

COLON AND RECTAL SURGERY

CR001

MSI STATUS – WHAT DOES IT MEAN IN PRACTICE?

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Colorectal cancers (CRC) are now recognised to arise by (at least) two distinct pathways. Most carcinomas arise because of chromosomal breaks and instability. The second pathway, occurring in about 15% of CRC, is initiated by a failure of the mismatch repair (MMR) proteins with resultant point mutations throughout the genome. The chromosomal structure remains stable. Nucleotide-repeat sequences including microsatellites are particularly prone to this mutational pathway, giving rise to high levels of microsatellite instability (MSI-H). However, it is mutational events in repeat sequences of other key genes that give rise to carcinomas.

The MSI-H CRC can be familial (HNPCC) or sporadic, and have distinctive histological and clinical features including a better prognosis and poor response to chemotherapy. Distinctive pathological features include tumour-infiltrating lymphocytes, mucinous tumours and right-sided poorly differentiated CRC.

To ensure that potential HNPCC patients are found, it is important to consider testing in several groups (the revised Bethesda guidelines):

- patients with a strong family history (Amsterdam criteria)
- adenomas <40 years of age
- CRC <50 yo
- CRC with MSI-H histology <60 yo.

Testing is most easily achieved using immunoperoxidase stains for the MMR proteins MLH-1, MSH-2, MSH-6 and PMS-2 on the paraffin-embedded tissue, but molecular studies of microsatellites can also be performed. The latter is slower and more difficult.

Sporadic MSI-H CRC is typically right-sided and occurs in patients over the age of 65. The sporadic MSI-H cancers may arise from large, right-sided sessile ‘hyperplastic polyps’, now renamed sessile serrated adenomas.

CR002

UTILITY OF FDG-PET IN PREDICTING RESPONSE TO CHEMORADIOTHERAPY IN ADVANCED RECTAL CANCER PATIENTS

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Introduction Response to pre-operative chemoradiotherapy (CRT) for advanced rectal cancer is quite variable. This multi-centre prospective study evaluates the feasibility of using standardised uptake value (SUV), a semi-quantitative measure of tumour metabolism by FDG-PET, to predict response to CRT to optimise treatment planning.

Methods Thirty-nine patients who received pre-operative CRT for rectal cancer and had PET scans were included for analysis. Other staging investigations included CT, trans-rectal ultrasound and MRI. PET was performed prior to, during and after the completion of CRT. Mann-Whitney U test and the linear logistic regression model were used to correlate tumour SUV with pathological response post-CRT. Pathological response was assessed by examination of specimen resected at surgery.

Results Rectal cancers were within 12 cm of the anal verge. Tumours were either T3 or T4, and 12 patients had nodal involvement on pre-operative staging. Pathological down-staging of rectal cancer was achieved in 67% of patients. The probability of tumour responding to CRT correlated with increasing pre-treatment tumour SUV level ($P < 0.05$), suggesting a metabolically more active tumour was more sensitive to CRT. A statistically significant correlation also existed between tumour metabolic response (represented by the decrease in baseline SUV during and post completion of CRT) and pathological response.

Conclusion FDG-PET may be used to predict tumour response to CRT in patients with advanced rectal cancer.

CR003

THE USE OF PREOPERATIVE MAGNETIC RESONANCE IMAGING (MRI) TO STAGE RECTAL CANCER REDUCES THE RATE OF NEOADJUVANT RADIOTHERAPY

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Purpose Pre-operative radiotherapy reduces the risk of local recurrence after surgery for rectal cancer in selected patients but is associated with morbidity. Prior to the advent of MRI, no staging modality was accurately able to determine rectal lesions most likely to benefit from radiotherapy. We aimed to audit the accuracy of pre-operative MRI in rectal cancer staging and in determining the need for preoperative neoadjuvant radiotherapy in our institution.

Methods 59 consecutive patients with rectal cancer received pre-operative MRI scanning and were allocated to receive surgery alone or neoadjuvant radiotherapy plus surgery based on defined MRI criteria and discussion at a multidisciplinary meeting.

Following resection, the multidisciplinary team compared the MRI scan and histology of the surgical specimen in those allocated to surgery alone for staging accuracy and validation of patient selection procedures for neoadjuvant treatment.

Results Of the 30 patients in the surgery only group 28 (93%) had their rectal tumor accurately staged for T-stage to within 1 mm of the histopathological assessment. None of the patients in the surgery only group had an involved circumferential margin. (100% accuracy) None of the patients in the surgery alone group were recommended to have post operative radiotherapy. 13/42 (30%) of patients with T3 or T4 tumours were spared neoadjuvant therapy.

Conclusions MRI is accurate in T staging and in predicting a clear circumferential resection margin in rectal cancer. The use of MRI in a multidisciplinary setting can reduce the need for neoadjuvant chemoradiotherapy in patients with rectal cancer. Long term follow up is ongoing.

CR004

SACRAL NERVE STIMULATION INITIATES PROPULSIVE PRESSURE WAVES THROUGHOUT THE COLON IN PATIENTS WITH SLOW TRANSIT CONSTIPATION

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Colonic propagating sequences (PS) are important for normal colonic transit and defaecation. PS frequency is reduced in slow transit constipation (STC). Sacral nerve stimulation (SNS) is a useful treatment for fecal and urinary incontinence. A high proportion of these patients have also reported altered bowel function. The effects of SNS on colonic PS's in constipation are unknown.

Aims To determine, in patients with STC, whether SNS can: 1) induce colonic PS's, b) improve symptoms.

Methods In 8 patients with scintigraphically confirmed STC a manometry catheter (16 recording sites at 7.5 cm intervals) was positioned colonoscopically and the tip fixed in the cecum. Temporary electrodes (Medtronic) were implanted in the S2 and S3 sacral nerve foramina under general anesthesia. In the fasted state 14 Hz stimulation was administered and 4 sets of parameters (pulse width 300 or 400 ms; S2 and S3) were tested in 4 × 2 hr epochs, in random order, over 2 days.

Results When compared with basal, SNS to S3 significantly increased pan-colonic antegrade PS frequency (5.4 ± 4.9 vs 10.2 ± 6.2 PS/hr; $P = 0.005$). Stimulation at S2 significantly increased retrograde PSs (basal 8.1 ± 6.8 vs SNS 23.7 ± 18.8 PS/hr; $P = 0.05$). During the subsequent 3 week trial (continuous stimulation), 6 of 8 reported increased bowel frequency with a reduction in laxative usage.

Conclusion Sacral nerve stimulation induces propagating pressure waves throughout the colon in patients with STC suggesting promise as a potential therapy for severe refractory constipation. Supported by Medtronic Australia.

CR005 BIOFEEDBACK: A SIGNIFICANT REDUCTION IN POST-SURGERY BOWEL DYSFUNCTION

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Purpose Evaluate biofeedback therapy for post-surgery bowel dysfunction (PSBD).

Methodology Surgical patients with PSBD symptoms including frequency, urgency, incontinence and incomplete evacuation failing to respond to conservative dietary, medication or standard pelvic floor exercise treatment (>6 months) received biofeedback therapy at the Townsville Hospital from 1.7.2002-31.12.2005.

Patients attended 4–5 weekly sessions incorporating anorectal function assessment; history; severity and Quality of Life (QOL) questionnaires; suggested coping strategies; dietary advice; bowel, food and exercise diary; relaxation breathing; evacuation techniques; anal and pelvic floor muscle exercises with computerised visual feedback. After 4 weeks of subsequent home practice, patients were reassessed.

Results 22 PSBD patients (colectomy: 41%; anterior resection: 32%; proctocolectomy: 27%), 13 (59%) males, mean age 62.5 yrs participated. Median QOL scales improved significantly ($n = 20$) (from, to: where 1 = poor; 4 = excellent): lifestyle 2.75, 3.45, $P < 0.0001$; coping 2.17, 3.28; $P < 0.0001$; depression 3.26, 3.58, $P = 0.006$ and embarrassment 2.33, 3.50. $P < 0.0001$. Median physical measures improved significantly: severity ($n = 20$) 4 (10.5, 6.5), $P < 0.0001$, (0 = fully continent; 20 = totally incontinent); mean/median reduction of weekly bowel motions ($n = 22$) 14.5/4 (47.6, 33.1 / 35, 31), $P < 0.009$. Mean satisfaction with results of therapy ($n = 19$) was 8 (0 = unsatisfied; 10 = extremely satisfied) and median bowel control rating improved from 2 to 8, $P = 0.003$ (0 = extremely poor; 10 = excellent).

Conclusion: These findings confirm our biofeedback protocol for PSBD, modified from previous published studies, is highly successful.

CR006 DIFFERENTIAL PRODUCTION OF PROINFLAMMATORY CYTOKINES AFTER COLON AND RECTAL SURGERY

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Background Colorectal cancer is common in New Zealand. Colorectal surgery is associated with a number of postoperative complications including anastomotic leak and local recurrence. These complications are more common after rectal surgery. Cytokines are known to be secreted locally after visceral surgery. Recent studies have suggested that these cytokines may play a role in postoperative complications.

Aim To investigate whether there is a difference in local cytokine production between rectal and colon surgery that may contribute to the differences in complications following these procedures.

Methods Patients undergoing either elective rectal excision or colectomy were recruited. The peritoneal cavity was routinely drained with a Silastic drain for 24 hours after surgery. The drain fluids were assayed for cytokines using multiplexed biomarker immunoassays. The Mann-Whitney Test was used for statistical comparisons.

Results In this study IL-8 concentrations were higher in the dissection bed after rectal excision compared with colectomy (929 pg/ml vs. 106 pg/ml, $P < 0.001$). IL-6 concentrations were elevated in both groups but there was no significant difference. While the concentrations of IL-10 were higher in the rectal group relative to the colectomy group, only low levels of this cytokine were present in the drain fluid. No other cytokines were consistently detected.

Conclusion This study has shown that the concentration of IL-8 in the drain fluid of patients who have undergone rectal surgery is higher than those who have undergone colonic surgery. The elevation of IL-8 is potentially detrimental to patients as it provides a milieu conducive to anastomotic leak and local recurrence.

CR007 SURGICAL AUDIT IMPROVES COLORECTAL OUTCOMES

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Background Colorectal Audit has been shown to improve patient outcomes in the United Kingdom. Here we present local data to reinforce the fact that audit improves outcome in an Australasian environment.

Method Geelong Hospital initiated involuntary colorectal audit in 2003 and retrospectively collected data to the commencement of 2002. The Audit was constructed using Filemaker Pro and includes the Royal Australasian College of Surgeons minimum data set (12 fields), the expanded data set for risk stratification (12 fields), specific colorectal fields (12 fields). Since 2004 the audit has been kept prospectively and 4 monthly feedback has occurred.

Results 602 patients are included in the database. 324 patients between 2002–3 and 278 in 2004–5. Mortality fell from 7.41% to 2.15% ($P < 0.01$). Anastomotic leak rates fell from 10.08% to 5.76% ($P < 0.2$) and have decreased to 3.77% in the last 12 months.

Comment Introduction of surgical audit has led to improved patient outcomes and improved performance in colorectal surgery at Geelong hospital.

CR008 IMPLEMENTATION OF PILOT FAST-TRACK REHABILITATION PROGRAMME FOR OPEN COLECTOMY

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Introduction Multimodal optimization of perioperative care (Fast-track) has been shown to reduce hospital stay and improve physical function after open colectomy. In September 2005 a colorectal team from Middlemore travelled to Denmark to a Fast-track course. On our return we introduced a pilot programme for patients undergoing open colectomy.

Method Consecutive patients undergoing open colonic resection at Manukau Surgical Centre were entered into a pilot Fast-track programme. This consisted of pre-operative counselling and carbohydrate loading, epidural analgesia, pre-emptive analgesia (NSAIDs) with early feeding and mobilisation. Patients were discharged when able to tolerate a full diet and pain was adequately managed with oral analgesia. Patients were followed up on day 8 post operatively.

Results Seven consecutive patients (mean age 70, 5 Right Hemi-colectomy, 2 Sigmoid Colectomy) undergoing open colectomy at the Manukau Surgical Centre, under the care of the senior author (AGH), entered the programme between Oct and Dec 05. The median (and mode) hospital stay was 3 days (range of 3–21). There were no unplanned re-admissions within 30 days and patient satisfaction was high. We compared this with colectomies performed in the same hospital by the same surgeon prior to the implementation of the fast track programme (July 03-August 05): $n = 27$, mean age 66, median hospital stay 8 days (range 5–30, $P < 0.0001$ vs. Fast-track).

Conclusion The duration of hospital stay was significantly shorter in this pilot programme without increasing readmission rates. We consider this successful and plan on introducing a Fast-track programme formally in February 06.

CR009 MECHANICAL BOWEL PREPARATION IN LAPAROSCOPIC COLORECTAL SURGERY: IS IT NECESSARY?

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Background A recent meta-analysis shows there is no benefit from mechanical bowel preparation (MBP) for patients undergoing open colectomy. This study compares clinical outcomes between patients with and without MBP prior to laparoscopic colorectal surgery.

Methods Two surgeons prospectively recorded data for elective and emergency laparoscopic colorectal surgery at five different hospitals from October 2003 to November 2005. The two databases were combined for analysis. Both surgeon 1 and surgeon 2 initially used MBP for all patients, then changed to no MBP for all patients from January 2005 and May 2005,

respectively. For analysis, the cases were stratified into two groups (with MBP vs without MBP).

Results A total of 147 patients who underwent laparoscopic colectomies were analysed, 75 with MBP and 72 without MBP. The two groups were similar in age, sex, BMI and type of surgical procedure. Indications for surgery include adenoma, cancer, diverticular disease, Crohn's and ulcerative colitis. The median length of stay was 6 days (MBP group) and 5 days (without MBP). There were 18 total post-operative complications of which 13 were surgical-related in the MBP group, compared to 12 and 5 respectively in the group without MBP. Overall, there was no mortality and only 1 anastomotic leak. MBP group had more cases of wound infection, ileus, and small bowel obstruction. Other outcomes such as time until oral diet, first flatus, first bowel motion and cessation of intravenous narcotics were all similar in both groups.

Conclusion MBP does not improve clinical outcome in laparoscopic colorectal surgery.

CR010 DOES LAPAROSCOPIC-ASSISTED RESECTION OF RECTAL CANCER COMPROMISE ONCOLOGICAL CLEARANCE?

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Purpose The recent UK MRC CLASICC trial has questioned the adequacy of oncological clearance by laparoscopic-assisted resection for rectal cancer. This study aims to compare oncological clearance achieved in patients undergoing laparoscopic-assisted resection (LAR) for rectal carcinoma with those undergoing conventional open resection (COR) at our institution.

Methods The Otago Surgical Audit system was used to identify prospectively collected clinical data for patients having either LAR or COR for rectal carcinoma at Dunedin Hospital, by two colorectal surgeons during the period from March 2004 to September 2005. Further pathological data collected including length of resected specimen, number of lymph nodes harvested, radial margin, distal resection margin and TNM staging. Peri-operative indices and complication rates were recorded as secondary endpoints. Analysis was by intention to treat.

Results 33 patients underwent either LAR ($n = 19$) or COR for rectal carcinoma. The conversion rate was 32%. Both groups were well matched for stage and abdominoperineal (AP) resection rate. The mean (S.D.) lymph node harvest for LAR versus COR was 17 (8) vs 17 (8) ($P = 0.98$) and radial margin was 8.2 (5.7) vs 6.9 (5.7) mm ($P = 0.58$). One patient in the laparoscopic group had an involved radial margin (AP resection). The median duration of hospital stay was 4 days longer for the COR group ($P = 0.045$).

Conclusions To date in our institution's experience it appears that an equal standard of oncological clearance can be achieved in laparoscopic-assisted cases compared to open resection for rectal cancer. Long-term outcomes should be examined to ensure the reliability of these surrogate measures of oncological safety.

CR011 A SYSTEMATIC REVIEW OF STAPLED VERSUS HANDSEWN ILEOCOLIC ANASTOMOSES

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Trials comparing stapled (S) versus handsewn (H) ileocolic anastomoses (ICA) have found little variation in the complication rate but they lack adequate power to detect potential small differences. This is the largest systematic review specifically examining ICA.

Objectives To compare ICA performed by functional end-to-end stapling and handsewn techniques in terms of leak rates and other complications.

Methods MEDLINE, EMBASE, and Cochrane Library were searched for randomised controlled trials comparing use of linear cutter stapler with any type of suturing technique for ICA in adults from 1970 to 2005. Conference abstracts from Colorectal societies were handsearched. Eligible studies were assessed for their methodological quality. Individual patient data for ICA were obtained from authors of studies that included other anastomoses and were entered into a meta-analysis. Sub-group analyses were performed for cancer and Crohn's disease patients.

Results 6 trials (including 1 unpublished) with 955 ICA ($S = 357$, $H = 598$) were included. The 3 largest trials had adequate allocation concealment. Stapled ICA significantly decreased anastomotic leaks compared with handsewn ($S = 5/357$, $HS = 36/598$, $OR 0.34 [0.14, 0.82]$ $P = 0.02$). For sub-group of 825 cancer patients in 4 studies, stapled ICA led to significantly fewer anastomotic leaks ($S = 4/300$, $HS = 35/525$, $OR 0.28 [0.10, 0.75]$ $P = 0.01$). All other outcomes: stricture, anastomotic haemorrhage, anastomotic time, re-operation, mortality, intra-abdominal abscess, wound infection and length of stay, showed no difference. There were too few Crohn's disease patients to perform sub-group analysis.

Conclusions Stapled functional end-to-end ICA is associated with fewer leaks than handsewn ICA.

CR012 A RANDOMISED, PLACEBO-CONTROLLED TRIAL OF CONTINUOUS LOCAL ANAESTHETIC RECTUS SHEATH INFUSION FOR PAIN MANAGEMENT AFTER MAJOR ABDOMINAL SURGERY

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Purpose The use of opiate analgesia after abdominal surgery can interfere with recovery of bowel function, compound post operative nausea, vomiting and increase the incidence of urinary retention and respiratory depression. Studies have shown local anaesthetic infusions to be effective for decreasing pain and opiate requirements. Most of these trials placed the pump catheter in the subcutaneous space. A better outcome may be achieved by perfusing deeper tissue planes. This study investigates the efficacy of a continuous infusion of bupivacaine into the rectus sheath for pain management following major abdominal surgery.

Methodology Between November 2004 and January 2006, 42 patients receiving elective abdominal surgery were entered into a randomised, double blinded, placebo controlled, prospective trial with two arms: normal saline or bupivacaine 0.5% infusion at 4 mLs/hour for 48 hours. Patients in both arms of the study were prescribed oral analgesia and PCA morphine. We measured verbal pain scores at 6, 12, 24, 36, 48 and 60 hours, as well as the PCA morphine and anti-emetic requirements. Time to bowel opening, ambulation and the duration of hospital stay were recorded, as were complications.

Results Patients who received the bupivacaine infusion had significantly lower anti-emetic requirements. However, there was no significant difference in pain scores, opiate analgesia requirements, length of hospital stay, time to ambulation or return of bowel function.

Conclusion Our study did not demonstrate rectus sheath infusion of local anaesthetic to be an effective method of post operative analgesia. A higher rate of infusion may yield better results.

CR013 TRANSANAL ENDOSCOPIC MICROSURGERY (TEM): LESSONS LEARNED THE HARD WAY

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Purpose To highlight the importance of patient selection and potential problems in TEM.

Methodology Clinicopathological data was recorded prospectively for 102 TEM procedures over 4 years. Patients were reviewed clinically with sigmoidoscopy at 3 and 12 months.

Results The most frequent indication for TEM was benign rectal pathology <20 cm from the anal verge, unsuitable for colonoscopic resection.

There was a 7.7% incidence of unsuspected carcinoma in patients screened preoperatively with ERUS, and 11.0% in patients without ERUS evaluation. There were no local or distant recurrences in these cases.

Despite macroscopically clear margins, there have been 22 cases of indeterminate or focally positive microscopic margins. During a mean followup of 17 months, there have been 4 recurrences (3.9%).

There were 5 cases of intraperitoneal perforation, of which one had unsuspected malignancy on histology. One perforation required conversion to anterior resection, and another patient died following unrecognized peritoneal entry. The other death in our series was in a cirrhotic patient with sepsis.

There were 5 cases of reactionary haemorrhage requiring transfusion, being more common if the rectal defect was not sutured. Other complications included 1% rectal stenosis, 11% urinary retention, 10% mild temporary incontinence. Mean hospital stay was 2 days.

Conclusion TEM provides an excellent alternative to major resection for benign adenomas, and early cancers in medically unfit patients. Appropriate patient selection requires high quality ERUS, especially if intraperitoneal entry is likely. Significant complications occurred in 11%. This may fall with increased experience and better patient selection.

CR014 MALIGNANT TRANSFORMATION RATE OF ANAL INTRAEPITHELIAL NEOPLASIA

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Aim The natural history of 52 patients with Anal Intraepithelial Neoplasia (AIN) was studied by way of a retrospective analysis of their management at the Alfred Hospital.

Method Patients were identified by searches of the hospital's operative and pathological data bases. A chart review was performed. Where possible, patients were cross referenced with the hospital HIV data base to provide details of CD4 counts and antiretroviral therapy.

Results 94% (49/52) were male, 65% (34/52) were HIV positive, and the mean age was 43 years. Thirty one of the 34 HIV positive patients were receiving some form of antiretroviral therapy.

Over a median period of 4.0 years and a mean of 4.5 years 12% (6/52) patients developed invasive SCC. All these patients were HIV positive. Two of these 6 patients showed only low grade AIN on biopsies done less than 9 months prior to their diagnosis of SCC.

Time of diagnosis of anal SCC from sero-conversion ranged from 4 to 18 years with a mean of 10.7 years.

No correlation between minimum, maximum and mean CD4 counts, and development of anal SCC could be found.

All anal SCC identified during the above searches were reviewed. All adequate biopsies showed peri-tumoral high grade AIN.

Conclusion The rate of malignant transformation of our cohort of patients with AIN was 12% over a median follow up of 4 years.

CR015 PATIENT PREFERENCES FOR ADJUVANT THERAPY OPTIONS FOR RECTAL CANCER: HOW DO THEY CONCORD WITH THOSE OF COLORECTAL SURGEONS AND ONCOLOGISTS?

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Purpose The use of adjuvant therapy and an abdominoperineal resection in patients with locally advanced rectal cancer is controversial as any benefit in survival and reduced rates of local recurrence must be weighed against the adverse impact of treatment on quality of life. This study measured patients', colorectal surgeons', medical and radiation oncologists' own treatment preferences and investigates differences between each group.

Methodology Treatment preferences were determined using the Prospective Measure of Preference in a face-to-face interview with colorectal cancer patients and via a mailed survey for clinicians.

Results 103 patients were interviewed at Royal Prince Alfred and St Vincent's Hospitals, Sydney. The response rates for each speciality group were as follows; colorectal surgeons (77%), medical (47%) and radiation oncologists (47%). For most adjuvant therapy scenarios, surgeons and medical oncologists expressed significantly stronger preferences than patients to avoid adjuvant radiotherapy or chemotherapy. For example, values of WTT were 0.43 for patients, 0.79 for surgeons and 0.71 medical oncologists to avoid preoperative radiotherapy (both $P = 0.001$). In contrast there was no significant difference in WTT for radiation oncologists (0.53) and patients for this scenario ($P = 0.16$). For each clinical specialty discordant preferences were also found. Detailed analyses of this study will be presented.

Conclusions Results of this study highlight the need for a multidisciplinary approach clinical decision making for patients with rectal cancer.

CR016 CLINICOPATHOLOGICAL CORRELATION AND PROGNOSTIC SIGNIFICANCE OF P16 EXPRESSION IN SURGICAL MANAGEMENT OF COLORECTAL CANCER PATIENTS

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Purpose To evaluate the clinicopathological and prognostic significance of p16 expression in colorectal carcinoma patients.

Methodology Formalin fixed tumours from 139 patients with colorectal adenocarcinoma, who had undergone surgical treatment at the department of surgery, The Townsville Hospital between 2002 and 2005 were immunohistochemically stained with anti-p16 monoclonal antibody. Corresponding clinical and pathological data which had been prospectively collected in a database and independently reviewed by a consultant histopathologist, blind to the original results was retrieved and the association between these variables and p16 expression was statistically analysed.

Results p16 expression was identified in 117 (84.2%) patients. The median degree of expression was found to be 40% with a mean value of 37.3%. A significant association between p16 expression and anatomical site ($P < 0.001$), T staging ($P = 0.047$) and nodal ($P = 0.031$) involvement was found. Rectal tumours were found to have a greater expression (47.2%) compared to those in the colon (31.3%) and a similar relationship was observed when comparing distal (41.6%) and proximal (27.8%) tumours. With respect to the extent of T staging and nodal involvements categorised by TNM staging system, T3 (44.6%) and N1 (51.3%) had the greatest degrees of expression. Patients' age, gender, survival and tumour size, grade, stage and extent of distal spread were not found to have a significant association with p16 expression ($P > 0.05$).

Conclusions p16 expression was common in colorectal adenocarcinomas. The expression was related to the anatomical sites and the extent of the disease.

CR017 DELETIONS WITHIN CHROMOSOME 18 IN COLORECTAL CANCERS PREDICT A SHORTER SURVIVAL

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Purpose The identification of robust genetic prognostic markers to supplement conventional pathological staging systems in sporadic colorectal cancer (CRC) is highly desirable, with the potential to improve survival. Chromosome 18 is the likely site of a key tumour suppressor gene inactivated in the development of CRC, the purpose of this study was to determine if chromosome 18 deletions predict shorter survival.

Methodology Fresh tissue was collected and frozen from 58 consecutive Dukes' B and C operative CRC specimens. Ten year overall and disease free survival data were recorded. High resolution microarray comparative genomic hybridization analysis was performed on DNA extracted from these samples to accurately identify deletions on chromosome 18. Kaplan-Meier analysis was performed on the survival data using SPSS.

Results Chromosome 18 deletions were detected in 27 of the 58 CRCs, 21 corresponding to the location of candidate tumour suppressor genes. CRCs with a chromosome 18 deletion were associated with a significantly shorter overall and disease free survival compared to CRCs with no detected deletion ($P < 0.001$). Sub-group analysis of the 34 Duke's B CRCs revealed a similar, significantly shorter survival in CRCs with a deletion (45 months, $P < 0.01$).

Conclusion Chromosome 18 candidate tumour suppressor gene deletions predict a significantly shorter survival in Dukes' B and C CRCs. This has the potential to identify a subgroup of Duke's B CRCs that may benefit from adjuvant chemotherapy, which in turn could improve survival.

CR018 HOW TO HANDLE DYSPLASIA

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Purpose To highlight the difficulties in diagnosing and managing dysplasia in chronic ulcerative colitis (CUC).

Methodology A literature review was performed.

Results The diagnosis of dysplasia in CUC requires adequate sampling of the colonic mucosa in at risk individuals. Patients with pancolitis of 8 years duration or left sided colitis of 15 years duration require annual or biennial colonoscopic surveillance. Thirty three biopsies must be taken to achieve 90% sensitivity.

The diagnosis of dysplasia ideally should be confirmed by 2 experienced gastrointestinal pathologists as interobserver variability is high, especially with low grade dysplasia. Patients found to have high grade dysplasia or a DALM on biopsy have in excess of 40% chance of having malignancy present and should undergo total proctocolectomy. There is ongoing debate as to whether patients with LGD should undergo immediate proctocolectomy or continue with regular colonoscopic surveillance. The risk of developing high grade dysplasia, DALM or carcinoma on follow up ranges from 18–50%.

Proctocolectomy with ileostomy or proctocolectomy with ileoanal reservoir are acceptable alternatives for patients with dysplasia. The need for mucosectomy is debatable except perhaps in patients with dysplasia or carcinoma in the low or mid rectum. The risk of developing carcinoma in the anal transitional zone appears to be low with or without mucosectomy.

Conclusions Dysplasia remains the most easily recognised marker of cancer risk in patients with chronic UC. Appropriate surveillance, accurate diagnosis and quality surgery may prevent deaths from colorectal cancer, though evidence for this is poor.

CR019P ADJUVANT CHEMOTHERAPY IN STAGE II COLON CANCER: A POPULATION BASED STUDY

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Background There is considerable uncertainty as to whether adjuvant 5-fluorouracil-based chemotherapy provides survival benefit for colon cancer patients with stage II disease. Consequently, the current rates of chemotherapy use for this disease are low, despite 5-year survival rates of only 70–80%. The aim of the present study was to compare the survival rate of stage II colon cancer patients treated by surgery alone with that of patients also treated by chemotherapy.

Methods A population-based, observational study was conducted on the survival of stage II colon cancer patients ($n = 812$) diagnosed in Western Australia from 1993–2003. The study was restricted to patients aged <75 years, of whom 18% ($n = 142$) were treated with chemotherapy. Only 0.9% of patients older than 75 years received chemotherapy.

Results Patients who received chemotherapy were significantly younger (mean age 60 years) than those treated by surgery alone (65 years, $P < 0.001$) and their tumors were more often positive for vascular invasion ($P = 0.007$). Multivariate analysis that included all prognostic factors revealed adjuvant chemotherapy was associated with improved survival (HR = 0.62, 95% CI [0.39–0.98], $P = 0.043$), with females gaining more benefit (HR = 0.48, 95% CI [0.20–1.22], $P = 0.09$) than males (HR = 0.94, 95% CI [0.54–1.64], $P = 0.8$).

Conclusions In view of the apparent survival benefit from chemotherapy for stage II colon cancer, the present study raises concerns about the current low rates of adjuvant treatment for this disease in the community, particularly for female patients.

CR020P NEW

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Objective To prevent infection and complications of Ileostomy and Colostomy operations. The technique is founded on established basic scientific facts and the principles of delayed-primary wound closure.

Methods Discovered by serendipity in 1986 during an Ileostomy, the procedure was used for Ileostomy and Colostomy. Stoma was left obstructed with staples during the post-operative period preventing wound contamination by feces. During this time, the serosal surface was covered by angiogenesis, making the stomal wound refractory to infection. When peristalsis returned, the bulging stoma was opened using electro-cautery as a bedside procedure. Postoperatively, mucosal cuff protrudes, everts on angiogenesis over a single layer of serosa and fuses with dermis, completing natural maturation of stoma. Absence of sutures reduced tissue trauma and eliminated foreign body reaction resulting in better wound healing. This new procedure was named 'DELAYED-PRIMARY SELF-MATURATION (DPSM)' of stoma.

Results 17 Colostomies and 3 Ileostomies were performed using DPSM. Infection in the stomal and main wound was prevented, which in turn prevented complications.

Conclusions DPSM prevents infection and complications associated with Ileostomy and Colostomy operations. It is technically easier and more scientific than a conventional stoma and is recommended for all types of intestinal stomas.

CR021P TREATMENT FAILURE AFTER PERCUTANEOUS RADIOFREQUENCY ABLATION OF PULMONARY METASTASES FROM COLORECTAL CANCER: A PROSPECTIVE COHORT OF 55 PATIENTS

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Purpose Percutaneous radiofrequency ablation (RFA) of inoperable lung tumors is a relatively new treatment intervention. This study critically evaluated the local and overall disease-free survivals after percutaneous RFA of pulmonary metastases from colorectal carcinoma.

Methodology This prospective study consisted of 55 patients who underwent complete radiofrequency ablation of colorectal pulmonary metastases. All patients were reviewed at one week, one month and every three months after RFA to monitor disease progression. The follow-up was complete.

Results The local recurrence rate was 21%. For local disease-free survival (DFS), univariate analysis demonstrated that largest size of lung metastasis, location of lung metastases, size of ablation area achieved, post-RFA CEA level at 1 month and post-RFA CEA level at 3 months were significant prognostic indicators. In multivariate analysis, largest size of lung metastasis of, ≤ 3 cm and post-RFA CEA level of, ≤ 5 ng/ml at 1 month were independently associated with an improved local DFS.

The overall recurrence rate was 66%. For overall DFS, univariate analysis demonstrated that gender, largest size of lung metastasis and size of ablation area achieved were significant prognostic indicators. In multivariate analysis, largest size of lung metastasis of, ≤ 3 cm was independently associated with an improved overall DFS.

Conclusions Percutaneous RFA of colorectal pulmonary metastases may have a useful role in disease control for patients with a lung metastasis of, ≤ 3 cm.

CR022P THE MANAGEMENT OF COMPLEX ABDOMINAL WALL AND PARASTOMAL HERNIAS WITH PERMACOL

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Purpose The management of complex abdominal wall defects and hernias is a surgical challenge, more so in patients with significant co-morbidity and poor quality tissues. It is not always possible to perform a primary suture or

synthetic mesh repair. Newly available biomaterials such as Permacol (Porcine Dermal Collagen) may have a role in this select group of patients. The aim of this study was to assess the outcome of patients who underwent repair of complex abdominal wall defects and hernias with this new biomaterial where synthetic meshes were deemed unsuitable.

Methodology A retrospective analysis of prospectively collected data from thirty patients. All had complex abdominal wall defects or hernias reconstructed with Permacol.

Results Permacol was used for the repair of abdominal wall defects in nineteen patients, parastomal hernias in ten and for closure of perineal defect in one following Abdomino perineal resection of rectum (APER). Complications included superficial wound infection in four (13%), seroma formation in two (7%) and abdominal pain in two (7%). None of the patients had rejection of Permacol or hernia formation at an average follow-up period of 13 months.

Conclusion Permacol can be safely used for the management of complex abdominal wall defects and hernias particularly when there are underlying poor quality tissues or a reluctance to use synthetic meshes for repair when directly in contact with bowel. It appears to be resistant to local infection.

CR023P LAPAROSCOPIC COLORECTAL RESECTION IN THE ELDERLY

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Introduction Laparoscopic colorectal surgery (LCR) results in less post-operative pain, better pulmonary function, earlier discharge and fewer long-term complications than conventional open surgery. These advantages may be even more important in older patients who recover more slowly from major surgery and are more vulnerable to complications. The aim of this study was to audit the performance of laparoscopic colorectal surgery in the elderly.

Methods A retrospective review of all patients over the age of 75 years who had undergone LCR with anastomosis by a single surgeon was conducted. Prospective follow up by telephone interview was also performed to assess long-term performance.

Results 107 elderly patients with a mean age of 82.9 years (range 75–91) underwent LCR with anastomosis between Nov 1995 and July 2005. The indications for surgery were neoplasia (80%), diverticular disease (11%) and rectal prolapse (9%). 25% were emergency admissions. Median operative duration was 88 and 100 minutes for right hemicolectomy and high anterior resection respectively. Mean length of stay was 9 days (range 5–32). Overall morbidity was 30% including major complications in 10%. In hospital mortality was 0.9%. The median duration of follow-up was 56 months (range 4–118 months, 4% lost to follow-up). No patients had required readmission for adhesive bowel obstruction or incisional hernia, and 80% were still alive. The frequently reported in-hospital mortality rate in patients over 75 years undergoing conventional open resection is 5–15%.

Conclusion LCR performs well in elderly patients with a low incidence of short and long term complications and death compared with that reported for conventional open resection.

CR024P LOCAL TRENDS IN COLONIC ANGIODYSPLASIA

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Purpose To compare local experience in presentation, investigation and management of colonic angiodysplasia with global trends as represented in recent literature.

Methodology Our study retrospectively reviewed all charts of patients treated at Princess Alexandra Hospital for Colonic Angiodysplasia for the last 10 years.

Results Of the 26 patients in our study 7 patients presented with shock, compared to 19 without shock. Fifteen patients presented with rectal bleeding and 9 with anaemia. Diagnosis was made by colonoscopy alone in 14 patients and by RBC scan alone in 5 patients. Six patients required a combination of investigations to confirm the diagnosis.

Of the 26 patients 11 proceeded to surgery. Of the remaining 14 patients 4 were treated conservatively, 4 endoscopically and 2 underwent no specific treatment. Only one patient was treated angiographically with embolisation.

Long term follow-up was available in 24 patients revealing that 21 had no further bleeding and 6 patients died from various causes. Three patients died during the same hospital admission.

Conclusion Colonic angiodysplasia has a spectrum of presentations, investigations and treatment. The most appropriate treatment in a particular instance depends on the patient's clinical presentation. For angiodysplasia causing iron-deficiency anaemia oral iron may be all that is required, once colonoscopy has excluded a more sinister cause for the anaemia. Patients with a more dramatic presentation require more aggressive treatment, such as urgent bowel resection or selective embolisation.

CR025P OUTCOMES OF FAST TRACK AT CAIRNS BASE HOSPITAL

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Purpose Fast Track is a multimodal peri-operative rehabilitative program for elective colorectal resection patients which aims to reduce post-operative organ dysfunction and surgical stress response. Previous reviews of Fast Track have hitherto largely been from centres outside Australia and have not analyzed its outcomes specifically in patients having elective bowel resections for colorectal carcinoma. This retrospective study was performed to determine the results of Fast Track for colorectal carcinoma patients in a regional Australian setting.

Methods Using the Fast Track records at Cairns Base Hospital, a review of elective colorectal resections for patients with colorectal carcinoma was performed; by comparing 107 consecutive pre-Fast Track colorectal carcinoma patients treated between 2000 and 2002, with 105 consecutive Fast Track colorectal carcinoma patients who were treated between 2002 and 2005.

Results There were significant reductions in the median length of stay, cardiac complication rates and pulmonary edema rates in the Fast Track colorectal carcinoma group relative to the pre-Fast Track group. Median length of stay was 9 days in the pre-Fast Track group and 7 days in the Fast Track group ($P = 0.003$). Cardiac complication rates were 15% in the pre-Fast Track group versus 6% in the Fast Track group ($P = 0.027$). The rate of pulmonary edema was 4% in the pre-Fast Track group and 0% in the Fast Track group ($P = 0.045$).

Conclusion Fast Track significantly reduces the length of stay, cardiac complication rates and pulmonary edema rates in patients undergoing elective bowel resection for colorectal carcinoma.

CR026P SURGICAL TREATMENT OF LOCALLY ADVANCED COLORECTAL CARCINOMA INVOLVING THE URINARY BLADDER

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Purpose The aim of this study was to review our surgical experience in managing patients with locally advanced colorectal carcinoma involving the urinary bladder.

Methodology The hospital records of 72 patients with locally advanced sigmoid or rectal carcinoma who underwent en-bloc urinary bladder resection between July 1987 and December 2004 were retrospectively reviewed. The dome and the posterior wall of the urinary bladder were involved in 58.3% and 29.1% of cases respectively. Forty patients (55.6%) underwent primary closure of the urinary bladder (group 1), while 32 patients (44.4%) required complex urological reconstruction (group 2). The complication rate and oncological outcome were compared between the two groups.

Results The urological reconstructive procedures in group 2 included ureteric reimplantation ($n = 5$), augmentation cystoplasty ($n = 13$), total neobladder reconstruction ($n = 3$), and ileal conduit ($n = 11$). The average duration of follow-up was 49.3 months. Fifty-seven patients (79.2%) underwent curative resection. Patients in group 2 had more urinary anastomotic leak (0% vs. 21.9%, $P = 0.002$) and more urinary tract infection (17.5% vs. 50%, $P = 0.003$). The overall complication rate was also significantly higher in group 2 (45% vs. 81.3%, $P = 0.002$). However, there was no significant difference between the two groups in terms of local recurrence rate (6.9% vs. 16%, $P = 0.399$) and 5-year overall survival rate (56.2% vs. 49.3%, $P = 0.635$).

Conclusions Surgical treatment of locally advanced colorectal carcinoma involving the urinary bladder may entail complex urological reconstruction. Although it is associated with a high complication rate, the oncological outcome is not adversely affected.

CR027P PERMACOL: A NEW PROSTHETIC MATERIAL RESISTANT TO INTRA-ABDOMINAL SEPSIS

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Purpose Abdominal wall defects can present challenging problems to surgeon. Conventional prosthetic meshes carry risk of adhesion formation and infection. Permacol, made of porcine collagen, represents alternative prosthetic material. We present two cases, where Permacol resistance to intra-abdominal sepsis played key role in patients' recovery.

Methodology and Results Case 1: A 29-year old female, with Crohn's disease, underwent closure of ileostomies and laparostomy repair, with Permacol, following subtotal colectomy and anastomotic breakdown. She was complicated by anastomotic breakdown, intra-abdominal sepsis and enteric fistulas. Collections were successfully managed through an opening at Permacol and computer tomography guided drainage. Case 2: A 62-year old female underwent Hartmann's procedure for perforated diverticular disease and complicated by parastomal and incisional hernia, which were repaired with Permacol. Subsequently, she developed peritonitis due to colonic ischaemia and underwent laparotomy – through Permacol – and right hemicolectomy and ileostomy formation. She finally recovered and discharged home.

Conclusions Permacol is a biocompatible material, used in hernias reconstruction. Experimental data demonstrated superiority of Permacol over conventional meshes in adhesion formation, but clinical proof is lacking. Permacol being equally effective to the latter doesn't carry the risks of permanent foreign body implantation. In our study, we highlighted resistance to sepsis as another advantage of Permacol.

CR028P USE OF 2-DIMENSIONAL GEL ELECTROPHORESIS IN THE DISCOVERY OF BIOMARKERS IN PLASMA OF COLORECTAL CANCER PATIENTS

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Background Colorectal cancer remains the commonest cancer in the Western world. The discovery of sensitive and specific plasma biomarkers has the potential to improve pre-clinical diagnosis of primary and recurrent cancer, and affect overall survival. Current cancer biomarkers such as CEA lack sensitivity and specificity for use in broad population screening. Using proteomics, plasma is a complex tissue specimen but is one of the most clinically accessible.

Aims To compare plasma protein expression profiles from normal controls and patients with colorectal cancer using two dimensional difference-in-gel electrophoresis (2D-DIGE)

Methods Ten plasma samples from normal individuals and ten patients with colorectal cancer were evaluated using 2D-DIGE. Candidate markers were validated using Western blotting.

Results Sixty-one protein spots differentially expressed between normal and cancer groups using 2D-DIGE, of which 30 proteins were successfully identified with mass spectrometry. Candidate markers for colorectal cancer include CD59, apolipoprotein AI and plasma retinol binding protein. Overexpression of CD59 seen using 2D-DIGE was validated using Western blotting.

Conclusions The potential of 2-dimensional electrophoresis in the search for biomarkers is demonstrated. Candidate markers can be validated with other confirmatory techniques such as Western blotting. Plasma from larger population sets needs to be screened for further validation as diagnostic markers.

CR029P FAST TRACK PROTOCOL FOR LAPAROSCOPIC ASSISTED COLECTOMY – IS IT EFFECTIVE?

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Purpose Previous studies show that fast-track protocols are effective in reducing length of stay after open abdominal surgery. The authors set out to assess whether these results were transferable to laparoscopic techniques for colectomy.

Methodology Data from a case control series of consecutive patients undergoing laparoscopic colectomy in two separate centres was prospectively collected. Patients in the first centre received a fast-track protocol (FTP), patients in the second centre received traditional care. Data was collected for 91 patients in the FTP group, and 71 patients in the non-FTP group. 15 patients in the FTP group were excluded from analysis due to protocol violation. The FTP involved limited IV fluids intra-operatively (mean 3.4 L, median 3 L), reduced postoperative IV fluids, patient controlled analgesia on day 1 followed by oral analgesia from day 2, mobilisation and oral fluids on day 1 and solid diet on day 3, if tolerated. Patients were discharged once they had passed stool.

Primary endpoint was length of stay. Secondary endpoints were time to oral intake, passage of flatus and bowel motion and number of days of parenteral opiates.

Results Median length of stay for FTP patients was 4.5 days (range 2.5–19.5), compared with 6 days (range 4–14) in the non-FTP group. Time to first motion was also reduced (median time of 3 days versus 4 days). There was no significant difference in other secondary endpoints.

Conclusion Fast track protocol for patients undergoing laparoscopic colectomy is effective in reducing length of stay when compared to traditional care.

CR030P LAPAROSCOPIC HAND-ASSISTED COLECTOMY – A STANDARD OPERATION FOR THE FUTURE

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Purpose The aim was to collect and present data from two surgeons to demonstrate the effectiveness of hand assisted laparoscopic surgery (HALS) in patients undergoing colectomy.

Methodology Data was collected on a consecutive series of 82 patients who underwent HALS in two centres, between August 2004 and December 2005. The primary end point was length of stay, with secondary end points being operative time, post operative comfort, and duration of ileus.

Results Average age was 63.8, male to female ratio 37:45, mean BMI 27.8. Of these patients 6.1% underwent right hemicolectomy, 2.4% left hemicolectomy, 52.4% high anterior resection, 9.7% low anterior resection, 11% ultra low anterior resection, 2.4% rectosigmoidectomy, 12.2% subtotal colectomy, 2.4% abdominoperineal resection, and 1.2% high anterior resection with excision of bladder. The median stay was 6 days (2.5–14) and operative time was 150 minutes (30–360). Patients tolerated oral fluids on a median of day 2 (1–20) and a diet on day 3 (2–22). The time to flatus and bowel motion were 2 (1–18) and 3.5 (1–18) days respectively. The duration of parenteral narcotic (PCA) was 1 day (0.5–9.5). There was 1/82 conversion to an open procedure. The overall surgical morbidity was 9.75% (8/82). 2/82 wound infections, 1/82 return to theatre, 2/82 prolonged ileus, 1/82 wound pain, 1/82 severe nausea, 1/82 small bowel obstruction. There were 0 mortalities.

Conclusion These data are comparable with previously published data and demonstrate the effectiveness of HALS colectomy as a standard operation.

CR031P CT IN THE ASSESSMENT OF SUSPECTED ACUTE LARGE BOWEL OBSTRUCTION

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Purpose To assess the efficacy of CT scanning in the diagnosis of acute large bowel obstruction.

Methodology 44 patients (22 male; 22 female. Ages 39–94, mean 71) with clinical features and abdominal radiographic findings suggesting acute large bowel obstruction (LBO) or pseudo-obstruction were examined with CT. Supine scans were obtained with intravenous contrast medium (unless contraindicated) but (in the majority) without oral contrast. Additional prone and / or decubitus scans were obtained in 30 patients when clarification of a possible transition point (TP) on the supine scan was required. CT diagnosis of LBO was made by finding a TP +/- mass. Final diagnosis was confirmed by surgery, further imaging and / or clinical course.

Results 21 patients had proven mechanical acute LBO of whom 17 had an obstructing carcinoma; 23 patients had no mechanical obstruction. Sensitivity, specificity, PPV, NPV of CT for diagnosis of mechanical LBO was 86%, 96%, 95% and 88% respectively. Positive and negative likelihood ratios were 21.5 and 0.15. There were 3 false negative CTs, although 2 of these were reported as showing segmental mural thickening. A mass was identified on 11 of 15 patients with true positive CT and carcinoma.

Conclusions CT with additional selective prone and/or decubitus scanning is highly effective in the diagnosis of mechanical LBO. It is suggested that it replace contrast enema as the initial imaging modality.

CR032P TREATMENT FOR RECTAL CANCER IS ASSOCIATED WITH FAECAL INCONTINENCE AND REDUCED QUALITY OF LIFE

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Aims To assess the long term functional outcomes of patients with rectal cancer treatment compared with patients with colon cancer treatment

Methods Patients more than 2 years after treatment for rectal cancer or colon cancer were invited to participate. Patients with stomas, or recurrent disease were excluded. All patients completed the SF12 quality of life questionnaire and the Faecal Incontinence Severity Index (FISI) questionnaire. Patients were also asked to participate in anorectal physiology and ultrasound.

Results 48 patients (30 colon and 18 rectal) consented to participate in the study. There was no statistical difference in the demographics of each group. There was no difference in the mental component score between the two groups, however the rectal cancer group had a lower physical component score for SF12 (47 vs 41, $P = 0.04$) The FISI score was greater in the rectal cancer group than in the colon cancer group (26 v 7, $P < 0.001$). No difference in sphincter function was noted between the groups.

Conclusion Rectal cancer treatment is associated with significant faecal incontinence and reduced physical well being compared to patients treated for colon cancer.

CR033P PROBLEMS ENCOUNTERED IN INITIATING A FAST TRACK PROGRAM FOR ELECTIVE COLORECTAL SURGERY

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Introduction Early feeding and mobilisation of patients has been show to reduce mortality and morbidity in patients undergoing major abdominal surgery.

This project aims to demonstrate those problems encountered in the initial implementation of such a policy.

Method All colorectal elective patients admitted for resection were recruited for the Fast Track Program from Mid December 2005.

All patients were cared for by regular ward nurses. Educational talks were given to all staff prior to initiating the project. Patients were provided with verbal and leaflet instructions in The Preoperative Clinic (TPC)

Demographics, procedure, POSSUM Scores, discharge times, TPC, medical staff acceptance of change and patient satisfaction were evaluated. Power calculations were then performed.

Results Mean age was 68 years. All patients were mobilised successfully with no severe pain, nausea, vomiting or ileus experienced. 3 high risk patients had postoperative complications. (1 pulmonary embolus, 1 myocardial infarct with wound breakdown, and 1 acute renal failure.) No mortalities occurred. All patients tolerated pre and post operative feeding. Discharge time ranged from 4–16 days.

No increase in nursing time was required with the new protocols easily accepted and adhered to.

Conflicting advice by the doctors in the TPC caused initial problems with 2 patients. No patient dissatisfaction was noted.

Minimally 34 patients are needed for powered evaluation in line with inter-national studies.

Conclusion Education of staff and patients is vital for a fast track program to be achieved. Early feeding and mobilisation effectively improved discharge time, morbidity and satisfaction. Further long term evaluation is needed.

CR034P LAPAROSCOPIC VS OPEN COLECTOMY: EXPERIENCE IN A RURAL HOSPITAL

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Introduction This study presents an audit of the first 50 laparoscopic assisted colorectal resections performed at the Launceston General Hospital Tasmania, particularly in comparison to the 33 open resections done in the same 18 month period.

Method This was a retrospective review of prospectively recorded data, and analysed on an intention to treat basis using non-parametric methods.

Results With respect to case selection, patients in the laparoscopic group were younger (median = 63 [range 19–98] Vs 69 [33–93], $P = 0.0392$), and more had benign pathology (22/50, 44% Vs 4/33, 12%, $P = 0.002$). There was no significant difference in sex or ASA status ($P = 0.499$ and 0.517 respectively). There was more left than right-sided resections (28/50, 56% Vs 14/33, 42% $P = 0.118$), along with more total colectomies in the laparoscopic group (7 Vs 2).

Operation times in the laparoscopic group were longer (197.5 minutes [87–452] Vs 144 minutes [70–260], $P = 0.0002$) and no significant reduction were recorded over the study period ($P = 0.50$). There were five conversions from laparoscopic to open procedure (a 10% incidence).

Compare with the open colectomy group, patients underwent laparoscopic resections required less parental analgesia (2 days [1–5] Vs 3 days [0–6], $P < 0.0001$). They had earlier first flatus (3 days [1–7] Vs 4days [1–6], $P = 0.0069$) and bowel movement (3 days [1–7] Vs 4 days [2–9], $P = 0.0021$); tolerated solid diet earlier (3 days [1–9] Vs 4 days [1–30], $P = 0.0001$) and had shorter hospital stay (5 days [3–12] Vs 7 days [4–37], $P = 0.0009$). Less major peri-operative complications were recorded for laparoscopic group (2/50 Vs 4/33, $P = 0.162$), but very little difference was found with respect to minor complications (17/50 Vs 10/33, $P = 0.725$).

For carcinoma resections, there were no positive resection margins. In the laparoscopic group, tumour size was smaller (3.25cm [1–7] Vs 5 cm [2–15], $P = 0.0014$) and less lymph nodes were harvested (6 [2–16] Vs 8 [3–23], $P = 0.101$).

Conclusions Laparoscopic colectomy allowed early post-operative recovery and shorter hospital stay. This is at the expense of a longer operation. It is able to be taken up by relatively laparoscopically naive surgeons without extra major morbidity/mortality associated with the learning curve. It is technically feasible and safe in rural centres.