoms might help in predicting treatment.

Methods: We prospectively analysed 1012 patients with FI, 662 female, mean age 51 years, range 3–92, who presented at our Unit between January 1983 and April 2005. We divided them in 8 groups depending on the cause of the disease: 384 postsurgical, following anorectal operations; 260 idiopathic; 131 obstetric; 82 with rectal prolapse; 69 neurological; 37 congenital due to anorectal malformations; 29 with IBD; 20 traumatic following perineal injury. To evaluate FI we used our validated grading system, which takes in account both severity and frequency of symptoms, ranging between A1, score 2 (occasional loss of flatus or mucus) and C3, score 6 (daily loss of solid stool).

Results: Men had a score of 4.2 ± 1.2 (mean ± sdm), women 4.1 ± 1.1 (n.s.). The patients with FI due to congenital and traumatic causes had a score of 4.7 ± 1.1 and 4.8 ± 1.4 respectively, significantly higher than other groups ($P = 0.005$), 40% and 64% of these two groups having the worst score of 6. Most patients underwent conservative treatment, surgery was performed in 211 cases. Patients with congenital and traumatic FI required an operation twice as frequently as the overall percentage, sphincteroplasty being the most frequently performed procedure.

Conclusion: The present study demonstrates the correlation between etiology, not gender, with the severity of symptoms in patients with FI. Those with congenital and traumatic FI are more likely to require surgery.

P64

Surgical treatment of a case of vestibular anus in an adult

M Trompetto, E Ganio, G Clerico and A Realis Luc
Policlinico di Monza-Presidi di Novara e Vercelli, Via Bottini 3, Novara, Vle dell'Aeronautica 3 Vercelli, Novara, Vercelli, Italy

The majority of cases of vestibular anus are treated by pediatric surgeons and it is quite rare to find it in an adult.

Methods: The 34 year-old woman we treated came to us for a progressive fecal losses that until 2002 were not so severe, allowing her a normal social and sexual life and a vaginal childbirth 12 years ago. We did not find any concomitant malformations in the patient while she had a clinically normal subcutaneous sphincteric apparatus confirmed by a transvaginal ultrasound. Neither EMG nor manometry have been performed. We performed a simple posterior transposition of the rectum through the sphincters associated with an anterior levatorplasty.

Results: This approach has been demonstrated to be easy in this case with normal and complete sphincters. We did not perform any diverting stoma and to date no biofeedback training or anal dilation have been considered because of the normal sphincteric activity and rectal sensitivity, as postoperative transanal US and manometry confirmed.

Conclusion: This physiologic behaviour of a sphincteric apparatus and rectum after many years of complete inactivity is surprising and unexpected. For this reason, waiting for the long-term result, we think it is time to better focus on the real practical value of some functional investigations that too often do not correlate with clinical results and patients' response.

P65

Faecal incontinence: multicenter epidemiologic study

E Melega, PL Almerigi, D Altomare, G Binda, A Carriero, R Pietroletti, P Santacroce, G Romano and D Segre
Clinica Chirurgica II, Università di Padova, via N. Giustiniani, 2, Padova, Italy

Few studies have evaluated the prevalence of faecal incontinence in Italy. This prospective multicenter study was undertaken to evaluate the prevalence and characteristic of faecal incontinence among patients complaining of anorectal symptoms.

Methods: study was performed among 10 Italian outpatients clinics for colorectal disease. Patients complaining of anal symptoms were checked for anal incontinence through direct questionnaire. Anal incontinence was defined as every loss from anus (gas, liquid or solid) occurring at least one per month. Frequency and type of faecal loss, impact on quality of life were recorded.

Results: 884 questionnaires were available for statistical analysis. Among 884 patients, mean age 49.9 yrs, 452 were male. 139 (15.7%) patients, mean age of 55.4 yrs, had anal incontinence; the majority were female (110). About 80% of incontinent patients referred inability to control gas; 61.9% stained the underwear; 48.2% were not able to control liquid and 36.2% solid stools. Quality of life was impaired in 62.1%. Considering those incontinent patients who leaked at least 1 per week, 50.6% was incontinent to gas, 46% stained the underwear, 28.6% and 21.8% leaked liquid and solid stools respectively. Passive faecal incontinence was referred in 37.1% of patients. 59.8% experienced urgent defecation and only 24.2% were able to reach the toilet in time.

Conclusion: Conclusions: Minor faecal incontinence is a common complain in patients with anorectal symptoms, however incontinence to stools is less frequent.

P66

'Abdominal hysterectomy and faecal incontinence'

I Giani, M Giannelli, A Taddei, D Boni, F Perna, E Qirici and F Pucciani
Patologia Chirurgica 1, Università di Firenze, Viale Morgagni 85, Florence, Italy

The aim of this study was to compare patients and their bowel habit who underwent an abdominal hysterectomy (AH) with patients who did not; each affected by descending perineum syndrome (DPS).

Methods: Between 2003–2005, group 1 comprised 18 women who had in the same period an abdominal hysterectomy which was compared with group 2 made up of 32 women who did not undergo any surgical treatment, and a control group of 10 healthy age-matched women. All were submitted to clinical evaluation, anorectal manometry and defecography.

Results: There was a significant incidence of dyschezia in group 2 ($P < 0.05$). Faecal incontinence was significant in incidence in group 1 ($P < 0.05$). Anorectal manometry showed a significantly lower anal resting pressure in group I patients ($P < 0.01$) and recto-anal intussusception was a significant radiologic feature in this group. ($P < 0.05$).

Conclusion: Total abdominal hysterectomy seems to be a risk factor for faecal incontinence in DPS patients.

P67

Sacral neuromodulation can be more effectively tested using definitive electrodes

C Ratto, A Parello, L Donisi, C Leoni and GB Doglietto
Catholic University, Largo A. Gemelli, 8, Rome, Italy

A remarkable advantage of Sacral Neuromodulation (SNM) is to be tested before definitive device implant. Percutaneous nerve evaluation test (PNE-test) has been traditionally performed using temporary electrode(s) for 14 days, to be removed in case of either test success or failure; in case of success, quadripolar electrode(s) were implanted. However, this test procedure frequently determined electrode(s) dislocation or definitive implant in different site, and a controversial response to SNM.

Methods: Six consecutive patients with neurogenic fecal incontinence were prospectively selected for PNE-test using definitive quadripolar electrodes implanted percutaneously through third right and left sacral foramina, for a scheduled 30-days test period.

Results: In all but 1 patients PNE-test was clinically successful. Neither electrodes dislocation or morbidity was observed. Thereafter, patients underwent definitive electrostimulator implant. Unsuccessful patient was explanted. In all implanted patients, response to definitive device implant confirmed that observed during PNE-test. Costs of entire SNM procedure was reduced when compared to traditional protocol.

Conclusion: Using definitive quadripolar electrodes could avoid electrode dislocation and significant differences in results between temporary and definitive SNM, as observed using traditional protocol with monopolar electrode. Moreover, SNM can be tested for a longer period. Costs of procedure could be reduced when patients are correctly selected to SNM.

P68

Rectal sensation can predict the effects of sacral neuromodulation on fecal incontinence

C Ratto, A Parello, C Leoni, L Donisi and GB Doglietto
Catholic University, Largo A. Gemelli, 8, Rome, Italy

Sacral Neuromodulation (SNM) is successfully used to treat selected cases of fecal incontinence (FI). The impact on rectal sensation is supposed to influence a good response to SNM.

Methods: Permanent implant of SNM device was performed to 16 patients with neurogenic FI. Before ad after implant, they were questioned about their ability to discriminate gas, liquid and solid feces (graded as: normal, inconstant, absent), and sensation of incomplete evacuation (graded as: never, sometimes, often, always).

Results: Before implant, normal fecal discrimination was referred by 7 patients, inconstant by 4, absent by 5; following SNM, all patients recovered normal discrimination. Before SNM, incomplete evacuation was referred never by 5 patients, sometimes by 6, often by 3, and always by 2; after SNM, 9 patients referred complete evacuation, incomplete evacuation was felt sometimes by 6 patients and often by 1. Only in 1 patient this sensation worsened after SNM; 4 patients maintained sensation of complete evacuation; 8 improved preoperative sensation (5 up to normality), 3 did not change incomplete evacuation.

Conclusion: SNM determined recovery of normal fecal discrimination in all treated patients, and normal sensation of complete evacuation in most of them (12 out of 16, 75%). SNM should interference on rectal sensation with normalization.

P69

Artificial anal sphincter implant in the surgical treatment of fecal incontinence

F La Torre, M Mazzi, V La Torre, A Giuliani, S Pontone and G La Gioia
University of Rome 'La Sapienza', Viale del Policlinico 155, Rome, Italy

Fecal incontinence has a serious impact upon patients' quality of life. Several treatment methods are possible according to the pathophysiology of the disease. Although the use of mechanical staplers has significantly extended the indications for sphinter-saving operations, APR is still an option in the surgical treatment of cancer of the low rectum.

Methods: Between March 1999 and December 2004 twelve artificial anal sphincters (American Medical System – AMS) were implanted in nine patients, 7 women and 2 males (age between 35–76 yrs) affected with severe fecal incontinence; in two cases the device was positioned in patients who had previously undergone a Miles' resection. All cases were carefully selected according to appropriate diagnostic evaluation. The follow-up varies between 3 and 68 months.

Results: The prosthesis had to be removed in three cases; in two patients infection of the implant area occurred, while in the other case persistent perianal pain due to the presence of the device could not be tolerated by the patient. In the six patients that could be successfully treated with the artificial anal sphincter implant, it dramatically improved their quality of life.

Conclusion: The success of the procedure allows the consideration that the artificial anal sphincter implant is the best treatment for severe fecal incontinence that cannot be solved with conservative therapy. In patients submitted to Miles procedure a definitive colostomy represents both an anatomical impairment and a psychological handicap; we believe AAS might be useful in these patients mostly in terms of improving their quality of life.

P70

Sacral neuromodulation to treat fecal incontinence after anterior resection and neoadjuvant chemoradiation for rectal cancer

C Ratto, A Parello, L Donisi, C Leoni and GB Doglietto
Catholic University, Largo A. Gemelli, 8, Rome, Italy

Fecal incontinence (FI), without sphincter lesions, can occur in patients following anterior resection (AR) and neoadjuvant therapies for rectal cancer. In this study effects of Sacral Neuromodulation (SNM) in these patients was assessed.

Methods: Six patients (5 colorectal, 1 coloanal anastomosis) were tested with a diary, anorectal manometry and electrophysiology, and endoanal ultrasound. They were treated with SNM. Thereafter, patients were re-evaluated with diary and physiology examinations.

Results: Five of 6 pts. had a very good response during PNE-test (>70% reduction of FI episodes): they were implanted. Patient with unsuccessful results had coloanal anastomosis. In implanted patients, SNM produced a significant decrease of mean Wexner's (from 16.8 to 5.4, $P < 0.05$) and Pescatori's (from 4.6 to 1.4, $P < 0.05$) FI scores, and mean number of FI episodes (from 15.6 to 4.5 per week, $P < 0.05$). An increase of resting and squeeze pressures was registered. Alterations in rectal sensation recorded preoperatively returned in normal range after SNM. Improvement of quality of life was referred by all implanted patients after SNM.

Conclusion: FI following AR is characterized by specific anorectal alterations, probably due to pelvic nerves damages before and/or during operation. SNM seems a valid therapeutic option in selected patients. Lack of entire rectum could negatively affect SNM.

P71

Functional re-education of anal sphincters

A Nicastro, LP Stella, A Nicolai and A Croce
3th Division of Surgery Villa Pia Hopsital, Via B. Ramazzini 93, Rome, Italy

Faecal incontinence is a disabling disorder of multifactorial etiology whose symptoms cause both physical and psychological disability. Rehabilitation of faecal incontinence has been considered a palliative measure, when traditional therapy's results do not prove

effective. Since 1987 we have proposed a rehabilitation protocol which is based – simultaneously – on physio-kinesiology of the pelvic floor, anal sphincters and pelvic floor using electric stimulation and pressure biofeedback. Such a protocol has been called FUNCTIONAL RE-EDUCATION OF ANAL SPHINCTER.
Methods: The study has been carried out on 196 patients (61 males, 135 females), average age 42.9 (age range 11–86 years) with faecal incontinence of varied etiologies. The three methods have been performed simultaneously three times a week for sixty minutes each. According to the protocol, a first assessment of the study should have been done after 15 consecutive sessions.
Results: As a result 93.4% of the cases were successful.
Conclusion: The results of this research prove that functional re-education of the anal sphincters is not a good alternative to surgery, but the therapy to be chosen in faecal incontinence.

CANCER

P72

Endoscopic surveillance for hereditary non polyposis colorectal cancer (HNPCC) families

G Riegler, A de Leone, G Rossi, I Esposito, P Marone, A Ursillo, G Di Gregorio, MI Russo and M de Bellis
U.O.C. Gastroenterologia e endoscopia digestiva SUN, Piazza L Miraglia, 1, Naples, Italy

The current guidelines for the endoscopic surveillance of members of HNPCC families suggest a colonoscopy every 2 years for all the first degree relatives of the index case, starting at 25 years of age. The aim is to verify the fulfillment of the current guidelines and the outcome of colonoscopy in the HNPCC family members followed in our Institutions by means of a retrospective evaluation of our data base.
Methods: We selected 11 families satisfying the Amsterdam criteria I and we collected data from 107 first degree relatives of 11 index cases. Of these, 15 died, 14 were younger than 25 years and 33 refused surveillance program. Eventually, 35 subjects were enrolled in the endoscopic surveillance program, together with 10 index cases.
Results: At the time of the first colonscopy 26 out of 45 subjects had no colorectal lesion; on the other hand, 19 subjects had 26 lesions at colonsocopy: 3 hyperplastic polyps, 11 low grade adenomas (LGD), 1 high grade adenomas (HGD) and 11 cancer (K). Thirty-six out of 45 enrolled subjects underwent 127 colonoscopies with a median interval of 23 months. Seventy-one endoscopies were negative, while 56 colonoscopies, performed in 25 patients, had a total of 97 lesions: 4 inflammatory polyps, 38 hyperplastic polyps, 43 LGD, 6 HGD and 6 K. The median interval between two positive endoscopies was 27.4 months for both inflammatory polyps (range 6–37) and hyperplastic polyps (range 4–135), 33.6 months for LGD (range 4–168), 56.6 months for HGD (range 4–168) and 20.5 months for K (range 9–48).
Conclusion: Our data suggest that our surveillance program is consistent with the international guidelines for surveillance. Moreover, our results support the hypothesis of an increased neoplastic risk associated with hyperplastic polyps.

P73

Three-dimensional endoanal ultrasound-guided brachytherapy in anal canal cancer using a novel device

C Ratto, D Smaniotto, V Valentini, A Parello, S Manfrida and GB Doglietto
Catholic University, Largo A. Gemelli, 8, Rome, Italy

Traditionally, needles implant for brachytherapy in anal cancer is performed by digital examination-guided insertion, with high risk of fistula and low accuracy in dose distribution within the target.
Methods: A new template was designed allowing introduction of 360°-rotating probe (for 2D and 3D endoanal ultrasound, EAUS) through a sonolucent anoscope, and transperineal insertion of needles through holes specifically designed according to dosimetric principles. Needles insertion was guided and checked by 2D EAUS. Moreover, 3D EAUS allowed control of needles position and its agreement with radiation plan. Four anal cancer patients were treated, under spinal anesthesia, with high dose rate radiotherapy using this new device.
Results: EAUS-guided insertion of needles using the new template was easy, providing in all patients 2D and 3D maps of needles inserted within the tumor, always in accordance to the radiation planning. No complication was observed during and after procedure. Comparing to traditional methodology, this approach improved accuracy in delimitating the irradiation field.
Conclusion: Use of 2D-3D EAUS in checking every step of insertion of needles for brachytherapy of anal canal cancer seems provide an accurate definition of irradiation field. New template offers precision in positioning the needles. This procedure seems safe and effective.

P74

Outcome of a two years program of early oral feeding after elective colorectal resection

A Serventi, P Sallustio, P Lobascio and GA Binda
Ospedalie Galliera, Via Mura delle Cappuccine 14, Genova, Italy

In the past decade, much attention has been devoted in Europe and North America to health care costs, and length of both hospitalization and convalescence. The aim of this study is to investigate whether controlled postoperative feeding is feasible and safe in patients undergoing colorectal resection.
Methods: Between January 2003 and December 2004, 149 patients (pts) underwent elective colonic resection and 110 (68% in 2003, 81% in 2004) were enrolled in a early postoperative (p.o) oral feeding program (liquid oral diet on 1st p.o day after nasogastric tube removal, and solid diet from 2nd p.o. day).
Results: The mean age was 67 years (23–87). 84 patients underwent surgery for colon cancer, 19 for benign disease and 7 for inflammatory bowel disease. Surgery was performed in 74 pts with a traditional and in 36 pts with a laparoscopic approach. The mean hospital stay was 9 days (<6 days: 32%); 13 pts had vomit but reinsertion of nasogastric tube was necessary only in 6 pts. Postoperative complications were fever in 13 pts, wound infection in 4, anaemia in 2 and 2 pts had a clinical anastomotic dehiscence (1.8%) requiring reintervention; 2 others pts required reoperation for bowel occlusion. One patient died for myocardial infarction.
Conclusion: Early oral feeding is well tolerated and does not increase the overall complication rate; the main problem often is to change a rooted medical attitude.

P75

Is laparoscopic total abdominal colectomy indicated in AFAP (attenuated familial adenomatous polyposis) patients?

E Liberatore, E Monteferrante, N Pitrelli, G Colecchia, G Palka* and P Battista III*
*Division of General Surgery, 'Santo Spirito' Hospital, Pescara, Italy *Department of Genetics, University 'Gabriele D'Annunzio', Chieti, Italy*
Divisione Chirurgia Generale 3 Osp. S. Spirito, Via Fonte Romana, Pescara, Italy

Over the past decades a variant of Familial Adenomatous Polyposis (FAP), called 'attenuated' FAP (AFAP) has been described. AFAP is not well-defined as a disease entity and the diagnostic criteria and methods of investigation differ markedly among authors. The incidence and frequency of AFAP is unknown. Mutations in APC gene associated with AFAP, have mainly been detected in three parts of it: in the 5′ end (the first five exons), in exon 9 and in the distal 3′ end. The main features of AFAP are: 100 or less colorectal adenomas, with a tendency for rectal sparing, onset of adenomatosis and bowel symptoms delayed to 20–25 years, delayed onset of colorectal cancer (CRC) and death from CRC when compared with FAP. Although the lifetime penetrance of CRC appears to be high, CRC doesn't seem to develop in nearly all affected patients. A more limited expression of the extracolonic features is seen, but gastric and duodenal adenomas are also frequently present.

Case Report: We describe a female patient, 41-years old, with a diagnosis of AFAP characterized by a mutation in the distal 3′ end of APC gene. She was undergoing yearly surveillance colonoscopy for approximately 10 years. Biopsies of a polyp located in the transverse colon and not completely removed at the last endoscopy, showed 'severe dysplasia'. On the basis of this finding we planned a laparoscopic total abdominal colectomy (TAC) with ileorectal anastomosis (IRA) (VIDEO). Five trochars were used for the laparoscopic part of the procedure and a Pfannenstiel incision to extract the colon. Operative time was 350 minutes and we observed no operative or postoperative complications. The patient was discharged on the 9th postoperative day, after passage of feces and resumption of oral feeding, with a mean of three daily bowel movements. Histology showed eighteen adenomatous polyps in the colon and an adenocarcinoma invading the muscularis mucosae in the site of previous polypectomy, without nodal involvement in 36 lymph nodes examined (T2N0M0). Endoscopy at six and 12 months showed no lesions in the rectum.

Conclusion: Prophylactic TAC with IRA is the treatment of choice in most patients with AFAP, provided that the rectum is spared from disease. Laparoscopic surgery can be offered as a feasible, safe and effective method to treat this disorder in young patients reluctant to undergo major surgery with potentially functional sequelae, most notably, proctocolectomy and ileo-anal anstomosis.

P76

Prognostic value of tumour regression grading and lateral spreading after combined neoadjuvant radiochemotherapy and surgery for rectal cancer

E Benzoni, D Intersimone, G Terrosu, V Bresadola, A Cojutti, F Cerato and C Avellini

University of Udine, Policlinico Universitario, Dipartimento di Scienze Chirurgiche, Clinica di Chirurgia Generale,Piazzale S. Maria della Misericordia, Udine, Italy

The object of neoadjuvant radiochemotherapy regimens is a downstaging or downsizing of advanced rectal tumour to increase the rate of curative resection and reduce locoregional failure: 2–3% in irradiated patients vs. 10–12% in non-irradiated patients. A reliable method of assessing response to adjuvant therapies is required to help standardize the assessments of new multimodality therapies. The purpose of this study was to evaluate histological variables correlated with pathological response to radiochemotherapy protocols and independent variables for local recurrence and survival. In particular we focused our attention on pathologic assessment of tumour regression grading, and lateral spreading.

Methods: From 1994 to 2003, 58 patients with rectal cancer were studied at our department and enrolled in a single centre, not randomized study based on 5 week-sessions of radiotherapy associated with a 30 days 5-FU infusion, followed by surgical resection. All patients enrolled in the study were followed-up three times during the first year after resection and SD ± 28.06 months (mean ± twice the following years. The mean follow-up was 55.25, range 5–108 months). Results No case was found with no regression (grade 0).

Results: Tumour regression was defined grade 1 in 24.5% of cases, grade 2 was found in 58.5% of cases, 7.5% were grade 3 and 9.5% showed complete regression (grade 4). According to grading regression a lateral spreading >4 mm was found 25,6% of cases in grade 1, 55.8% in grade 2.7% in grade 3 and 11.6% in grade 4. In 80% cases of pT4 lateral spreading was >4 mm (100% were pN+), and the same spreading was found also in 53.4% of pT2 and 86.2% of pT3. Pathologic response resulted to be associated with regression grade ($P = 0.006$) and lateral spreading ($P = 0.04$).

Conclusion: Tumour regression grading is independent variable for pT ($P = 0.0002$), pN status ($P = 0.00004$), pathologic staging ($P = 0.000001$) and local recurrence ($P = 0.003$). Involvement of the lateral resection margins correlates with a bad prognosis and is a prognostic factor of local recurrence. These results lead us to consider tumour regression grading and lateral spreading weighty prognostic factors for rectal cancer that are necessary to evaluate after combined neoadjuvant radiochemotherapy and surgery to plan better therapeutical strategy for single patients on the ground of a quantitative evaluation of response to neoadjuvant treatment and the extension of tumour.

P77

Draw-the-family test and colorectal psychosomatosis

AM Lombardi, C Miliacca, S Bilali and M Pescatori

Villa Flaminia Hospital, Via L. Bodio, 58, Rome, Italy

Patients with colorectal diseases (PCD) may have an altered psychological pattern which may affect the outcome of treatment, but some of them refuse preoperative psychological consultation when needed. The aim of this prospective study is to evaluate the role of the Draw-a-Family Test (DFT) in the preoperative assessment of PCD.

Methods: Forty PCD who had surgery and 40 healthy volunteers underwent DFT. All PCD had benign anorectal diseases. Age and sex were homogeneous in both groups, median age being 42.7 and 40.1 years, respectively. Females were 27 in the PCD group, 26 in the control group. DFT is a validated tool aimed at evaluating the psychodynamic pattern. Each DFT was objectively analysed by two psychologists using a 1 to 10 score taking in account various parameters, such as family members location and size, non human drawings, descriptive details, presence or absence of the patient in the drawing etc.

Results: None of the 40 patients refused the DFT. Of the ten variables assessed in the DFT, six were significantly more frequent in the PCD than in controls. Namely still-life drawing (35 patients in the PCD group vs. 13 in the control group), malformation of body parts (31 vs. 6), wavering lines (25 vs. 3), small size figures (24 vs. 3), schematic figures (23 vs. 3), symbiotic links (23 vs. 4), ($P < 0.01$).

Conclusion: The outcome of the DFT reveals a specific psychological pattern in PCD, characterized by anxiety and/or depression traits, which may be responsible for the psychosomatic disorder. As patients' compliance was high, DFT can be used as an effective test to support the psychological assessment and possibly improve the outcome of surgery.

P78

Preoperative chemoradiotherapy for locally advanced rectal cancer

A Tamburini, P De Nardi, S Di Palo, M Ronzoni, E Villa and C Staudacher

Università Vita-Salute S. Raffaele, via Olgettina 60, Milano, Italy

The aim of this study is to evaluate results of a new scheme of neoadjuvant therapy for rectal cancer.

Methods: From January 2001 to December 2004, 43 pts, mean age 64 (43–76), M/F:21/22 with locally advanced adenocarcinoma of the rectum were treated with preoperative chemoradiation. Mean distance from the anal verge was 5 cm (range 3–10). Pretreatment stage was: T3:30; T4:11; T2:2; N0:8; N1–2: 35. Oxaliplatin 100 mg/m^2 was administered every 2 weeks for 3 courses plus continuous infusion of 5-FU 200 mg/m^2/die for 6 weeks and concomitant hyper fractionated radiotherapy (total dose 45 Gy). Surgery was performed 4–6 week after treatment.

Results: Preoperative chemoradiation was well tolerated with no grade 4 toxicity (NCI-CTC scale), 34 pts showed a clinical partial response (79%). All pts underwent radical surgery: LAR (low anterior resection) was performed in 40/43 patients (93%) and APR (abdominoperineal resection) in 3/47 (7%). No mortality, complications in 25% and anastomotic leak in 9.4% occurred. Down staging occurred in 36/43 cases (83%). An excellent response rate was observed in 18 cases (41.8%): 9 cases of pCR (20.9%) and 9 cases of pTmicr (20.9%).

Conclusion: This preoperative chemoradiation regimen was associated with a high rate of down staging and a high rate of sphincter-preservation, without increase of complications.

P79

Surgery for rectal cancer: the gold standards can be reached in a community hospital

L Pinciroli, F Binotto, R Bellomo, CA Tonizzo, C Francescutti, A De Paoli and A Infantino

Surgical Unit, Vai Savorgnano, 2, San Vito al Tagliamento (PN), Italy

The aim of this study is to review patients with rectal cancer operated on in a community hospital and to compare the results with the standards of quality as reported in the international literature.

Methods: 81/104 (77.88%) patients (M : F = 47 : 34) mean age 63 ± 14 underwent curative resection for rectal cancer (<12 cm of anal verge). TNM classification was: 4 Tis cancers, 26 stage I cases, 30 stage II patients and 21 stage III patients. Thirty-seven patients (45.67%) received neoadjuvant treatments with chemoradiation or radiotherapy alone. The surgical procedures included 57 rectal anterior resections (15 laparoscopic), 9 abdominoperineal resections (3 laparoscopic), 4 Hartmann's procedures, 7 transanal excisions, 3 procto-colectomies and 1 pelvic exenteration. The mean follow-up was 48 ± 14 months. Overall five-year survival (OS) was calculated by the Cox regression test; comparison of groups being performed with the log-rank test.

Results: The postoperative mortality was 2.4% occurring in high-risk patients. The sphincter-sparing procedure rate was 87.6%. Clinical anastomotic leakage developed in 5 (6.1%) patients after low rectal resection; 3 were managed conservatively and 2 operatively (ileostomy and drainage). The 5 year OS in the curative group was 78%; 82% for patients with and 76% for patients without neoadjuvant treatment ($P = 0.2$) and the local and distant recurrence rates were 6.1% and 14.8% respectively. The OS was 82%, 80% and 75% for stages I, II and III respectively.

Conclusion: Rectal cancer can be managed effectively in a Community hospital.

P80

Rectal cancer surgery; does a specialist colorectal surgeon make a difference?

NA Ameer, R Madan, R Kolusu, M Jajja, SM Ahmad and P Moore

Total Mesorectal Excision (TME) is one of the major determinants of local recurrence in rectal cancer surgery. Multidisciplinary Team (MDT) approach with TME can achieve a significant reduction in local recurrence. Local recurrence in our hospital was 19% before 1990 [Moore P et al. (1999) *The importance of determining the baseline local recurrence rate before changing the clinical practice to a multi-disciplinary approach;* Colorectal disease: Vol1. (supp) 29–30.] when rectal cancer surgeries were performed by general surgeons. We audited our results to compare the outcome of rectal cancer surgeries prior to and after adapting MDT approach and TME by a dedicated Specialist Colorectal Surgeon.

Methods: Retrospective analysis of 54 patients who underwent TME for rectal cancer between November 1998 and December 2002 with a minimum follow up of 18 months in our hospital. All patients had MDT approach with discussion on management before and after surgery. Patients were followed up as per UK national guidelines including clinical evaluation, ultrasound / contrast CT scan and colonoscopy. All patients with defunctioning ileostomy had a gastrograffin enema to check for leak and/or stricture before reversal.

Results: Total of 54 cases were studied, 34 males and 20 females. 33 had anterior resection, 15 Abdomino-perineal resection and 6 Hartmann's procedure. 24 patients received radiotherapy – 18 preoperatively, 6 postoperatively and 2 pre & postoperatively. 16 patients were Dukes' C1, 3 Dukes' C2, 19 were Duke's B and 16 patients were Dukes' A. There was one 30 day mortality, 2 clinical and one radiological anastamotic leak. 2 (3.7%) patients had local recurrence as compared with 19% [Moore P et al. (1999) *The importance of determining the baseline local recurrence rate before changing the clinical practice to a multi-disciplinary approach;* Colorectal disease: Vol1. (supp) 29–30.] One was Dukes' C, (recurred within 6 months) had a Circumferential resection margin (CRM) of 2.5 mm and received preoperative radiotherapy and post operative chemotherapy. The second recurrence was a Dukes' B, (recurrence after 1 year) had a CRM of 0.5 mm and had received preoperative radiotherapy.

Conclusion: In our hospital local recurrence was 19% before TME and MDT approach were practiced. The local recurrence came down to 3.7% following the change of practice to MDT discussion and TME by a specialist Colorectal surgeon. We have seen significant improvements not only in local recurrence but also in morbidity when a specialist Colorectal surgeon performs colorectal surgeries.

P81

Rectal cancer: when to perform Miles' procedure?

A Amato, M Orsatti, P Secondo and A Gramegna

Ospedale Sanremo, Via Borea, 56, Sanremo, Italy

In recent years, abdominoperineal resection (APR) was the gold standard therapy for rectal cancer. In the last decades the progress in the field of rectal surgery and multimodality therapy had progressively reduce its role. The purpose of this study is to evaluate the current indications to Miles' procedure.

Methods: From October 1994 to July 2004, 198 patients (134 males, 64 females) with a mean age of 68.2 years with middle-lower rectal cancer underwent curative surgery in our surgical department. Preoperatively, a functional anorectal work-up (clinical examination, anorectal manometry) was always carried out. Sphincter-saving procedures (SSP) were performed in 180 (90.9%) cases, 18 (9.1%) patients were submitted to Miles' procedure.

Results: Postoperative mortality was 5.5% (10 cases) and 5.5% (1 case) after SSP and APR respectively. Major complications were registered in 33 (18.3%) patients after SSP and in 3 (16.6%) patients after APR. Indications for APR were inadequate distal margin in 10 cases, sphincter and/or pelvic organs invasion in 6 cases and impaired sphincter function in 2 cases. After SSP, 24 (13.3%) patients received functional therapeutic rehabilitation to treat or minimize post-surgical urgency, frequency or incontinence. The closure of diverting ostomy was not performed in 5 patients (1 death, 2 impaired sphincter function, 2 concurrent disease).
Conclusion: In the treatment of rectal cancer, SSP is now the first therapeutic choice and the proportion of APR to SSP has gradually decreased. However, pertinent literature suggests that sometimes SSP can worsen the quality of life of patients more than APR, with the impact of the so-called 'anterior resection syndrome' on their social life. Today the new challenge should be to define which surgery is able to provide the best oncological and functional benefits.

P82

Surgical treatment for locally advanced right colon cancer

A Amato, P Secondo and A Gramegna
Ospedale Sanremo, Via Borea, Sanremo, Italy

Multivisceral resection has been accepted as the only chance for cure in locally advanced colorectal cancer. The aim of this study is to evaluate the results of en bloc extended right hemicolectomy for T4 right colon cancer. The invasion of pancreas and/or duodenum is a particular surgical challenge in this group of patients.
Methods: Between October 1994 and July 2004, 243 patients were operated on for right colon cancer. Twenty-seven (11.1%) patients presenting with a mass adherent to contiguous organs or structures were recruited for the study. Patients with perforated cancer, synchronous tumor or recurrent colonic cancer were excluded from the analysis. Mean age at surgery was 73.7 years.
Results: Resection was extended to liver (4 cases), gallbladder (2 cases), stomach (1 case), duodenum (7 cases), pancreas (2 cases), abdominal wall (9 cases), small bowel (4 cases), colon (1 case), kidney (1 case), bladder (1 case) and salpinges (4 cases). Histologically, neoplastic invasion was confirmed in 69.4% of the adjacent resected structures. In the other cases, adhesions were classified as inflammatory. A radical en bloc R0-resection with negative margins was performed in 25 patients, diversionary surgery was performed in 2 cases. Postoperative mortality was reported in 4 (14.8%) patients, major complications occurred in 5 (18.5%) cases. Overall 3-years disease-free survival rate was 61.1%.
Conclusion: Extended multivisceral resections in T4 tumors can achieve a long-term control of the disease and provide a survival rate similar to standard resections in T3 cancer. En-bloc resection is mandatory whenever possible because intraoperatively we are unable to reliably assess the nature of the adhesions.

P83

Self expanding metal stents in acute malignant colorectal obstruction. A single unit experience

M Lambertini*, P Cioccolini†, F Corinaldesi* and C Zingaretti*
U.O. Chir.Gen. Az. Osp. San Salvatore, Pesaro, Piazzale Cinelli, via del Vallato, 27, Pesaro, Italy
** U.O. Chirurgia Generale e Vascolare Azienda Ospedaliera San Salvatore, Pesaro, †Servizio di Gastroenterologia ed Endoscopia digestiva Azienda Ospedaliera San Salvatore, Pesaro*

Acute large-bowel obstruction represents a surgical challenge whose management is controversial, requiring emergency surgery in adverse circumstances with increased morbidity and mortality compared with elective situations. We report our experience with self-expanding metal stents (SEMS) in the initial management of acute neoplastic colorectal obstruction.
Methods: From December 2000 to March 2005, insertion of SEMS was attempted in 41 patients, in 15 as a primary palliative measure (group A), in 26 as a bridge to surgery (group B).
Results: Stenting was technically successful in 37 patients and the clinical success rate was 91.1%. There were 3 perforations and one patient died as a consequence of this complication. In the group B 20 patients underwent elective colonic resection; in two patients with advanced malignancy the stent was considered as definitive palliative treatment. In patients with ultimate prostheses 3 recurrent obstructions requiring a diverting stoma and two late stent migrations occurred.
Conclusion: SEMS represents a good option in the treatment of large bowel obstruction, providing time for a complete preoperative evaluation and mechanical bowel preparation, avoiding emergency surgery with a lower need for multi-staged procedures and stoma creation. In patients with advanced cancer, they provide an alternative to surgery with satisfactory results.

P84

Retrospective evaluation of loop ileostomy and loop transverse colostomy as fecal diversion in LAR with TME for rectal cancer

M Lambertini, F Corinaldesi, V Sisti and C Zingaretti
U.O. Chir. Gen. Az. Osp. San Salvatore, Pesaro, Piazzale Cinelli, via del Vallato, 27, Pesaro, Italy
U.O. Chirurgia Generale e Vascolare Azienda Ospedaliera San Salvatore, Pesaro

Proximal fecal diversion after low anterior resection is commonly recognized to reduce life-threatening complications of anastomotic leakage, but whether a loop ileostomy or a loop transverse colostomy has to be performed is still debated.
Methods: The authors retrospectively evaluated loop stoma diversion with regard to stoma related complications and morbidity in patients undergoing low anterior resection and TME for rectal cancer at their institution.
Results: From January 1999 to March 2005, 52 patients had a loop ileostomy and 33 had a transverse colostomy. One stenosis and one prolapse occurred in ileostomy group. Intestinal obstruction was more common after ileostomy closure (3 cases) than after colostomy closure (one). The only anastomotic leakage occurred in ileostomy group. Mean hospital stay and time to first bowel movement were not different.
Conclusion: In the authors' experience, despite both methods providing satisfactory fecal diversion, loop ileostomy is associated with several complications that suggest further evaluation.

P85

Functional results after neoadjuvant therapy for extraperitoneal rectal cancer

G Rizzo, C Coco, A Manno, A Verbo, G Pedretti, L Petito, D Sermoneta and C Mattana
Dept. General Surgery, UCSC, Policlinico A. Gemelli, Lays A. Gemelli, 8, Rome, Italy

The aim of this study is the evaluation of the anorectal function in patients treated with neoadjuvant radiochemotherapy for extraperitoneal rectal cancer.
Methods: One hundred patients (58 males and 42 females, median age 69 years) who underwent radiochemotherapy and surgery with total mesorectal excision for extraperitoneal rectal cancer, were submitted to a modified Wexner's questionnaire to investigate anorectal function one year after surgery.

Results: The most frequently reported evacuation disorders included: incomplete evacuation (58%), urgency (31%), more than 3 defecations a day (23%), inability to distinguish flatus from faeces (22%) and pain on defecation (5%). Forty six % of the patients were incontinent to flatus, 19% to liquid stools and 5% to solid stools. Fourteen % of patients used pads routinely and 17% on some occasions. Impaired continence resulted in some limitations on social life in 29% of patients.
Conclusion: Anorectal disfunction following anterior resection has been widely described. Preoperative radiochemotherapy is the gold standard in the care of low rectal cancer. The functional results reported in this study are less than satisfactory but, if compared with those of surgical series alone there appears to be no worse functional disturbance with neoadjuvant therapy. Prospective, randomized, controlled trials are required to clarify this question.

P86

Intraoperative radiofrequency ablation of rectal cancer pelvic recurrence

DF Altomare, M Rinaldi, P Lobascio, F Marino, M Stefano, V Troilo and L Lupo
Dept of Emergency and Organ transplantation, Policlinico, piazza G Cesare, 11, Bari, Italy

Pelvic recurrence (PR) occurs in 10 to 30% of patients undergoing curative resection of rectal cancer and is usually unsuitable for radical resection as most of PR are extraluminal. Patients with PR have short survival with poor quality of life even in the absence of distal metastases.
Case History: A 74 y-old patient was treated for a PR 45 months after resection of the rectum and coloanal anastomosis followed by chemo-radiotherapy. No distant metastases were present. A CT-scan demonstrated cancer infiltration of the presacral and precoccicegeal tissue. The patient was submitted to Hartmann's procedure but some cancer tissue remained on the sacrum. A radiofrequency (RF) ablation of this tissue was performed using a 17 cm-long Cool-tip needle electrode (Radionics, MA, USA) connected to a RF generator system (power 150 w in 4 session of 2–3 minutes). The anus was left opened with a Foley catheter inside the pelvis to ensure free drainage of the necrotic tissue.
Results: 5 days after surgery the patient had high temperature with purulent discharge through the anus, urinary retention and presacral skin ulceration. Symptoms improved underantibiotic therapy, the necrotic discharge from the anus slowly decreased and the skin ulceration healed spontaneously within 1 month. The bladder did not recover its sensitivity and required permanent catheterization. 5 months later the patient was symptoms free, the CEA levels normalized and CT-scan did not show detectable cancer tissue in the pelvis, although an endoscopic biopsy of the sacral tissue revealed an early relapse of the cancer.
Conclusion: Intraoperative RF ablation may be a further weapon against PR of rectal cancer.

P87

Sentinel lymph node mapping and ultrastaging in colorectal cancer. Our preliminary experience

A Sommariva, M Tollot, G Leoni, M Renier, B Gnocato, V Stracca Pansa and C Tremolada
General Surgery Department, Ospedale SS Giovanni e Paolo, Castello 6777, Venezia, Italy

The purpose of our study was to evaluate whether sentinel lymph node mapping (SLM) associated with immunoistochemical and microsection analysis of the sentinel lymph node can be used and its impact on staging after colorectal cancer resection.
Methods: All the patients were prospectivelly selected for SLM following pre-operative and operative staging criteria (no distant metastasis, no bulky disease). After surgical resection all the specimens were submucosally and peritumorally injected with 1–4 ml of Patent Blue V dye. All the lymph node visualized were marked as sentinel ones, microsectioned, stained with hematoxylin and eosin and immunostained for cytokeratin. A standard examination of the entire specimen was performed.
Results: 23 patients operated for CRC were selected for SLM. Successful SLM was obtained in 95% of cases (22/23). The median number of sentinel lymph nodes mapped were 2.7 (range 1–11). In 3 cases (13%) sentinel lymph nodes were the only site of metastasis. One case of negative sentinel lymph node (without metastasis) with positive non sentinel lymph node was detected. Of the sentinel lymph node positive cases, no micrometastatic lymph node occurred and no case was detected only by immunoistochemical analysis.
Conclusion: SLM associated with pathological ultrastaging is an easy and accurate technique for the staging of colorectal cancer after resection. Further studies are needed to verify if SLM will permit the identification of a larger subset of patients who might benefit of neoadjuvant therapy.

P88

Preoperative hyperfractionated radiotherapy and concomitant chemotherapy in locally advanced primary rectal cancer in elderly patients

G Foresta, S Franco, S Cordio, F Marletta and G Giannone
Surgical Oncology Unit Garibaldi, Nesima Hospital, Via Palermo 511, Catania, Italy

To demonstrate the feasibility, tolerability, pathologic complete remissions (pCR) rate and sphincter preservation of preoperative radiotherapy plus chemotherapy in locally advanced rectal cancer in elderly pts (age $\geq$ 65 yrs).
Methods: From January 1999 to January 2005 34 pts with locally advanced rectal cancer were enrolled: M/F 25/9; median age 72 (range 65–81); median distance from the anal verge: 5 cm (range 1–14); T3/T4 tumors: 26/8. RT-CT consisted of 1.25 Gy twice a day (total dose 45 Gy) concomitant to continuous infusion of 5-FU (250 mg/smq/day). Surgery was performed with TME within 8 weeks from the completion of RT-CT.
Results: All but one patients completed preoperative treatment and 32 underwent surgery. 31 pts had curative resections and pTNM stage was as follows: pCR: 7 pts;T1–2N0: 9; T3N0: 10; T3N1: 5. Dowstaging was observed in 20/31 patients (65%). Main toxicity were diarrhoea and proctitis recorded in respectively 12% and 8% of pts. Surgical morbidity was acceptable although one post-operative death was recorded. 8 pts have died: 6 were related to rectal cancer progression and 2 were not related. Local recurrence occurred in 2 pts and 2 pts had visceral failures.
Conclusion: Our study demonstrated that preoperative chemo-radiotherapy is feasible even in elderly patients obtaining similar results in term of pCR and sphincter saving as in younger patients. The downstaging rate was encouraging A longer follow up is required to confirm the benefit of combined treatment on local control rate and overall survival.

P89

Functional outcomes and quality of life in patients operated for rectal cancer

S Franco, G Foresta, S Cordio and G Giannone
U.O. Chirurgia Oncologica P.O, Via Palermo 511, Catania, Italy

The goal in the treatment of rectal cancer is the recovery of the disease with the best fecal continence and quality of life. The Authors compared quality of life and manometric results in patients treated with neo-adjuvant chemotherapy and rectal low anterior resection (LAR).

Methods: From January 1998 to September 2003 63 patients with advanced (T3–T4) rectal cancer underwent neo-adjuvant chemotherapy. Subsequently 45 of them underwent LAR with reservoir (20) or without (25). After 6 and 12 months the quality of life was evaluated through a questionnaire (FIQL). Later they underwent manometric evaluation measuring resting, squeeze and rectal compliance.
Results: The manometric results and the questionnaire scores agreed in 75% of patients. In detail, patients with hypotonic sphincter had a better (one could say good) quality of life if a LAR with reservoir had been performed respect to the patients without reservoir.
Conclusion: Performing LAR with reservoir after neoadjuvant chemotherapy in patients with hypotonic sphincter improves quality of life. Preoperative anorectal manometry could select patient who would benefit from reservoir construction.

LAPAROSCOPIC

P90

Laparoscopic versus open colorectal surgery. A cost-benefit analysis in a randomized trial

F Matteo, M Braga, A Vignali, W Zuliani, V Civelli and V Di Carlo
Ospedale San Raffaele, Via Olgettina 60, Milan, Italy

The main purpose of this study is to compare the hospital costs of LPS and open colorectal surgery in a large series of randomised patients.
Methods: 517 patients with colorectal disease were randomly assigned to LPS (n = 258) or open (n = 259) resection. The following costs were calculated for each patient: surgical instruments, operative room occupation, routine care, postoperative morbidity, and length of hospital stay (LOS).
Results: Operative time was 37-minute longer in the LPS group. Overall morbidity rate was 18.2% in the LPS group vs. 34.7% in the open group ($P = 0.005$). The mean (SD) LOS was 7.8 (1.5) days in the LPS group vs. 9.5 (2.4) days in the open group ($P = 0.0001$). The additional operative charge in the LPS group was € 1171 per patient randomized (€ 864 due to surgical instruments and € 307 due to longer operative time). The saving in the LPS group was € 1046 per patient randomized (€ 401 due to shorter LOS in uncomplicated patients and € 645 due to the lower rate of postoperative complications). The net balance resulted in € 125 additional cost per patient randomly allocated to the LPS group.
Conclusion: Considering oncologic adequacy and clinical, metabolical and cosmetic advantages of LPS, the present study should encourage the transition of laparoscopic colorectal surgery into routine practice.

P91

Laparoscopic vs. open colorectal resection: postoperative advantages and results

M Brulatti, MC Cucchi, S Gelsomini, V Papa, D Munari, R Saponara and L Liguori
Oncologic Surgery Bellaria Hospital, Via Altura, 3, Bologna, Italy

The feasibility and safety of laparoscopic colorectal resection is yet to be established; even though laparoscopy cannot be considered a factor of reduced mortality in colorectal surgery, many reports have shown improved postoperative course and reduced in postoperative hospital stay vs open surgery.
Methods: We present our experience of laparoscopic vs open colorectal resections, with special regard to postoperative complications and postoperative hospital stay. From December 2004 to April 30 2005, 181 patients underwent resections for colorectal neoplasm (165 for malignant and 16 for benign tumours); there were 92 women and 89 men, with a median age of 65 years (range 34–89); 51 right hemicolectomies, 68 left hemicolectomies, 40 anterior rectal resection and 22 segmental resections were performed. In 108 cases an open resection (OR) and in 73 a laparoscopic assisted resection (LR) were performed; the two group were similar for demographic characteristics. In both group intraoperative and postoperative data were recorded.
Results: The median operative time was 111′ (OR) vs 150′ (LR) for colonic resections and 150′ (OR) vs 168′ (LR) for rectal resections. Postoperative mortality in OR was 2% and 0% in LR; the incidence of overall postoperative complications was 14% in OR and 8% in LR: anastomotic failure was 5.4% in OR and 1.5% in LR; further surgery was required in 6 patients in OR and in 1 patients in LR; the median postoperative hospital stay was 9.5 days (OR) vs 8 days (LR) for colonic resections and 10 days (OR) vs 8.5 days (LR).
Conclusion: In our experience LR in colorectal surgery shows a reduction in postoperative complication rate and has several advantages including less pain, early postoperative recovery and finally a shorter postoperative hospital stay when compared to open colorectal resection. We believe that these good results can be achieved only with a strict selection of patients for laparoscopic resections: obesity, previous abdominal surgery, severs co-morbidity which contraindicates pneumoperitoneum and advanced cancer are the major contraindications to laparoscopic procedures. The main controversies on laparoscopic procedures for colorectal cancers is centred on the oncologic adequacy in long term follow-up; further study must answer to this question.

P92

Laparoscopic colectomy for cancer: an analysis of 229 cases

F Puccio, M Solazzo, P Marcianò, R Fadani, F Benzi and P Regina
Dipartimento Chirurgia Ospedale Manerbio, Via marconi 7, Manerbio (BS), Manerbio (BS)

From June 1996–December 2004, 229 patients with colorectal cancer underwent laparoscopic resection utilizing 10 mm trochars for dissection and minilaporotomy for anastomosis and specimen retrieval.
Methods: One hundred and twenty cases were males with an age range from 29–92 years. In 209 of the cases overall (91%) the procedure was able to be completed laparoscopically including 54 right hemicolectomies, 13 segmental transverse colectomies, 48 left hemicolectomies, 51 sigmoid resections, 56 anterior resections and 7 proctocolectomies.
Results: Twenty cases (9%) required open conversion. There were no intraoperative complications with 20 cases (9%) experiencing postoperative complications: 5 cases of postoperative adhesive intestinal obstruction, 11 anastomotic leaks, 3 postoperative cases of haemorrhage and 1 patient with a port-side hernia and obstruction. The median number of retrieved lymph nodes was 25 (range 2–48) and the median resection margin was 5.5 cm. (range 2–9 cm) The median duration of operations was 210 min. (range 140–340 min.) and the median hospital stay was 8.5 days.
Conclusion: The technique of laparoscopic resection as practised in our department for colorectal cancer is cost-effective and safe with good oncologic margins of resection and lymph node retrieval when compared with traditional open surgery.

P93

Laparoscopic versus open colorectal surgery. A cost-benefit analysis in a randomized trial

F Matteo, M Braga, A Vignali, W Zuliani, V Civelli and V Di Carlo
Ospedale San Raffaele, Via Olgettina 60, Milano, Italy

The main purpose of this study is to compare the hospital costs of LPS and open colorectal surgery in a large series of randomised patients.

Methods: 517 patients with colorectal disease were randomly assigned to LPS (n = 258) or open (n = 259) resection. The following costs were calculated for each patient: surgical instruments, operative room occupation, routine care, postoperative morbidity, and length of hospital stay (LOS).

Results: Operative time was 37-minute longer in the LPS group. Overall morbidity rate was 18.2% in the LPS group vs. 34.7% in the open group ($P = 0.005$). The mean (SD) LOS was 7.8 (1.5) days in the LPS group vs. 9.5 (2.4) days in the open group ($P = 0.0001$). The additional operative charge in the LPS group was ¥ 1171 per patient randomized (¥ 864 due to surgical instruments and ¥ 307 due to longer operative time). The saving in the LPS group was ¥ 1046 per patient randomized (¥ 401 due to shorter LOS in uncomplicated patients and ¥ 645 due to the lower rate of postoperative complications). The net balance resulted in ¥ 125 additional cost per patient randomly allocated to the LPS group.

Conclusion: Considering oncologic adequacy and clinical, metabolic and cosmetic advantages of LPS, the present study should encourage the transition of laparoscopic colorectal surgery into routine practice.

P94

Rise of colorectal cancer in Singapore: an epidemiological review

MTC Wong and KW Eu

Department of Colorectal Surgery, Singapore General Hospital, Singapore

In the last three and a half decades, colorectal cancer has risen from being the fourth and fifth commonest cancer in Singaporean males and females, respectively, to become the most common combined gender cancer today.

Methods: Epidemiological data from both National and International sources were reviewed and the trends of colorectal cancer in Singapore over the past 35 years are presented.

Results: Colorectal cancer has ranked second for both males and females in Singapore since 1983. According to latest figures released by the Singapore Cancer Registry (2004), it now accounts for 17.4% of cancers in males and 14.4.% in females and is the most frequent cancer when both genders are combined. In the past 35 years, the age-standardized incidence of colorectal cancer in Singaporean males and females has risen at an annual rate of approximately 2.6% and 2.35%, respectively. Singapore now has the highest age-standardized incidence rates in Southeast Asia, 35.1% in males and 29.9% in females, with incidence rates in local Chinese now slightly higher than those of Chinese in Hawaii and Los Angeles. Colorectal cancer is the second most common cancer in each of the three major ethnic groups (Chinese, Malays and Indians), accounting for the second highest cause of cancer mortality in both genders, 13% in males and 15.9% in females. Currently, 75.6% of colorectal cancers occur in the distal colon, and adenocarcinoma has remained the predominant histological subtype (90%) over the last decade.

Conclusion: Evidence suggests that colorectal cancer trends will continue to rise worldwide, with estimates reaching a staggering 15 million new cases by 2020. Governmental support of health education and screening programs are vital to stemming the tide, as well as the modification of environmental influences and continued cancer research and training into the latest surgical techniques.