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BREAST SURGERY

PREDICTIVE MODEL FOR NON-SENTINEL LYMPH NODE METASTASES IN THAI BREAST CANCER PATIENTS

Ronnachai Bupphanharun, Pornchai O-Charoenrat

Division of Head-Neck and Breast Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand

Background: Sentinel lymph node (SLN) biopsy is a standard procedure for axillary staging in breast cancer patients with clinically node negative. Several models were developed to predict the probability of non-sentinel lymph node (NSLN) metastases. However, differences in technique and setting may impact the accuracy of the models. We created a novel nomogram to predict NSLN metastases for Thai breast cancer patients.

Methods: Breast cancer patients who underwent SLN biopsy at the Division of Head Neck and Breast Surgery, Department of Surgery, Siriraj Hospital between January 2009 and October 2013 were recruited. All SLN biopsies were identified by blue dye and immediately examined by frozen section. All frozen SLNs were defrosted and confirmed by permanent section. The patients with positive SLN (either from frozen or permanent section) underwent axillary dissection. Associations between clinicopathological parameters and NSLN status were determined by Chi-square statistics. Logistic regression was performed to create predictive models.

Results: Four hundred and thirty breast cancer patients who had positive SLN and underwent axillary lymph node dissection were recruited. NSLN metastasis

accounted for 48.37% of the patients with positive SLN. In frozen section model, tumor type, tumor size, lymphovascular invasion, and ratio of positive SLN were associated with NSLN status. Tumor type, tumor size, ratio of positive SLN, and presence of extranodal extension of SLN were associated with NSLN status in permanent section model. The area under the receiver operating characteristic (ROC) curve (AUC) = 0.71 for frozen section model and 0.781 for permanent section model. Validation of the model in 56 patients revealed AUC of 0.803 and 0.831 in frozen and permanent section, respectively. Our models better predict NSLN metastasis, when compared to the previously published models.

Conclusion: We created two nomograms for frozen and permanent section of SLN which were reasonable and accurately predict NSLN status for Thai breast cancer patients.

CLINICAL AND PATHOLOGICAL STAGING IN IMMEDIATE BREAST CANCER RECONSTRUCTION

Sarun Thongvitokomarn, Sukanya Sriussadaporn

Department of surgery, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background: Immediate breast reconstruction after mastectomy has an advantage of a single-stage operation and also provide a good cosmetic results. It is suitable for patients who have early stage breast cancer. When adjuvant radiotherapy was planned, breast reconstruction should be delayed due to the worse cosmetic outcomes. Accurate

clinical staging in patients with tumor staging 0, 1, 2 and nodal stage 0 who don't require adjuvant radiotherapy is important for immediate reconstruction.

Purpose: Aim of our study was to identify correlation between clinical and pathological staging for patients who are candidate for immediate reconstruction.

Methods: A retrospective study was performed in patients who operated for immediate breast cancer reconstruction after mastectomy from January 2009 - July 2014 at King Chulalongkorn Memorial Hospital. Immediate reconstruction was performed in clinical T1, T2, node negative, T0 (DCIS) lesions patients in 81 patients (93%). Mismatch of clinical and pathological staging was reviewed and calculated for correlation. Adjuvant radiation was recorded.

Results: Among total 107 patients who underwent immediate reconstruction, only 87 patients whose recorded for both clinical and pathological staging were completed. Seventy-two patients diagnosed with invasive cancer staging ranging from T1-T4 and N0-N2 stage. Other 15 breasts are classified as premalignant lesion or benign diseases. Mis-

match of clinical and pathological staging found in 39 patients. But only 20 of 39 patients need additional adjuvant radiotherapy. Statistical calculation was done in the correlation of T staging and N staging by using weighted kappa test. For T staging, linear-weighted kappa test show 0.7 with 95% CI (0.54-0.85). For N staging, linear-weighted kappa test shows 0.17 with 95% CI (0-0.4).

Conclusions: Accuracy of clinical staging in breast cancer patients who choose the immediate reconstruction plays as important role for adjuvant radiotherapy. This data can guide the possibility of adjuvant radiation which immediate reconstruction should be avoided because it results in poor cosmetic outcome. From our study, T staging has a good result of correlation between clinical and pathological staging. However, N staging show a worse correlation between clinical and pathological staging. Imaging study additional with conventional study such as MRI and ultrasound-guided fine needle aspiration of suspected axillary lymph node may give better preoperative staging.

COLORECTAL AND ANAL SURGERY

COMPARISON OF POSTOPERATIVE COMPLICATION BETWEEN DIVERTING LOOP ILEOSTOMY AND COLOSTOMY CLOSURE

Duangkamon Bunkham, Irin Chowchankit, Jirawat Pattana-arun

Department of Surgery, King Chulalongkorn Memorial Hospital, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Diverting ostomy can be achieved by either a loop ileostomy or loop transverse colostomy. It remains controversy which is better for fecal diversion from a colorectal anastomosis. Aim of this study to compare outcome between diverting loop ileostomy and colostomy after creation and closure.

Material & Methods: A retrospective review of medical records of 440 rectal cancer patients who operated with standard oncological resection and diverting ostomy at King Chulalongkorn Memorial Hospital (KCHM) between January 2004 and December 2014 was performed.

Results: Between January 2004 to December 2014, Of 440 patients who underwent surgical resection for rectal cancer with diverting ostomy, 340 patients (77.3%) and 100 patients (22.7%) had been performed diverting loop ileostomy and colostomy, respectively. The baseline

demographic data in both groups were similar except lower rectal cancer surgery had higher rate of performing diverting loop ileostomy. The postoperative complication related to diverting ostomy between two groups was similar. The mean operating time was shorter in diverting ileostomy group (313 vs 335 min; $p = 0.048$). During follow-up, common causes of readmission were small bowel obstruction and dehydration. There were no difference between the two groups in diverting ostomy related complications during follow up period. Overall closure rate was 87.3% with a median interval time of 7 months. The operative blood loss and length of hospital stay were statistically significant lower in diverting colostomy group ($p = 0.012$ and $p = 0.010$, respectively). There was significantly higher incidence of readmission from small bowel obstruction after closure in the loop ileostomy (9.21% vs 1.26%; $p = 0.016$), while 44.8% of patients with small bowel obstruction occurred within one month after surgery. Eight patients required surgical treatment after failed conservative management, which two cases caused from anastomosis stricture of ileum related to neoadjuvant chemoradiotherapy before cancer surgery.

Conclusions: Loop ileostomy closure was associated with higher complication in term of small bowel obstruction than closure of loop transverse colostomy. Therefore,

closure of a loop ileostomy requires careful attention to detail to prevent obstruction. We recommend lysis adhesion under direct vision and carefully re-anastomose to prevent anastomotic stricture. Diverting loop colostomy is also recommended in the patients who received neoadjuvant chemoradiotherapy.

OUTCOMES OF PERIOPERATIVE HYPOTHERMIA IN COLORECTAL SURGERY UNDER ENHANCED RECOVERY AFTER SURGERY (ERAS) PROTOCOL

Panumat Jaturanon, Varut Lohsirivat

Colorectal Surgery Unit, Division of General Surgery,
Department of Surgery, Faculty of Medicine Siriraj Hospital,
Mahidol University, Bangkok, Thailand

Background and Objective: Perioperative hypothermia has been reported to be associated with poor surgical outcomes, such as increased wound infection and prolonged hospitalization. Enhanced recovery after surgery (ERAS) protocol is a modern multidisciplinary perioperative care pathway for many operations including colorectal surgery. However, whether perioperative hypothermia leads to worse outcomes in colorectal surgery under ERAS protocol is not known. The objective of this study is to determine the association between perioperative hypothermia and outcomes following colorectal surgery under the ERAS protocol.

Methods: A prospectively collected database of patients undergoing elective colorectal surgery under ERAS protocol at Siriraj Hospital from March 2011 to October 2015 was reviewed. Patients with incomplete or no record of core temperature during an operation were excluded. Hypothermia is defined as core temperature < 36(c)C. Subsequently, patients were divided into 2 groups: hypothermic and normothermic groups. Short-term surgical outcomes were compared between the 2 groups.

Results: This study included 195 patients: 150 (77%) in the hypothermic group and 45 (23%) in the normothermic group. Patient's characteristics were comparable between groups. Rectal surgery (OR=4.3; 95%CI=2.1 to 8.8; $P < 0.001$), multi-organ resection (OR=3.1, 95%CI=1.1 to 9.3; $P = 0.034$), male gender (OR=2.6, 95%CI=1.3 to 5.3; $P = 0.006$) and open surgery (OR=2.0, 95%CI=0.9 to 4.5; $P = 0.10$) were more likely to experience hypothermia. Hypothermic patients had larger volumes of intraoperative IV fluid administration (1.7 L vs 2.4 L; $P = 0.001$), more blood loss (324 mL vs 219 mL; $P = 0.074$) and longer operating time (3.7 hours vs 3.1 hours; $P = 0.01$). Hypothermic patients tended to have a higher rate of overall complications (23% vs 13%; $P = 0.15$). One patient

in the normothermic group died within 30 days of operation, while no patients died in the hypothermic group ($P = 0.12$). Hypothermic patients had a longer time to normal diet intake (2.0 days vs 1.3 days; $P = 0.023$) but a comparable time to first defecation (2.6 days vs 2.6 days; $P = 0.97$). Hypothermic patients had a significantly longer hospitalization (5.7 days vs 4.4 days; $P = 0.048$). On multivariate analysis, perioperative hypothermia-not other operative parameters-was a significant predictor of delayed time (> 2 days) to normal diet intake (OR=2.9, 95%CI=1.2 to 6.9; $P = 0.01$) and prolonged (> 5 days) hospitalization (OR=2.6, 95%CI=1.0 to 6.6; $P = 0.029$).

Conclusions: The incidence of perioperative hypothermia in this series was unexpectedly high (77%), particularly in male patients and those undergoing open surgery, rectal operation, and multi-organ resections. Unintentional hypothermia led to delayed gastrointestinal recovery and prolonged hospitalization in patients undergoing colorectal surgery under the ERAS protocol. These results suggest that surgeons and their team should to focus detecting and preventing perioperative hypothermia.

A PRELIMINARY REPORT ON THE EFFECT OF EARLY VERSUS STANDARD POSTOPERATIVE FEEDING IN PATIENTS UNDERGOING ELECTIVE COLORECTAL SURGERY: A RANDOMIZED CONTROLLED TRIAL

T. Plookphol, T. Boonpipattanapong, S. Sangkhathat, C. Preecharwai, J. Pakpirom

Songklanagarind Hospital, Prince of Songkla University,
Songkhla, Thailand

Background and Objective: It has been hypothesized that early oral feeding should decrease the inflammatory markers in postoperative colorectal patient and therefore enhances recovery and improves clinical outcomes. In this study, we aim to quantify the stress response elicited by early oral feeding compared to standard oral feeding both at a molecular level by measuring inflammatory markers IL-1, IL-6, and TNF-alpha, and at the clinical level by measuring clinical outcomes such as the length of hospital stay and the occurrence of anastomosis leakage.

Materials and Methods: A randomized controlled trial was conducted from November 2014 through March 2016. Patients from 18 to 85 years of age who underwent elective colorectal surgery by one surgeon were included. Patients enrolled were randomized in blocks into the early feeding (EF) group, with oral intake of liquid diet at 6 hours postoperatively, and the standard feeding (SF) group, with oral intake of liquid diet on postoperative day 4,

according to standard practice at Songklanagrind Hospital. Primary outcome measures included serum levels of postoperative inflammatory markers IL-1, IL-6, and TNF- α . Secondary outcomes included length of hospital stay, and occurrence of anastomosis leakage

Results: A total of 17 patients were randomized, 9 to the EF group and 8 to the SF group. No significant differences in cytokines levels were observed between the two groups. Clinical outcomes such as length of hospital stay, anastomosis leakage, and other complications were also not significantly different between the two groups.

Conclusion: A preliminary analysis of the study seemed to suggest that there was no significant difference between early and standard enteral feeding after elective colorectal surgery in terms of inflammatory markers and postoperative complications.

VIDEO-ASSISTED LIFT (VA-LIFT): A NEW APPROACH FOR TREATMENT OF COMPLEX FISTULA IN ANO

K. Junmitsakul, W. Wanitsuwan

Department of Surgery, Faculty of Medicine,
Prince of Songkla University, Thailand

Background and Objective: Ligation of the intersphincteric fistula tract (LIFT) procedure was proven to be the most effective procedure in the treatment of fistula-in-ano. In complex fistulae, curettage is still needed to remove the fistula tract and can sometimes impair sphincteric nerve function and results in incontinence. The video-assisted anal fistula treatment (VAAFT) was conceived as a sphincter-saving procedure under direct fistuloscopic visualization, but its use of a vascular staple instrument increases the costs of the procedure. The Video-Assisted LIFT (VA-LIFT) is a new approach that combines the benefits of LIFT and VAAFT, and might have practical uses in Thailand. The objective of the present study was to report the incidence of recurrent fistula and the incidence of postoperative fecal incontinence, in patients with complex fistula-in-ano who were treated with VA-LIFT.

Methods: Between October 2014 and December 2015, patients who were diagnosed with complex type of fistula-in-ano underwent VA-LIFT. The fistuloscope was inserted through the external opening to identify the fistula tract, which was then burned from the external opening to the internal opening, by cauterizing all fragments that adhere to the fistula wall, while avoiding damage to the sphincteric nerve. Postoperative follow-ups at 1 month, 3 months, and 6 months were conducted. Fecal incontinence was measured using Wexner's score.

Results: There were 29 patients: 11 patients had

semihorseshoe-type fistula-in-ano, 9 patients had horseshoe fistula, and 9 patients had high transsphincteric-type fistula. After 6 months of follow-up, none developed fecal incontinence, and only three patients developed recurrent fistula. Postoperative wounds of VA-LIFT showed less scarring.

Conclusions: LIFT may not be the best choice for the treatment of complex fistula-in-ano. VA-LIFT might be a new, lower cost, effective, and safer treatment of complex fistula-in-ano that combines the practical benefit of the LIFT and a safe, visual approach of the VAAFT procedures.

COMPARISON OF THE SURGICAL WOUND INFECTION RATE AND LENGTH OF HOSPITAL STAY IN COMPLICATED APPENDICITIS BETWEEN PRIMARY CLOSURE AND DELAYED PRIMARY CLOSURE

*Bunleu Chowdok, Jitpanu Wongyongsin,
Kanittha Sakolprakaikit*

Department of surgery, Hatyai Hospital, Hatyai, Songkhla, Thailand

Background: Delayed primary closure (DPC) have been applied in complicated appendicitis in Hatyai hospital. Recently, many papers support the good outcome of primary closure (PC) in complicated appendicitis. The aim of this study was to compare the difference in the surgical wound infection rate and length of hospital stay between PC and DPC in cases of complicated appendicitis in adults.

Methods: This cross sectional study was conducted at the Hatyai hospital in two periods of time. The adult patient (>15 years old) of both gender who underwent appendectomy through Gridiron or Lanz incision and having complicated appendicitis (ruptured, incidental ruptured, gangrenous appendicitis) in Hatyai hospital were enrolled. A total of 50 patients from 1st October 2015 to 31st May 2016 were in PC group and 83 patients between 1st October 2010 and 30th September 2011 were in DPC group. The rate of surgical wound infection and the length of hospital stay were recorded. Data was analyzed using chi-square test and *t*-test, *p* value was calculated.

Results: 133 patients, 77 (57.89%) male and 56 (42.10%) female were included in the study. The mean age of patients was 39 + 17 years old and the average onset of symptoms was 31 hours. The surgical wound infection was developed 5 (10%) patients in the PC group and 3 (3.61%) patients in the DPC group. The data was analyzed with the Chi-Square test and there was no significant difference of wound infection between PC and DPC group (*p* value > 0.05). But the difference in length of hospital stay were significant with the *T*-test (*p* value < 0.01), showing

superiority of PC (3.2 days) over DPC (6.1 days).

Conclusion: There was no significant difference of the wound infection rate between PC and DPC group but in PC group had significant decrease the length of hospital stay compared with DPC group.

BENEFITS IN PRESERVATION OF THE IMA DURING LAPAROSCOPIC SIGMOID COLECTOMY: A CASE-MATCHED COMPARATIVE STUDY

*Ratchamon Pinyoteppratarn**, *Siripong Sirikurnpiboon***, *Kasidin Vitoopinyoparb***, *Bunlung Muyphuag**, *Thawee Ratanachuek**, *Suchart Chantawibul**

*Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

**Department of Surgery, College of Medicine, Rangsit University, Bangkok, Thailand

Background: In curatively intended resection of sigmoid cancer, ligation of the root of the inferior mesenteric artery (IMA), high tie, is considered necessary for wide lymph node dissection. IMA ligation compromises blood flow to the anastomosis and may damage to the autonomic nerve nearby, which may increase the leakage rate and cause postoperative impaired anorectal function. Accordingly, some surgeons employ a technique of preserving the IMA for increase blood flow and decrease postoperative bowel complications. But these technique was reported to need longer time in laparoscopic surgery due to technical difficulties and the adequate of lymph nodes clearance and benefits in postoperative anorectal function are unclear.

Objectives: To compare the operative results of two methods in laparoscopic sigmoid colectomy (with or without preservation of the IMA) in term of operative time, blood loss, lymph nodes clearance, complications, postoperative anorectal function and recurrence rate.

Materials and Methods: A 1:2 Case-matched comparative study were applied and retrospectively analyzed 27 patients (19 female and 8 male, mean age 63±9.44 years) with sigmoid tumor, who underwent surgery between January 2012 and December 2015. Laparoscopic sigmoid colectomy with preservation of the IMA was performed in 9 patients, and ligation of the IMA with sigmoidectomy was carried out in 18 patients. Bowel function follow-up was performed at 6 and 12 months after surgery.

Results: Lymph nodes around the IMA were dissected with preservation of the IMA in 9 cases (group A). And the IMA was ligated in 18 cases (group B). Mean operative time was 194.44 (+28.77), 178.89 (+55.52) min for group A and B, ($P=0.349$). Respective blood loss 94.44 (+52.71), 79.44 ml (+58.15), ($P=0.51$) and mean numbers of harvested LN

were 14.56 (+3.74) and 17.56 (+7.64), ($P=0.183$). Three patients of the IMA-ligated group had a short period of incontinence (1-2 weeks postoperative). No leakage or bleeding or recurrent tumor were found in both group. None of the operative results of groups A and B were different statistically.

Conclusions: Laparoscopic sigmoid colectomy with preservation of the IMA in 9 cases allows equivalent laparoscopic lymph node dissection to the high tie technique without excessive operative time or bleeding and may lower the frequency of postoperative impaired anorectal function.

ENHANCED RECOVERY AFTER SURGERY (ERAS) HELPS ELDERLY MAINTAIN THEIR ACTIVITIES OF DAILY LIVING AND IMPROVE QUALITY OF LIFE FOLLOWING MAJOR COLORECTAL SURGERY - WITH COMPARABLE SURGICAL OUTCOMES TO YOUNGER PATIENTS

Varut Lohsiriwat

Colorectal Surgery Unit, Division of General Surgery,

Department of Surgery, Faculty of Medicine Siriraj Hospital,

Mahidol University, Bangkok 10700, Thailand

Objective: This study aimed to evaluate surgical and functional outcomes following the application of enhanced recovery after surgery (ERAS) in elderly undergoing colorectal resection.

Methods: A prospectively collected database of elderly patients (age ≥ 75 years) undergoing elective colorectal surgery under ERAS pathway in Siriraj Hospital from 2011 to 2015 was reviewed. Surgical outcomes of such patients were compared to those of younger patients. Patient-reported outcome measures were compared between their preoperative status and postoperative status by activities of daily living (ADL) using modified Barthel index (MBI: 0 = totally independent to 100 = totally dependent) and health-related quality of life (HR-QoL) using 100-mm visual analog scale.

Results: This study included 30 elderly patients with median age of 78 years, Charlson Comorbidity Index of 7 and CR-POSSUM predicted mortality of 3.5%. Compared to younger patients, the elderly had non-significant higher rate of complication (31% vs 15%; $p=0.06$) and longer postoperative stay (5 days vs 4 days; $p=0.12$) but comparable time to tolerate solid diet and time to first defecation. Average ADL-MBI was following: 99 at baseline vs 96, 97, 97 and 98 at 1, 3, 6, and 12 months after surgery, respectively. HR-QoL showed a recovery to an extent equal to or better than their preoperative scores: 56 at baseline vs 55, 59, 64 and 72 at 1, 3, 6, and 12 months after surgery, respectively.

Conclusions: Although the elderly were inherited to significant comorbidities and high predicted mortality, the application of ERAS in such patients resulted in comparable

surgical outcomes to younger patients. Additionally, the elderly could maintain their ADL and exhibit better HR-QoL after surgery.

ENDOCRINE SURGERY

A CASE SERIES IN THAILAND: BILATERAL TRANSAREOLAR ENDOSCOPIC SISTRUNK OPERATION FOR THE TREATMENT OF THYROGLOSSAL DUCT CYST

Khwannara Ketwong, Pornpeera Jitpratoom

Department of Surgery, Chiang Rai Prachanukroh Hospital

Aims: The standard treatment of thyroglossal duct cyst is Sistrunk operation. Nevertheless, the advanced of endoscopic surgery technology have supported an opportunity for patients to undergo minimally invasive surgery. After we developed a novel endoscopic Sistrunk operation to selectively access the neck space using the bilateral transareolar (BT) approach which is feasible, safe, and gives good cosmetic results. We continued to operate more transareolar endoscopic sistrunk operation cases.

Methods: Three cases of thyroglossal duct cyst in female patients aged 45, 15, and 18 years old were selected.

Endoscopic Sistrunk operations were performed on the patients by the bilateral transareolar approach; using bipolar energy device, hook scissors, and metallic clips to carry out the surgical procedures in concordance with the conventional Sistrunk operation.

Results: A complete thyroglossal duct cyst and hyoid bone resection was performed in the patients. The total operative time was 180, 140, and 150 minutes with estimated blood loss of 20, 10, and 10 mL, respectively. There was no any complications occurred during the operation or afterward in the cases. Minimal operative scars by BT endoscopic method on the areola were observed.

Conclusions: The BT endoscopic sistrunk operation was impressively simple to perform. Access and feasibility of BT endoscopic Sistrunk operation could be shown. This technique can be an alternative choice for patients who prefer endoscopic surgery with a satisfied cosmetic result.

HEPATOBIILIARY AND PANCREATIC SURGERY

INTRAVENOUS NSAIDS ADMINISTRATION TO PREVENT POST-ERCP PANCREATITIS: A RANDOMIZED CONTROL TRIAL

Julasak Boonthai, Narongsak Rungsakulkij, Paramin Muangkaew, Pongsatorn Tangtawee, Wikran Suragul, Somkit Mingprudth

Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok

Background and Objective: Post-ERCP pancreatitis (PEP) is a serious complication, which can range from mild to severe, with incidences between 3.5% to 5.4% of all procedures. Many prior studies evaluated the efficacy of NSAIDs in preventing PEP using various routes of administration, such as rectal suppository, and has proven it to be clinically effective. However, the efficacy of intravenous NSAIDs, which could be more convenient in terms of administration, in preventing PEP has never been

conclusively proven. The objective of the present study was to evaluate the efficacy of intravenous Parecoxib in preventing post-ERCP pancreatitis.

Material and Methods: A randomized controlled trial was conducted from January 2015 to February 2016 on patients who were scheduled for ERCP. First-time ERCP patients with normal renal function and normal coagulogram were included. Those who were allergic to NSAIDs or sulfa drugs, who had pre-operative diagnosis of cancer, or active pancreatitis, or previous ERCP, or biliary stent placement were excluded. The diagnosis of PEP was made if new symptoms of abdominal pain, increased serum amylase at least 3 times higher than baseline, and a prolonged hospital stay of more than 1 day, were observed. Patients were randomly divided into the study or intravenous Parecoxib group, and the control or NSS group, all given before ERCP. Serum amylase levels before ERCP and post-ERCP at 4 and 12 hrs were collected. After the procedure, patients were observed for abdominal pain at 4 and 12 hrs,

and the pain score was recorded. The length of hospital stay was recorded in all patients

Result: Nine patients were included in this study. There were no significant differences in the demographic data, baseline serum amylase (56 ± 18.28 vs 68.25 ± 39.78 ; $p = 0.555$) and type of procedures between the two groups. Mean serum amylase levels at 4th and 12th hour postoperative were lower in the study group (153.8 ± 166.4 vs 103 ± 76.5 , $p = 0.593$; and 129 ± 102.6 vs 98 ± 53.3 , $p = 0.604$), but were not significantly different. Post-operative pain scores were also not significantly different between the two groups.

Conclusion: Intravenous NSAIDs may possibly lower the incidence of post-ERCP pancreatitis, since the serum amylase level in study group was lower on average. Due to the small sample size of this study, the results of the study did not demonstrate any significant difference. Further research is needed.

RISK FACTORS FOR POSTOPERATIVE PORTAL VEIN COMPLICATIONS IN PEDIATRIC PATIENTS UNDERGOING LIVING DONOR LIVER TRANSPLANTATION: INITIAL EXPERIENCE IN RAMATHIBODI HOSPITAL

Kwanhathai Sakulsansern, Wichai Pansrimangkorn, Sumate Teeraratkul, Chollasak Thirapattaraphan

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Liver transplantation is the final treatment for patients with end-stage liver diseases. The living donor liver transplantation (LDLT) in pediatric age group has been started at Ramathibodi Hospital for about the third decade. This procedure in our institution has been successfully. Among the postoperative complications, vascular complications remain the major complications of LDLT, especially portal vein complications. The feasibility study of any associate factors developing portal vein complications after LDLT has to be challenge.

Purpose: The aim of this study is to find any risk factors associated with postoperative portal vein complications in patients undergoing LDLT at Ramathibodi Hospital.

Methods: Medical records of patients with end-stage liver diseases who underwent LDLT in Ramathibodi Hospital from March 2001 to August 2014 were retrospectively reviewed.

Results: Total 84 patients have undergone LDLT. There were 28 males and 56 females. Biliary atresia is the most common disease (79 in 84 patients). Mean age at

transplant was 2.23 years. Median PELD and CTP scores were 16 and 10, respectively. Mean weight was 10.8 kg in non-portal vein complications patients and 11.06 kg in portal vein complications patients. We found no significant difference between the 2 groups for weight. Thirteen patient (15.29%) developed portal vein thrombosis and 18 patients (21.18%) developed portal vein stenosis. Median warm ischemic time in portal vein complications group and non-portal vein complications group was 78.10 mins and 46.80 mins, respectively. Median portal vein size was 4 mm and median graft weight was 589 grams in patients who developed portal vein thrombosis after LDLT. Seven of 18 patients in post-LDLT portal vein stenosis group (38.9%) had acute graft rejection.

Conclusions: Prolonged warm ischemic time is a significant risk factor for postoperative portal vein thrombosis patients. Small portal vein size, large for graft weight and diminishing amount of crystalloid and albumin transfusion during surgery trend to be associated with portal vein thrombosis. As for the patients with portal vein stenosis, the presence of acute graft rejection may predict the development of portal vein stenosis after LDLT.

ENDOSCOPIC DRAINAGE OF PANCREATIC PSEUDOCYSTS: SHORT-TERM AND LONG-TERM ASSESSMENT OF OUTCOMES AND COMPLICATIONS IN RAJAVITHI HOSPITAL

Adcharee Sareesiriwatana, Kittipong Chaiyabutr

Department of surgery, Rajavithi Hospital, Bangkok, Thailand

College of Medicine, Rangsit University, Bangkok, 10400, Thailand

Background: Endoscopic drainage is minimal invasive alternative management for pancreatic pseudocyst, which has become the treatment of choice in many reference centers. However data on the clinical outcome and complication rate are conflicting. This retrospective study the short-term and long-term outcomes and complication. The predictor for potential of pseudocyst resolution or complications.

Purpose: Our study evaluates endoscopic drainage for pancreatic pseudocyst in a short-term and long-term follow up with clinical and procedure outcomes, including procedure-related adverse event and re-intervention.

Methods: This retrospective study for symptomatic pancreatic pseudocyst patient from January 2005 to December 2014 for endoscopic drainage pancreatic pseudocyst at Rajavithi Hospital. Follow-up data were obtain by medical record. The patient's chart were review demography data, cause and management. The preprocedure abdominal image in the study was review by

radiologist.

Results: All 65 patients were included (43 male and 22 female). Most common cause of pseudocyst was alcohol 36.9%. The symptom that indicated drainage were abdominal pain 89.2%, early satiety 35.4% and mass 27.7%. Most common were single pseudocyst 78.5% and located in the head of the pancreas 44.6%. Short term follow up (1-month): clinical success rate 73.8%, procedure success rate 83.1%, mortality rate 1.5% and complication rate 18.5%. Then remain pseudocyst at 1-month are 56 patient (86.2%) after follow up to the 12-month period showed clinical success rate 90.8%, procedure success rate 89.2% and complication rate 9.3%. Remain pseudocyst at 12-month follow up were 9 patient (13.8%), 8 patient (12.3%) used a longer period than 12 months was resolve. 4.6% was recurrence pseudocyst after follow up more than 12-month. Pancreatic pseudocyst decrease size after 1-month and 12-month follow up was significantly ($P = 0.00$).

Conclusions: Endoscopic drainage for symptomatic pseudocyst is an effective treatment in both short term and long term, which is not successful in all case but has high long term success rate, less invasive than surgery and avoid the need for external drainage, improve QoL. Most of the complication require supportive treatment or minimal invasive surgical treatment.

SURGICAL OUTCOME OF PERIHILAR CHOLANGIOCARCINOMA IN KING CHULALONGKORN MEMORIAL HOSPITAL

Wararak Wijasika, Boonchoo Sirichindakul

Department of Surgery, King Chulalongkorn Memorial Hospital,
Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Introduction: Perihilar cholangiocarcinoma is an adenocarcinoma arising from biliary confluence. At present, this tumor is still considered to be difficult to cure. Complete resection with margin negative resection is the only potential curative treatment of patient.

Objective: The primary objective is to evaluate the results of surgical management of perihilar cholangiocarcinoma. And the secondary objective is to evaluate prognostic factor of overall survival in King Chulalongkorn Memorial Hospital.

Materials & Methods: Retrospective review of medical records of 55 patients underwent surgical resection for Perihilar cholangiocarcinoma at King Chulalongkorn Memorial Hospital between 1 May 2003 to 30 April 2014. was performed.

Results: Between 1 May 2003 to 30 April 2014. There were 55 perihilar cholangiocarcinoma patients underwent

surgical resection in King Chulalongkorn Memorial Hospital. The 3 and 5 years survival rate are 60.52% and 31.17%. The multivariate analysis identified R0 resection (HR= 1.76, 95% CI 1.05-2.93, $p = 0.03$), vascular invasion (HR=1.32, 95% CI 0.52-3.14, $p = 0.05$) and lymph node metastasis (HR=3.21, 95% CI 1.40-7.32, $p < 0.05$) were independent prognostic factors for overall survival.

Conclusions: Complete resection remains the most efficient treatment with prolonged quality survival. In this study, margin negative resection, absence of lymph node metastasis and vascular invasion are the main prognostic factors after curative-intent surgery for perihilar cholangiocarcinoma.

TREATMENT OUTCOME OF PANCREATIC HEAD CANCER IN KING CHULALONGKORN MEMORIAL

Nuanphan Polchai, Jade Supapol

Department of Surgery, King Chulalongkorn Memorial Hospital,
Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Most of pancreatic cancers were diagnosed at an advanced stage. As surgical resection remained the only curative treatment, more aggressive surgery had been performed to increase resection rates, especially cancer in the pancreatic head that frequently invaded the portal vein and the extrapancreatic nerve plexus. This type of tumor required portal vein resection and extrapancreatic nerve plexus dissection to obtain a negative resection margin. Nowadays, National Comprehensive Cancer Network (NCCN) classified pancreatic cancer into 3 groups according to resectability status; resectable, borderline resectable, and unresectable. In Thailand, there was few data about treatment outcome of each group of pancreatic cancer.

Purpose: The aim of this study was to evaluate treatment outcome of pancreatic head cancer classified by resectability status of NCCN.

Materials and Methods: Retrospective review of medical records of patients who were diagnosed pancreatic head cancer at King Chulalongkorn Memorial Hospital between January 2009 and June 2014 was conducted. Among 108 patients with pancreatic head cancer, 16 patients were resectable group (R), 26 patients were borderline resectable group (BR), and 66 were unresectable group (UR).

Results: Patients in the resectable group had significant better survival time (median survival time (MST) = 13 months) than those in borderline resectable (MST = 7 months) and unresectable group (MST = 3 months) ($p = 0.001$). In BR group, standard pancreatoduodenectomy (PD) was performed in 11 patients (42.31%), PD with

vascular resection (VR) was performed in 4 patients (15.38%), bypass surgery was performed in 6 patients (23.08%), and tissue biopsy without palliative surgery was performed in 2 patients (7.69%). Survival in BR group, PD with VR group (MST = 12 months) was better than PD without VR group (MST = 10 months) and bypass surgery group (MST = 6 months), but tissue biopsy group had the worst prognosis

(MST = 1 month) ($p = 0.12$).

Conclusions: Resectable pancreatic cancer has the best prognosis, but borderline pancreatic cancer has better prognosis than unresectable group. Multidisciplinary treatment including resection was required for borderline resectable pancreatic cancer.

MINIMAL INVASIVE AND ROBOTIC SURGERY

POSTOPERATIVE PAIN REDUCTION AFTER ADDITIONAL SUCTION FOLLOWING LC: A PROSPECTIVE RANDOMIZED CONTROLLED STUDY

Nisa Netcharussaeng, Akkaraphorn Deeprasertvit, Pichaya Deeprasertvit

Objective: To compare postoperative pain after laparoscopic cholecystectomy between conventional CO₂ releasing method and additional suction using volume of PCA morphine consumption.

Background: Post-operative LC pain is an unwanted condition while the relationship between residual intraperitoneal CO₂ and pain level has not been clearly proved. There is an explanation about inflammation caused by CO₂ leading to pain stimulation, but not much research has been done to study about this. Moreover, pain score given by the patients using for pain measurement in most studies is not quite accurate due to variable individual pain thresholds.

Methods: We did a single center, randomized, double blind study in Police General Hospital, Bangkok Thailand, from April 2015 to January 2016. Eligible patients were randomly assigned preoperatively to have either conventional CO₂ releasing method, or an additional 60 seconds of suction after LC. Randomization was done via a computer-generated permuted-block sequence.

Collected data including age, sex, BMI (kg/m²), underlying diseases, ASA classification 1-3, diagnosis and indication for LC, postoperative pain by visual analog scale (0-10) at 6, 12 and 24 hours, residual intraperitoneal pressure, operative time, intraoperative morphine amount, Morphine PCA amount in 24 hours, and postop complications, such as peritonitis, surgical site infection, and surgical wound bleeding. Patients who have been converted to open cholecystectomy or received ERCP within 30 days preoperatively or have contraindications for LC were excluded. Pain evaluation by PCA amount was

designed to get more accurate primary outcomes.

Results: The patients were similarly distributed, with the number of females being approximately double the number of males in both groups. The most frequent diagnosis is symptomatic gallstones in 16 patients of both groups. Operative time in suction group was 73.8 ± 29.5 minutes and 91.5 ± 49.3 in non-suction group respectively (p -value 0.096). Residual intraperitoneal pressure was 4.1 ± 2.1 and 5.7 ± 3.5 mmHg with statistically significant difference. Morphine PCA amount in suction group was 0.085 ± 0.016 mg/kg and in non-suction group was 0.104 ± 0.019 mg/kg, which were not significantly different (p -value 0.464). Postoperative pain level at 6, 12 and 24 hours as secondary outcomes showed that suction group seemed to have slightly higher pain score at 6 and 12 hours but at 24 hours post LC, pain in suction group tended to be a bit lower than in non-suction group with p -value 0.093 which was not significantly different.

Conclusion: Additional CO₂ suction in LC does not reduce postoperative pain. However, further study with a larger population was needed.

BODY COMPOSITION CHANGE AFTER BARIATRIC SURGERY

Narong Boonyagard, Pondech Vichajarn**, Rapheephat Tanomphetsanga**, Jakrapan Wittayapairoch**, Kongbon Tangpanitandee**, Krit Kitisin**, Suppa-ut Pungpapong**, Chadin Tharavej**, Patpong Navicharern**, Suthep Udomsawaengsup***

*BMA General Hospital, **Thailand Chulalongkorn University, Thailand

Background: Bariatric surgery is one of treatment choices for morbid obesity patients because of its effective weight loss. To improve positive effects on metabolic risks, this weight loss should be primary from body fat mass (BFM). The aim of this study is to analyze the body composition for determining FFM, BFM, and basal

metabolic rate (BMR) before and after bariatric surgery

Method: Patients performed bariatric surgery in King Chulalongkorn Memorial Hospital University between September 2014 and October 2015 were prospectively collected. Patients' weights and body compositions were recorded by using bioelectrical impedance analysis (BIA) (Inbody 720). Weight, BFM, FFM, and BMR were measured before and 1, 3 and 6 months after bariatric surgery. The changes in body composition were analyzed

Results: A total of 43 patients were included with at least 6 months follow up, 25 for LRYGB and 18 for LSG. There were 25 females and 19 males with an average age of 37.09 years old. The average BMI before surgery was 49.08 kg/m² and 6 months after surgery was 36.78 kg/m². The average %EWL was 53.04%. The average of BFM before surgery and 6 month after surgery were 68.42 ± 18.72 and 43.41 ± 15.59 kg ($P < 0.001$) respectively. The average of FFM before surgery and 6 month after surgery were 65.85 ± 15.50 and 57.03 ± 12.59 kg ($P < 0.001$) respectively. In 6 months after surgery, patient had lost 33.83 of body weight (25.01 kg of BFM and 8.81 kg of FFM). We mainly found a decrease in BFM (36.96 ± 12.49%) whereas FFM was slightly reduced (12.93 ± 6.44%). The significant decrease in BMR (1791.93 ± 334.90 vs 1673.31 ± 309.83 Kcal $P < 0.001$) was observed only from before surgery to 1 month after surgery. Thereafter, there was no significant change in BMR at 3 and 6 months (1629.44 ± 300.55, 1601.47 ± 271.89). Between these two operations, LSG and LRYGB do not differ in term of body composition.

Conclusion: The weight loss after bariatric surgery is mainly due to a reduction in BFM with less impact on the FFM (39.49% vs 14.76%). BMR was significantly decreased in 1 month after surgery.

EFFECT OF ENDOSCOPIC LINEAR STAPLER TECHNOLOGY IN SLEEVE GASTRECTOMY SPECIMENS

Kongpon Tangpanitandee, Suppa-ut Pungpapong, Chadin Tharavej, Patpong Navichalem, Suthep Udomsawaengsup

Minimal invasive surgery unit, Department of surgery, King Chulalongkorn Memorial Hospital

Background: Sleeve gastrectomy is the one of standard bariatric procedure. The stapler line leakage after sleeve gastrectomy are important cause of morbidity and mortality. Technical stapling failure associated with increased risk of leakage. The precision and appropriated B-shape staple formation are essential for safe anastomosis.

Objectives: Aim to evaluate the effect of Gripping Surface Technology endoscopic linear stapler compare with powered endoscopic linear stapler.

Methods: The body and fundus portion of sleeve gastrectomy specimens were divided with each type of endoscopic linear staple side by side. For identify each part of stomach, every specimen was located by intracoporeal stitch mark during the operation. The study was start immediately in operating room after specimens retrieved. Use the Echelon Flex Powered Plus stapler and 60 mm. blue cartridge Gripping Surface Technology (GST) reload compare with Echelon Flex Powered stapler and 60 mm. blue cartridge non-GST reload. Measure tissue slippage distance after firing endostapler and evaluate the B-shape staple formation of each firing.

Results: Total stapler firing with 24 blue cartridges (12 GST and 12 non-GST) in 3 sleeve gastrectomy specimens. All stapler line is in optimal shape formation. There was no difference in the optimal staple formation between each type of the staple line. Significant less mean tissue movement after firing of GST endostapler is 0.38 mm. versus 1.0 mm. of non-GST powered endostapler ($p = 0.04$).

Conclusions: Gripping Surface Technology endoscopic linear stapler decrease tissue slippage of sleeve gastrectomy specimens with optimal B-shape formation. It seems to reduce the stapler reload usage in sleeve gastrectomy procedure due to less tissue slippage, need the further large number in randomized controlled trial.

LAPAROSCOPIC ENDOSCOPIC COOPERATIVE SURGERY FOR GASTRIC GIST RESECTION: OUR TECHNIQUE AND EXPERIENCE IN VAJIRA HOSPITAL

Wisit Kasetsermwiriya, Atmarit Tansawet, Piya Teawprasert, Issaree Loapiamthong, Satit Srimonthayamas, Suphakarn Techapongsathorn, Thada Yongpradit

Vajira Minimally Invasive Surgical Unit (VMISU) Department of Surgery, Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand

Background: Laparoscopic endoscopic cooperative surgery (LECS) for gastric GIST was firstly reported by N. Hiki et al in 2008. This technique is applied for submucosal tumor resection which lesions are closed to important structure e.g. EG junction or pylorus. Here we present our technique to perform LECS for gastric GIST resection.

Aims: To report our early experience of laparoscopic endoscopic cooperative surgery.

Methods: History and operative record of patients who underwent LECS at Vajira hospital from August 2014

to March 2016 were reviewed. The pictures were captured from operative video.

Result: There were 3 patients who underwent LECS, 1 tumor located nearesophagogastric junction, 1 tumor was near pylorus and 1 tumor was at the lesser curvature. There was no conversion. All patients were underwent complete R0 resection and there was no complication. Here we present details of our procedure.

Conclusions: LECS technique is feasible treatment option for gastric GIST. In addition this technique is applied to the tumor vicinity to EGJ and pylorus and can preserve function of these structures.

LAPAROSCOPIC PANCREATICODUODENECTOMY

Amarit Tansawet, Wisit Kasetsermwiirya, Thada Yongpradit, Issaree Laopiumthong, Suphakarn Techapongsatorn
Vajira Minimally Invasive Surgical Unit (VMISU)

Background: Open pancreaticoduodenectomy (Whipple's operation) has been the standard treatment for periampullary cancer since 1930. However, in the era of minimally invasive surgery, this complex procedure can be performed with less invasive technique and still achieve impressive results.

Purpose: To demonstrate our laparoscopic pancreaticoduodenectomy technique

Methods: Our first laparoscopic pancreaticoduodenectomy was performed in a Thai 76-year-old female patient, who suffered from ampullary cancer. The procedure followed the same steps as the open counterpart, which included 1) infra-pyloric dissection and gastroduodenal artery transection 2) transection at the neck of pancreas 3) hepatoduodenal ligament dissection and common bile duct transection 4) transection of the antrum 5) Kocherization, mobilization and transection at the duodenojejunal junction 6) mobilization of the uncinate process 7) duct to mucosa pancreaticojejunostomy 8) choledochojejunostomy and 9) gastrojejunostomy. All steps were performed laparoscopically. A specimen was retrieved via a mini-laparotomy incision. Closed-suction drains were placed in the surgical area.

Results: Our patient recovered uneventfully. Near normal ambulation can be achieved on post-operative day 3. She was discharged from our hospital safely on day 10 after operation.

Conclusion: In high-volume minimally invasive surgical center, good results can be achieved from laparoscopic pancreaticoduodenectomy. Good patient selection and complete pre-operative evaluation are also the key factors for success.

LAPAROSCOPIC SPLEEN-PRESERVING DISTAL PANCREATECTOMY WITH CONSERVATION OF SPLENIC ARTERY AND VEIN

Hathaiwan Mounghard

Department of Surgery, National Cancer Institute of Thailand

Background: Spleen-preserving distal pancreatectomy with conservation of splenic artery and vein is considered as safe and practical for treatment of benign or low-grade malignant tumors in the body and tail of the pancreas. Splenic loss causes either changes in the peripheral blood count, infection or sepsis. Some authors have also stressed the potential immunosuppression related to splenectomy. Two major spleen-preserving procedure have been presented by Kimura and Warshaw procedure. Among the concern of the Warshaw technique adverse related outcome was splenic infarction. We would like to demonstrate Kimura procedure which preserve the spleen with splenic vessels.

Objective: To present our preoperative evaluation and surgical technique.

Material and Method: 53-year-old female patient came to our hospital with abdominal pain for 2 weeks. MRI showed 2-cm hypervascular nodule in pancreatic body. Also the contrast enhancement doppler endoscopic ultrasound was reviewed hypervascular enhancement lesion. The surgical procedures included: 1) the gastrosplenic and gastrosplenic ligament dissection; 2) inferior edge of the pancreas dissection to expose the splenic vein; 3) superior edge of the pancreas dissection to expose the splenic artery; 4) dividing the pancreas; 5) resecting the pancreatic body and tail and 6) removing the specimen.

Result: Patient underwent with successful operation and minimal blood loss. She started her diet postoperative day 2. Postoperative hospital stay was 7 days. The hospital course was uneventful.

Conclusion: Laparoscopic spleen-preserving distal pancreatectomy with conservation of splenic artery and vein is feasible and safe procedure.

LAPAROSCOPIC SIGMOIDECTOMY WITH TRANSANAL SPECIMEN EXTRACTION: STEP BY STEP

Narong Boonyagard, Prapawan Teerasart, Punthita Aimsupanimitr, Panya Thaweepworadech, Ittiphol Viratanapanu, Dome Charoenthong, Supakit Chartchaiyarek, Somkiat Ussavarojpong, Chaiyaporn Suwitchakul

BMA General Hospital, Thailand

Traditional laparoscopic colectomy for colorectal

cancer requires a mini-laparotomy for specimen extraction. This increases a postoperative wound complication including pain, incisional hernia, and wound infection. To decrease the incidence of wound complications, Natural Orifice Specimen Extraction (NOSE) was developed to avoid additional incisions through the abdominal wall.

However, Published experience remains limited. Early data suggest equivalent oncologic and safety profiles to traditional laparoscopic colectomy. Recently, reports have shown that NOSE has the lower postoperative pain and fewer wound complication. However, the detail of these techniques is still evolving

In this VDO, we describe a technique for laparoscopic sigmoidectomy of malignant polyp in a 67-year-old female followed by transanal specimen extraction in Bangkok Metropolitan Administration (BMA) General Hospital Bangkok, Thailand. This video demonstrates a technique for operative field setup, port placement, and step of operation.

LAPAROSCOPIC TRANSHIATAL APPROACH IN THE TREATMENT OF EPIPHRENIC ESOPHAGEAL DIVERTICULUM: STEP BY STEP

*Narong Boonyagard**, *Rapheephat Tanomphetsanga***,
*Jakrapan Wittayapairoch***, *Kongpon Tangpanitandee***,
*Krit Kitisin***, *Suppa-ut Pungpapong***,
*Suthep Udomsawaengsup***, *Patpong Navicharern***,
*Chadin Tharavej***

*BMA General Hospital, Thailand

**Chulalongkorn University, Thailand

Epiphrenic esophageal diverticulum is a relatively rare disorder of the esophagus. This diverticulum is defined as mucosa and submucosa herniation through the muscular layers of the esophageal wall at the lower third of the esophagus. This disease is usually associated with underlying motility disorder of esophagus. The primary symptoms are dysphagia and regurgitation in the majority of patients. Symptomatic patients required surgical intervention. Standard treatment of the epiphrenic diverticulum includes diverticulectomy, esophageal myotomy, and fundoplication.

In this VDO, we describe a technique for laparoscopic diverticulectomy, hellermyotomy, and Dor fundoplication of Multiple epiphrenic diverticulum in a 64-year-old male in King Chulalongkorn Memorial Hospital (KCMH) Bangkok, Thailand. This video demonstrates a technique for operative field setup, port placement, and step of operation.

LAPAROSCOPIC LOW ANTERIOR RESECTION WITH TOTAL MESORECTAL EXCISION: THE BEGINNER'S STEPS TO AVOID COMPLICATIONS

B. Nuntasunti, *C. Phalanusitthepha*, *T. Akaraviputh*,
J. Swangsri, *T. Parakonthon*, *A. Trakarnsagna*, *A. Methasate*,
T. Nimmanwudipong, *V. Taweerutchana*,
V. Chinswangwatanakul

Minimally Invasive Surgery Unit, Division of General Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

Introduction: Rectal carcinoma is one of the most common cancer and cause of death nowadays. Surgical resection is the principal curative treatment from early to advance stage with or without adjunctive chemo-radiation therapy. Currently, total mesorectal excision becomes a standard technique worldwide since proved for significant increase survivals. Laparoscopic low anterior resection with total mesorectal excision is one of the most challenging procedures for colorectal surgeons. With benefits of oncologic outcome and minimally invasive surgery, this procedure is considered as an excellent option for both benign and malignant disease. Complication regarding the surgical error can lead to severe complications such as anastomosis leakage, nerve injury, ureteric injury or low anterior syndrome.

Results: This report and video present the standardized techniques in steps by steps to help the beginners to perform this complicated laparoscopic operation and show how to avoid many pitfalls along the way.

LAPAROSCOPIC TRANSHIATAL APPROACH IN THE TREATMENT OF LOWER THORACIC ESOPHAGEAL LEIOMYOMA

Worapong Anuponganan, *Krit Kitisin*, *Suppa-ut Pungpapong*,
Suthep Udomsawaengsup, *Patpong Navicharern*,
Chadin Tharavej

Department of Surgery, Chulalongkorn University, Thailand

Esophageal Leiomyoma are rare. The incidence varies from 0.005 to 5.1%. Leiomyomas arise from smooth muscle cells and are generally solitary, well encapsulated submucosal tumors, mainly located at the middle or lower third part of the esophagus. More than half the patients are asymptomatic. Indication for surgical resection are unremitting symptoms, Increase in tumor size, Atypical

finding and to obtain histopathologic diagnosis. The technique for surgical removal of Leiomyoma is enucleation. There are a variety of surgical approaches. The appropriate approach depended on tumor size, tumor location and patient condition. For tumor of the lower one-third intrathoracic esophageal leiomyoma, Left thoracotomy or thoracoscopy are appropriate surgical approaches.

In this case, we performed laparoscopic enucleation for lower esophageal leiomyoma via transhiatal approach. In this VDO, we describe a technique for laparoscopic enucleation in a 38-year-old female in King Chulalongkorn Memorial Hospital (KCMH) Bangkok, Thailand. This video demonstrates a technique for operative field setup, port placement and step of operation.

LAPAROBOTIC DUODENAL DIVERTICULECTOMY: A CASE SERIES AND OPERATIVE TECHNIQUE

Anuchit Lerstsirithong

Minimally Invasive Surgery Unit, Division of General Surgery,
Department of Surgery, Faculty of Medicine Siriraj Hospital,
Mahidol University, Thailand

Duodenal diverticulum was first reported by Chomel

in 1710. The true incidence of duodenal diverticula is unknown. However, published literature quote incidences ranging from 0.16% to 22%, depending on the diagnostic method.

Most of duodenal diverticula are asymptomatic; only 5% of patients experience symptoms resulting from complication. Surgical treatment is recommended for symptomatic or complicating diverticulum.

Several reports have described a laparoscopic approach for duodenal diverticula, with either diverticulectomy or an inversion procedure. However, because of the deep-seated and posterior location of the lesion and inherent disadvantages of laparoscopic approach that includes 2-D image, counterintuitive movement, and limited degree of freedom of movement of the instruments, these procedures can be frustrating and difficult. The advent of the daVinci Robotic Surgical System with a stable work platform, a magnified 3-dimensional image, and articulated instruments has provided an alternative MIS approach that allows more complex procedures to be performed with efficiency and safety.

We present the operative technique and surgical steps of laparobotic duodenal diverticulectomy.