HEPATOBILIARY & UPPER GI SURGERY

HP001
ENDOSCOPIC MANAGEMENT OF PERI-AMPULLARY TUMOURS

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he presentation focuses on endoscopic papillectomy (EP) of ampullary adenomas. The therapeutic value of EP relies on no invasive malignancy in the resected specimen and complete excision. Only well-demarcated lesions (<4 cm) are amenable to EP while indurated, ulcerated or friable lesions are usually malignant and, if biopsy proven, surgery should be considered. Before EP, cholangiography and pancreatography exclude ductal tumour extension and EUS should be performed to confirm resectability. Submucosal injection sometimes is used to lift the lesion from the duodenal wall then the adenoma is removed in one piece with a snare or for larger lesions, piecemeal. Residual adenoma at the edge should be diathermied. The pathological specimen is orientated and pinned on cardboard. Short-term pancreatic stenting reduces EP pancreatitis while biliary sphincterotomy can aid biliary drainage. In 13 endoscopic series, 496 cases of EP were reported; overall initial success rates for EP were 74% but varied widely (46–92%). Occasionally, multiple procedures were required for complete resection. The early complication rate was 24%; bleeding (12%) was usually controlled endoscopically while pancreatitis (10%) was usually mild. Late papillary stenosis developed in 2% and the overall mortality was 0.04%. Late adenoma recurrences developed in 12%, usually managed endoscopically. Surgery (10%) was for cancer or incomplete resection. In comparative series after surgical ampullectomy, recurrence is 13%, morbidity 28% and mortality 3%. Pancreaticoduodenectomy for adenomas has no recurrence, 26% morbidity and 13% mortality. Thus, in selected patients with ampullary adenomas, EP is relatively safe and effective and should be first-line therapy.

HP002
HEPATIC RESECTION FOR COLORECTAL LIVER METASTASES: THE NEW ZEALAND EXPERIENCE

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Aim Colorectal cancer is a common condition in New Zealand with an annual incidence of 2500 cases. Of these at least one third will have liver only disease and be eligible for hepatic resection.
Method Clinical, diagnostic, pathological and follow-up data was collected prospectively on 200 patients undergoing liver resection between 1999 and 2003 for colorectal liver metastases, and was stored in a computerised database. Factors associated with morbidity and trends in operative and perioperative variables over the period of the study were analysed.
Results Ninety-six patients underwent a lobectomy (right lobectomy 68, left lobectomy 28) while a further 31 patients underwent extended resections, and 73 patients underwent segmental hepatic resections. The median blood loss for all patients was 375 ml (range 100–5800 ml) and 68 patients required red cell transfusion at any time during their hospital admission. The median hospital stay was 7 days (range 4–38 days), with 52% of the patients developing complications of which 14 patients experienced a major complication, and a 1% mortality rate. The median disease free survival was 26 months (range 14 to 72 months) with an actuarial 5 year survival of 39%. There were 26 true 5 year survivors. Over the study period there was an increase in the use of segmental resections and extended resections with a decrease in blood loss and in-flow occlusion.
Conclusions Hepatic resection for colorectal liver metastases can be undertaken safely and is associated with long term disease free survival in one third of patients.

HP003
THE ROLE OF DEBULKING SURGERY (CRC)

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We have long accepted that removing hepatic metastases from colorectal cancer by surgical resection is useful. I think we should now all accept that ablation of liver metastases either with or without resection can achieve long term survival similar to resection alone.

Our experience is largely with cryotherapy as an open surgical ablative technique, either cryo alone, or with resection with cryo of part of the remaining liver; or cryo to the involved resection edge of the liver. 5 yr survival was seen in 23% and 36% of the above.

We have looked at a variety of potentially prognostic factors including age, number of lesions, synchronous/metasynchronous lesions. The factors which were significantly associated with better survival were cryo with resection, complete ablation, low pre and post op CEAs.

There was no difference if disease was uni/bilateral. Number of lesions was not prognostic (31% 5 yr survival for 5 or 6 lesions). Diameter for ablated lesion over 3 cm was associated with poor outcome.

If a resection edge is macroscopically involved by tumour the application of edge cryotherapy is associated with 5 year survival in 30% of 68 patients with a macroscopically involved margin and 43% of patients with <1 cm margin.

Similar data for resection of peritoneal spread of colorectal cancer shows that completeness of cytoreduction is the most prognostic factors in survival. Debulking is out and resection/ablation of all macroscopic disease is in.

HP004
WHY THIS PATIENT SHOULD BE OFFERED REGIONAL THERAPY

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Regional ablation therapy for this patient should be offered if there is a possibility of cure. Our own experience of this is largely using cryotherapy with or without resection. Our overall 5 yr survival in 224 patients undergoing cryo/resection/HAC is 26%, and in the 55 patients with 5 or 6 lesions is 31% 1. The fact that this is recurrent liver disease is immaterial, our 5 yr survival for patients with recurrent liver metastases who underwent resection/ablation is 49% 2. Number of lesions was not prognostic.

The role of regional chemotherapy in the post resection setting is proven (reduced liver recurrence rate) whereas that of IV chemo is not (yet).

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HP005
ADENOCARCINOMA OF THE PANCREAS: LONG TERM SURVIVAL IN A SERIES OF FIFTY-FOUR CONSECUTIVE PATIENTS

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Purpose Perioperative mortality associated with pancreaticoduodenectomy for adenocarcinoma of the pancreas has fallen dramatically in high volume centres in recent years. Pessimism persists with respect to long term

survival. Recent reports of five year survival exceeding 20% are often met with scepticism at the accuracy of pathological diagnosis. We therefore 1) audited the accuracy of our own pathological diagnosis and staging in resected adenocarcinoma of the pancreas and 2) Calculated actuarial survival for our resected patients.

Methodology Fifty-four consecutive patients undergoing pancreaticoduodenectomy for adenocarcinoma of the pancreas by a single pancreatic surgeon between May 1988 and September 2004 were identified from a prospectively collected database. Blinded review of pathological diagnosis, staging and completeness of resection was undertaken by two pathologists. Actuarial survival was calculated.

Results Overall median and five year actuarial survival were 18 (15–21) months and 20%. Actuarial five year survival was significantly better after R0 resection 55% vs 0% ($P = 0.002$).

Conclusion Accurate pathological diagnosis and staging are paramount to meaningful analysis of long term survival in patients undergoing pancreaticoduodenectomy for adenocarcinoma of the pancreas. In our pathologically audited series, R0 resection was associated with significant long term survival.

HP006
AN AUDIT OF THE SURGICAL TREATMENT OF HEPATOCELLULAR CARCINOMA (LIVER RESECTION AND TRANSPLANTATION) AT FLINDERS MEDICAL CENTRE

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Purpose The incidence of Hepatocellular Carcinoma (HCC) has increased by 400% in Australia over 20 years. Surgical management, with hepatic resection or transplantation (OLTX), remains the mainstay for long-term survival.

The purpose of this retrospective study was to audit the experience of the Flinders Medical Centre (FMC) in the surgical management of HCC.

Methods All patients ($n = 38$) with a diagnosis of HCC that were treated surgically, between 1992 and 2005 were reviewed. The medical records, pathology and radiology of these patients were scrutinized for treatment and variables in terms of survival and recurrence.

Results 21 patients had hepatic resection and all were within Child-Pugh A or B. 16 of 17 patients who had liver transplantation were within the Mazzaferro's (Milan) criteria. The median follow-up was 2.28 years.

The overall in hospital mortality was 2.6% (n = 1). There were no in hospital mortality for patients treated with hepatic resection compared with a single death in transplant group. The 1-year, 3-year and 5-year survival rates were 90%, 84% and 84% for resection, and 94%, 84% and 64% for liver transplantation. 14% of patients treated with resection had recurrence at the time of follow-up compared with no recurrence for transplanted group. The mean duration for recurrence-free survival post-resection was 44.45 months, and 67.92 months post-OLTX, comparable to the published data.

Conclusion HCC can be managed surgically with low in hospital mortality. This cohort of patients with HCC that were treated with either liver transplantation or resection demonstrated go survival comparable with internationally published series.

HP007
BILE DUCT INJURES FOLLOWING CHOLECYSTECTOMY – DIFFERENT PRESENTATION OF POST LAPAROSCOPIC INJURIES

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Purpose To find out the difference in presentation of major bile duct injuries following laparoscopic cholecystectomy compared to those following open cholecystectomy.

Methodology Retrospective analysis of 327 patients presented with post cholecystectomy bile duct strictures between Jan 1989 to Dec 2004 was done to find out the difference in presentation between post laparoscopic injuries and those following open cholecystectomy.

Results 44 (14%) patients referred with bile duct injuries sustained during laparoscopic cholecystectomy (group A) and 283 (86%) patients following open cholecystectomy (group B). Recurrent cholangitis was the commonest presentation in both the groups (71% each). Laparoscopic cholecystectomy injuries presented earlier than those following open cholecystectomy (group A-147 days; group B-184 days: $P = 0.075$). 30/44 (68%) patients in group A had hilar strictures compared to 138/283 (49%) in group B ($P = 0.017$). Bilioenteric fistula was demonstrated at operation in 89/283 (31%) patients in group B compared to 9/44 (21%) in group A ($P = 0.038$).

Conclusions Patients who sustained bile duct injuries during laparoscopic cholecystectomy present early and majority will have hilar strictures. The higher proportion of low strictures and the high incidence of internal fistulas may explain the delay in presentation of post open cholecystectomy bile duct injuries.

HP008
DUODENUM PRESERVING PANCREATIC HEAD RESECTION FOR CHRONIC PANCREATITIS

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Chronic pancreatitis is an inflammatory disease that causes progressive fibrosis of normal pancreatic parenchyma. The clinical picture is dominated by exocrine and endocrine pancreatic insufficiency and recurrent abdominal pain. Surgery is the treatment of choice for patients with chronic pancreatitis suffering intractable pain or local mechanical complications involving adjacent structures (i.e. pancreatic duct, bile duct, duodenal or portal vein obstruction). Simple drainage procedures, which leave behind an enlarged and inflamed pancreatic head which represents the pacemaker of this disease, do not achieve long term pain relief. Sufficient resection and hence pain relief can be achieved with the classical Kausch-Whipple procedure and its pylorus-preserving modification, though both techniques, originally developed for the treatment of pancreatic head or ampullary malignancy, represent in most cases of chronic pancreatitis, surgical over-kill with unnecessary morbidity. The duodenum preserving pancreatic head resection however, first introduced by Hans Beger and modified by Charlie Frey, Jacob Izbicki and Markus Büchler, removes the inflammatory mass in the pancreatic head without sacrificing adjacent organs. This has resulted in impressive analgesic and functional outcomes, as consistently demonstrated in randomised and large cohort trials, which has led to the establishment of surgery in a central therapeutic role for this debilitating disease. We illustrate the technique and discuss the nuisances, randomised trial evidence, and outcomes of duodenum preserving pancreatic head resection for chronic pancreatitis.

HP009
INTERVENTIONAL RADIOLOGICAL APPROACHES TO IMPROVING OUTCOMES OF SELECTIVE INTERNAL RADIATION THERAPY

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Purpose The ability of liver tumours to preferentially parasitise hepatic arterial vascularity has created a vulnerability that Selective Internal Radiation Therapy (SIRT) can exploit. This form of intra-arterial brachytherapy implants radiolabelled microspheres into hepatic tumours via a femoral catheter inserted into the hepatic artery. Effective implantation depends on characterisation of hepatic arterial anatomy, which is highly variable, and detection of arterio-hepatovenous shunts. Inappropriate implantation results in potentially life-threatening complications eg. gastric ulceration and radiation pneumonitis.

Methodology All patients implanted with SIRT undergo a hepatic angiogram followed by CTHA and technetium-99 MAA nuclear scan. Hepatic angiography allows for characterisation and treatment of problematic vessels while the MAA scan will detect arterio-hepatovenous shunts. Following this scrutiny of the arterial bed, the radiolabelled microspheres can be implanted.

Results Diagnostic angiography detected abnormal arterial anatomy in 45% of 68 patients treated. Arterial connections between liver and bowel identified during workup were occluded by coil embolisation to prevent inappropriate implantation. Arterio-hepatovenous shunts occurred in 30% of 68 patients implanted and were treated by coil embolisation or by occlusion of the venous outflow with angiographic balloons.

Conclusion An effective patient work up will serve to improve the safety and efficiency of SIRT. Aberrant vessels can be embolised, preventing major

complication while arterio-hepatovenous shunts were effectively dealt with to prevent inappropriate targeting of the lungs by the microspheres. Successful preparation leads to decreased complications and improved therapeutic outcomes.

HP010
PERIOPERATIVE MORBIDITY AND INVOLVED RESECTION MARGINS AFFECT THE LONG TERM SURVIVAL IN PATIENTS FOLLOWING LIVER RESECTION FOR COLORECTAL METASTASES

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Background Hepatic resection is the treatment of choice in patients with colorectal liver metastasis. Several factors are known to have an influence on the outcome. Perioperative morbidity is associated with poor survival in several cancers.

The aim of this study was to assess the impact of prognostic factors on survival in liver resection for colorectal metastases, especially perioperative morbidity.

Methods 207 patients from Flinders Medical Centre and Queen Elizabeth Hospital in Adelaide undergoing liver resection with curative intent were included in a prospective database. The influence of prognostic factors was investigated using univariate and multivariate analysis.

Results The median follow-up was 4.5 years. The perioperative morbidity and mortality rates were 28%, and 2.4% respectively. The overall five year survival rate was 37%, and the disease free survival rate 22.5%. Positive resection margins, complications as well as age were associated with a significantly worse outcome in the univariate analysis.

In the multivariate analysis only positive resection margins and complications were significantly related to the overall survival. The median survival of patients with perioperative complications was 3.2 years compared to 4.4 years in patients without complications ($P = 0.02$). Patients with involved resection margins and complications had a significantly shorter disease free survival.

Conclusion Perioperative morbidity as well as positive resection margins have an impact on the long term survival following liver resection for colorectal metastasis.

HP011
SELECTIVE INTERNAL RADIATION THERAPY (SIRT) FOR CARCINOID LIVER METASTASES – A NEW AND EFFECTIVE MODALITY FOR TREATMENT

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Background Non-resectable carcinoid liver metastases respond poorly to most modalities of treatment. Selective Internal Radiation Therapy (SIRT) is a promising method for treating non-resectable liver cancers, both primary and secondary. This treatment achieves tumour destruction through the relatively selective delivery of high dose radiation to liver tumours following hepatic arterial delivery of 90Yttrium microspheres. This paper presents an experience of 6 patients with non-resectable carcinoid liver metastases.

Methodology Between 2.0–3.0 GBqof 90Yttrium microspheres were given to all 6 patients between September 1997 and August 2004. Repeat SIRT was undertaken in one patient after 16 months. Responses were assessed clinically, with 24 hour urinary 5-HIAA levels and with serial CT scans.

Results 5 of the 6 patients had a remarkable clinical response. Median 24-hour urinary 5-HIAA levels, expressed as a percentage of pretreatment level, fell to 23%, 24% and 33% at 1, 3, and 6 months respectively. All patients had regression of carcinoid symptoms for a prolonged period. Repeat treatment in one patient was associated with a further good response. Mean survival was 26.6 months with 3 of the patients being alive and asymptomatic, at 17 months, 18 months and 51 months following SIRT. One patient is currently being considered for liver resection. Serial CT scans revealed good responses in 4/4 patients scanned.

Conclusions SIRT is a valid and effective treatment option for non-resectable carcinoid liver metastases and can achieve striking regression in many instances. Repeat treatment is an option. Liver resection after downstaging may also be possible.

HP012
SURVIVAL FOLLOWING RESECTION OF MULTIPLE COLORECTAL LIVER METASTASES: A SYSTEMATIC REVIEW

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Purpose Liver resection is potentially curative for colorectal liver metastases (LM). The prognostic significance of the number of LM resected is difficult to determine accurately from individual studies, because of limited sample size. The aim of this study was to provide an accurate estimate of prognosis after resection of solitary, 2–3, or >= 4 LM.

Methods A systematic review of English language publications between January 2000 and February 2005 was carried out. Papers that specified long-term outcome, related to the number of LM resected, were included. Data was extracted using a standardised proforma and transferred onto a database for descriptive analysis.

Results Twenty-seven papers, describing outcomes of 5088 patients, met the inclusion criteria. Pooled 5-year overall survival for patients with 1, 2–3, or >= 4 LM resected was 45% ($n = 768$), 48% ($n = 230$), and 23% ($n = 892$) respectively.

Conclusions Survival following resection of LM declined with increasing numbers of metastases. Nevertheless at least 20% of patients with 4 or more LM achieved 5-year survival, therefore multiple tumours (>= 4) are not an absolute contraindication to radical treatment.

HP013
MANAGEMENT OF PORTAL AND MESENTERIC VENOUS HEMORRHAGE

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Introduction Traumatic injuries to the portal and superior mesenteric veins are rare and carry a high mortality rate. The best approach and method of repair is still subject to debate.

Methods A review of the English language literature (MEDLINE, PUBMED, COCHRANE) for the years 1984–2006 was undertaken identifying all reports of mesenteric and portal venous bleeding associated with abdominal trauma.

Results The majority of patients presenting with mesenteric or portal trauma were male (male:female 3:1) with age range from 18–68 (mean age 42 years). Penetrating trauma (gunshot and stab wounds) was the major aetiology in 75% with 25% presenting following major blunt trauma. All patients had more than one associated injury and 60% had an associated vascular injury. Two thirds of patients were shocked on admission. The overall mortality rate was 72% with uncontrollable intra-operative hemorrhage the cause of death in half of the patients. The remaining patients died in the post-operative period from multiple organ failure and sepsis. Overall non-survivors had higher ISS than survivors (25 versus 19). Intra-operative management depends on successful proximal and distal control with direct repair of the defect or replacement with a vascular conduit as well as resection of non-viable small bowel and management of other associated injuries.

Conclusion Trauma to the portal and mesenteric veins is a rare cause of catastrophic haemorrhage. The condition carries a mortality rate of over 50%. The physiologic status on admission, number of associated injuries and the severity of the vascular injury are major determinants of survival.

HP014
TRANSORAL ENDOSCOPIC ANTERIOR PARTIAL FUNDOPLICATION WITHOUT SURGICAL INCISIONS

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Purpose Endoscopic treatment of reflux has been described. However, it is not equivalent to fundoplication. We describe a modified endoscope (MediGus SRS gastroscope) which constructs a partial fundoplication using a transoral approach, and its evaluation in a porcine model.

Methods The device is a video gastroscope with stapling mechanism and ultrasonic sights. It is inserted via the oesophagus into the stomach, and then acutely retroflexed, to push the fundus against the intra-oesophageal shaft of the device – contains a stapler cartridge. Ultrasonic sights ensure alignment. The anvil of the stapler (in the scope tip) and scope shaft are locked and staples are deployed, attaching the fundus to the left side of the oesophagus. The device is then reapplied, with 90–120 degree rotation, attaching the fundus to the front of the oesophagus, constructing an anterior fundoplication. The device was evaluated in an independently monitored study. Twelve 70–80 kg pigs underwent fundoplication. Pigs were killed at 2, 4 and 6 wks (4 per group). 4 additional pigs underwent a sham procedure.
Results Initial ex-vivo experiments showed that the fundoplication prevented reflux, and survival studies showed that the staples held the fundoplication in place (for up to 13 mths). In the final experiment, each stapling took between 5–10 mins, and total procedure time ranged from 30–60 mins. There were no complications. Endoscopy and autopsy confirmed a satisfactory anterior fundoplication in all instances.
Conclusions In a pig model the MediGus SRS gastroscope can be used to fashion an anterior fundoplication. Further clinical evaluation is appropriate.

HP015
THE ROLE OF LAPAROSCOPIC ANTI REFLUX SURGERY IN THE PREVENTION OF LUNG FAILURE DUE TO GASTRO OESOPHAGEAL REFLUX IN LUNG TRANSPLANT PATIENTS

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The major cause of delayed graft failure in lung transplantation is the development of bronchiolitis obliterans syndrome (BOS). There appears to be a causal relationship between reflux and early graft rejection as well as the development of BOS. The mechanisms involved that produce these pathological changes have not been elucidated.

The aim of this study was to evaluate the efficacy of laparoscopic antireflux surgery in the prevention of graft failure in those lung transplant patients with gastro oesophageal reflux.
Method In the period from Jan 2004–Dec 2005 lung transplant patients seen at the St Vincent's lung transplant clinic with deteriorating lung function attributed to BOS were investigated for reflux. Patients with reflux were identified from clinical history, endoscopy and 24 hr pH monitoring. Oesophageal manometry was also performed in all patients. Laparoscopic Nissen fundoplication was performed in all patients with definite reflux.
Results There were 25/62 (40%) laparoscopic Nissen fundoplications performed in lung transplant patients during this period.

There were no postoperative mortality and no reoperations.

The median follow up is 5 months (1.5–19). There have been 2 deaths. Six patients have continued to deteriorate. Ten patients are stable and seven have improved lung function.

The results of surgery in this cohort of patients are encouraging. The majority of patients in this study had well established BOS with irreversible lung damage. Therefore identifying transplant patients with reflux at an earlier stage for surgery may prevent the permanent lung damage that results in loss of the transplant.

HP016
A 5 YEAR PROSPECTIVE STUDY OF OESOPHAGEAL AND GASTROESOPHAGEAL CARCINOMA TREATED AT A SINGLE INSTITUTION WITH CHEMO RADIOTHERAPY OR NEOADJUVANT CHEMO RADIOTHERAPY FOLLOWED BY SURGERY

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Purpose A study was undertaken of stage I to III oesophageal cancer patients undergoing curative therapy at a single institution to assess response to treatment and overall survival (OS).
Methodology Data was prospectively recorded in an Access database between January 2000 and May 2005. Squamous cell carcinomas (SCC) and adenocarcinomas (AC) of the oesophagus and gastro-oesophageal junction were included. All patients were treated radically with either chemoradiotherapy (CR) or chemoradiotherapy followed by surgery (CRS). Patients treated palliatively or with surgery alone were excluded. Chi-squared & independent t-tests were used for univariate analysis & cox regression for multivariate analysis.
Results Ninety-two patients (male-67.4%, mean age-64 years) were analysed. 83% had oesophageal and 17% gastro-oesophageal cancers. 55% had SCC and 45% AC. There were 52.2% with stage I & IIA and 47.8% with stage IIB & III disease. 75% had CR and 25% CRS. Mean overall follow up was 1.86 years. Five year OS was 34% (median-2.35 years). Females had an improved OS (HR 0.51, $P = 0.083$, 95% CI: 0.24, 1.09). On multivariate analysis patients with AC had a 2.05 times increased risk of death (HR 2.05, $P = 0.018$; 95% CI: 1.13, 3.74) and patients treated with CRS had a significantly improved OS (HR 0.23, $P = 0.001$; 95% CI 0.10, 0.56) when histology was accounted for. Five year OS with CRS was 60% compared with 25% for CR patients
Conclusion Although a larger number of patients with SCC were treated by CR alone, patients who were treated with CRS had a 77% improved survival regardless of the histology. Females had a 50% improved survival and AC patients had a two fold worse survival than those with SCC.

HP017
A RETROSPECTIVE STUDY OF 816 PATIENTS COMPARING LAPAROSCOPIC TO OPEN BARIATRIC SURGERY

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Introduction Surgery for the morbidly obese is increasing in popularity as this condition has become the new global epidemic of lifestyle diseases. There is an increasing trend from open procedures to the laparoscopic approach.

A retrospective study has been made, looking at the results in the treatment of 816 patients for obesity, over the period of 1978 to 2004, in one bariatric surgical practice at the Epworth Centre for Bariatric Surgery, Melbourne Australia.
Method Comparisons are made for three approaches to obesity surgery, including High Gastric Reduction, Fixed Banding, Laparoscopic Adjustable Banding. Factors looked at are percentage excess weight loss (PEWL), percentage basal metabolic index loss (PBMIL), morbidity, mortality, conversion rates, reoperation rates.
Results The mean PEWL in HGR was 67% at 1 year, followed by a dramatic drop. The PBMIL results reflect this.

Complications post HGR are staple line dehiscence 10%, splenic trauma and incisional hernia each 4%, severe reflux and stomal stenosis each 2%.

Mean PEWL in fixed banding was 58%.

The PBMIL reflects the results for PEWL over the 20 year period.

Complications include pouch dilatation 12%, wound infection, incisional hernia and severe reflux each at 6%.

In adjustable laparoscopic banding a consistent mean PEWL of 50% and PBMIL of 57% over 10 years.

Complications include 23 band slippage, 4 band erosion, 23 port leaks, 6 port infections.
Conclusion Laparoscopic adjustable gastric banding is less invasive with a lower morbidity, than open surgery. The PEWL and PEBMIL is better than the open techniques. Reoperation rate is less. There is better patient compliance and satisfaction.

HP018
A SURGICAL CURE FOR DIABETES

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Introduction It is estimated that up to 80% of type 2 diabetics are overweight, and in these patients it is recognised that effective weight control can lead to improvement or even resolution of their diabetes. All of the currently established operations for morbid obesity have been shown to ameliorate diabetes but there appears to be a variable response to surgery depending on a number of surgical and patient factors.
Method In this prospective review, we analysed the change in diabetic status in 52 patients undergoing three different bariatric procedures in a single institution over 24 months. A review of the literature comparing the efficacy

of the various procedures in achieving improvement or resolution of diabetes was also carried out and correlated with our findings.
Results At an average follow up of 7.5 months, 50% of patients who had placement of gastric band (LAGB) had an improvement or resolution of their diabetes, compared to 100% of patients who had had sleeve gastroplasty (LSG) or Roux-en-Y gastric bypass (RYGB). 1/12 (8%) LAGB patients had normal blood glucose levels off all diabetic medications compared to 3/12 (25%) LSG and 21/28 (75%) RYGB patients. There was no significant association between the amount of weight lost and the return to euglycaemia.
Conclusion Direct comparison has shown a significant difference in the effects of different forms of bariatric surgery on type 2 diabetes, and that surgery leads to improvements in diabetes in pathways other than weight loss.

HP019
DOES SYSTEMATIC 2 FIELD LYMPHADENECTOMY FOR OESOPHAGEAL MALIGNANCY OFFER A SURVIVAL ADVANTAGE? RESULTS FROM 178 CONSECUTIVE PATIENTS COMPARED WITH CURRENT LITERATURE

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Background The role of radical surgery for oesophageal malignancy remains an area of contention. We compare with the current literature, results from an unselected cohort of patients undergoing oesophagectomy with a systematic two field abdominal and mediastinal lymphadenectomy for esophageal and gastro-esophageal malignancy.
Methods 178 consecutive patients undergoing an open oesophagectomy for oesophageal malignancy (1991 to 2004) were identified from a prospective electronic database. Data was analysed with SPSS file (12.0) using chi2 or Fisher's exact test, odds ratio, and 95% CI, and Kaplan-Meier, Log Rank and Cox's proportional hazards regression for survival analysis. Results were compared with recent series of conventional and radical esophagectomy.
Results Pathology was adenocarcinoma (AC) in 64%, squamous cell carcinoma (SCC) 30%, and other malignancies 6%. 17 Patients had neoadjuvant therapy. Hospital mortality was 3.3%. Complete resection (RO) was achieved in 87%. 5 year survival was 42% overall, with 47% and 40.3% for invasive SCC and AC respectively. For patients without nodal involvement 5 year survival was 71.5%, with 1–4 nodes involved, 23.5% and with >4 nodes, 5% ($P < 0.001$). Survival decreased with increasing direct tumour spread ($P < 0.001$) and pathological stage (AJCC) ($P < 0.001$). In the literature, 5 year survival in conventional series was 19–27% and in radical series 40–52%.
Conclusion Oesophageal resection with systematic 2 field lymphadenectomy can be performed with acceptable operative mortality and favourable survival. Growing evidence supports a prominent role for this form of surgery in contemporary practice.

HP020
CHEMOPREVENTION WITH CHLOROPHYLLIN IN A MURINE MODEL OF HEREDITARY DIFFUSE GASTRIC CANCER: CDH-1 +/− MICE USING N-METHYL-N-NITROSOUREA CARCINOGENESIS

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Purpose Germline mutations in the CDH-1/E-cadherin gene cause Hereditary Diffuse Gastric Cancer (HDGC), with a penetrance of 70% by 80 y of age in mutation carriers. Chemoprevention is an avenue to delay disease progression in young HDGC patients. Our research shows CDH-1 +/− mice given the carcinogen N-methyl-N-nitrosourea (MNU) develop gastric lesions similar to early signet ring cell (SRC) carcinoma in HDGC (Gastroenterology 2004; 126:spp2:T989 and unpublished data). Although this model has limitations, invitro data with cell lines suggested chlorophyllin (CHL) upregulates E-cadherin expression (Humar B, unpublished data), hence is a potential chemopreventative agent.
Methods Following ethical approval, 5-week-old CDH-1 +/− and wildtype +/+ mice were given drinking water alone or with MNU 120 ppm, for 5 alternate weeks, then either standard feed/water or standard feed/1% CHL (in water) until autopsy at 40 weeks. Stomachs were sliced into 6 sections for histology. Lesions were classified using consensus definitions for mouse intestinal tumours (Gastroenterology 2003; 124: 762–77).
Results WATER GROUPS: 1/20 CDH-1+/− mice (no CHL) developed a SRC lesion, as did 1/24 +/− mice on chlorophyllin. MNU GROUPS: 11/25 (44%) +/− mice (no CHL) developed SRC lesions compared to 17/27 (61%) +/− mice treated with CHL. None of the wildtype +/+ mice given MNU (both CHL and no CHL groups) developed SRC lesions.
Conclusions Contrary to invitro data, in this study in a murine model of HDGC, Chlorophyllin slightly promoted the development of diffuse gastric neoplasia. This might be a dose related phenomenon as 1% CHL gave the mice a far higher dose than would be expected in the normal human diet.

HP021
THE RESULTS OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN PATIENTS AGED OVER 60 YEARS

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Introduction Laparoscopic Adjustable Gastric Banding (LAGB) is an effective treatment for morbid obesity in younger patients, leading to improvements in related co-morbidities and quality of life. Currently little is known how these improvements apply to the older patients.
Methods A retrospective review was conducted of all patients aged 60 years or older who underwent LAGB by a single surgeon. A detailed questionnaire was sent to all patients requesting details of any changes in medical co-morbidities, medication requirements, and quality of life following surgery.
Results Forty patients with a mean age of 65.8 years (range 60–72) and a preoperative mean Body Mass Index of 42.2 kg/m^2 (range 33–54) underwent LAGB between November 2000 and November 2005. The mean percentage of excess weight lost after 2 years was 54%. Complications include one slippage and 2 portsite infections requiring reoperation. No perforation, erosion or deaths attributable to surgery occurred. Co-morbidity improvement was reported in 80% of diabetics, 79% with hypercholesterolaemia, 75% with Obstructive sleep apnoea, 72% with heartburn, 69% with hypertension, 60% with musculoskeletal pain, and 56% with anxiety/depression. Medication requirements reduced or ceased in 66% who required musculoskeletal analgaesics, 43% of diabetics, 33% using bronchodilators, and in 29% with hypertension. Sleep improved in 48%, self esteem increased in 70%, and 72% had a better outlook on life. Eighty-two percent were happy that they had undergone LAGB, and 91% had recommend LAGB to other older people.
Conclusion LAGB results in weight loss, co-morbidity improvement, and a better quality of life in patients aged over 60 years.

HP022
REFINING OESOPHAGEAL CANCER STAGING AFTER NEOADJUVANT THERAPY: IMPORTANCE OF PRIMARY TUMOUR RESPONSE

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Purpose Downstaging following neoadjuvant chemoradiotherapy (CRT) may affect the utility of current staging systems for oesophageal cancer. This study was undertaken to assess the accuracy of the AJCC staging system for patients with oesophageal cancer that received neoadjuvant CRT and to identify prognostic factors.
Methodology Patients with oesophageal cancer resected by a single unit were identified from a prospective database. Primary tumour response was defined as pathological complete response (pCR), microscopic residual disease (MRD), and gross residual disease. Survival analyses were undertaken to determine prognostic factors.
Results Of 480 patients with invasive cancer, there were 106 (22%) with squamous cell carcinoma (SCC) and 374/480 (78%) with adenocarcinoma. The operative mortality rate was 2.3%. Median survival was 25 months. Neoadjuvant CRT was administered to 150/480 (31%) patients with the remainder treated by surgery alone. Survival analysis of patients that underwent neoadjuvant CRT found that the AJCC system discriminated poorly between stage groups. Multivariable analysis of patients that underwent surgery alone ($n = 330$) found the number of positive nodes, T stage, tumour length >4 cm, and the number of nodes removed to be independent prognostic factors. In contrast, the number of positive nodes and tumour response (resulting in MRD or pCR) were the only independent prognostic factors for the CRT group.

Conclusions Survival after CRT and surgery is associated with different prognostic factors compared with patients treated by surgery alone. The AJCC staging system for oesophageal cancer is inadequate for patients that receive neoadjuvant CRT and should include primary tumour response.

HP023
PATTERNS AND PREDICTORS OF INITIAL RECURRENCE FOLLOWING RESECTION FOR ADENOCARCINOMA OF THE OESOPHAGUS AND GASTRO-OESOPHAGEAL JUNCTION

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Purpose Knowledge of recurrence patterns following resection for oesophageal cancer is essential for planning treatment. This study was undertaken to determine the patterns and predictors of recurrence for oesophageal and gastro-oesophageal junction (GOJ) adenocarcinoma following resection.
Methodology A prospective database identified 360 patients with oesophageal and GOJ adenocarcinoma who underwent resection by a specialist unit. Timing and patterns of recurrence were reviewed. Survival analyses were undertaken to determine factors predictive of recurrence.
Results Patients underwent transthoracic (n = 109) or thoracoscopically-assisted oesophagectomy (n = 251) and 83/360 (23%) patients received neoadjuvant chemoradiation (CRT). Anastomotic leak occurred in 29/360 (8%) patients. Median survival was 24 months. Recurrence developed in 193/360 (54%) patients. The median time to recurrence was 12 months and 86% of recurrences developed within 2 years of operation. Local recurrence occurred as part of any recurrence in 31/193 (16%) patients. Regional recurrences were found in 34 (18%) patients. Distant recurrences were most frequent and occurred as part of any recurrence in 160/193 (83%) patients. Multivariate analyses found that local recurrence was associated with tumour length >4 cm, anastomotic leak, and N stage; regional recurrence was associated with N stage; and distant recurrence was associated with N stage, tumour length >4 cm, and T stage.
Conclusions Oesophageal and GOJ adenocarcinoma recurrence typically involves distant sites and occurs within 2 years. Recurrence at different sites is associated with specific clinicopathological variables that may identify patients destined to recur early.

HP024
GASTRIC BYPASS FOR SEVERE OBESITY – STILL THE GOLD STANDARD

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Introduction Obesity and its associated co-morbidities are becoming the major health issue in Western countries. The only known way of overcoming the problem on a reasonably permanent basis is by surgery. Bariatric surgery has been evolving for almost 50 years and is growing in acceptance. Gastric bypass is regarded as the gold standard operation based on reliability, durability, and paucity of ongoing problems. There are some who consider that gastric banding procedures might challenge this position.
Discussion Gastric bypass achieves superior weight loss compared with gastric banding (70–80% vs 50–60% EWL) and with much greater reliability and predictability. Gastric banding is associated with a range of technical mishaps, which remain a potential long-term threat to patients. Such issues are almost unheard of with the newer forms of gastric bypass. Metabolic advantages are associated with both, with minimal metabolic/nutritional disadvantages in either. Eating patterns after gastric bypass are healthier because of the deterrent it offers for fat/sweet intake. The only meaningful advantage of the laparoscopic banding procedures relates to the ease of acquiring the skills for performing the operation. This should argue not for, 'which operation should be done', but 'by whom should it be done'. Severe obesity is a long-term problem. It requires a long-term solution, not a 'quick-fix'.
Conclusions Gastric bypass remains the 'gold-standard' operation and should be embraced by our profession. While the attractiveness of the laparoscopic banding procedures is seductive, its wide-scale adoption, will be to the detriment and disappointment of large numbers of patients.

HP025P
LAPAROSCOPIC PANCREATIC RESECTION. LESSONS LEARNT FROM 25 CONSECUTIVE CASES

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Introduction The advantages of laparoscopic surgery over conventional open surgery continue to be demonstrated for an expanding range of abdominal procedures. Whilst laparoscopic staging and palliation of pancreatic malignancy has gained widespread acceptance, the role of laparoscopic surgery in resecting lesions of the pancreas remains poorly defined. This paper describes the indications, pre-operative work-up, technical aspects, problems and post-operative results of laparoscopic resection of pancreatic lesions based on our own experience and of the reported literature.
Methods All pancreatic resections that were commenced laparoscopically by six surgeons at 2 institutions over a 10 year period were retrospectively reviewed.
Results 25 patients underwent laparoscopic surgery on the pancreas for a variety of benign and malignant lesions. It was the technique of choice for lesions of the distal pancreas. All but 2 patients had the procedure completed laparoscopically. The median length of stay was 4 days with a range of 2 to 21 days. There were no in-hospital deaths. The most common post-operative problem was pancreatic fistula, which improved with the use of fibrin sealant later in the series.
Conclusion Laparoscopic resection of pancreatic lesions, particularly those in the distal pancreas, is feasible and safe, with all of the benefits of minimal access surgery. The use of fibrin sealant appears to reduce the problem of pancreatic leak.

HP026P
ENDOSCOPIC VERSUS SURGICAL MANAGEMENT OF COMMON BILE DUCT STONES

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Background 15% of patients having a cholecystectomy for gallstones have common bile duct (CBD) stones which can be treated by surgical (open or laparoscopic (lap) or endoscopic means.
Methods A Cochrane based study using 12 predefined outcomes examined data from 13 quality assessed randomised trials (1351 patients). Meta-analyses used fixed- and random-effects models, with heterogeneity and sensitivity analysis as required.
Results 8 trials (n = 760) compared ERCP with open surgery, 3 (n = 425) pre-operative ERCP with lap surgery, and 2 (n = 166) post-operative ERCP with lap surgery. Increased procedures per patient were seen in ERCP arms of all 3 comparisons with (WMD) differences of 0.62 (95% CI 0.15 to 1.09), 0.96 (0.96 to 0.96), and 1.09 (0.93 to 1.24), respectively. ERCP was less successful than open surgery in CBD stone clearance (OR 2.89, 1.81 to 4.61) with a trend towards higher mortality (OR 2.01, 0.72 to 5.60 P = 0.18). Lap CBD stone clearance was as efficient as pre- (OR 1.00, 0.53 to 1.80) and post-operative ERCP (OR 2.27, 0.37 to 13.9 P = 0.37) and with equivalent morbidity and mortality. Lap trials reported shorter hospital stays in surgical arms.
Conclusions The use of ERCP necessitates an extra procedure per patient, and in the open era was inferior to open surgery in CBD clearance. In the laparoscopic era, surgery and ERCP are equally safe though further studies are required to exclude type II error for laparoscopic choledochotomy as opposed to laparoscopic transcystic clearance.

HP027P
THE RISK OF VTE IN LAPAROSCOPIC CHOLECYSTECTOMY

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Purpose To compare the risk of venous thromboembolism (VTE) in laparoscopic (LC) and open cholecystectomy (OC).

Background Previous studies have suggested that the risk of VTE is increased in LC compared with OC. It has been postulated that this is due to compression of the IVC secondary to increased intra-abdominal pressure caused by CO2 insufflation of the peritoneal cavity. There have however been no population-based studies to confirm an increased risk of VTE in LC.
Methodology Records of all cholecystectomies performed in Western Australia in the period 1991–2000 were selected from the Western Australian Data Linkage System, together with all readmissions within three months of the Index admission. In addition to cases of VTE occurring during the Index admission, readmissions for VTE within three months of the Index or within three months of cholecystectomy in the period 1991-were identified using record linkage.

Multivariate analysis was used to compare the risk of VTE in LC and OC after adjusting for other risk factors for VTE including age, gender, case complexity, length of stay (LOS) and hospital type.
Results The overall prevalence of VTE in cholecystectomy was 3.4 per 1000 procedures. The risk of VTE was significantly increased with increasing age, in Teaching Hospitals and length of stay and significantly diminished in LC (OR 0.487; 95% CI 0.327, 0.724). Non-significant increases in risk of VTE were associated with high case complexity and a history of cancer.
Conclusion After adjustment for other risk factors the risk of VTE in LC was found to be less than half that in OC.

HP028P
CLINICAL OUTCOME OF ESOPHAGEAL RESECTIONS IN A PROVINCIAL HOSPITAL

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Introduction We present our cumulative results of major esophageal resection performed in a provincial hospital. The objective was to audit the clinical outcome in these patients.
Methods This is a retrospective analysis of 46 cases of Esophageal cancer operated between January 1995 to December 2005 at a single centre by 2 surgeons. Various preoperative risk factors like age of presentation, smoking status, diabetes, and associated comorbidities were studied. Operative outcome in these patients was analysed in detail with reference to surgical technique, anastomotic leak, mediastinitis, wound complications, postoperative ileus, peritonitis, bleeding, requirement of second surgery, length of stay and associated medical complications were analysed.
Results Overall operative mortality was 0% and esophagogastric anastomotic leak was 6.5% (3 cases) of which 2 true anastomotic suture leak and 1 gastric tube leak distal to anastomosis. Surgeon's assessment along with tumour stage and extent of resection were independent factors in clinical outcome.
Conclusion This retrospective analysis of esophageal resections showed favourable surgical outcome in a small provincial unit suggesting that with good quality of care and excellent technical expertise in multidisciplinary environment, favourable results can be achieved in smaller volume hospital.

HP029P
A RETROSPECTIVE AUDIT OF THE SURGICAL TREATMENT OF HEPATOCELLULAR CARCINOMA AT FLINDERS MEDICAL CENTRE

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Purpose Hepatocellular Carcinoma (HCC), the fifth most common malignancy worldwide, is increasing in incidence in Australia. Surgical management, with hepatic resection or transplantation (OLTX), remains the mainstay for long-term disease-free survival. Both methods possess specific criteria for patient selection, surgical risks, resource limitations and outcomes.

The purpose of this retrospective study was to audit the experience of the Flinders Medical Centre (FMC) in the surgical management of HCC and compare it with the best published guidelines.
Methods A study of all patients (n = 38) with a diagnosis of HCC, and treated surgically, between 1992 and 2005 was conducted. The medical records, pathology and radiology of these patients were scrutinized for treatment and variables in terms of survival and recurrence.
Results All patients who had hepatic resection (n = 21) had a Child-Pugh grading of A or B, consistent with the literature. Milan criteria for OLTX patients (n = 17) was confirmed for 16 patients. Median follow-up was 2.28 years.

The 1-year, 3-year and 5-year survival rates were 90%, 84% and 84% respectively post-resection, and 94%, 84% and 64% respectively post-OLTX. Three resection patients had recurrence (14.28%), and no OLTX patients had arecurrence at the time of this study. The mean duration for recurrence-free survival post-resection was 44.45 months, and 67.92 months post-OLTX, comparable to the published data.
Conclusion This audit is the first systemic study of survival and recurrence rates of surgically managed patients for HCC in South Australia. It was found that most survival rates were comparable or better than previously publish studies.

HP030P
DAY ONLY LAPAROSCOPIC CHOLECYSTECTOMY IN A FREE STANDING DAY SURGERY FACILITY

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Laparoscopic cholecystectomy (LC) is the treatment of choice for symptomatic gallstone disease. Many hospitals have utilized 'short stay' or '23 hour' admissions, but true day only LC has not been widely adopted.
Objective To evaluate the safety and effectiveness of 'true' day only LC.
Methods Two hundred and fifty consecutive patients undergoing day only LC at Castle Hill Day Surgery were included in this prospective study. A standard LC and routine cholangiography was performed by a single surgeon. All patients were reviewed at day one by telephone and at 4 weeks. Patient satisfaction was surveyed.
Results Between 2002 and 2005, two hundred and fifty patients underwent a LC. All patients were ASA I or II. The patients were 78% female: age range (17–76, mean 41.6 years) and 22% male (31–69, range 49.6 years). The indication for surgery: symptomatic gallstone disease in 94%; other in 6%. Twelve patients (4.8%) had acute cholecystitis. Ninety nine percent patients successfully completed laparoscopically, only two were converted to an open procedure. The mean operative time was 58 minutes (range 35–165 minutes). Operative cholangiogram was performed in 98% of patients. The average length of stay LOS was 7 hours 28 minutes +/− 4.7 min (range 5 h 20 m–12 h 15 min). Four patients (1.6%) were transferred to hospital, and two were discharged on the following day. Post operative nausea and vomiting in 3.4%. Urinary retention occurred in 4 patients. There were no major complications. Patient satisfaction was high in 87% of cases. Cost effectiveness analysis will be outlined
Conclusion 'True' day only LC can be performed safely in a free standing day surgery facility, with low morbidity and high patient satisfaction