

T101

SMALL INTESTINAL T CELL ACTIVATION IN TROPICAL ENTEROPATHY. AM Veitch¹, P Kelly¹, JOM Pobee², I Segal³, SK Spies⁴, MJG Farthing. ¹Digestive Diseases Research Centre, St Bartholomew's & the Royal London School of Medicine & Dentistry, London, ²University Teaching Hospital, Lusaka, Zambia, and Gastroenterology Divisions of the Universities of ³Witwatersrand and ⁴Pretoria, South Africa.

Introduction and aims Tropical enteropathy has been described in the healthy indigenous populations of several African countries. The mechanisms underlying the small intestinal mucosal changes in this syndrome remain unclear. T cell activation has been demonstrated to result in villous atrophy and crypt hyperplasia, and we therefore investigated whether this process has a role in the pathogenesis of tropical enteropathy.

Patients and methods 10 black Zambian subjects, 20 black South African subjects, and 22 white South African subjects undergoing routine upper GI endoscopy for dyspepsia (GU, DU, diarrhoea and AIDS excluded) were studied. Distal duodenal villous height (VH) and crypt depth (CD) was measured by computerised image analysis of formalin-fixed paraffin-processed biopsies. Snap-frozen duodenal biopsies were subjected to dual colour immunofluorescence staining for CD69/CD3, allowing quantitative assessment of T cell expression of the activation marker CD69.

Results Median VH was lower [308 (185-402) vs 412 (235-456)µm p<0.05], and CD greater [190 (141-206) vs 154 (119-188) p<0.05], in Zambians compared to black South Africans. There was no significant difference in VH or CD between black and white South Africans. Median percentage CD69/CD3 was greater in Zambians compared to black South Africans [80 (63-100) vs 60.3 (33-86) p<0.001] but white South African CD69 expression [66.5 (35-95.5)] was not significantly different from that of black South Africans.

Conclusions Tropical enteropathy is present in the black Zambian population but not in the relatively less deprived urban black South African population. Tropical enteropathy is associated with small intestinal mucosal T cell activation.

T103

COMPARISON OF SMALL BOWEL RADIOLOGY AND PUSH ENTEROSCOPY IN THE INVESTIGATION OF SMALL INTESTINAL PATHOLOGY

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Introduction & Methods: Push enteroscopy (PE) is a promising technique for visualisation, biopsy, and therapy of the proximal small intestine and early results of its efficacy are encouraging. We have compared this technique with small bowel radiology (SBR) in 41 patients where there was a strong suspicion of small intestinal disease. Indications for investigation were: anaemia (11), overt bleeding (8), diarrhoea (7), abdominal pain (3), diarrhoea with abdominal pain (5), and polyposis syndromes (3). Twenty patients had small bowel meals and 21 small bowel enemas (enteroclysis). PE was performed under sedation using the Olympus SIF10 enteroscope. All procedures were well tolerated.

Results: Seventeen patients (42%) were found to have small intestinal abnormalities. These were detected by both modalities in 4 patients (jejunal tumour, lymphangiectasia, and 2 cases of Crohn's disease), by PE alone in 7 cases (6 cases of angiodysplasia and one case of coeliac disease), and by SBR alone in 6 cases (jejunal tumour, jejunal ulcer, jejunal stricture, and 3 cases of ileal Crohn's disease). The 3 jejunal lesions missed by PE were all in the distal jejunum. In patients with Crohn's disease SBR was superior at showing extent of disease, but PE allowed biopsy to assess disease activity. PE was used to provide laser photocoagulation to 4 lesions that were actively bleeding and this was effective in all cases.

Conclusions: PE will often identify lesions missed by SBR, and vice versa. When lesions are identified by both techniques the information obtained is additive. SBR is more effective for distal disease and assessing extent of disease. PE allows mucosal visualisation and is particularly useful for identifying angiodysplasia. It also allows biopsy and treatment of any lesions detected. PE and SBR are therefore complimentary and should be used together in the investigation of small intestinal disease.

Endoscopy and oesophagus T102-T116

T102

WIRELESS TRANSMISSION OF A COLOUR TELEVISION MOVING IMAGE FROM THE STOMACH USING A MINIATURE CCD CAMERA, LIGHT SOURCE AND MICROWAVE TRANSMITTER.

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An experimental endoscope was constructed using a miniature CCD camera, video processor, light source, microwave transmitter and battery. A microwave receiver was positioned approximately 50 cm from the endoscope and connected to a colour video monitor. Using this arrangement, high quality colour moving television images were transmitted from a model stomach to the external receiver without wires, fibre optic bundles or cables. The ability of this system to transmit moving images through the abdomen was tested by placing the device in a box behind a volunteer's back and the receiver in front of his abdomen. In other experiments the "endoscope" was placed inside the mouth and again good quality images were received. In separate experiments the endoscope was placed inside post-mortem stomachs and transgastric moving television pictures were transmitted without wires, cables or fibre optic bundles.

Video signal transmission was accomplished using a miniature 10 mW microwave transmitter operating at 10.3 GHz. The light source was a miniature halogen lamp. The miniature video camera, integral controller, transmitter and lamp were powered by small low voltage batteries.

Conclusion: these experiments demonstrate the feasibility of constructing a new type of endoscope which can transmit high quality moving colour television images from the gastrointestinal tract without requiring fibre optic or electrical cables to be passed through the mouth or anus.

T104

MEASUREMENT OF INSERTION DEPTH DURING FLEXIBLE SIGMOIDOSCOPY(FS) OR COLONOSCOPY BY ELECTROMAGNETIC IMAGING(EMI) : IMPLICATIONS FOR COLORECTAL CANCER SCREENING.

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Introduction

Approximately 70% of all colorectal cancers are situated distal to the splenic flexure(SF). Previous attempts have been made to assess depth of insertion of a 60cm FS using either anatomical landmarks or a single plain abdominal X-ray both of which can be unreliable.

Methods and Results

We have used EMI which in real time gives information regarding scope position, configuration and depth of insertion (Lancet 1993;341:719-722. Gut 1995;36:913-917). Retrospectively using stored images we have examined 20 patients who had a FS and 84 who underwent colonoscopy. When the endoscope had been inserted to 60cm we checked the tip position. In 41.4% cases the scope was still in the proximal sigmoid, in 20.2% the tip had only just passed to or just beyond the sigmoid/descending colon junction, in 9.6% it was in mid descending colon, in 11.5% it had reached the splenic flexure while in 17.3% it was in the distal or mid transverse colon.

Conclusion

Using a 60cm FS the splenic flexure is reached (or passed) in less than 30 % of cases. Longer instruments or better ways of preventing loop formation of existing length scopes are required to optimise this screening method.

T105

OPEN ACCESS GASTROSCOPY (OAG) IN GENERAL PRACTICE (GP): OUTCOMES AND COSTS

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Background: OAG, a service traditionally supplied by hospital units has been undertaken by a general practice surgery affiliated to a large DGH. This report describes the financial considerations of setting up such a GP based unit and compares the provision of OAG in the GP unit with the affiliated hospital.

Design: Prospective, comparative study of all patients referred. Review of financial arrangements for setting up the GP unit and business plan for acting as a sub-contracted provider unit.

Results: One thousand six hundred and seventy four patients were not randomly allocated for OAG over a 15 month period: 42% at the hospital unit v. 40% at the GP clinic; 18% defaulted. Diagnoses made included normal OGD (43% v. 39%), upper GI malignancy (2% v. 1%), major oesophageal pathology (16% v. 14%) and peptic ulcer disease (12.5% v. 7.5%). Follow up information was collected at 3 months on 90% of all patients; 60% of patients in each group considered their symptoms to be better at 3 months and three quarters of patients in each group were satisfied with the overall service. Ninety two percent of GPs responding to a questionnaire at the end of the study period felt their patients benefited as a result of the services regardless of centre. Capital costs to convert the GP surgery and supply equipment was £75,000; a monthly payment of £2,800 was made to cover salaries (nursing, clerical and medical) and running costs: funding was supplied by the Regional Health Authority from the research and development budget. At the end of the study period, the GP unit agreed with the hospital to be sub-contracted to provide 1000 OAGs over 12 months, for 60% of the hospital charge to fundholders. This figure allows for running costs, salaries and depreciation of equipment (replacement at 5 years).

Comment: OAG in a general practice setting is a viable alternative to a hospital based service and although the initial costs are considerable financial advantages may be shown if there is an adequate through put of patients.

T107

SAFE INSERTION AND LOW MIGRATION RATE OF 37 SELF-EXPANDING METALLIC STENTS FOR MALIGNANT DYSPHAGIA - EXPERIENCE FROM A SINGLE CENTRE.

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Inoperable malignant strictures of the oesophagus may be treated by placement of a stent. Insertion of semi-rigid plastic tubes is associated with a significant mortality and subsequent migration occurs in some patients. Self-expanding metallic stents are claimed to have a low insertion mortality, migrate less often and have a greater internal diameter. We report our experience of these from a single specialised unit.

During an 18 month period all suitable patients with inoperable malignant dysphagia had a self-expanding, coated stent inserted and positioned fluoroscopically under sedation via the flexible endoscope. Stents were inserted in 37 patients by one of two endoscopists. The median age of patients was 74 (range:50-94). There was no procedure related mortality. After 164 patient months of follow up, 30 (81%) patients had maintained a normal diet. In total 14 patients were re-admitted at a later date. Dysphagia recurred in 7 (19%) patients: stent migration - 3; tumour overgrowth - 2; bolus obstruction - 1 and peptic stricture above stent - 1. Apart from 1 patient who was terminal, all were successfully treated by; replacement of their stent or overlapping a second stent - 3, radiotherapy - 1, disimpaction - 1 and dilatation -1.

Our zero insertion mortality, good relief of dysphagia and very low bolus obstruction rate support the claimed advantages of this type of stent. Stent migration still occurs but was easily treated. These data suggest that the higher costs of self-expanding metallic stents are offset in part by their lower complication rates.

T106

RECTAL BLEEDING AND THE NURSE PRACTITIONER ENDOSCOPIST

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To audit our experience with colonoscopy in the diagnosis of colorectal disease and to identify the possible role of a nurse-led open-access flexible sigmoidoscopy service.

A retrospective audit of experience with colonoscopic diagnosis of colorectal disease in a specific cohort of 200 patients with normal clinical and rigid sigmoidoscopy findings who had a normal barium enema or one showing diverticular disease only. Patients were divided into 2 groups on the basis of whether or not they reported bleeding per rectum. A prospective audit of a newly-introduced nurse-led open-access flexible sigmoidoscopy service.

128/141 (90.8%) of colonoscopies performed for rectal bleeding identified a significant underlying cause whilst only 1/59 (1.7%) procedures identified a source if no bleeding was reported at presentation. In addition 123/129 (95%) of lesions were distal to the splenic flexure and 120/129 (93%) of patients were aged over 40 years. In response to the audit we established an open-access flexible sigmoidoscopy service for patients aged over 40 years reporting rectal bleeding. All endoscopies are performed by a trained senior nurse. Early experience with 35 patients has shown that 85% have an identifiable cause to account for the bleeding. Thirty percent have a major underlying pathology (carcinoma n=2, polyps n=5, colitis n=3) whilst the remaining 55% have prominent haemorrhoids.

A flexible sigmoidoscopic examination reliably identifies the cause of bleeding and in many cases allows treatment in a single visit. This reduces the cost and inconvenience of outpatient investigation of colorectal disease together with the radiation exposure of barium enema examination. We feel that the provision of such a service will lead to benefits for both patients and clinicians.

T108

EXPANDING METAL STENTS FOR THE PALLIATIVE TREATMENT OF OESOPHAGEAL CARCINOMA: OUR EXPERIENCE IN 130 PATIENTS - THE PROBLEMS AND THE BENEFITS.

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60% of patients who present with oesophageal carcinoma in Britain are only suitable for palliative treatment. Expanding metal stents may avoid some of the problems encountered with other palliative methods.

Patients and Methods: 130 patients (age 40-92 yrs) who were found to have inoperable oesophageal carcinoma after assessment by endoscopy, biopsy and CT, had metal endoprostheses placed in the oesophagus for the palliation of oesophageal carcinoma. 59 had squamous carcinomas, 62 adenocarcinomas, 6 undifferentiated and 3 metastatic carcinomas. 91 patients had covered Wallstents, 32 patients had Strecker stents, 6 covered Gianturco stents and 1 had an uncovered Wallstent placed under radiological control. All attempted insertions were successful. Most patients were able to eat a near normal diet after treatment and the mean dysphagia score decreased from grade 3 to 1 (p < 0.0001). Overall complications occurred in 42 patients (32%). 2 patients died within 24hrs of stent placement (GI bleeding and cardiac disease). Partial (13) or complete migration (6) occurred in 19 patients (15%), 18 of whom had stents placed across the gastro-oesophageal junction. 22 patients suffered recurrent dysphagia from tumour overgrowth (10), ingrowth (8) and food bolus (4). 10 were treated by endoscopy and laser but 12 required placement of additional co-axial overlapping stents. A total of 185 stents were eventually placed. **Conclusions:** Metal expanding stents are highly effective for the palliation of malignant dysphagia but problems such as stent migration and blockage by tumour overgrowth and ingrowth must be addressed by any new stent designs.

T109

AN AUDIT OF INTRACAVITARY IRRADIATION (BRACHYTHERAPY) IN 66 CASES OF INOPERABLE CARCINOMA OF THE OESOPHAGUS

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Between 1991 and 1994, 66 patients (Age range 42-91 y) with inoperable carcinoma of the oesophagus in Humberside were treated with intracavitary irradiation as the primary form of palliative therapy. The dose given in each case was 15 Gy.

There was one perforation and one fistula, but no mortality. Another seven minor complications were noted.

The histology in these cases was 28 squamous (S), 27 adeno (A) and 11 undifferentiated (U).

38 patients required subsequent dilatation (19 S, 14 A, 5 U), there were 109 dilatations (2.8 dilatations per patient)(55 S, 45 A, 9 U). The mean number of days between irradiation and the first dilatation was 84 days (88 in S, 88 A, 64 in U).

22 patients required later insertion of prosthesis (12 S, 7 A, 3 U). The mean number of days between the original irradiation and the insertion of the prosthesis was 137 (137 in S, 156 in A, 87 in U).

44 patients died with mean survival of 191 days from receiving irradiation (12 patients, mean 168 ± 126 SD in S) (10, 221 ± 213 SD in A) (5, 183 ± 130 SD in U).

Conclusions

Intracavitary irradiation offers good palliative therapy in cases of inoperable carcinoma of the oesophagus.

There is no difference in the outcome between squamous or adenocarcinoma.

T111

FAMILIAL FACTORS AND GASTRO-OESOPHAGEAL REFLUX DISEASE

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Patients with gastro-oesophageal reflux disease commonly report that family members have dyspeptic symptoms. It is not known whether this reflects the high prevalence of reflux disease or an inherited predisposition to reflux.

Four groups of patients' relatives were studied using a standardised reflux questionnaire. Three groups each consisted of 30 consecutive age-matched patients with reflux-type symptoms, who had undergone ambulatory pH monitoring - group (i) had a total time $\text{pH} < 4 < 5\%$ and lower oesophageal sphincter pressure (LOSP) > 10 mm Hg, group (ii) had a total time $\text{pH} < 4 > 5\%$ and LOSP > 10 mm Hg, group (iii) had a total time $\text{pH} < 4 > 5\%$ and LOSP < 10 mm Hg. The fourth group comprised 30 age-matched control patients without reflux symptoms recruited from medical out-patients. Each patient was asked to provide postal details for all living first degree relatives over 18 years old.

From the 402 questionnaires posted, 215 (54%) replies were received (4 refused to take part). The four groups of relatives who replied were well matched in terms of age, sex and type of relative. Group (iii) relatives reported more heartburn than both controls (44% cf. 24%, $p < 0.05$) and group (i) relatives (44% cf. 26%, $p = 0.07$). Group (ii) relatives reported more heartburn than controls (41% cf. 24%, $p = 0.08$). Furthermore, group (iii) relatives reported more antacid consumption than controls (40% cf. 14%, $p < 0.01$).

Symptoms of reflux disease are more common in relatives of patients with an abnormal pH study. This relationship appears most marked in relatives of patients with low LOS pressure.

T110

INITIAL EXPERIENCE OF METAL STENTING AS PALLIATION OF STENOSING CARCINOMA

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Introduction: We report the use of eight self-expanding metal stents (SEMS) in five patients (three males, mean age 79, range 66-87) to prevent bowel obstruction.

Patients and Methods: Three patients with primary and two with recurrent symptomatic stenosing rectal adenocarcinomas were selected for stenting because of incipient obstruction. Laser therapy was inappropriate for anatomical reasons. Four patients were unfit for surgery; one refused operation. Three patients had laser therapy to debulk exophytic parts of the tumour before stenting. After a planning barium enema a SEMS was inserted under x-ray control using either submucosal or intraluminal injections of contrast to delineate the proximal position of the tumour. A small endoscope distal to the SEMS was used to ensure the correct positioning of the unexpanded stent distally before the stent was released.

Results: Seven stents (87.5%) were successfully deployed initially. In one patient stenting failed because a fixed loop of bowel prevented positioning of the unexpanded stent. Three stents migrated distally in two patients and on both initial occasions these were repaced. To secure position the stents were balloon dilated using a through the scope 14mm balloon. Two patients required further laser therapy after stenting for tumour overgrowth. One of these patients later needed a second longer covered metal stent within the first after mechanical clearing of ingrowing tumour. Two stented patients have died at home after 103 and 129 days. The other stented patients are alive after 93 days and 490 days (the latter patient decided to have a palliative resection 213 days after initial stenting). No patient either suffered bowel obstruction or significant side effects after stenting. One patient reported mainly nocturnal tenesmus relieved by night sedation.

Conclusions: Self-expanding metal stents are costly but may have a limited place in the palliation of rectal cancer. Formal trials are needed to assess their effect on quality of life endpoints compared to other palliative methods.

T112

SUPINE REFLUX IN BARRETT'S OESOPHAGUS: THE TEMPORAL RELATIONSHIP BETWEEN ACID AND BILE REFLUX. REK Marshall, A Anggiansah, WA Owen, WJ Owen. Dept. of Surgery, Guy's Hospital, London SE1 9RT

Introduction. We have previously shown the increased total acid and bile reflux in Barrett's oesophagus, the good correlation between the two, and the fact that supine reflux is significantly increased in Barrett's compared with uncomplicated gastro-oesophageal reflux disease. Despite this, it appears that acid and bile reflux episodes do not necessarily occur together. The aim of this study was to investigate the temporal relationship between bile and acid reflux in the supine position.

Methods. 20 patients with biopsy proven Barrett's (10 male, 10 female), mean age 56.1 years (range 28-80 years) underwent manometry followed by 24 hour pH and bile monitoring. All patients had stopped acid suppressants at least 7 days before. The pH and fibreoptic bile probes were placed 5cm above the manometrically defined lower oesophageal sphincter. Total, upright and supine reflux times were calculated, and the supine period was divided into quarters to determine the pattern of bile and acid reflux at night.

Results. The mean LOS pressure was 2.8mmHg. Mean length of Barrett's mucosa 4.5cm. Median % total acid reflux times ($\text{pH} < 4$): total 12.65, upright 7.35, supine 17.1. Median % total bile reflux times (absorbance > 0.14): total 16.05, upright 7.2, supine 27.3. There was good correlation between acid and bile reflux in all three time periods ($p < 0.05$ Spearman rank correlation). For the 1st, 2nd, 3rd and 4th quarters of the supine period respectively, median % acid reflux times were 21.6, 15.3, 0.85*, and 0, and median % bile reflux times were 35.7, 44.8, 31.6*, and 0.6 (* $p < 0.05$ acid v bile, Mann-Whitney U test).

Conclusions. Supine acid and bile reflux are greatest in the 1st half of the night. However, there is significantly more bile reflux than acid reflux in the 3rd quarter. Long periods of bile reflux occur at $\text{pH} > 4$, when taurine conjugates are soluble and available for mucosal damage, and this strengthens the evidence for the role of bile in the pathogenesis of Barrett's oesophagus. The reasons for the differing patterns of supine acid and bile reflux demand further investigation.

T113

THE PREVALENCE OF INTESTINAL METAPLASIA AT THE GASTRO-OESOPHAGEAL JUNCTION IN PATIENTS WITHOUT BARRETT'S OESOPHAGUS

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Intestinal metaplasia (IM) immediately below the squamo-columnar junction (SCJ) has been reported in 18% of unselected patients without Barrett's oesophagus undergoing gastroscopy (Spechler 1994). An association with gastro-oesophageal reflux and oesophageal adenocarcinoma has been suggested.

We have studied 85 unselected patients (age 54(22-90) years, 35 male) undergoing diagnostic gastroscopy. 3 patients were found to have endoscopic evidence of Barrett's oesophagus and were excluded from further analysis. Each patient had multiple mucosal biopsies taken - two antral, three fundal within 2cm of the gastro-oesophageal flare, three immediately below the SCJ and one 2cm above the SCJ. All biopsies were stained with haematoxylin/eosin, alcian blue/periodic acid-Schiff (AB/PAS), and Gimenez for *Helicobacter pylori*. All biopsies were examined by one pathologist (SKS). IM was diagnosed by the presence of goblet cells and altered mucin phenotype on AB/PAS.

17 patients (21%) had IM immediately below the SCJ. They were older than patients without IM (60(29-90) cf. 51(22-77), $p=0.01$) and more likely to have metaplasia of the fundus or antrum (29% cf. 11%, $p=0.05$). There was a weak association with *Helicobacter* (65% cf. 42%, $p=0.09$). However, they were no more likely to have reflux symptoms (53% cf. 52%), endoscopic oesophagitis (29% cf. 35%) or histologic oesophagitis (12% cf. 20%).

Intestinal metaplasia immediately below the squamo-columnar junction is a common finding, but appears unrelated to reflux disease.

T115

REDUCTION OF GASTRO-OESOPHAGEAL BILE REFLUX BY OMEPRAZOLE IN BARRETT'S OESOPHAGUS: AN INITIAL EXPERIENCE. REK Marshall, A Anggiansah, WA Owen, WJ Owen.
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Introduction. Omeprazole markedly reduces gastro-oesophageal acid reflux but its effect on bile reflux has not been well documented. Using a fibre-optic bilirubin probe, the effect of omeprazole on bile reflux can now be objectively measured on an ambulatory basis.

Methods. 10 patients (6 female, 4 male), mean age 52.8 years (range 28-77 years) underwent static manometry followed by combined, 24 hour, dual channel pH (oesophageal and gastric) and oesophageal bilirubin monitoring. All acid suppression had been stopped at least 7 days before. The oesophageal pH and bilirubin probes were placed 5cm above the LOS, the gastric pH probe 15cm distal to the proximal pH sensor. 24 hour pH and bile monitoring was repeated on omeprazole 20mg bd after 6-10 weeks of treatment.

Results. Mean LOS pressure was 3.9 mmHg. 6 out of 10 patients had a non-specific motility disorder. All had good symptom relief on treatment.

	Acid reflux (oes. pH <4)	Alkaline reflux (oes. pH >7)	Bile reflux (abs. >0.14)	Gastric alk (pH >4)
No treatment	18.8 (10-22.4)	13.6 (11.3-20.8)	24.6 (9-46.6)	9.8 (2.7-15)
Omeprazole	1.0* (0.5-1.6)	4.5 (0.4-9.6)	2.3* (0.5-7.1)	55.4* (44.7-70)

* $p<0.001$ no treatment v omeprazole (Mann-Whitney U test). All values are median percentage total times (interquartile range). It can be seen that there is a significant decrease in oesophageal acid and bile reflux with omeprazole, a significant increase in gastric alkaline shift, and a non-significant fall in oesophageal alkaline time. No patients had pathological acid reflux times on omeprazole, and only one patient had raised bile reflux times, by our laboratory normal values, on treatment.

Conclusions. In view of the likely role bile plays in the pathogenesis of Barrett's oesophagus, these results are encouraging for those receiving medical treatment. The manner in which omeprazole has this effect is the subject of further investigation.

T114

REGRESSION OF BARRETT'S EPITHELIUM USING ARGON GAS COAGULATION AND ACID SUPPRESSION.

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Barrett's mucosa results from excessive acid reflux and has the potential for malignant transformation. Recent studies have shown that ablating the glandular epithelium with laser and suppressing acid reflux with proton pump inhibitors results in squamous regeneration. Laser is expensive and not widely available. The development of endoscopic argon gas coagulation offers a cheaper alternative.

Thermal imaging studies (using cadaver oesophagus) were carried out to establish the optimal use of the coagulation unit (ARCO-MBC, Soring, Germany). Using different power levels (1-5) and burns of variable duration the temperature rise on the outside of the oesophagus was measured. The depth of the thermal damage was assessed histologically. Two patients with oesophageal adenocarcinoma arising in Barrett's mucosa were treated with the argon gas coagulator using 1 second burn on level 2-3 power setting.

On maximum (level 5) power the temperature rise on the outside of the oesophagus was 6°C in six seconds. A one second burst on maximum power (level 5) produced full thickness necrosis of the stratified squamous mucosa but not to the muscularis mucosae. Two and three second bursts produced necrosis to the level of the submucosa. Four seconds produced necrosis to the level of the submucosal glands.

To date two treatments have been carried out on each patient with partial regression of the superficial tumour. Treated areas of the dysplastic columnar mucosa resulted in squamous regeneration seen endoscopically and confirmed histologically.

The argon gas coagulator is effective at producing superficial thermal damage in the oesophagus. Preliminary results suggest that squamous regeneration occurs following thermal ablation of glandular mucosa in the setting of acid suppression. Further studies employing greater numbers of patients are now needed.

T116

IS LAPAROSCOPIC FLOPPY NISSEN FUNDOPLICATION (LAP FNF) AS TROUBLE FREE AS THE PUBLICATIONS WOULD SUGGEST?

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Aim Assess post-op course and complications following lap FNF.

Method Prospective, independent data collection. Patients assessed pre-operatively, 6 weeks, 6 months and 1 yr post-operatively. pH pre and 6 months post-op.

Patients n=70 (M:F 50: 20) age 38(10-70)yr.

Surgery Short floppy wrap constructed over 5/6 Malonie bougie with division of short gastric vessels.

Results 1/1/93-12/5/96: 8 (11.4%) conversions (lack access 3, port site bleeding 3, short gastric 1, liver 1). No conversions in last 30 cases. Post-op Visick grading: 6 weeks I=28, II=26, III=7, IV=1 (1 + II = 85%), six months I=22, II=16, III=5 (I + II 88%), 1 year I=23, II=10, III=3, IV=2 (I + II= 86%).

Of 8 initial Visick III/IV patients, 5 were for dysphagia, 2 for failure to control reflux: 3 persisted in III/IV scores for 1 year post-op. Dysphagia for solids > 2 weeks occurred in 11/62 (17.7%): 10 patients required between 1 and 3 dilatations post-operatively with relief of dysphagia in 8. Further surgery in 6: 2 for relief of dysphagia, 3 for later wrap herniation and 1 for adenocarcinoma in situ.

Of 62 successful lap FNF 59 regard their operation as successful. Post-op + pH tests were recorded in 4 (2 asymptomatic).

Conclusion Although successful in relieving GORD symptoms dysphagia may be underestimated following lap FNF. The procedure is not as trouble-free as some data might suggest.