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AUDIT OF LAPAROSCOPIC EXPERIENCE IN THE DURBAN COLORECTAL UNIT

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Aim: To review our experience with establishing laparoscopic colorectal surgery in the colorectal unit in Durban, with a view to recommending a protocol to establish laparoscopic surgery in developing units.

Method: Review of data pertaining to laparoscopic procedures performed in the Durban colorectal unit from 2008 to 2010. The number of procedures performed and the conversion rate were analysed. Data were collected retrospectively and prospectively.

Results: Results reflect a single surgeon's experience in the Durban colorectal unit for the period January 2008 up to and including December 2010. A total of 45 laparoscopic procedures were attempted during this time.

Eight procedures were performed in 2008. The conversion rate was 63% (5/8). The only successful procedures were two laparoscopic closures of Hartmann's colostomy and an AP resection (performed together with an experienced visiting laparoscopic surgeon).

Eleven procedures were performed in 2009. The conversion rate was 45% (5/11). Although procedures were carefully selected, in retrospect the high conversion rate for this period was attributable to poor patient selection. Five of the 6 successful procedures were left-sided colectomies.

Twenty-six procedures were performed in 2010, 22 of them after June. During this period the surgeon had made a complete transition to laparoscopic surgery for all patients. The conversion rate was 15% (4/26), all for bulky tumours in the small male pelvis where visibility was too poor to proceed safely. All were converted to lower midline laparotomies with good outcomes.

Conclusions: Laparoscopic surgery can be implemented safely in reasonably high-volume units provided it is done in a safe and careful manner. It is imperative to have established laparoscopic skills before attempting colorectal surgery. It is recommended that the surgeon initially proceed with simple benign procedures before attempting surgery for carcinomas.

AN AUDIT OF TEO IN THE WESTERN CAPE

Adam Boutall, Emile Coetzee, Bob Baigrie

Method: A retrospective audit of all patients undergoing resection of rectal tumours by the trans-anal endoscopic operation (TEO) technique at Groote Schuur and Kingsbury hospitals since 2009 was undertaken. Clinical records, including operation notes and histological findings, were reviewed.

Results: Thirty patients, mean age 64 years, were identified. Four were excluded because of incomplete documentation. The mean height

of the tumours from the anal verge of the lesion was 6.5 cm, and 4 were circumferential. The average size was 23 cm², and 7 lesions were removed piecemeal. Eight wounds were closed. Twenty-six patients had an endoscopically clear margin and 17 a histological clear margin. The margin of the 7 piecemeal specimens could not be assessed. Histological examination identified 11 patients with low-grade dysplasia, 7 with high-grade dysplasia and 7 with adenocarcinoma, of which 2 were diagnosed pre-operatively. Three patients had T1 lesions and 4 had T2 lesions. All cancer specimens were full-thickness resections with clear margins. There was 1 death from a confirmed MI and 3 complications – 1 perforation, 1 stricture and 1 patient with minor incontinence. No patient had secondary haemorrhage. Follow-up data are currently being collated for presentation.

Conclusion: TEO with acceptable results can be performed safely in this environment, which included the surgeon's learning curve. All invasive cancers were of an acceptable T stage and were completely resected. The wider introduction of TEO in South Africa is justified, provided adequate training is made available.

LAPAROSCOPIC COLOSTOMY: THE GROOTE SCHUUR EXPERIENCE

Wendy Christian, A Boutall, P Goldberg

Aim: To retrospectively audit laparoscopic colostomies at Groote Schuur Hospital since 2008.

Method: A retrospective analysis of case files and operation notes was undertaken. Variables analysed included patient demographics, diagnosis, length of operation, whether mobilisation was necessary, conversion to open colostomy and the indication for conversion, surgical evidence of metastatic disease, length of hospital stay, time on intramuscular morphine, time to FWD, postoperative stoma complications, further surgery and outcome if known.

Results: 59 patients with complete documentation were identified. Indications for colostomy were rectal cancer in 36, anal cancer in 7, rectovaginal fistula in 9, perineal sepsis in 4, and colonic inertia, prostate carcinoma and cervical carcinoma in 1 each. Evidence of metastatic disease was noted in 18 patients. Of the 59 operation notes reviewed, 40 patients (67%) required mobilisation of the sigmoid colon. Total operating time averaged 71.2 minutes. Operating time for procedures that were purely laparoscopic loop colostomies averaged 64.7 minutes. One patient was converted to an open procedure because of frank intra-abdominal sepsis. Three patients were taken back to theatre during the same admission, 2 for revision of a stoma and 1 for a laparoscopy for abdominal pain. One patient died shortly after discharge from hospital; the cause of death was uncertain.

Conclusion: Laparoscopic loop colostomy can be performed safely and effectively. A large number of patients are considered to require mobilisation of the sigmoid colon, and a significant proportion are found to have metastatic disease at the time of operation.

LAPAROSCOPIC-ASSISTED ANORECTAL PULL-THROUGH (LAARP) VERSUS POSTERIOR-SAGITTAL ANORECTOPLASTY (PSARP)

Corne de Vos, D Sidler

Introduction: Both LAARP and PSARP are used for treating anorectal malformation (ARM), but more evidence and comparison between the outcomes of the two are needed.

Method: A retrospective review of patients (2000 - 2009) was performed. Patients with low lesions and cloacal abnormalities were excluded. Functional outcome in children older than 3 years was assessed.

Results: 71 patients with ARM were analysed. Low lesions and cloacal abnormalities were excluded. The high lesions included 20 males with rectobulbar, 3 with rectoprostatic and 1 with rectovesical lesions; 2 had no fistulas, and in 2 data were inadequate. 7 females had rectovaginal fistulas. Syndromic and VACTERL associations were observed. Mean age at anoplasty was 8 months. Twenty of the high lesions were treated with LAARP and 19 with PSARP.

LAARP complications included technical difficulties related to poor stoma placement, a vas deferens and a urethral injury, open conversion, port-site hernias and pelvic sepsis. Five redo anoplasties were required. Complications in the PSARP group included wound dehiscence, anal stenosis, mucosal prolapse and incorrect anus placement.

Functional assessment using a questionnaire and the Krickbeek scoring system showed voluntary bowel movements in 14% of both groups. Soiling and overflow incontinence were problems in both groups. Constipation was less common in the LAARP group. Four patients in the LAARP and 6 in the PSARP group were dependent on rectal washouts.

Conclusion: Both LAARP and PSARP are successful procedures for the treatment of ARM, although each has its problems. LAARP seems to be better tolerated and gentler on children.

THORACOSCOPIC SYMPATHECTOMY FOR PRIMARY HYPERHIDROSIS: A CLINICAL AUDIT OF PATIENT OUTCOMES

Bhefika Dube, S S Pillay

Introduction: Thoracoscopic sympathectomy (TS) has emerged as the best treatment for primary hyperhidrosis (PH). The aim of this study was to evaluate the efficacy of TS and enumerate the complications associated with the procedure.

Methods: We retrospectively reviewed consecutive patients who had TS for PH from January 2000 to January 2010. Sixty-eight patients were analysed, with a mean age of 23.8 years. Disease location was palmar in 47% and axillary in 15%; in 32% of patients both locations were affected. Sympathectomy was achieved by thermal or ultrasonic ablation of the 2nd and 3rd ganglia for palmar disease and included the 4th ganglion for axillary disease. The medical records were retrospectively reviewed

and individual telephonic interviews were done in 61 out of 68 patients. Statistical analysis was performed by paired *t*-tests and Pearson correlation coefficients using statistical analysis software (SAS Inc, NC, USA). *p*-values of <0.05 were considered statistically significant.

Results: The mean duration of PH prior to intervention was 6.3 years. The mean follow-up period was 4.9 years. There were no conversions to thoracotomy and no deaths. 9 patients sustained pneumothoraces and 3 had self-limiting surgical emphysema. One patient developed a transient monoparesis of the left lower limb. The mean hospital stay was 1.4 days. Four patients required re-sympathectomy. Compensatory hyperhidrosis was reported in 8 patients. Transient dryness of the feet was observed in 19 patients. There was a significant decrease in postoperative sweating scores. The mean satisfaction score was 8 out of 10.

Conclusion: TS remains a safe and effective treatment of primary hyperhidrosis, despite the side-effect of compensatory hyperhidrosis.

CYSTIC DUCT STONES: A PROSPECTIVE EVALUATION

Danie Folscher, Elna Muller

Introduction: Post-cholecystectomy syndrome occurs in approximately 10 - 15% of patients after cholecystectomy. One of the reasons for this syndrome may be cystic duct stones or bile duct stones emigrating from the cystic duct. The prevalence of cystic duct stones has not been well described. In this prospective series, we document the incidence of cystic duct stones found during routine laparoscopic cholecystectomy, and demonstrate a simple method of clearing the cystic duct.

Method: Consecutive patients undergoing laparoscopic cholecystectomy by a single surgeon in a single hospital over a 1-year period were studied. All information was recorded on a prospective database. After the cystic duct was clipped flush on the gallbladder, the duct was opened and milked clean in a proximal direction before further clipping and division. The cystic duct content was documented as follows: 1 = clean; 2 = sludge or gravel; 3 = stones; 4 = not possible or not done.

Results: A total of 41 patients were evaluated: 19 (46%) had no stones, 7 (17%) had sludge, 10 (24%) had cystic duct stones, and 5 (12%) could not be evaluated. Stones were easily removed from the cystic duct.

Conclusion: There was an unexpectedly high incidence of cystic duct stones present during routine cholecystectomy in this series. Retained cystic duct stones may lead to the post-cholecystectomy syndrome or biliary lithiasis. It is easy to remove these stones during routine laparoscopic cholecystectomy, and this should be incorporated in the training model for the procedure.

THE SIGNIFICANCE OF RADIATION EXPOSURE TO SURGEONS DURING A SENTINEL LYMPH NODE BIOPSY

Nadine Harran, G Edwards, C Benn, A Chamberlain

Introduction: Our intention was to measure the extent of radiation exposure to a surgeon after injecting 91 patients undergoing sentinel lymph node biopsy with the radioactive isotope technetium-99m.

Method: A prospective analysis of 91 patients undergoing sentinel lymph node biopsy who received the radioactive isotope technetium-99m during the period 5 January 2010 - 20 June 2010.

Results: A total of 91 patients' exposure rates were collected by placing a thermoluminescent dosimeter (TLD) on the surgeon's finger. The TLDs recorded the total radiation exposure to the surgeon. The occupational dose limit for extremity exposure should be less than 500 mSv or 50 rem per year. Once analysed and extrapolated, the data showed an average dose per patient of 0.1110989 mSv.

Conclusion: The number of procedures a surgeon would need to perform to exceed the advised minimum extremity dose limit would have to exceed 712.166 per annum. Only in extreme surgical practices would the minimum dose limit of extremity radiation therefore be exceeded. The findings also reveal that regular measurements of radiation exposure and radiation protective measures need not be undertaken in theatres where surgeons regularly work with radioactive isotopes.

LAPAROSCOPIC PERICARDIAL WINDOW FOR EXCLUDING PENETRATING CARDIAC INJURY? OUR INTERESTING AND PIONEERING CASES IN SA

Reuven Jacks, Zach Koto

Background: Ruling out cardiac injury in penetrating wounds to the 'cardiac box' is of paramount importance. All the non-invasive techniques lack 100% sensitivity. With high suspicion, the only foolproof technique is a 'pericardial window'. The classic open approaches (extra-peritoneal subxiphoid and intra-peritoneal transdiaphragmatic) require significant incisions to achieve an adequate view of the pericardium.

Case report: We present 2 cases of stable patients with penetrating injuries involving the chest, abdomen and 'cardiac box'. They had haemopneumothoraces and acute abdomens. They went to theatre for diagnostic laparoscopy and laparoscopic creation of a pericardial window. Using a single body cavity (abdomen) and 3 ports, we explored the abdomen, did a cholecystectomy (in one case), washed out bile and repaired the diaphragm. A transdiaphragmatic pericardial window was performed using the same ports and found to be negative in one and positive (followed by sternotomy) in the other). No further incisions were required for these windows. The window was small due to magnification offered by the laparoscope.

A literature review yielded only 3 papers describing laparoscopic pericardial windows (in trauma). None are South African studies, and few centres are practising the procedure.

Conclusion: Laparoscopy in trauma is slowly evolving. Despite early speculation, it is gaining favour as technology and expertise increase. We present our first cases of laparoscopic pericardial windows (as part of laparoscopy for trauma). The procedure proved safe, quick and easy to perform, with all the advantages of laparoscopy over open surgery. It also offers the advantage of diagnosing and managing associated abdominal or diaphragmatic injuries.

PERI-OPERATIVE CHEMOTHERAPY FOR LOCALLY ADVANCED GASTRIC CANCER AT GROOTE SCHUUR: A PRELIMINARY REVIEW

Fred Jacobsohn, L Cairncross

Introduction: Gastric cancer is a common problem globally. Recent studies have shown improved survival in gastric cancer with the use of neo-adjuvant chemotherapy with or without radiotherapy. Over the past 2 years our unit has started a peri-operative protocol for selected patients deemed suitable in accordance with the MAGIC trial guidelines from the UK. The aim of this study is to review our experience to date.

Method: In our unit, all patients with gastric cancer are assessed pre-operatively with endoscopy, contrast studies and contrasted CT of the abdomen as well as diagnostic laparoscopy to rule out macroscopic metastases. Patients found to have locally advanced disease with no metastatic spread or features of irresectability are selected for peri-operative chemotherapy.

Results: Approximately 200 new patients with gastric cancer were referred to the endocrine oncology surgical unit during this time period. Only 21 patients were considered for peri-operative chemotherapy, of whom 18 underwent diagnostic laparoscopy. Seven patients were not considered fit for chemotherapy and, of the remaining 11 patients who were deemed suitable, only 8 completed all 3 cycles. There was 1 death as well as significant toxicity. Only 2 of the 8 completed the postoperative course. No significant macroscopic down-staging of the tumour was noted.

Conclusion: Peri-operative chemotherapy in gastric cancer is considered the standard of care in many parts of the world. Our initial experience remains limited, but this review demonstrates the morbidity associated with chemotherapy and the difficulties experienced with the duration of treatment.

OUTCOME OF LAPAROSCOPIC INGUINAL HERNIA REPAIR IN A SOUTH AFRICAN PRIVATE PRACTICE SETTING

Colin McGuire, Robert Baigrie, Danie Theunissen, Nicole Fernandes, Larry Chapman

Background: The aim of this study was to determine the recurrence and complication rates of laparoscopic inguinal hernia repair performed in a private practice in Cape Town.

Methods: An unselected cohort of 507 patients who underwent laparoscopic totally extraperitoneal (TEP) inguinal hernia repair before September 2005 were included in this study, thus ensuring a minimum 5-year follow-up. Patient demographic data, clinical notes, operation notes and outpatient follow-up notes were studied. Patients were interviewed telephonically regarding hernia recurrence, chronic pain and technique preference if they had previously undergone an open repair. All data collected were recorded on an electronic database (detail). The primary outcome parameter was recurrence. The secondary outcome parameters were postoperative and long-term complications.

Results: Of the 507 patients, 267 were contactable telephonically. There were 384 hernia repairs, with a mean follow-up of 8.8 years. There were 9 recurrences (2.3%). The overall complication rate was 7.9%. Two per cent of patients suffered from chronic groin pain with gradual improvement after surgery. Sixteen per cent of patients had had a previous open repair of an inguinal hernia, either on the ipsilateral or the contralateral side, and all judged the open repair to have been more painful.

Conclusions: The recurrence and complication rates for laparoscopic TEP inguinal hernia repair in this practice are low and comparable to the best reported series. There is a low incidence of persistent postoperative pain with the laparoscopic technique, and it is the technique preferred by patients who previously underwent an open repair.

LAPAROSCOPIC GASTROJEJUNOSTOMY FOR GASTRIC OUTLET OBSTRUCTION

Monde Mjoli, Lucien Christo Ferndale, Morganayagi Govender, Sandie Rutherford Thomson

Introduction: Gastric outlet obstruction has traditionally been treated with open gastrojejunostomy. Laparoscopic gastrojejunostomy is a feasible minimally invasive alternative. We present the results of our experience with this method.

Patients and methods: From 2009, 12 consecutive patients with a median age of 57 years underwent laparoscopic gastrojejunostomy for gastric outlet obstruction caused by both malignant and benign disease. The demographic details, indications for surgery, details of the operative procedure, time till normal diet, and outcome are analysed and reported.

Results: The mean duration of surgery was 134.6 minutes (range 95 - 201 minutes). Two cases were converted to an open procedure. Two minor intra-operative and 3 early postoperative complications occurred. The time taken to tolerate a normal diet was 4 days (range 2 - 14 days) and the mean postoperative hospital stay was 7 days (range 2 - 14 days). All patients were discharged alive.

The mean follow-up was 5.2 months (range 1 - 7 months). During follow-up, 3 patients developed complications – anastomotic stricture, gastric stasis and an unrelated oesophageal stricture. The 2 patients with strictures were treated endoscopically and the patient with gastric stasis required revisional open surgery. None of the patients with malignant disease presented for follow-up.

Conclusion: Laparoscopic gastrojejunostomy is a safe procedure for both malignant and benign causes of gastric outlet obstruction. Technical rather than disease factors were responsible for conversions. This procedure is a viable option that merits comparative analysis against open surgery or luminal stenting.

LAPAROSCOPIC ASSESSMENT OF NECROTISING ENTEROCOLITIS WITH INTRAVENOUS FLUORESCIN

Alp Numanoglu, Alastair Millar

Aim: To diagnose and assess the extent of the full-thickness necrosis before surgical complications, i.e. perforation occurs with necrotising enterocolitis.

Patients and methods: 10 patients with a pre-operative presumed diagnosis of necrotising enterocolitis underwent laparoscopy. A 5 mm umbilical port was inserted using the open method. The abdominal cavity was inspected for bowel ischaemia, fibrin and adhesion formation and presence of intestinal contents. If necessary, one or two 3 mm working ports were inserted. Fluorescein was used in 5 cases.

Results: Average age of patients was 14.5 days (range 3 - 35days). Their average weight was 1 288 g (910 - 1 725 g). 5 patients only had laparoscopy and 5 subsequent patients had fluorescein added to the laparoscopy. Lapa-roscopy identified perforation in 4 patients and gangrenous bowel in 2. One patient was found to have chyle ascites and 1 had no abnormal findings on laparoscopy. Fluorescein identified gangrenous bowel in 2 patients.

Conclusion: Laparoscopy helps to improve assessment of patients with a presumed diagnosis of NEC. It allows early identification of perforation. Where gangrenous bowel is suspected, fluorescein laparoscopy may have the added benefit of identifying necrotic segments.

RECTAL PROLAPSE TREATMENT – THE CHOICE OF TECHNIQUE

Bruno Roche, Karel Skala, Guillaume Zufferey, Joan Robert-Yap

Introduction: Over 160 different procedures have been described to treat rectal prolapse. Recent studies favour anterior fixation over simple posterior rectopexy. In our institution the gold standard operation consists of a laparoscopic posterior dissection with simple suture fixation of the rectum. From January 2005 to December 2008 we performed a comparative randomised study between laparoscopic posterior rectopexy without mesh (PR) and laparoscopic anterior mesh promonto-fixation (AMP).

Patients and methods: Inclusion criteria were patient consent to participate in the study, female with total rectal wall perineal prolapse, clinical signs and defecography or magnetic resonance imaging. Exclusion criteria were recurrent prolapse, emergency situations, associated utero-vaginal prolapse and/or bladder prolapse. We included 53 patients in group PR, median age 69.2 years (range 34 - 94) and 53 in group AMP, median age 69.4 years (range 20 - 96). 26 patients in group PR and 27 in group AMP had a previous hysterectomy.

Results: Median operative time was 94 minutes for group PR and 132 min for AMP, with a difference of 38 minutes. The surgical approach was open in 2 patients in group PR and 6 patients in AMP; laparoscopy was used for the other procedures. The conversion rate was 1 per group.

Complications: Group PR (1.9%): 1 bleeding of the presacral veins with conversion; group AMR (5.7%): 1 parietal haematoma, 1 anterior rectal perforation with re-operation on day 2 (Hartmann), 1 small gut laceration with peritonitis and re-operation on day 1. Recurrences at 1 year after the procedure were 1 in group PR and 2 in group AMP.

Conclusion: Simple rectopexy (PR) with sutures is a safe and quick procedure. Complications are rare (1.9%), with no re-operations. Promontofixation (AMP) leads to a longer operating time and more complications (5.7%) with 2 re-operations. There is no need for a mesh when not indicated.

MINIMAL ACCESS SURGERY – A GENTLE TECHNIQUE FOR SMALL PEOPLE**Daniel Sidler**

Patients who have had advanced laparoscopic procedures at Tygerberg Children's Hospital will be presented. These procedures include excision of a distal oesophageal stricture (candida oesophagitis + HIV) with reconstruction, an adrenalectomy (neuroblastoma and HIV), a neonatal laparoscopic-assisted anorectal pull-through without creation of a stoma for a high anorectal malformation, and a total colectomy with ileostomy for a nutritionally depleted child with polyposis. The benefits of laparoscopic surgery for children and the difficulties associated with such procedures in a resource-restricted public sector hospital will be discussed. Alternatives to expensive endoscopic surgery will be presented using representative patient case histories where a small umbilical incision was used for a pyloromyotomy for hypertrophic pyloric stenosis, intestinal atresia and Nissen fundoplication. Finally, the endo-anal pull-through for Hirschprung's disease, which leaves the abdomen without scars, will be mentioned.

THE USE OF COLONIC STENTS AS THE PRIMARY TREATMENT OF ALL PATIENTS WITH LEFT-SIDED MALIGNANT COLONIC OBSTRUCTION**Claire Warden, Douglas Stupart, Paul Goldberg**

Objectives: Colonic self-expanding metallic stents (SEMS) are proven to be safe and effective in the management of selected cases of malignant colonic

obstruction. Since 2005, we have used SEMS as the primary treatment of all patients with left-sided malignant colonic obstruction, in the absence of perforation. This study aimed to assess the safety and efficacy of this management protocol.

Method: This is a study of consecutive patients who presented to our single unit with left-sided malignant colonic obstruction between January 2005 and June 2009. Patients were excluded if there was clinical or radiological suspicion of bowel perforation. Emergency surgery was offered to patients in whom colonic stent placement failed. After successful decompression, surgery was offered to patients who had potentially curable disease.

Results: Seventy-eight patients presented to the unit during the study period. SEMS were successfully placed in 60/78 (77%). In 35 patients, SEMS served as their definitive palliative treatment. In 25 patients, SEMS were placed as a bridge to surgery. Sixteen out of 18 patients in whom SEMS placement failed underwent emergency surgery. Stomas were fashioned in 4/60 patients who were successfully stented, and in 12/16 of those who underwent emergency surgery ($p=0.0032$). Five of the 60 successfully stented patients (8%) and 1/16 (6%) of those who underwent emergency surgery died ($p=1.00$). Seven patients had complications related to SEMS.

Conclusion: In our unit, SEMS placement for left-sided malignant colonic obstruction could be performed safely, with a low mortality and complication rate, and allowed most patients to avoid colostomy.