

GENERAL SURGERY

GS01
INGUINAL HERNIORRHAPHY USING KUGEL PATCH

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Purpose Inguinal hernia repair is one of the most frequently performed operations in general surgical practice. A variety of techniques have been used in the past with different results. The aim of the present study is to report our experience of inguinal hernia repair using the Kugel patch and to measure the frequency of postoperative recurrence and chronic groin pain.

Methodology Data were recorded prospectively from a series of 333 inguinal hernia repairs performed between January 2004 to December 2006 using the Kugel patch technique. Wound infection, seroma, haematoma urinary retention, 6-month recurrence and chronic groin pain were the outcome measures.

Results The Kugel patch hernia repairs were performed in 284 patients during the 3-year period. There were no recurrences or chronic groin pain within 6 months of the 333 repairs. There was only one reported wound infection. The average operating time for bilateral hernia repair was 40.5 minutes (SD 8.8). Recurrent hernias took an average of 26 minutes (SD 6.2) to repair whilst unilateral hernias took an average of 23 minutes (SD 6.8). 5 (1.8%) of the 284 patients had urinary retention. The average operating time for 136 direct procedures was 27 minutes compared with 25 minutes for the 148 indirect procedures ($p = 0.096$, t-test).

Conclusion In this prospective series the Kugel hernia repair is associated with no post hernia repair groin pain and no recurrence within 6 months of the procedure. It is inexpensive compared with laparoscopic repair, and allows the surgeon to cover all potential defects with one piece of mesh.

GS02
**LATERAL LAPAROSCOPIC SPLENECTOMY:
THE AUCKLAND CITY HOSPITAL EXPERIENCE**

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Purpose To review the experience with laparoscopic splenectomy, to determine its efficacy for treating immune thrombocytopenic purpura (ITP) and to highlight key technical issues with the operation.

Methodology All splenectomies performed between 1992 and 2005 were identified from the Otago Surgical Audit and the clinical notes reviewed, including the laboratory records for follow-up data related to the haematologic cases.

Results There were 289 splenectomies performed over the 13 year period. The indications were trauma (111, 38%), haematologic disease (93, 32%), incidental (40, 14%) splenic malignancy (39, 13%), and other (8, 3%). Of the 68 patients with ITP, 49 (72%) had a lateral laparoscopic splenectomy (LLS) with no conversions, a 5% complication rate and one mortality. Based on platelet counts and the requirement for maintenance steroids there was a complete response in 44 (68%) patients at >6 months, a partial response in 16 (24%) and no response in 5 (8%) patients. A short video presentation will highlight the key steps for the safe and efficient performance of the LLS, including patient and port positioning, the use of ultrasonic dissection, splenic pedicle stapling, and morcellation. The indications for hand-port assisted laparoscopic and open splenectomy will be discussed.

Conclusions The LLS is the preferred approach to splenectomy for all but massive splenomegaly and can be performed safely with careful attention to key technical issues.

GS03
**TIMING OF SURGERY FOR ACUTE SYMPTOMATIC
BILIARY DISEASE**

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Purpose To evaluate surgical management of patients presenting with symptomatic gallstone disease to Middlemore Hospital in 2005.

Method Retrospective case review of acute presentations of symptomatic gallstone disease between Jan 1st and Dec 31st 2005.

Results Four hundred and two patients were included in the final analysis. Forty six of these patients were unfit for surgery, 26 were solely admitted to the emergency department without being referred to a surgical team and 22 declined surgery. Therefore 308 patients (77%) were eligible for surgery at index admission (IA). Sixty six percent (204) of these received surgery during IA with an average time to surgery of 4 days. Of the remaining 104 eligible patients who did not receive surgery during IA, 54% (56) received public surgery at a later date with an average wait of 85 days. Fourteen percent (42) never received surgery despite being eligible during IA. There was no significant difference in duration of total acute hospital stay between those with surgery at IA and those who did not receive surgery at IA. For those who had acute surgery the conversion rate was 2% (4). There were no biliary injuries or perioperative deaths and post-operative readmission rate was 4% (9). Sixty two percent (64) of the 104 eligible patients who did not receive surgery at IA were subsequently readmitted acutely within 24 months. The average wait time for US, MRCP and ERCP was 0.9, 3.1 and 3.4 days respectively.

Conclusion Acute surgery remains the treatment of choice for acute biliary disease. This approach requires a committed team approach but is safe and cost effective.

GS04
**CAN EVIDENCE BASED PROFORMA'S AND DEPARTMENTAL
AUDIT IMPROVE THE MANAGEMENT OF
ACUTE PANCREATITIS?**

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Purpose To assess whether evidence based proforma's and departmental audit can improve the management of patients with acute pancreatitis as compared to published international guidelines.

Methodology From June 2005 all patients admitted with acute pancreatitis were required to have an evidence based proforma prospectively completed. In March 2006 an interim analysis was performed and presented to the department of General Surgery highlighting areas which deviated from published guidelines. Key clinical indicators were analysed pre and post presentation.

Results Two hundred and eighty one patients were admitted with acute pancreatitis, 168 (60%) of whom were analysed in the interim analysis. The median (range) age was 59 (12–96) years and the aetiology was gallstones in 149/281 (53%) patients. 140/281 (50%) patients had predicted severe pancreatitis, but there was no difference pre and post departmental presentation (85/168 (51%) vs. 56/113 (50%), $p = 0.865$). On univariate analysis following the departmental presentation there was a significant reduction in the number of CT scans performed (76/168 (45%) vs. 30/113 (27%), $p = 0.002$), an increase in the number of patients undergoing definitive treatment for mild biliary pancreatitis (36/65 (55%) vs. 35/43 (81%), $p = 0.006$) and a reduction in mortality (9/168 (5%) vs. 1/113 (1%), $p = 0.047$). Multivariate analysis confirmed departmental presentation as independent prognostic factor in reducing the number of CT scans ($p < 0.001$) and increasing definitive treatment of mild biliary pancreatitis ($p = 0.02$).

Conclusions For Audit to change practice evidence based protocols alone are not sufficient. Feedback to clinicians would appear to be a powerful motivator of change.

GS05 SINGLE SURGEON EXPERIENCE WITH RETROMUSCULAR (PREPERITONEAL) MESH REPAIR OF INCISIONAL AND VENTRAL HERNIAS

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Objective Repair of incisional (and large ventral) abdominal hernias pose a challenge for many surgeons. Numerous techniques have been described. This series reports a single surgeon's experience using the retromuscular (pre-peritoneal) mesh repair technique.

Method Data was collected on 70 consecutive incisional (n = 23) and ventral (n = 47) hernia repairs using retromuscular (pre-peritoneal) light-weight polypropylene mesh.

Results The median follow-up was 26 months (range 10 – 66 months). Overall recurrence rate was 1.4%. There were seven major (10%) and four minor (7%) post-operative infections. One patient developed post-operative seroma requiring percutaneous aspiration, and one patient had chronic pain.

Conclusion Retromuscular mesh repair is a good alternative to traditional onlay mesh repairs. Morbidity and outcomes are acceptable and comparable with literature, with lower rates of seroma formation and hernia recurrence.

GS06 A PROSPECTIVE NON-RANDOMIZED STUDY OF 737 CONSECUTIVE CASES OF LAPAROSCOPIC INGUINAL/FEMORAL HERNIA REPAIR: SUPERIORITY OF THE LAPAROSCOPIC EXTRAPERITONEAL APPROACH BY A SPECIALIST HERNIOLOGIST

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Introduction Laparoscopic hernia repair remains controversial. This study aims to assess its safety and efficacy by a specialist herniologist.

Materials and Methods A prospective assessment of all patients referred from 1st January 2002 to 31st December 2006 for laparoscopic extraperitoneal inguinal/femoral hernia repair was undertaken. Polypropylene mesh was used prior to June 2004 and light weight mesh after. Patients were followed up for 5 years.

Results There were 737 hernias performed in 525 patients (including 34 recurrent and 78 Workers Compensation cases) with a median age of 51 years. Mean operation time was 48 minutes for unilateral and 65 minutes for bilateral. Mean follow-up was 3 years with one recurrence. Conversion to open operation occurred in 4 patients. Day surgery was achieved in 92% of cases with most of those staying overnight for social reasons. There was no mortality. Morbidity was low: 2 cases of urinary retention, 1 case of minor urethral bleeding and 3 cases of pneumomediastinum. Return to work/resumption of full activities occurred at a mean of 14 days. Significant chronic pain occurred in 4 patients (1 with light weight mesh) and all settled with Carbamazepine or Neurontin.

Conclusions Laparoscopic inguinal/femoral hernia repair can safely be performed as day cases with zero mortality, minimal morbidity, early resumption of physical activities and low recurrence. The use of light weight mesh resulted in fewer cases of chronic pain. Preoperative catheterization seemed to reduce incidence of urinary retention. Careful preoperative counseling achieved identical resumption of physical activities/work with Workers' Compensation cases.

GS07 ABDOMINAL WALL COMPONENTS SEPARATION TECHNIQUE FOR CLOSURE OF VENTRAL DEFECTS – INITIAL EXPERIENCE AND LESSONS LEARNT

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Purpose The Abdominal Wall Components Separation Technique (AWCST), allows closure of ventral defects by transposition of the abdominal wall muscle(1). The aim of this audit of our initial experience was to evaluate

the technique for repairing defects after removal of infected mesh or for uncomplicated incisional hernia.

Methodology A prospective audit was conducted on the initial experience of 9 consecutive patients under the care of one surgeon (BPW) from August to December 2006.

Results Of the 9 patients, 5 had infected mesh and 4 had large incisional hernias. The median follow up was 62 days range 7–125 days. Significant wound infections occurred in 4 patients requiring re-operation. In all 4 abdominal wall repair remained in tact. 1 patient has developed a recurrent incisional hernia.

Conclusion AWCST is a useful procedure for the closure of large defects, particularly for incisional hernia and may avoid the use of mesh. We recommend avoiding primary skin closure after removing infected mesh and follow the principle of delayed primary closure. No specific conclusions can be made from this small series with a short follow up, but the technique has merit and requires further evaluation.

References

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GS08 ANASTAMOTIC LEAK RATES FOR COLORECTAL CANCER RESECTION IN A REGIONAL BASE HOSPITAL

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Purpose Colorectal cancer (CRC) is the most frequently reported malignancy in Australian cancer registries. A large proportion of these cancers are managed by general surgeons with no specific sub-specialist training. Our study aims to examine anastomotic leak rates after surgery for CRC in a regional hospital, performed by non sub-specialty trained general surgeons and to compare this data with those of other specialist colorectal units.

Method An audit of all patients treated for colorectal cancer at Toowoomba Base Hospital between 1 January 1990 and 1 April 2006 was undertaken. An anastomotic leak was defined as a clinical diagnosis documented in the patients' medical chart or operative report.

Findings 580 patients were treated for colorectal cancer during the prescribed period. Of these, 444 had surgery which included a gastrointestinal anastomosis. There were 13 anastomotic leaks (2.9%). The following commonest procedures had respective leak rates of: right hemicolectomy 2.2%; anterior resection 2.2%; sigmoid colectomy 3.28%; ultra-low anterior resection 6.67%. Of the 13 leaks, 1 occurred in Dukes A cancers (1.89%), 9 in Dukes B cancers (4%) and 3 in Dukes C cancers (1.5%).

Conclusion The anastomotic leak rates over the past 16 years at Toowoomba Hospital appear to be comparable to those of other specialist colorectal surgical units. It may be that leak rates are more dependent on the quality of the individual surgeons performing the procedure and the soundness of their surgical techniques, irrespective of their level of sub-specialization. However, research needs to be done to prospectively compare the leak rates of different surgical units before further conclusions can be made.

GS09 AUTOPSY IN GENERAL SURGERY: A COMPARISON OF PRACTICE AND OPINION

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Objective To examine current practice regarding autopsy requests and assess consultant opinion in a general surgical department.

Methods 100 patient deaths in a general surgical department, over a 2 year period, were randomly selected. A brief summary of each admission was distributed to 13 general surgeons who were asked to comment whether; cases should have been discussed with the coroner, a coroner's autopsy should have been performed, a hospital post mortem should have been performed and whether it would be appropriate to complete a death certificate without post mortem. Surgeon responses were compared with actual outcomes.

Results The majority of patients were elderly (median age 79 yrs, 49% > 80 yrs), admitted acutely (92%) and did not undergo an operation (73%). Patients who had undergone recent operation were more likely to be referred to the coroner ($p < 0.001$) and more likely to undergo coroners autopsy ($p = 0.011$). Older patients and those admitted from a rest home were less likely to be referred to the coroner ($p < 0.001$ & 0.02 respectively) or undergo coroners autopsy ($p = 0.002$). The survey predicted more referrals to the coroner ($p = 0.001$), more hospital autopsies ($p < 0.001$), and that the treating doctor would complete the certificate of death less often than actually happened ($p = 0.004$).

Conclusions General surgeons consider autopsy to be necessary more often than current practice in our institution. The decline in autopsy rates may compromise the education of surgeons and trainees.

GS10

AN ACUTE CARE SURGICAL SERVICE – A CHANGE IN PARADIGM

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Background The provision of acute surgical care in the public sector is becoming increasingly more difficult due to the limitation of resources. The lack of predictability of access to theatres during the working day has the effect of displacing elective cases or forcing some acute cases to be performed after hours. An Acute Care Surgical Service was constructed at the Prince of Wales Hospital so as to provide acute surgery in a more timely and efficient manner.

Methods A roster of 8 general surgeons was constructed to provide onsite service during the working day and on call service after hours for a 52 week period. An acute care ward of 4 beds and an operating theatre was placed under the control of the Acute Care Surgeon (ACS). At the end of the ACS roster all patients whose treatment was incomplete were handed on to the next rostered ACS. Patient data and theatre utilisation data was prospectively collected and compared to the preceding 52 week period. Data was analysed using unpaired t-test.

Results Emergency theatre utilization during the day increased from 55% to 70%. There was a 15% reduction in acute care operating after hours. Fewer cases were done between midnight and 0800. There was more efficient use of the entire theatre block suggesting a significant cultural change. Staff satisfaction was high.

Conclusion On site consultant driven surgical leadership has provided significant positive change to the provision of Acute Surgical Care in our institution. The paradigm shift in acute surgical care has improved patient and theatre management and stimulated a cultural change of efficiency.

GS11P

LAPAROSCOPIC ANTERIOR RECTOPEXY: CURES RECTAL PROLAPSE AND IMPROVES PREOP CONSTIPATION WITHOUT INDUCING NEW-ONSET CONSTIPATION

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Purpose Abdominal posterior rectopexy for rectal prolapse produces the lowest recurrence rates. However, 50% are troubled by severe postoperative constipation. Resection mitigates this dysfunction but involves the risks of an anastomosis. We aimed to evaluate functional results with laparoscopic anterior rectopexy, a novel technique designed to avoid rectal denervation and constipation.

Methodology Between January 2004 and December 2006 consecutive patients with rectal prolapse were offered undergoing laparoscopic anterior rectopexy. Patients were assessed preoperatively, at 3 and 12 months clinically and functionally (Wexner constipation and Faecal Incontinence Severity Index scores).

Results 63 consecutive patients underwent laparoscopic anterior rectopexy. In this period no patient underwent a perineal procedure. Follow-up was for a median of 18 months (range 3–36 months). Minor complications occurred in 11%. There was one recurrence (2%), one conversion and no 30-day mortality. Median operating time (144 mins) and length of stay (3 days) shortened with experience. Constipation improved in 78% and median constipation scores fell from 8 to 3 ($p < 0.0001$). In no patients was severe

new-onset constipation induced. Continence improved in 90% and median incontinence scores fell from 32 to 0 ($p < 0.0001$).

Conclusion Laparoscopic anterior rectopexy cures rectal prolapse and corrects incontinence equivalent to a posterior rectopexy. However uniquely it improves associated constipation without inducing new severe constipation, with the morbidity profile of a minimally invasive procedure. These qualities enable it to become the new gold standard for rectal prolapse.

GS12P

MANAGEMENT OF UPPER GASTROINTESTINAL HAEMORRHAGE IN A DISTRICT HOSPITAL

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Background This study was conducted to assess the management of acute upper gastrointestinal bleeding in a district hospital and to compare these results with national guidelines and the published literature.

Materials And Methods This prospective and retrospective study included 112 patients, mean age 66 years, who presented with acute upper gastrointestinal bleeding between July 2004 and February 2005. All patients were assigned a Rockall risk assessment score.

Results The surgical on-call teams managed all the patients according to an agreed protocol. 49 patients had a Rockall score $> = 4$. Endoscopy was performed in all patients, with 60% accomplished within the first 24 hours. The most common cause found was peptic ulcer (30%). Therapeutic endoscopy was undertaken in 10 patients (9%) with a success rate of 70%. Open surgery was performed in 3 patients. One patient died after having surgery and the Rockall score was > 5 . Of the patients admitted with acute upper gastrointestinal bleeding, 90.2% were discharged without complication. 11 patients died (9.8%) and all of them from the high risk group with Rockall scores > 5 . Their mean hospital stay was 17.8 days (range, 2–43 days).

Conclusion High-standard results in acute upper gastrointestinal bleeding can be achieved in a district hospital. The management, including the use of the operating theatre facilities with operative and anaesthetic support, was safe and efficient. A 24-hour-a-day endoscopy service is important to achieve early diagnosis and to plan management. A protocol and early endoscopy improve clinical outcome and reduce mortality, which occurred mostly among elderly patients with high risk scores. It is advisable to introduce the Rockall scoring system in practice.

GS13P

OUTCOME OF TRANS-ANAL EXCISION FOR RECTAL CANCER

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Aims The aim of this study is to assess the outcome of trans-anal excision of rectal cancer in a single Surgeon's practice and determine possible selection criteria for this procedure.

Methods Retrospective review of hospital records, specimen histopathology and imaging of consecutive patients with rectal cancer undergoing trans-anal excision as the primary treatment.

Results 25 patients had trans-anal excision of rectal cancer including 3 cases of carcinoid tumour and 1 case of gastro-intestinal stromal tumour (GIST). 5/25 proceeded to radical resection because of the presence of adverse features including lympho-vascular and peri-neural invasion and poorly differentiated cell type; residual tumour was present in 4/5 cases, nodal metastases in 3/5 patients each of whom received pre-operative chemotherapy and radiotherapy. 2/25 patients developed recurrence at 12 and 48 months from excision. One of these patients had distant recurrence at 12 months having proceeded to radical rectal resection and the other patient (aged 99), managed with trans-anal excision alone, recurred locally at 48 months. Both cases of recurrence were T3 tumours. Overall, 19/20 cases managed with trans-anal excision alone had no recurrence with a follow-up period of 12–48 months. 16 of these patients had T1 malignancy.

Conclusion T1 tumours may be treated with trans-excision alone in the absence of adverse pathological features. It is unclear from our study whether T2 should be managed in this way due to their small number in this study and T3 tumours are clearly at high risk of recurrence with this treatment alone.

GS14P ROUTINE USE OF MEDICAL EMERGENCY TEAMS IN MANAGING SURGICAL EMERGENCIES

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Introduction Trauma teams and cardiac arrest teams provide an urgent and expert multi-disciplinary response to time critical emergencies. The present study documents the contribution of a medical emergency team (MET) to managing non-trauma surgical emergencies.

Materials and Methods Data was prospectively collected over a two year period concerning the contribution of medical emergency teams to the resuscitation of all patients with non-trauma surgical emergencies and altered vital signs in hospital wards.

Results Over the study period, the details of 19 patients with surgical emergencies were recorded. 63% of emergencies occurred outside of normal working hours. In 53% of cases, the surgical registrar was off-site or physically unavailable to attend the emergency immediately. In 11% of cases, the medical emergency team was activated prior to the arrival of the surgical registrar. In 26% of cases, the patient was left unattended whilst awaiting arrival of the surgical registrar. The medical emergency team provided resuscitation procedures and arranged urgent investigations in all patients, physically transported the patient to the operating theatre in 16% of patients and prepared for general anaesthetic in the operating theatre in 11% of cases. The surgical registrar complemented the medical emergency team response by liaising with consultant surgeons, anaesthetists and operating theatre staff in all cases. All patients received definitive treatment within 30 minutes of MET response.

Conclusion Routine use of medical emergency teams in the initial resuscitation of patients with surgical emergencies expedites definitive management.

GS15P IS THERE A BETTER WAY TO DETERMINE PRIVATE SURGICAL FEES IN NEW ZEALAND?

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Purpose In New Zealand, surgeons working in the private sector are reimbursed on a fee-for-service basis. Due to concerns that a truly competitive market does not exist, other countries have adopted a Relative Value Scale (RVS) to help determine a fair relative rate of reimbursements. No such scale exists in NZ for surgeons, but does so for anaesthetists.

Methodology This study compares reimbursements to surgeons and anaesthetists from private insurers, other than Southern Cross, using data from 3186 procedures performed between 1996 and 2002. We calculate an implicit hourly rate of reimbursement and then compare the level of reimbursements between procedures and the variance of reimbursements within a procedure for surgeons and anaesthetists.

Results The results demonstrate significantly greater variations in average reimbursements between procedures for surgeons than for anaesthetists. Furthermore, the variability of reimbursements is greater for reimbursements to surgeons within specific procedures, especially for those more recently introduced.

Conclusions While the results do not necessarily imply that surgical reimbursements are inconsistent with underlying market rates, the results are consistent with the hypothesis that anaesthetist's fees show greater stability because of the existence of a RVS. We conclude by suggesting that a RVS for determining private surgical fees should be given serious consideration in New Zealand.

GS16P BEST PRACTICE FOR ASSESSMENT OF VARICOSE VEINS

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Purpose Varicose veins are a significant health problem which attract much medico-legal attention. Recent publications have suggested "best prac-

tice" regarding assessment of patients with varicose veins. A retrospective audit was performed comparing clinical practice in a New Zealand teaching hospital with suggested standards.

Methods Clinic letters from 80 patients awaiting varicose vein surgery were reviewed. Data were collated regarding presenting problem, relevant medical history, clinical findings on examination, further investigations and outcome.

Results Presenting complaint was noted for 99% of patients but actual symptoms were only recorded for 41%. The degree of disability caused by varicose veins was documented for 33% and patient concerns in 4%. Half of the patients presented with leg ulcers but ABPIs were only recorded in 26% of clinic letters. Duplex scanning was recommended prior to surgery for 69% of patients and hand held Doppler assessment of venous disease was recorded in 61% cases. Clinic letters did not specify the nature and extent of disease in 6% of cases, and although every patient was recommended for surgery the exact procedure was specified in only 24%. Details of surgical risks and complications were only present in 20% of letters, and only 21% of patients received a printed information sheet.

Conclusions The quality of the data recorded in the clinic letters of fell below suggested standards for assessment of patients with varicose veins. Improving the documentation of patient assessment will allow better communication between providers of healthcare and make clinical errors less likely.

GS17P SIMPLIFIED SURGERY FOR PILONIDAL SINUS

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A simplified operation suitable for most cases of straightforward pilonidal sinus is described in detail, and results of a personal series over 10 years are presented.

The operation involves simple excision with closure using deep tension sutures tied over a Telfa or Melolin roll after closing the skin with a separate layer of sutures. It may be carried out in the left or right lateral position or the prone position.

The operation is done as a day surgery procedure. 1–2 weeks off work may be necessary. Results compare favourably with other operations.

This operation has the advantages of simplicity, minimal post-operative care and short time off work.

GS18P CASE SERIES: OBTURATOR HERNIA

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Obturator hernia is a very rare cause of small bowel obstruction accounting for only 0.073–1% of all hernias(1). Here we report two such cases.

A 69 year old female presents with 1½ day history of colicky abdominal pain, vomiting and left medial thigh pain.

Past history includes an admission 2 year ago with small bowel obstruction treated conservatively, diverticular disease and no previous abdominal surgery.

At presentation she was unwell with recurrent faeculent vomiting. The abdomen was soft but generally tender. The left medial thigh was tender. No femoral hernia.

Abdominal films revealed a dilated loop of small bowel. Blood results: raised WCC 18.7 (4.0–10.0), CRP 66 (<5). Obturator hernia was suspected and CT confirmed this.

Laparotomy revealed a Richter's hernia and viable small bowel. The defect was primarily closed. Patient was discharged 4 days post operatively.

An 89 year old female presented with several days of colicky abdominal pain and no bowel motions. She had multiple co-morbidities including advanced Vascular Dementia, Asthma and Hypertension.

At presentation she was unwell. Abdominal exam revealed right iliac fossa guarding with a normal WCC and a raised CRP 78. Arterial blood gas analysis revealed a metabolic alkalosis with respiratory compensation.

CT abdomen reported a small bowel obstruction due to right Obturator hernia with perforation. Due to her co-morbidities she was managed conservatively and she passed away a week later.

The management of Obturator hernias is still open to debate with a wide variety of methods being described.

References

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GS19P

VERSAJET: A NOVEL APPROACH TO DEBRIDEMENT

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The addition of hydrosurgery into our surgical armamentarium will aim to revolutionize surgical wound debridement. Hydrosurgery (Versajet¹) utilizes a high pressure fine saline jet delivered via a compact hand-piece to debride, irrigate and remove debris simultaneously. The hydrosurgery system is minimally invasive enabling debridement at the bedside, with minimal haemorrhage and analgesic requirements². Its applications range from debridement of traumatic and non-traumatic wounds (acute and chronic), wound lavage, debridement of variable thickness burns, wound bed preparation prior to skin grafting, and flap recontouring. Complex infected wounds (necrotising fasciitis) may also be debrided with potential maximal preservation of adjacent neurovasculature and viable tissues. We present five cases involving the use of the Versajet for the debridement of three diabetic foot wounds, one venous ulcer, and one traumatic chest wound. All hydro-debridements were performed at the bedside with an average procedure time of 23 minutes (15–40 minutes), an average analgesic requirement of 10 mg morphine (5–15 mg), and with minimal encountered blood losses (including two patients on Coumarin). Only a single ward debridement procedure was required to achieve a healthy wound bed in all five patients. The Versajet enables debridement and wound bed preparation that is efficient, minimally invasive, and cost effective with reductions in hospital stay.

1. VERSAJET, Smith and Nephew, Hull, UK
2. Mosti G et al. The debridement of hard to heal ulcers by means of a new device based on Fluidjet technology: *International Wound Journal* 2005;2:4: 307–14

GS20P

SINGLE-CENTRE EXPERIENCE WITH MESH REPAIR OF ABDOMINAL HERNIA IN CAPD PATIENTS

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Purpose Patients with end stage renal failure on continuous ambulatory peritoneal dialysis (CAPD) represent a potentially infected environment in which to use mesh for the repair of abdominal hernia. We present a review of our experience with these patients.

Methodology Retrospective review of all mesh repairs of abdominal hernia in CAPD patients performed by the senior author from 1997–2006.

Results 46 patients had 54 hernias repaired (25 umbilical, 18 inguinal, 9 incisional and 2 epigastric) using polypropylene mesh. 13 patients had simultaneous Tenckhoff catheter insertion. Median age was 63 years (range 22–85) and 22 were diabetic. CAPD was commenced or recommenced a median of 2 weeks after the repair (range 0 days–6 weeks). 6 short-term complications were recorded. 2 patients were treated for culture negative CAPD peritonitis within the first week after repair. 2 patients had localised wound bleeding and 1 patient was admitted with a wound infection. All were treated conservatively and no patient required mesh removal. 1 patient developed CAPD peritonitis at one month post-operation and required Tenckhoff removal, subsequent laparotomy and conversion to haemodialysis. At a median follow-up of 30 months (range 3–87) 29 patients were still alive and 2 patients were lost to follow-up. There were 4 documented recurrences and 1 patient had been converted to haemodialysis because of hernia recurrence.

Conclusions Mesh can be safely used to repair most hernias in CAPD patients. The results are comparable to those in healthy patients and mesh removal due to infection is extremely rare.

GS21P

THE USE OF ADJUVANT THERAPIES IN COLORECTAL CANCER AT A REGIONAL CENTRE

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Purpose The use of adjuvant therapies in colorectal carcinoma is becoming more common. However, it can be logistically difficult for patients of regional hospitals to have access to such treatments. Our aim was to document the proportion of regional patients with colorectal cancer who received chemotherapy and/or radiotherapy.

Method An audit of all patients treated for colorectal cancer at Toowoomba Base Hospital between 1 January 1990 and 1 April 2006 was undertaken. Chemotherapy use, radiotherapy use, anatomical location and histological grade of the cancers were examined.

Findings Of the 225 patients who had surgery for Dukes B colonic carcinomas, 22.7% were given chemotherapy. This rate increased to 59.6% for Dukes C colon cancers. 141 rectal cancers were curatively excised during the prescribed period. 39 of these patients received radiotherapy (27.7%). Of these, only 2 (5.13%) had pre-operative radiotherapy. 19 patients had rectal cancers which were considered non resectable and of these, 5 (26.3%) were treated with radiotherapy.

Conclusion Despite the paucity of high level evidence showing a benefit in using adjuvant therapy in node negative colon cancers, a relatively large proportion of our regional patients with Dukes B adenocarcinomas were given chemotherapy. The rate of such therapy for Dukes C cancers was comparable to other studies. Fewer than expected patients with rectal adenocarcinomas had radiotherapy. Of those who did receive this, only a very small proportion received pre-operative radiotherapy. It may be that the lower than expected rates of radiotherapy were due to this service being located about 130 km from Toowoomba Hospital.

GS22P

PROTOCOLS FOR MANAGEMENT OF BOWEL OBSTRUCTION MAY NOT IMPROVE PATIENT OUTCOMES

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Purpose Bowel obstruction is a common surgical presentation, but has no defined management protocol. Our aim was to devise a series of protocols for small bowel obstruction (SBO) and large bowel obstruction (LBO) and determine if protocol implementation affects patient outcomes.

Methods This prospective single-blinded study involved an initial Medline literature review to develop “ideal management protocols” for both SBO and LBO. Patients with bowel obstruction were identified at admission and assigned to a treatment protocol. Treating clinicians were blinded to the protocols and managed patients as they normally would. Patients were followed prospectively with investigations and management compared to “ideal management protocol”. Results were evaluated using Students’ T-Test and T test.

Results Sixty consecutive patients were identified. The use of nasogastric tubes (65%) was lower than expected from the “ideal protocol”, but their use did not significantly impact on time to first bowel action ($p = 0.48$), length of stay ($p = 0.19$), time to surgery ($p = 0.16$). Urinary catheters were used in 70% of patients, but had no significant impact on renal function ($p = 0.27$). In adhesive SBO, Gastrografin follow-through was used in 61.5% of cases, but did not impact on time to first bowel action ($p = 0.13$), length of stay ($p = 0.08$), time to surgery ($p = 0.48$). In LBO contrast enema was performed in only 30.1% of cases, but there was no significant delay in surgery ($p = 0.98$).

Conclusion Current management of SBO and LBO varied widely from the “ideal management protocol”, yet patients managed outside the protocols showed no significant differences in overall outcomes.

GS23P PAEDIATRIC SURGERY PERFORMED BY GENERAL SURGEONS IN A PROVINCIAL NEW ZEALAND (NZ) HOSPITAL

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Purpose To perform an audit of paediatric surgical patients in a provincial general surgical unit.

Methodology Data was prospectively recorded using a standardized proforma on all children aged up to 15 yrs, seen between 11th December 2005 and 11th December 2006.

Results There were 209 admissions (194 children), median age 8 yrs (6 wks–15 yrs) with 153 (73%) acutes. 37 children (18%) were under 2 yrs. Male : female ratio was 3 : 2. Procedures (n = 119) were appendicectomy (35), inguinal herniotomy (30), skin procedures (29), endoscopy (10), testicular (10) and others (5). The commonest acute and elective operations were appendicectomy and inguinal herniotomy respectively. 51% of operations were acute.

There were 10 tertiary hospital transfers (5%) for burns (4), pyloric stenosis (3), intussusception (1), neonatal inguinal hernia (1) and pyoderma gangrenosum (1). Median age of transfers was 11 months (6 wks–14 yrs).

Complications were wound infection (1), post-operative ileus (2) and infarcted ovary (1).

Conclusion There are increasing moves towards centralization in paediatric surgery. With only 4 paediatric tertiary centres in NZ, many general surgeons routinely perform paediatric surgery. A large number of children presented to our surgical department. Around half of these children required surgery and half of operations were acute. There is still a significant need for general paediatric surgery in the provinces and hence close collaboration with specialist paediatric surgeons.

1. Frizelle F, Beasley S, Roake J, Sykes P. Specialisation within the specialty of general surgery; can the potential advantages be realised? *NZMJ* 2002;115:295–298.

GS24P COMPLIANCE WITH SURGICAL ANTIBIOTIC PROPHYLAXIS GUIDELINES IN VICTORIA, AUSTRALIA

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Purpose To assess compliance with national and international guidelines for surgical antibiotic prophylaxis in Victorian public hospitals and observe trends over time when results were reported back to hospitals.

Methodology Data on surgical antibiotic prophylaxis (drug choice, time of administration of first dose and duration) were collected as part of a surveillance system for hospital-acquired infections from April 2003 until September 2006. Results (own hospital and aggregate) were reported to hospitals on a six-monthly basis during this time.

Results Compliance with guidelines is best for cardiac and orthopaedic surgery, less so for other types of surgery. Improvements have occurred over the time period following commencement of reporting, mainly in compliance with choice of antibiotics.

Conclusion Feedback of results appears to have led to a decrease in the proportion of procedures where antibiotic prophylaxis is not considered to comply with guidelines, particularly for drug choice. There is still room for improvement, particularly with timing of administration and documentation of when antibiotics are administered. The VICNISS coordinating centre will continue to feed back results to hospitals on compliance with surgical antibiotic prophylaxis recommendations and to encourage both documentation and compliance.

GS25P POSTOPERATIVE NIL BY MOUTH—SIMPLY A SURGICAL DOGMA OR SCIENTIFICALLY SOUND PRACTICE?

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Purpose Traditionally, the postoperative management of patients undergoing gastrointestinal (GI) surgery has been to keep them 'nil by mouth' (NBM) until the postoperative ileus resolves. There is an evolving viewpoint that this practice is not based on sound evidence. This review examines the recent literature addressing this issue and aims to evaluate the role of early commencement of postoperative feeding compared to traditional NBM management.

Methodology Three electronic databases (Ovid Medline, PubMed and Cochrane Reviews) were searched for randomised controlled trials (RCTs), reviews or meta-analyses. Key words used included 'nil by mouth', 'post-operative feeding', and 'early feeding'. Reference lists were crosschecked for additional studies.

Results and Conclusions The practice of mandatory postoperative starvation and bowel rest is not supported by evidence. There is evidence from several RCTs that early postoperative feeding in patients is safe and tolerable. Some studies have shown that early feeding is beneficial in terms of post-operative complications, ileus and hospital stay. Although most of the literature is on colon surgery, similar evidence also exists for gut perforation and upper GI surgery with a trend towards reduced hospital stay and postoperative complications. In summary, this review identifies an important disparity between common clinical practice in New Zealand and evidence from several small RCTs. There does not appear to be any obvious clinical benefit in keeping patients NBM following GI surgery. The authors suggest that patients and the surgical community alike would benefit from a large scale, high quality, high-powered RCT to address this issue definitively.

GS26P ABDOMINAL WALL ENDOMETRIOMA FOLLOWING CAESAREAN SECTION

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Purpose Endometriosis is defined as the presence of aberrant endometrial tissue outside of the uterus that responds to stimulation by ovarian hormones. A large, circumscribed mass of such tissue is commonly termed an endometrioma. Abdominal wall endometriomas in association with caesarean section scars have been reported repeatedly in the obstetrics and gynaecology literature, but rarely in general surgical journals.

Methodology In this paper, six patients are reviewed who presented between 2001 and 2006 with painful, tender nodules in and around caesarean section scars. Of these, four reported exacerbation of symptoms during, or just prior to menstruation. One patient had experienced 12 years of symptoms, previously attributed to intra-abdominal adhesions.

Results All patients had their scar nodules excised. Five procedures were performed electively. One patient underwent emergency exploration of her caesarean scar for possible incarcerated incisional hernia. Ectopic endometrial tissue was seen in the histological specimens of all patients. Four patients reported resolution of their symptoms following surgery. One patient had ongoing symptoms post-operatively, with an additional mass lesion seen on ultrasound consistent with a second endometrioma. One patient did not attend follow-up.

Conclusion General surgeons are commonly required to assess and manage abdominal wall masses, and should have an awareness of endometrioma in the differential diagnosis when such a lesion is seen in association with a caesarean section scar. Wide excision is usually very effective at alleviating symptoms of abdominal wall endometrioma.

GS27P TECHNIQUES FOR CLOSURE OF MIDLINE ABDOMINAL INCISIONS

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Background A recent meta-analysis of randomised controlled trials of abdominal fascial closures concluded that in order to reduce incisional hernia rates without increasing wound pain, or the rate of dehiscence slowly absorbable continuous sutures appear to achieve the best results in abdominal fascial closures. We surveyed the techniques for abdominal fascial closure among general surgeons in Canberra, Australia.

Methodology 49 out of 80 surgeons responded to the survey by form. The information collected included the seniority of the surgeon, the frequency of laparotomy closure, surgical technique and suture material utilised in abdominal fascial closure.

Results 34 (69%) of the surgeons surveyed preferred a non-absorbable monofilament suture material for abdominal fascial closure with nylon being the most popular. Most (38, 78%) also preferred a non-absorbable monofilament suture in emergency surgery. 12 (24%) surgeons preferred to use slowly absorbable suture. The majority of surgeons (37, 76%) preferred continuous suture technique, whilst only 2 (4%) used continuous followed by interrupted suture closures. Only 5 (10%) complied with the dual recommendation of continuous suture technique and slowly absorbable suture.

Conclusion The majority of surgeons preferred non-absorbable monofilament suture rather than slowly absorbable suture. Only 1 in 10 surgeons complied with both components of evidence base, which supports the use of slowly absorbable suture material and a continuous technique in abdominal fascial closure. A definitive RCT would confirm this observation.

GS28P LAPAROSCOPIC CHOLECYSTECTOMY FOR OBESE PATIENTS

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Background Laparoscopic surgery is often perceived to be more difficult for obese patients. Middlemore Hospital has unique patient population with high prevalence of obesity. This is a pilot study to compare the outcome of obese and non-obese patients who had laparoscopic cholecystectomy in our institution. Our hypothesis is that obese patients do not suffer more adverse postoperative outcome.

Methods We reviewed all patients undergoing acute and elective cholecystectomy from January 2004 to December 2006, 100 obese patients were identified. The control group consists of 100 non-obese patients matched for age, sex and type of admission. Outcome assessed includes length of recovery period, complication and conversion rate.

Results Over the three year period there were 1400 cholecystectomies, of which 96% were commenced laparoscopically. Overall conversion rate was 3.8%. The obese group has increased rate of wound complication (10% vs 2%, $p = 0.037$) and conversion rate (8% vs 3.5%, $p = 0.28$). The two study groups have similar median length of postoperative stay of 4 days.

Conclusion This confirms our hypothesis that it is safe for obese patients to have laparoscopic cholecystectomy. However there is increased risk of conversion and wound complication.

GS29P LAPAROSCOPIC APPENDICECTOMY: TO DO OR NOT TO DO

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Traditional teaching instructs us to remove a normal appendix during open appendicectomy, to avoid confusion during future presentations with right iliac fossa pain¹. This ideology has been associated with a negative appendicectomy rate in the order of 15–20%². The risk of missing submucosal appendicitis, of which the clinical significance remains unclear, has also propagated the decision to remove the ‘normal’ appendix. The advent of laparoscopy has led to an improvement in the diagnosis of alternate pathology in the context of suspected appendicitis, particularly in the female popu-

lation. There however still remains some confusion and concern amongst members of the surgical community as to whether appendicectomy should be performed in the context of normal other laparoscopic findings. We present the results of a retrospective review of 400 patients who underwent laparoscopy (+/- appendicectomy) at Westmead Hospital (Sydney, Australia) from July 2004 to June 2006 for suspected appendicitis, or for the investigation of right iliac fossa pain. Follow-up ranged from 6 months to 2.5 years. Of the 200 patients reviewed to date, in the 120 patients who underwent laparoscopy, 84% proceeded to have appendicectomies despite normal operative findings in one third of cases. This led to a high negative appendicectomy rate of 34%. In our experience, removal of the appendix is not justified when the appendix appears normal at laparoscopy, even in the absence of alternate pathology.

1. Gough IR et al. Consequences of removal of a “normal” appendix. *Med J Aust* 1983;1:370–372
2. Flum DR et al. Has misdiagnosis of appendicitis decreased over time? A population-based analysis. *JAMA* 2001;286:1748–1753

GS30P YOUNGER PATIENTS ARE MORE LIKELY TO SUFFER POST-CHOLECYSTECTOMY DIARRHOEA

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Purpose Fatty food intolerance and diarrhoea (PCD) are increasingly being recognised as distressing postoperative sequels in a proportion of patients undergoing laparoscopic cholecystectomy. Understanding of PCD, its predisposing factors and associated symptoms is important for both consent and postoperative management.

Methodology 100 consecutive patients underwent chart review and telephone contact. A standardised questionnaire was used to collect data on age; sex; weight/BMI; pre- and post-operative bowel habits, bloating, pain, dietary intolerance, dietary modification and patient satisfaction. Patients were divided into two categories, those with and those without PCD. Groups were compared using t-test and univariate analysis to determine significance at p -value of 0.05.

Results Two patients were excluded due to preoperative diarrhoea (2%). PCD, defined by changes in consistency and frequency of bowel actions ($p = 0.0004$), was observed in 17 of 98 patients (17%). PCD was associated with younger age ($p = 0.014$), higher weight ($p = 0.041$), less bloating pre-operatively ($p = 0.045$) and higher likelihood of bloating postoperatively ($p = 0.048$). There was no statistically significant correlation with dietary intolerance, dietary modification or patient satisfaction. 7 patients (7%) reported postoperative constipation or resolution of pre-existing diarrhoea.

Conclusions Subjective PCD and dyspeptic symptoms correlate with measurable differences in bowel habits. Younger patients are significantly more likely to develop PCD and should specifically be warned of this possibility.

GS31P PROSPECTIVE OCTOGENERIAN GENERAL SURGICAL AUDIT: PREDICTING POST-OPERATIVE AND NON-OPERATIVE MORTALITY USING MINIMUM CLINICAL DATA SET

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Background A national minimum clinical data set for predicting non-operative and post-operative mortality at discharge was developed by Prytherch et al. Our aim to audit the octogenarian surgical admissions in our hospital for complications, discharge outcomes and discharge mortality.

Method Prospective audit from the 1st January 2006–30th November. Data collected for 243 consecutive admissions: 91 non-operative, 82 elective and 70 emergency, using standardized pro forma.

Results In total 223 surgical patients (re-admission 8.2%) included 70 emergency admissions (28.8%), 82 elective admissions (33.8%) and 91 non-operative admissions (37.5%). Complications rate of 47.1% Emergency, 18.3% Elective and 23.3% Non-operative admissions. Discharged home: 52% Emergency, 92% Elective and 57% Non-operative patients. Mortality: Emergency 7.1% ($n = 5$), Elective 0% ($n = 0$) and Non-operative 5.5% ($n = 5$)

patients. Emergency laparotomy 35% (n = 2) mortality. When minimum clinical data compared predicted to observed mortality emergency $\chi^2 = 10.95$ ($p < 0.001$), elective $\chi^2 = 6.22$ ($p < 0.0025$) non-operative $\chi^2 = 6.51$ ($p < 0.025$).

Conclusion The audit overall mortality data was acceptable when compared to published work. Emergency, elective and non-operative patient

groups differed significantly ($p < 0.025$) from predicted deaths and did not fit this model according to risk stratification.

Prytherch DR, Sirl JS, Weaver PC, Schmidt P, Higgins B, Sutton GL. Towards a national clinical minimum data set for general surgery. *British Journal of Surgery* 2003; 90: 1300–1305.