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GENERAL SURGERY

A 5-YEAR RETROSPECTIVE REVIEW ON ACUTE COMPLICATIONS AND ASSOCIATED FACTORS OF THOSE COMPLICATIONS OF CENTRAL VEIN CATHETERISATION IN THE DEPARTMENT OF SURGERY, SIRIRAJ HOSPITAL

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Background: Central venous catheterisation has been used frequently in the hospital setting for various reasons.

Objectives: To estimate the acute complication rates in central venous catheterisation in patients treated at the department of surgery, Siriraj Hospital and to determine the factors associated with those complications.

Materials and Methods: This is a retrospective chart review for central venous catheterisation by surgeons in the operation room in Siriraj hospital from the 1st of January 2012 to the 31st of December 2016; which has shown that there are very few complications from this procedure.

Results: There were a total of 22 reported complication cases, which are mainly arterial cannulations and hemo/pneumothorax. Arrhythmia had been noted by the anesthsiologist, but were rarely noted or reported in the operative notes. Patient characteristics such as BMI, gender, diabetes or cancer patients had no clinical correlation to complications; however, the use of anti-coagulation and/or anti-platelet medications has a P-value of 0.05. The timing of operation was not related to increased complications. Most procedures were done by fellows, by which the complication rate and number of attempts were higher than by residents or staffs; however, there were no statistical significance.

Conclusions: Overall complication rate was 3.7%, which required intercostal chest drainage for pneumothorax in 1 case (0.8%), which was about the same as Parienti JJ (0.5% of jugular vein and 1.5% for SCV insertions). Multiple attempts to catheterisation was the only independent factor that was significant to complications. The interventions for acute complications were intercostal chest drainage and vascular repair.

Keywords: Central venous catheterisation, Hemothorax, Pneumotharax, Intercostal chest drainage

A COMPARISON BETWEEN SODIUM PHOSPHATE AND POLYETHYLENE GLYCOL FOR BOWEL PREPARATION FOR COLONOSCOPY AT VAJIRA HOSPITAL

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Background: Bowel preparation is usually required before colonoscopy. Bowel preparation agents at Vajira hospital included Sodium Phosphate (NaP) and Polyethylene glycol (PEG). However, PEG is often used for in-patients, since NaP is an osmotic laxative which may lead dehydration and electrolyte imbalance.

Objective: This study was designed to compare the efficacy and adverse effects between using NaP and PEG.

Materials and Methods: Data of in-patients who were given either NaP or PEG for bowel preparation in Vajira hospital was collected from January to December 2016.

Results: There was no significant differences between NaP and PEG in terms of efficacy of bowel preparation, but NaP was significantly associated with increased serum sodium (+1.74 mmol/L) and decreased serum potassium (-0.52 mmol/L) concentrations, compare with PEG. However, the cost of bowel preparation was lower with NaP (-184 Baht, or a 42% reduction per person).

Conclusion: NaP can be used, with caution, for bowel preparation for in-patients, with minimal adverse effects to the serum electrolytes level.

Keywords: Sodium Phosphate, Polyethylene glycol, Bowel preparation, Efficacy, Electrolytes

A COMPARISON OF LENGTH OF HOSPITAL STAY BETWEEN OPEN AND LAPAROSCOPIC VENTRAL HERNIA REPAIR

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Background: The superiority of laparoscopic ventral hernia repair over the conventional open ventral hernia repair has been well documented. However, the existing literature do not compare the length of hospital stay between the two operations in Thailand.

Objectives: To determine whether there is a difference in length of hospital stay between open and laparoscopic ventral hernia repair.

Materials and Methods: A retrospective review of patients who underwent open and laparoscopic ventral hernia repair at King Chulalongkorn Memorial Hospital from January 2013 to June 2018 was performed. Length of hospital stay was defined as the period between date of operation and date of discharge from the hospital.

Results: A total of 146 patients underwent ventral hernia repair during the study period. Fifty patients (34%) underwent open ventral hernia repair and 96 patients (66%) underwent laparoscopic ventral hernia repair. The mean length of hospital stay was 6.2 days in the open ventral hernia repair group (range 2 to 14 days) and 3.6 days in the laparoscopic ventral hernia repair group (range 2 to 6 days). No patient underwent conversion from laparoscopic to open ventral hernia repair.

Conclusions: The present study suggests that laparoscopic ventral hernia repair may result in a shorter length of hospital stay compared to open ventral hernia repair, perhaps due to less postoperative drainage and fewer surgical site infections. Laparoscopic ventral hernia repair should be considered the procedure of choice in selected patients.

ACCURACY FOR DIAGNOSIS OF ACUTE APP ENDICITIS BY RIPASA SCORE AND ALVARADO SCORE

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Background: Acute appendicitis is one of the most common emergency surgical condition. Diagnosis of acute appendicitis mostly use clinical evaluation and some laboratory investigation. There are two clinical scoring system has been used in diagnosis. The Alvarado score is the most popular one but has been reported low accuracy among the Asian population in some studies. Later, RIPASA score has been developed with better accuracy compared to Alvarado score in Asian group. Therefore, this study aimed to compare diagnostic accuracy between Alvarado score and RIPASA score in the Thai population.

Materials and Methods: 163 consecutive patients who have clinical suspected of acute appendicitis were included to the study. Both Alvarado score and RIPASA score were applied to all patients prospectively. The histopathology of appendix in case of underwent appendectomy or clinical follow up one month without surgery was been used to analyzed with both scoring systems by cut off 7 for Alvarado score and 7.5 for RIPASA score which indicates a probable for acute appendicitis. Sensitivity, specificity, positive predictive value (PPV), negative predictive value and accuracy of both scoring systems were evaluated.

Results: Of 163 patients, 127 underwent appendectomy which 115 patients had histopathological confirmed diagnosis but 12 normal appendixes were reported and 36 patients were observed by clinical. Sensitivity, specificity, NPV, PPV and accuracy of Alvarado score were 83.5%, 62.5%, 61.2%, 84.2% and 80.2% respectively meanwhile they were 92.2%, 50%, 72.8%, 81.5% and 78.6% respectively for RIPASA score (p-value <0.001 in all modalities)

Conclusions: RIPASA score provided more sensitive

than Alvarado score but gave less accuracy in diagnosis of acute appendicitis in the Thai population.

Keywords: RIPASA score, Alvarado score, Acute appendicitis

ANEURYSMAL CHANGE IN ARTERIOVENOUS FISTULAS: RETROSPECTIVE ANALYSIS FROM SINGLE INSTITUTE IN THAILAND

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Background: Aneurysmal change is one of the most common complication in arteriovenous fistula (AVF). The cut off size for aneurysm in this study was 2 centimeters or aneurysmal change that needs intervention.

Objectives: To evaluate the incidence, the onset, and the risk factors of aneurysmal change in arteriovenous fistula (AVF).

Materials and Methods: This retrospective observation study was carried out in King Chulalongkorn Memorial Hospital in patients who underwent surgical AVF creation between January 2013 and December 2017. Patient's demographics, comorbidities, vascular access characteristics were analyzed.

Results: Two hundred ten end stage renal disease patients underwent AVF surgery, most were female 115 (54.8%) with a mean age of 60.9 ± 14.5 years. AVF sites were 77 (36.7%) radiocephalic, 56 (26.6%) brachiocephalic, 1 (0.5%) radiobasilic, 1 (0.5%) unspecified anticubital, 75 (35.7%) unspecified location which were 151 (71.9%) left side and 59 (28.1%) right side. The incidence of aneurysmal change in AVF was twelve cases (5.7%). The aneurysmal change rates at 15, 30, 45, 60 months were 2.1%, 3.3%, 21.2%, and 32.2%, respectively. By using Cox Regression, the age did not influence the incidence of aneurysmal change ($p = 0.079$, 95% CI 0.930-1.004). By using Log-rank test, the gender did not influence the incidence of aneurysmal change (OR 1.039 $p = 0.308$). Twelve patients that developed aneurysmal change had comorbidities included 11 (91.7%) hypertension (HT), 2 (16.7%) diabetic mellitus (DM), 7 (58.3%) dyslipidemia (DLP). By using Log-rank test, the median onset to aneurysm change for HT was 38 months and non HT patients were 4 months ($p = 0.038$), DM and non DM patients were 2 and 38 months ($p = 0.017$), DLP and non DLP patients were 31 and 45 months ($p = 0.054$).

Conclusions: From this single study, the incidence of aneurysmal change in AVF was 5.7%. The aneurysmal change rates at 15, 30, 45, 60 months were 2.1%, 3.3%, 21.2%, and 32.2%, respectively. The risk factors of aneurysmal change were inconclusive due to retrospective review of incomplete data from medical record and the low incidence of events.

Keywords: Hemodialysis, Aneurysmal change, Arteriovenous fistula, Thailand

EARLY OUTCOME AND FEASIBILITY OF AMBULATORY GROIN HERNIORRHAPHY IN SINGLE INSTITUTE

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Background: Inguinal hernia is one of common surgical disease in Thailand. Ambulatory herniorrhaphy might be conventional procedure in some hospitals, but not in our practice currently. This day-case surgery has been proved to be an alternative standard approach and continued growing due to lower hospital cost and more satisfied personalized patient care.

Objectives: This study intent to determine the success rate and feasibility of ambulatory or day-case hernia surgery in our center. The standard Lichtenstein repair under local anesthesia technique (ambulatory group) was also compared to conventional approach (control group) which repair under spinal anesthesia or general anesthesia in term of early operative outcomes.

Materials & Methods: This study was designed as prospective cohort study by enrollment of all patients with unilateral inguinal hernia who obtained surgery between October 2018 to April 2019. The inclusion criteria were patients with Nyhus classification 1-3B, voluntary consent and surgeon preference technique. They were purposive sampling assigned to either ambulatory group or conventional groups. Ambulatory hernia protocol composed of preemptive pain control, local inguinal nerve block, optional deep sedation and post anesthetic discharge score (PADS) evaluation before discharge. The predetermined PADS score higher than 9 was the criteria for hospital discharge and the system of fast tract

readmission was established. Outcome variables monitored included: duration of surgery, early postoperative complication, length of hospital stay, hospital cost, resumed normal activities of daily living and any complication at 30 days.

Results: During study, 29 of 125 patients (23.2%) were ambulatory group while 96 patients (76.8%) were treated as usual approach. Postoperative evaluation revealed a case of lower than 9-PADS score and a case asthmatic attack necessitated overnight observation resulted in 93.1% success rate. The ambulatory group are younger in age ($p = 0.012$), shorter duration of surgery (75 vs 90 mins, $p = 0.005$), resumed normal activities of daily living (5 vs 7 days, $p < 0.001$) were observed. No significant difference was found in early postoperative complication within the first week and hospital cost.

Conclusion: This study offers evidence to prove that ambulatory inguinal hernia is a safe, cost-effective and practically alternative to conventional inguinal hernia surgery in our hospital.

Keywords: Ambulatory, Groin herniorrhaphy

EFFICACY OF SILK SUTURES COMPARED WITH NON-ABSORBABLE POLYMER CLIPS FOR CYSTIC DUCT LIGATION IN LAPAROSCOPIC CHOLECYSTECTOMY: A PROSPECTIVE RANDOMIZED CONTROLLED STUDY

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Background: Laparoscopic cholecystectomy (LC) is the gold standard in gallbladder removal surgery. Despite the drastic improvement LC has to offer, there is still much debate regarding the most effective method in ligating cystic duct and cystic artery during LC. Non-absorbable polymer clips (Hem-o-lok) are easy to use and do not cause artifacts during CT/MRI scans but the cost is very high. This study has suggested to use non-absorbable suture materials (silk sutures) for ligation as surgical knots are easy to apply, secure and the cost is significantly lower.

Objective: To evaluate the efficacy of silk sutures in ligating the cystic duct comparison post-operative bile leakage with non-absorbable polymer clips. Furthermore, operative times, post-operative complications and the cost were into consideration.

Materials & Methods: A prospective randomized controlled trial study of 90 patients who had indications for LC between September 2017 and November 2018 were carried out. Silk sutures (size 2-0) were used in Group A, while Group B received non-absorbable polymer clips. Demographic and intra-operative data were recorded. Post-operative complications such as bile leakage, surgical site infection or pancreatitis were noted if present. Liver function tests were repeated 2 weeks and 3 months after surgery. If patients experienced post-operative abdominal pain, constipation, fever or jaundice; ultrasound was recommended.

Results: No statistically significant difference were observed in post-operative complications, hospital stays, operating times and intra-operative blood loss between silk sutures and non-absorbable polymer clips. None of LC procedures were converted into open cholecystectomy and none of post-operative complications had bile leakage. Only 1 case was re-admitted during follow up 2 weeks after surgery that was diagnosed dyspepsia.

Conclusion: Ligating cystic duct and artery with silk sutures during LC proved to be as successful and effective as that of non-absorbable polymer clips, in terms of safety, operative times, post-operative complications and costs.

Keywords: Laparoscopic cholecystectomy, Hem-o-lok clips, Silk sutures, Bile leakage

FACTORS INFLUENCING THE EARLY AND LATE OVERALL SURVIVAL AFTER ENDOVASCULAR ANEURYSM REPAIR FOR RUPTURED ABDOMINAL AORTIC-ILIAC ANEURYSM

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Background: Ruptured abdominal aortic-iliac aneurysm (ruptured AAIA) is one of the most fatal conditions requiring emergency surgical intervention. Endovascular aneurysm repair (EVAR) is a minimally invasive procedure for ruptured AAIA and now widely acceptable in vascular anatomically suitable cases. There is still controversy regarding the factors

related to overall survival following emergency EVAR.

Objective: To determine risk factors influencing the early and late overall survival following emergency EVAR for ruptured AAIA.

Materials and Methods: Data of ruptured AAIA patients treated with EVAR from August 2010 to December 2017 were retrospectively reviewed. Patient's characteristics, pre-operative data, intra-operative findings, and post-operative outcomes were analyzed. Factors associated with 1-month and 1-year overall survival were analyzed in this study.

Results: 73 patients (84% male, mean age 71±12 years) were included in the study. Aneurysm morphologies were infrarenal in 43 cases (59%), aorto-iliac in 18 cases (25%) and iliac in 12 cases (16%). The majority of cases were performed with aorto-uniliac graft 38 cases (52.1%). In addition, 21 cases (28.8%) required aortic balloon occlusion to maintain hemodynamic stability. Secondary interventions were required in 20 cases (27.4%). The 1-month and 1-year overall survival rates were 81.7% and 53.5% respectively. Multiple Cox regression analysis showed that independent predictive factors for 1-month and 1-year overall survival were post-operative myocardial infarction [adjusted HR 5.90, (95% CI 1.42 – 24.46); P 0.014 and adjusted HR 4.28, (95% CI 1.67-10.97); P 0.002 respectively] and abdominal compartment syndrome [adjusted HR 12.07, (95% CI 1.60 – 91.08); P 0.016 and adjusted HR 4.21, (95% CI 1.08 – 16.34); P 0.038, respectively].

Conclusion: Emergency EVAR in ruptured AAIA is feasible in anatomical suitable patient. Post-operative myocardial infarction and abdominal compartment syndrome indicated poor early and late survival prognosis of the patients.

INCIDENCE AND RISK FACTORS ASSOCIATED WITH INTRAABDOMINAL HYPERTENSION AND PRIMARY ABDOMINAL COMPARTMENT SYNDROME IN ABDOMINOPELVIC INJURY

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Background: Intraabdominal hypertension (IAH) and primary abdominal compartment syndrome (1°ACS) are a consequence of abdominopelvic injury. The overall incidence of IAH and ACS may vary from 30 to 70% and 10 to 35%, respectively. According to current guidelines, intravesicular pressure is used to as a substitute for intraabdominal pressure (IAP).

Objectives: To obtain IAP data in patients with abdominopelvic injury at Thammasat University Hospital (TUH), Thailand, and to identify risk factors associated with IAH/1° ACS, and other outcomes following the development of IAH/1° ACS.

Materials and Methods: The present study was a retrospective review of abdominopelvic injury patients who were admitted at the intensive care unit (ICU) of TUH between 1st January to 31st December 2018. Information on age, sex, body weight, height, initial vital signs, initial laboratory data and imaging, mechanism of injury, organ-specific injury, abbreviated injury scales (AIS) and injury severity scores (ISS), operations, interventions, IAP of the patient, and results of treatment was collected and analyzed to determine the incidence of, and risk factors associated with, IAH /1° ACS.

Results: Thirty-eight abdominopelvic injury patients were identified. Most of the patients were young (mean, 32 years), male (65%), and had blunt trauma (90%). The incidence of IAH and 1° ACS are 16% (6 cases) and 3% (1 case), respectively. Patients who presented with abdominal distention, organ evisceration, pelvis fracture, colonic injury, multiple abdominal organ injuries, high serum creatinine, low serum bicarbonate, elevated INR, high AIS (abdominal injury including pelvis, lower extremity injury including pelvis), and high ISS had significantly higher risks ($p<0.05$) of developing IAH. Patients with IAH had a significantly increased use of blood components, increased need for abdominopelvic operations, need for intervention radiology, LOS, and mortality.

Conclusion: Awareness of IAH and 1°ACS in abdominopelvic injury patients is important, and early intervention may prevent complications and death.

Keywords: Abdominopelvic injury, Intraabdominal pressure, Intraabdominal hypertension, Abdominal compartment syndrome

INCIDENCE OF TREATMENT FAILURE IN ESOPHAGEAL PERFORATION: A RETROSPECTIVE STUDY

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Background: Esophageal perforation is a fatal surgical emergency. Treatment varies, tailored by the status of the individual patient; however, treatment failure remains a problem.

Objectives: Our study aimed to identify the incidence

of treatment failure and so evaluated the factors associated with treatment failure.

Materials and Methods: We retrospectively reviewed the medical record of 23 patients with esophageal perforation treated between January 2006 and March 2017. Failure was defined as 'needs secondary intervention', 'the occurrence of leakage' and/or fistula. Clinical data were analyzed.

Results: Median age was 45 years (range, 3–78). There were 15 males and 8 females. Iatrogenic perforation-occurring in 65.2% of the patients–was the most frequent cause of this condition; while Boerhaave's syndrome was detected in 5 patients (21.7%). Median time for diagnosis was 30 h (range, 0–384). Four patients (17.4%) underwent conservative treatment. Three patients (13%) received endoscopic treatment (clipping, stent); surgery was performed in 16 (69.6 %) with primary repair, esophagectomy, debridement, exclusion and diversion. Failed esophageal perforation treatment occurred in 9 patients (39.1%). Univariate analyses revealed malnutrition (p=0.02), mechanical ventilator (p=0.001), and primary repair (0.007) were associated with treatment failure. None of these, however, were significant in the multivariate analysis. Neither delayed diagnosis (> 24 h) nor etiology had any effect on failure of treatment. One patient died (4.3 %).

Conclusions: Since esophageal perforation is quite a rare condition at our center. Our study was unable to determine the risk factor(s) for failure of treatment of perforation. Further study needs to follow the single guideline prospectively in order to evaluate the precise risk factors for, and outcomes of, treatment.

LAPAROSCOPIC LOW ANTERIOR RESECTION FOR OBSTRUCTING RECTAL CANCER WITHOUT BOWEL PREPARATION

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Background: When discussing treatment options for rectal cancer with patients preoperatively, both surgeons and patients' preferences play a role in the decisions about treatment options. Multidisciplinary treatments are standard for all rectal cancer therapy. Most patients prefer primary cancer resection with anastomoses in addition to diversion colostomy at first operation even defecation problems following a low anastomosis, such as fecal incontinence and urgency. Obstructed rectal cancer requires pre-multidisciplinary therapy diversion colostomy. Because of technical difficulties to perform primary rectal cancer resection in poorly bowel preparation in near-completely obstructing rectal cancer (T4) which found in most Thai patients in referral system, stoma usually performs without resection and anastomoses in one setting.

Objective: In Minimal access surgery (MAS) era, with newly appropriate instruments and accumulation of expertise, we found that laparoscopic procedure gives us better surgical approach for TME in rectal cancer compare to open surgery, even in conditions of obstructing rectal cancer obviated usual bowel preparation. We present early surgical outcomes to confirm the safety and efficiency of Laparoscopic LAR in non-bowel preparation obstructing rectal cancer cases.

Materials & Methods: We present 5 cases of rectal cancer cases presented with circumferential rectal mass, without obvious distant metastasis by preoperative MRI, need diversion colostomy before multidisciplinary treatment. We performed Laparoscopic LAR with distal colonic washout and diversion stoma for all. Technically details of procedure will present.

Results: All 5 cases were ASA class I and II. Age distributions were 50, 55, 62, 68 and 76 years old. Male -female ratio was 1/4. No operative morbidity-mortality for all.

Conclusion: These early surgical outcomes confirm the safety and efficiency of laparoscopic LAR in non-bowel preparation-partial obstructing rectal cancer cases.

MAMMOGRAPHIC MICROCALCIFICATION AND BREAST CANCER: A RADIO-PATHOLOGIC CORRELATION

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Background: Breast cancer is the most common cancer in women and is responsible for the most cancer-related deaths worldwide. Patients with breast cancer may not show noticeable symptoms but may be diagnosed from combined screening with mammography and ultrasound. One important mammographic finding is abnormal microcalcification. However, the positive predictive value of malignancy for each type

of abnormal microcalcification is still uncertain.

Objectives: To determine the positive predictive value of malignancy for each type of mammographic abnormal microcalcification.

Materials & Methods: The present study was a retrospective review of 62 women with abnormal microcalcifications who underwent mammography-guided needle localized excision between September 2011 and December 2018.

Results: There were 72 lesions with various morphologic types of abnormal microcalcifications in 62 patients. The positive predictive values of malignancy were as follows: coarse heterogeneous 25%, amorphous 38%, fine pleomorphic 42% and fine linear/linear branching 33%.

Conclusion: Abnormal microcalcifications on mammography (BI-RADS classification 4 to 5) have high positive predictive values, indicating the need for tissue diagnosis.

Keywords: Breast cancer, Mammography, Microcalcification, Radio-pathologic correlation, Needle localized excision

MANAGEMENT OF PERITONEAL DIALYSIS CATHETER MALFUNCTION: OPENED OR LAPAROSCOPIC TECHNIQUE?

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Background: Peritoneal dialysis (PD) was recommended by the national policy for end state renal disease patients since 2007. Second most common problem of PD catheter is mechanical malfunction that can be corrected by surgery. In last two decades, there has been increased use of laparoscopic technique to correct extraluminal obstruction or malposition of PD catheters. However, there is lacking data to conclude which technique is recommended.

Objectives: To compare between opened and laparoscopic techniques for insertion and revision of PD catheter in 10 years in King Chulalongkorn Memorial Hospital.

Materials and Methods: Between January 2008 and December 2017, all patients who underwent operation of PD catheter were identified in the local database. Demographics data, operative findings, procedure, catheter survival were collected and analyzed by statistic software SPSS version 22.

Results: There were 206 procedures done in 187 patients. There were 29 laparoscopic procedures (9 insertions and 25 revisions) and 177 opened procedures (161 insertions and 11 revisions). Forty-eight percent of cases were female. Average age of patients is 55.49 years old. In opened insertion procedures catheters survival is 20.52 months compared to laparoscopic insertion, means catheter survival is 19.75 months (p=0.964). In opened revision procedures, means catheter survival is 18.52 months compared to laparoscopic revision, means catheter survival is 15.82 months (p=0.875). The laparoscopic revision was performed in cases with multiple time of catheter malfunction, the operative findings were malposition (39.13%), omental wrap (34.78%), intraperitoneal organs wrap (8.7%) and fibrin coat (4.35%). Operative procedures were laparoscopic repositioning with adjunct procedures; fixation (47.83%), fibrin removal (13.04%), omentopexy (13.04%), adhesiolysis (8.7%) and omentectomy (4.35%).

Conclusion: Between all groups, there was no statistic significant of catheter survival rate. In laparoscopic revision group, there were difficult cases which need adjunct procedure to correct causes of catheter malfunction.

MORTALITY RATE AND ASSOCIATED FACTOR OF NECROTIZING FASCIITIS

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Background: Necrotizing fasciitis (NF) is a serious and fatal condition where there is rapid progression of inflammation of skin, subcutaneous tissue, and superficial fascia. The rapidly progressive in nature and if not promptly treated leads to significant morbidity or mortality.

Objectives: This study was designed to explore the mortality rate and associated factors of necrotizing fasciitis

Materials & Methods: Observational prospective cohort study conduct in Surin hospital, from February 2018 to March 2019. Patient was diagnosed necrotizing fasciitis by clinical manifestations and/or diagnosis after surgical debridement. Then follow up clinical outcome are amputation, length of stay and dead.

Results: Total of 176 patients, the mortality rate of necrotizing fasciitis was 21.59% (95% CI 15.76–28.41). Mean age was 67.63±14.34 in mortality group, 63.28±14.67 in survival group. Most common comorbidities were DM (23.86%) and CKD (17.61%), but in immunocompromised patient (5.11%) are high-risk group to mortality (*p*-value =

0.0110). On admissions SBP < 90 mmHg, DBP < 60 mmHg, MAP < 65 mmHg, use of inotropic drug, qSOFA score ≥ 2 are associated in mortality. Significant risk factors from Simple and multiple logistic regression analysis for association with mortality of necrotizing fasciitis were qSOFA score ≥ 2 (p = < 0.0001), INR > 1.3 (p = 0.0230), BUN > 20 mg/dl (p = 0.0180). Mortality rate according by bacteriology results in mortality group are gram-positive bacteria (73.68%), gram negative bacteria (13.16%), polyorganism (7.89%) and fungus (2.63%). Most common organism is group A. beta-hemolytic streptococcus that seen in both groups.

Conclusion: Present of SBP < 90 mmHg, DBP < 60 mmHg, MAP < 65 mmHg on admissions, the use of inotropic drug, qSOFA score ≥ 2, INR >1.3 and BUN >20 mg/dl were associated factor for mortality of NF

Keywords: Necrotizing fasciitis, Mortality

OUTCOME AND PROGNOSTIC FACTORS FOR PERI-AMPULLARY CARCINOMA AFTER PANCREATICO-DUODENECTOMY: A SINGLE TERTIARY CENTER EXPERIENCE

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Background: Pancreaticoduodenectomy (PD) remains the standard treatment archiving long term outcome for peri-ampullary carcinoma.

Objective: To evaluate outcome and prognostic factors of PD in large tertiary center in Thailand.

Materials and Methods: This is a single-center, retrospective study of patients who underwent PD for periampullary carcinoma at Siriraj Hospital from 2011 to 2015. Univariate and multivariate analyses were performed to identify poor clinicopathological prognostic factors for survival after PD.

Results: The total of 128 patients who underwent PD for periampullary carcinoma at Siriraj Hospital between 2011 and 2015 were included. Five-year overall survival was 16% with median survival time of 23 months. Patients with ampullary-cancer (25.7%) and duodenal cancer (21.1%) had longer 5-year survival than pancreatic cancer (13.3%) and distal cholangiocarcinoma (0%) (p < 0.001). Multivariate analysis showed that independent adverse prognostic factors were perineural invasion (HR: 3.94, 95% CI: 1.90-6.40, p < 0.01), N2 nodal status (HR: 2.98, 95% CI: 1.16-7.64, p = 0.23), positive resection margin (HR: 1.93, 95% CI: 1.19-3.14, p = 0.047), lymphovascular invasion (HR: 1.73, 95% CI: 1.03-2.9, p = 0.03) and pre-operative albumin < 3.5 g/dl (HR: 1.71, 95% CI: 1.09-2.67, p = 0.02). Tumor with perineural invasion also had higher rate of lymphovascular invasion. Patient with low albumin level had higher proportion of T3 and T4 staging, and poorly differentiated tumor. Notably, pre-operative biliary drainage and total bilirubin were not significant predictive factors.

Conclusion: Poor prognostic factors for periampullary carcinoma after PD included N2 nodal status, perineural invasion, lymphovascular invasion, positive resection margin and low albumin level. Therefore, pre-operative nutritional status should not be overlooked.

Keywords: Periampullary cancer, Pancreaticoduodenectomy, Prognostic factor, Overall survival

OUTCOMES COMPARISON BETWEEN BASILIC VEIN TRANSPOSITION AND ARM STRAIGHT GRAFT FOR HEMODIALYSIS IN END STAGE RENAL DISEASE

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Background: According to current guideline, primary option for vascular access is autogenous AVF and distal autogenous AVF is recommended because of minimum of complication, less revisions and less hospital admissions. However, in some case that cephalic vein is smaller than 2 mm or failure of previous distal AVF, the guideline suggests Brachiobasilic AVF (BBAVF) and arm straight graft (ASG) as the alternative access. But the results of upper arm vascular access between BBAVF and ASG for hemodialysis are still controversial.

Objective: This study aimed to compare relevant outcomes between BBAVF and ASG.

Materials and Methods: All BBAVF and ASG cases from August 2014 to November 2018 were reviewed. Baseline characteristics were collected and compared. Outcomes included operative outcomes (i.e., operative time, length of stay), postoperative complications (i.e., wound infection,

seroma, hematoma), and functional outcomes (i.e. maturation rate, time to successful first cannulation, reintervention and 1-year primary patency rate) were compared between groups using multivariable linear, logistic regression analysis and Cox proportional hazard model for continuous, categorical and time to event outcomes, respectively.

Results: Twenty-eight (30%; 21 primary and 7 secondary) and 66 (70%) patients had BBAVF and ASG respectively. All baseline characteristics are not significantly different between groups except ASG had more hypertensive patients (94% vs 75%; $p = 0.015$) and less previous ipsilateral access (11% vs. 43%; $p < 0.001$) than BBAVF. Operative times and postoperative complications were not significantly different between groups. Eighteen (86%) and 42 (81%) were matured after BBAVF and ASG respectively ($p = 0.745$). ASG had about 30 days' shorter time for successful first cannulation but with significant worst 1-year primary patency rate [78% (95% CI: 64, 87) vs. 96% (95% CI: 76, 99); hazard ratio of 5.7 (95% CI: 1.2, 27.3; $p = 0.030$)]. Seven patients (11%) in ASG had reintervention for complications at 1 year follow up whereas none in BBAVF but not significant.

Conclusion: BBAVF had significant better primary patency rate and might had lower rate of complications than ASG. Therefore, it should be considered first in anatomical suitable cases.

PREVALENCE AND CLINICAL APPLICATION TO LIVER SURGERY OF THE PORTAL VEIN VARIATION

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Background: The Couinaud classification divides the liver segment into eight functionally independent segments. The functional segment needs its own portal vein, hepatic artery, venous outflow, and biliary drainage. Understanding of portal vein variation is the fundamental knowledge using in preoperative planning, portal vein embolization, and transplantation. The portal vein variation if it is not recognized may result in hepatic failure. Lack of study of portal vein variation in Thailand was identified.

Objective: The aim of this study was to determine the types, prevalence rates, and clinical implication of PV variations.

Materials and Methods: The study included 151 retrospectively evaluated patients that had undergone MDCT liver in Songklanagarind Hospital between January 2016 and December 2016. Two experienced hepatobiliary surgeons interpreted the image and classified type of variation independently.

Results: Classical portal vein branching (type 1) were observed in 73 patients (81%). The most frequent type of portal vein variation was type 4 (Segment VII branch separate branch of RPV) which was observed in 7 (8%) of the patients. The second most common variation was a type 5 (Segment VI branch separate branch of RPV) which was noted in 4 (4%) of the patients. Other unusual variations in this study are one (1%) of the patient had type 2 (trifurcation), and three of the patients (3%) had type 3 (Right posterior vein as the first branch of MPV) anatomy.

Conclusion: Common variation of the hepatic portal vein in Thai people is segment VII branch separate branch from RPV. The variant hepatic portal vein is important. We should understand and recognize before making an operation.

Keywords: Hepatectomy, Portal vein, Variation, Liver resection

RANDOMIZED CONTROLLED TRIAL COMPARING BETWEEN OUTPATIENT BOWEL PREPARATION VERSUS BOWEL PREPARATION IN HOSPITAL FOR COLONOSCOPY

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Background: Bowel preparation is important for a complete high-quality colonoscopy. We observe that, the patient who drank the laxative drug by own self at home has poor bowel preparation and has many problems such as forget to drink or cannot drink complete dose.

Objectives: To study quality of bowel preparation in admission vs. OPD before colonoscopy and to development the result of colonoscopy.

Materials and Methods: We study grade of quality bowel preparation in 260 patients by separate to two groups. The first, 130 patients were drinking the laxative drug at home by own self preparation we call, "OPD group". The second, 130 patients were drinking the laxative drug in hospital by the nurse whom prepared the laxative, we called "Admission group". The colonoscopy was performed by surgeon and was grading the bowel preparation. Primary outcome is grading

of bowel preparation.

Results: A total of 260 patients were in the study with a mean age 61. There were males 35% and female 65%. Admission group had a higher rate of quality of bowel preparations than the OPD group (73.1% vs. 55.4%, *p* value < 0.01), a low grade of poor bowel preparations (35.8% vs. 44.6%, *p* value < 0.01). The inadequate grade of the Admission group was lower (0.4% vs. 1.9%). The time was shortly in the Admission group (9.8% vs. 12.5%). There was no difference between the rates of polyps, diverticulum and mass detected.

Conclusions: The good bowel preparation has affected on the complete high-quality of the colonoscopy. The patient who drank the laxative at home by own self has low grade of clearance bowel than whom drank the laxative in hospital by the nurse preparation. This result suggests that, the best colonoscopy should be performed on the admission.

Keywords: Colonoscopy, Bowel preparation**,** Outpatient vs. in hospital

RETROSPECTIVE STUDY OF DIFFERENT MANAGEMENT FOR ELDERLY PATIENTS WITH CANCER OF STOMACH AND ESOPHAGOGASTRIC JUNCTION

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Background: Surgery is the main modality of treatment for cancer of stomach and esophagogastric junction. For patients who cannot tolerate surgery such as elderly patients, best supportive care is also a preferable choice.

Objective: To compare survival outcomes and complications in elderly patients who received different types of treatments.

Materials and Methods: Medical records of 220 ed adenocarcinoma of stomach or esophagogastric junction during January 2005 to December 2016 at Siriraj Hospital were reviewed and analyzed. All patients were divided into three groups; curative surgery (Curative), non-curative treatment (Non-curative) and best supportive care (BSC) group. Survival outcomes and post-treatment complications were compared.

Results: 102 (46.4%) patients underwent curative intended surgery (Curative group), 62 (28.2%) patients underwent non-curative surgery or endoscopy (Non-curative group) and 56 (25.4%) patients received best supportive care (BSC group). There was significant higher overall survival (OS) in curative surgery group ($p < 0.001$). 5-year OS was 22.5% and median survival time was at 32 months (95% CI 10.7-53.3). Older aged did not significantly impact survival outcome in all patients although they were over 80 years old. Significant better survival outcome was observed in earlier stage of disease than advanced stage ($p = 0.02$). 14 patients had severe complication after curative or non-curative procedures. Postoperative mortality rate was 3%. Presence of coronary artery disease was an independent risk factor for severe postoperative complications ($p = 0.001$) and 30-days postoperative mortalities ($p = 0.034$).

Conclusions: Curative surgical resection in elderly patients should be considered regardless of old age. Even non-curative treatment also offered better survival than best supportive care alone. Patients with coronary artery disease might have higher risk of severe postoperative complications.

Keywords: Stomach neoplasms, Gastrectomy, Aged, Mortality, Esophagogastric junction

RISK FACTORS ASSOCIATED WITH BILIARY COMPLICATIONS AFTER DECEASED DONOR LIVER TRANSPLANTATION

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Background: Liver transplantation is the curative treatment for cirrhotic and early hepatocellular carcinoma patients. The surgical outcomes have been gradually improved, but biliary complications are still common that affects the graft function, patient survival and quality of life after liver transplantation.

Objective: To explore the factors associated with biliary complications in deceased donor liver transplantation (DDLT) at King Chulalongkorn Memorial hospital.

Materials and Methods: Retrospective study in DDLT at KCMH between January 1st 2007 – December 31st 2017. The demographic data and factors include type of biliary anastomosis, ischemic time, pre-operative treatment for HCC, blood loss, blood transfusion and donor age were studied.

Results: There were 171 DDLT. The overall biliary complication rate was 6.4%, including bile leakage of 0.6 % and biliary stricture of 5.8 %. Type of biliary anastomosis, ischemic time, pre-operative treatments for HCC, blood loss, blood transfusion and donor age were not related with biliary complications. But the only factor that was associated with biliary complications significantly was intraoperative cryoprecipitate transfusion ($p = 0.029$).

Conclusions: The biliary complications were still the common surgical complication after DDLT. In our institute the incidence was 6.4% and the only associated risk factor was intraoperative cryoprecipitate transfusion.

RISK FACTORS OF DUODENAL PERFORATION POST-ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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Background: Endoscopic retrograde cholangiopancreatography (ERCP) is a frequently used procedure for managing biliary tract diseases. ERCP is less invasive and safer than open operations, but duodenal perforation post-ERCP is a serious and life-threatening complication.

Objective: To determine the risk factors for duodenal perforation post-ERCP.

Materials and Methods: The present design was a case-control study. During the period between October 2013 to September 2018, we included patients who were admitted for procedure codes 5100, 5188, 5187 of the ICD-9. We identified cases who had duodenal perforation post-ERCP from medical records as well as imaging evidence. The controls were selected from patients who underwent ERCP without complications, in the ratio of 4:1 for controls versus cases.

Results: There were 1,160 patients who underwent ERCP during the study period. Duodenal perforation post-ERCP was identified in 20 patients. A control group 80 patients was chosen. On univariable analysis, presence of duodenal diverticulum was significant associated with duodenal perforation post-ERCP (OR = 8.14; 95% CI 2.03 to 32.6). On multivariable analysis, the female gender as well as presence of duodenal diverticulum were significantly associated with duodenal perforation post-ERCP (OR = 3.45; 95% CI: 1.23 to 11.5, and OR = 8.68; 95% CI: 1.9 to 39.6, respectively).

Conclusion: Risk factors for duodenal perforation post-ERCP included the female patient and presence of duodenal diverticulum.

Keywords: Duodenal perforation, Risk factors, ERCP

RISK FACTORS OF IN-HOSPITAL MORTALITY AFTER SURGERY FOR ACUTE AORTIC DISSECTION STANFORD TYPE A IN SONGKLANAGARIND HOSPITAL

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Background: Acute aortic dissection Stanford type A is a severe disease, which can cause life-threatening complications. Patients who received surgery, have significantly lower in-hospital mortality than a non-operated group, therefore surgery becomes the gold standard treatment. Previous studies have demonstrated several factors associated with mortality. However, the significance of each factor varies among studies, which could be caused by the diversities of different centers as well as ethnic populations.

Objective: The aims of this retrospective study were to analyze the data of the patients with acute aortic dissection Stanford type A, that received surgery at Songklanagarind hospital, Thailand, in terms of operation and risk factors to in-hospital mortality, so as to find out the postoperative in-hospital mortality; for a lead into the risk modifications and improvements of surgical techniques for better outcomes.

Materials and Methods: Eighty-eight patients, who had acute aortic dissection type A whom received operative treatment at Songklanagarind hospital, between January 2007 and December 2016, were retrospectively evaluated in terms of: demographic, pre-operative, intra-operative, post-operative data and outcomes. Multivariate cox regression analysis was performed to identify the influence of different related-variables on in-hospital mortality.

Results: The in-hospital mortality of 88 surgically treated acute aortic dissection type A patients was 22.7 %.

Overall, the mean age was 53.1 (13.8) years, and the elderly group (age > 70 years old), made up 10% overall. There

were more men than women (67% VS 33%). The significant risk factors for in-hospital mortality were: ASA class 5 [HR 12.6359 *p*-value 0.0024], serum creatinine at higher than 1.3 mg/dL [HR 11.1162 *p*-value 0.0007], total arch replacement [HR 21.8094 *p*-value 0.0004], descending aorta replacement [HR 25.8479 *p*-value 0.0094]. FFP transfusion >1500 ml were the protective factors [HR 0.0476 *p*-value 0.0336].

Conclusion: Even though being uncommon, acute aortic dissection Stanford type A is a life-threatening condition, with a high in-hospital mortality. The significance of each factor varies among previous studies, this could be due to the diversities of centers along with different ethnic populations. Therefore, this present study provided a local profile, and facility analysis of patients with surgically treated acute aortic dissection Stanford type A.

SURGICAL RESECTION VERSUS RADIOFREQUENCY ABLATION FOR SMALL HEPATOCELLULAR CARCINOMA

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Background: Radiofrequency ablation (RFA) is now one of the curative treatments for small hepatocellular carcinoma according to Barcelona Clinical Liver Cancer (BCLC) guideline. RFA is widely performed in Asia-Pacific region with comparable outcome to surgical resection but undetermined outcome in Thailand.

Objectives: To evaluate the efficacy of surgical resection (SR) and radiofrequency ablation (RFA) for single hepatocellular carcinoma (HCC) 3 cm or less.

Materials & Methods: Between 2008 and 2017, a total of 131 (SR, 47; RFA, 84) patients with single, less than 3 cm hepatocellular carcinoma with child turcotte pugh (CTP) A which first treatment with SR and RFA were enrolled. Their overall survival (OS) and recurrence-free survival (RFS) were compared.

Results: Mean follow up time of this study was 4.9 years. At baseline, portal hypertension was found more in RFA group while tumor size was larger in resection group. The 1-, 3-, 5-overall survival rates were 93.2, 81.8 and 76.4 percent respectively in the resection group, compared with 93.8, 85.2 and 67.9 percent in the RFA group ($p = 0.667$). However, the disease-free survival rates were 79.5, 65.8 and 52.4 percent in the resection group, and 68.8, 45.6 and 24.4 percent in the RFA group ($p = 0.008$). The complication rate was 6 percent in RFA group and 22.7 percent in resection group.

Conclusions: There was no difference in overall survival between RFA and surgical resection. However, disease free survival was lower in resection group.

Keywords: Radiofrequency ablation, Surgical resection, Small hepatocellular carcinoma

THE ACCURACY OF PROGNOSTIC SCORING SYSTEMS FOR POST-OPERATIVE MORBIDITY AND MORTALITY IN PATIENT WITH PERFORATED PEPTIC ULCER IN BUDDHACHINARAJ PHITSANULOK HOSPITAL

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Background: The peptic ulcer perforate often present with acute, severe illness that carries a high risk for morbidity and mortality. The aim of this study was to compare known clinical factors and the four-scoring system's [American Society of Anesthesiologists (ASA), Boey, Peptic Ulcer Perforation (PULP) and P-POSSUM score] ability to predict mortality in Perforated Peptic Ulcer (PPU) and its use for screening patient's pre-operative care at intensive care unit.

Objective: This study aimed to evaluate accuracy of prognostic scoring systems for post-operative morbidity and mortality in peptic ulcer perforate patients.

Materials and Methods: Retrospective study of patients undergoing emergency surgery for PPU between 2012 and 2016 were done at Buddhachinaraj Phitsanulok Hospital. Clinical and surgical out comes were analyzed through adjusted odds ratio (OR) and model AUC.

Results: Study included 480 patients (Female 22.5%, Male 77.5%) with mean age of 61 year. The most common site of peptic ulcer perforate were at pre-pyloric area 36.6% with size about 5 mm diameter and post-operative transfer to ICU about 74 (15.41%). The AUC morbidity prediction for scoring systems were as followed: ASA score 0.711; PULP score 0.720; Boey score 0.696 and P-possum score 0.505. The AUC mortality prediction was 0.826 for ASA score, 0.735 for PULP score, 0.692 for Boey score and 0.552 for P-possum score.

Conclusions: The ASA score may be the better prognos-

tic scoring system for post-operative morbidity and mortality of PPU patient than PULP,Boey score, and P-POSSUM score. However, in case of ASA scoring, there wasn't sufficient number and distribution of information to be used from the data base. Boey score having ROC cure value of 0.69 has good distribution of data and easier to keep information when compared with PULP score with more data.

Keywords: Scoring system, Perforated peptic ulcer (PPU), Morbidity, Mortality

THE COMPARISON OF TIME BARIUM ESOPHAGOGRAPHY TO ECKARDT'S SCORE FOR ACCESSING RESPONSE TO PERORAL ENDOSCOPIC MYOTOMY IN ACHALASIA PATIENT

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Background: Achalasia is rare neuromotor disease of the esophagus. Even the standard treatment of achalasia is Laparoscopic Heller Myotomy with fundoplication (LHM), But recently the new procedure, Peroral Endoscopic Myotomy (POEM), have obvious evidence for equivalent outcome for treatment. The High Resolution Manometry is standard tool for follow up and surveillance to predict the success of treatment outcome. Due to the lack of instruments in Thailand, those were ignorish and Eckardt's clinical score play significant role during follow up period. In contrast, Timed Barium Esophagography also one of the tools for access the severity. It is a simple contrast study technique and widely spread all over the country, but it is rarely use in clinical practice. The objective of this study is to focus on the comparison of both tool for predict the success of the treatment in the hospital which lack of high resolution manometry.

Objective: To compare prediction's efficacy of Eckardt's score, Timed Barium Esophagrography to High resolution manometry in result of achalasia treatment with Peroral Endoscopic Mytomy in Siriraj Hospital.

Materials and Methods: This cohort study in 57 achalasia patients who treated with Peroral Endoscopic Myotomy in Siriraj Hospital during 2014-2016 and were follow up for 1 year. The parameter of this study is integrated relaxation pressure (IRP)Eckardt score, Timed Barium Esophagography compare POEM and 1 year after POEM.

Results: This study revealed that the height of barium column is relatively decrease both at 1 and 5 min compare to IRP. The decrease of IRP value is significantly decrease ($r = 0.283$, $p = 0.033$, and $r = 0.35$, $p = 0.007$). In contrast, Eckardt's score and the width of barium column do not significant relation with IRP.

From our study, there is significant relation between the height of barium column and IRP. We suggested that the Timed Barium Esophagography was recommended for follow up and predict the success of achalasia treatment in patient who underwent POEM.

Conclusion: TBE and esophageal HRM were comparable in assessing efficacy of POEM in treatment of achalasia. However, Eckardt score do not predictive the decrease of IRP.

THE RELATIONSHIP BETWEEN INTRAINCISIONAL ANALGESIC INFILTRATION AND OPIOID PRESCRIPTION AFTER OPEN INGUINAL HERNIA REPAIR

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Background: Open inguinal hernia repair is one of the most common surgeries performed, nowadays. Treatment of postoperative pain control plays an important role in improved recovery of patients and may decrease chronic postoperative pain.

Objectives: The aim of the study was to investigate whether a local anesthesia injection into the operated site has an effect on the opioid consumption besides acute postoperative pain and persistent pain at 1 year after open inguinal hernia repair

Materials & Methods: This is a retrospective study that collected the data from patients who underwent elec-

tive open inguinal hernia repair between October 2017 and March 2018. There were 99 patients included in this study, 19 patients (19.20%) were applied local bupivacaine injection intraoperatively and 80 patients (80.80%) that weren't applied local anesthesia injection. Each patient's age, sex, type of anesthesia, technique of hernia repair, length of hospital stays, total opioid consumption and pain score at recovery room, at 24 hours and pain score upon discharge were recorded. Only 72 patients from 99 patients were assessed pain score at 1 year after their surgery with DN4 questionnaire weather they had chronic postoperative pain after surgery or not.

Results: The two groups were matched in sex, age, and type of hernia repair. The local bupivacaine injection was performed more in patient who underwent general anesthesia compare to patient with spinal anesthesia [9 from 20 (45%) versus 10 from 79 (12%)]. There were no different in postoperative complication, total opioid consumption, and postoperative pain score. Four people still have persistent pain, but no one was considered to have neuropathic pain.

Conclusion: Local analgesia injection is safe to perform without any complications, but it is not associated with the reduction of postoperative pain, total opioid consumption or persistent postoperative pain in patients who underwent open inguinal hernia repair.

Keywords: Local analgesia, Open inguinal hernia repair, Postoperative pain

VARICOSE VEINS: RISK FACTORS AND PATTERNS OF VENOUS REFLUX IN THAI PATIENTS

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Background: The disorder of varicose veins is a common disease among the Thai population, however the published studies in Thai patients are still limited.

Objectives: To investigate the risk factors, patterns of venous reflux, and venous clinical severity scores (VCSS) in Thai patients afflicted with varicose veins.

Materials and Methods: A prospective comparative case-control study was performed for patients with varicose veins in a vascular surgery clinic at a single institute between February 2018 and January 2019. The patients were enrolled, interviewed and compared with the same number of sex-matched control patients. Demographic data, information about relevant risk factors, and VCSS were collected. Duplex ultrasonography was performed on all patients.

Results: There were 59 new varicose vein patients. The majority, 46 patients (73%), were female. Twenty-four patients (40.7%) were over 60 years old. The mean body mass index (BMI) of the cohort was 25.1 kg/m^2. Pain was the most common presenting symptom (49%), followed by edema of the legs (29%), and cosmetic concerns (27%). Most of the patients had had symptoms for more than one year (92%). The 95 limbs with visible varicose veins were categorized into CEAP (Clinical, Etiology, Anatomy and Pathophysiology) clinical stages: C2 69%, C3 12%, C4 12%, C5 5%, and C6 2%. The mean VCSS was 5.9. Refluxes of different types were found: at the saphenofemoral junction (SFJ) (33%), saphenopopliteal junction (SPJ) (1%), perforators reflux (3%), and the great saphenous vein (GSV) reflux 16%. The mean diameter of GSV was 6.9 ± 2.6 mm. The risk factors that were found to be significant when compared with the control group were age between 51-60 years old [odds ratio (OR) = 5.2, 95% CI = 1.21-22.2], age over 60 years old (OR = 31.1, 95% CI = 5.7-169.7), varicose veins in family history (OR = 10.1, 95% CI = 2.3-45.0), and prolonged standing posture (> 50% of working hours) (OR = 3.8, 95% CI = 1.4-10.6). It should be noted that, among females, oral contraception, hormonal therapy, and number of pregnancies were not significant risk factors.

Conclusions: This study revealed that risk factors for varicose veins include increasing age, especially above 50 years old, varicose veins in family history, and prolonged standing posture. Pain, edema and cosmetic concerns comprised common presentations. The venous reflux was most commonly found in SFJ, and there was no deep vein reflux identified in any patients.

VENOUS THROMBOEMBOLISM IN TRAUMA PATIENTS, THE FIRST REPORT FROM A PRIVATE TERTIARY CARE HOSPITAL

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Background: Trauma patients are at increased risk of

developing venous thromboembolism (VTE), one of the preventable fatal complication. Study of VTE in trauma patients should enhance awareness and appropriate intervention to improve clinical outcome in every healthcare facility.

Objectives: This study assessed the incidence and characteristic of VTE in adult trauma patients receiving care at Bangkok Hospital Headquarters. Relationship between VTE, patient demography and severity of injury were also studied.

Materials & Methods: Trauma registry of Bangkok Hospital Headquarters (BHQ) during 2016 to 2018 was retrospectively reviewed. Detail of in-patients aged ≥ 15 years were collected, including gender, age, injury severity score (ISS), VTE risk and clinical outcome.

Results: A total of 2,548 adult trauma patients were admitted at BHQ from January 1, 2016 to December 31, 2018. Of these, 31 patients had VTE (1.1%), 29 patient had deep vein thrombosis (DVT) and 2 patients had both DVT and pulmonary embolism (PE). Four patients had been diagnosed for VTE prior to admission. Thirteen patients in VTE group were diagnosed within 48 hours after admission. Fourteen major trauma patients had VTE (incidence 3.88%) There were twenty-one male patients and ten female patients in VTE group. Fifteen patients in VTE group were older than 65 years (48% of VTE group). Nine patients developed VTE despite prophylaxis. The higher ISS, the higher incidence of VTE ($p<0.001$). There was no VTE related mortality in this study.

Conclusions: The incidence of VTE in adult trauma patients at BHQ is 1.14%, which is comparable with 1% in the USA (National Trauma Data Bank, US 2016). The presence of VTE in early admission and the strong association between ISS and VTE development ($P<0.001$) suggest that we should start intervention early, especially in high ISS patients.

PEDIATRIC SURGERY

EVALUATION OF INITIAL RESULTS OF LAPAROSCOPIC INGUINAL HERNIA REPAIR IN CHILDREN AT VIETDUC UNIVERSITY HOSPITAL

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Objective: To evaluate the early outcomes of totally intra-peritoneal laparoscopic inguinal hernia repair in children by stitching herniated sac in the deep inguinal orifice at VietDuc University Hospital.

Materials and Methods: Prospective and retrospective study, 153 patients over 2 years old that were diagnosed with inguinal hernia based on clinical symptoms and ultrasound and treated with laparoscopic technique that use 3 trocars (1 trocar 5mm, 2 trocars 3mm) to stitch hernia sac in the deep inguinal orifice at VietDuc University Hospital from January 2017 to June 2018.

Results: In 153 patients: 10 bilateral hernias (6.5%), 31 unilateral hernias were diagnosed with contralateral hernia by laparoscopic (20.3%), 112 unilateral hernias (73.2%). The mean surgical time was 25.2 minutes (30.1 minutes with bilateral hernia, 22.9 minutes with unilateral hernia). Hospital stay duration 1.6 day. No case of surgical catastrophe. Post-operation: 2 patients were bleeding in position of the umbilical trocar and 3 patients were mild swelling of the groin, scrotum. Post-operation follow-up 3 months: no recurrence, no testicular atrophy.

Conclusion: Laparoscopy that use trocar 3 mm to treat inguinal hernia in children is safe, feasible, effective methods. The opportunity to diagnose a bilateral hernia when non-diagnosed before surgery, or in case of recurrence after an inguinal approach, are the main advantages for laparoscopy.

Keywords: Pediatric inguinal hernia, Laparoscopic inguinal hernia

OUTCOMES OF SACROCOCCYGEAL TERATOMA: 18-YEAR EXPERIENCE AT A TERTIARY CARE HOSPITAL

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Background: Pediatric germ cell tumor, though a rare tumor, is the most common solid tumor among neonates. Almost 70% of germ cell tumors involve sacrococcygeal area. The management of sacrococcygeal teratomas (SCTs) depends on their histology, location, and staging.

Objectives: To determine the overall survival rate, tumor recurrence rate and risk factors for recurrence disease. Complications related to treatment of SCTs were also evaluated.

Materials and Methods: A retrospective chart review of patients admitted to Siriraj Hospital with SCTs between 2000 and 2018 was performed. Data on demographics, clinical presentation, size, type and histology of tumors, operative treatment, and complications, were collected and analyzed for the association with outcomes, including survival and tumor recurrence.

Results: A total of 40 patients were included. There were 14 (35%) male and 26 (65%) female patients. Sixteen (40%) were Altman type I, 17 (43%) were type II, 3 (7%) were type III, and 4 (10%) were type IV. The overall three-year survival was 98%. One patient died due to massive hemorrhage during the perinatal period. Three patients (7%) developed recurrences which were significantly associated with microscopically incomplete resection margin, malignant teratoma histology, and Altman type IV. Long term bowel complications (soiling in 1 patient and constipation in 4 patients) were all found in patients with Altman type II. Two patients, one with type I and the other with type III, developed neurogenic bladder. No risk factors were found to be associated with functional complications in the present study.

Conclusion: The overall 3-year survival in SCTs was high. There was a 7% recurrence rate, which did not adversely influence the survival rate. Attention should be paid to 1) complete tumor removal, including the coccyx 2) pathological examination to confirm microscopically free margins and 3) long-term follow-up.

Keywords: Sacrococcygeal teratoma, Survival rate, Recurrence, Functional outcomes

RADIOLOGIC PATTERNS ASSOCIATED WITH SURGICAL NECROTIZING ENTEROCOLITIS AND DIAGNOSTIC INDEXES AMONG DEPARTMENTS

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Background: Necrotizing enterocolitis (NEC) is the most common cause of moribund in neonates, especially in surgical NEC. There are few recent studies reported on risk factors of surgical NEC, like several important risk factors associated with the development of NEC. From previous study in Chiang Mai University (CMU) Hospital found some radiologic finding associated with surgical NEC. The detail of radiologic patterns associated with NEC was not well classified.

Objectives: The main objective of this study was to evaluate risk factors of surgical NEC, especially radiologic finding from first diagnostic and follow up films for early detection. Another objective was to identify diagnostic index of radiologic patterns interpretation among departments in CMU Hospital.

Materials and Methods: This study is the nested case-control study reviewed patients from CMU NEC cohort between 2009-2016. The patients were divided into two groups, surgical NEC as a case group and non-surgical NEC patients as a controlled group, matching by gestational age (week $\pm$ 3) and birth weight (gram $\pm$ 150). NEC patients with no complete abdominal films were excluded. The radiologic signs of first diagnostic and follow up films of patients were read by one pediatric surgeon, one neonatologist and one pediatric radiologist. Reference standard was the consensus among departments. Nosologic diagnostic indexes were analyzed.

Results: A total of 44 patients were divided to 22 patients for each group. Multivariable logistic regression analysis under multilevel model for radiologic signs reader showed persist and progress of intraperitoneal fluid were significant associated with surgical NEC after adjusted by general characters (OR = 7.65, 4.78, 95% CI = 1.82-32.19, 1.15-19.84 respectively). After interpreted diagnostic index of radiologic patterns interpretation among departments, neonatologist had high sensitivity (94.95%), pediatric surgeon had high specificity (97.27%) and radiologist had high both sensitivity (84.04%) and specificity (94.78%) for diagnosis NEC from plain abdominal films.

Conclusions: This study showed intraperitoneal fluid or ascites had association with surgical NEC, but the progression of radiologic pattern by time was more important. So, we recommended close follow up plain abdominal film in these patients. Multidisciplinary care team could improve accuracy of radiologic diagnosis of NEC.

Keywords: Necrotizing enterocolitis, Surgical NEC, Risk factors, Radiologic findings

RISK FACTORS FOR PLEURAL EFFUSION FOLLOWING PEDIATRICS LIVER TRANSPLANTATIONS IN RAMATHIBODI HOSPITAL

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Background: Pediatrics liver transplantations have been accepted as definitive treatment for end stage liver disease. Pleural effusion is the most common of pulmonary complications following liver transplantation in children. It can affect high morbidity including prolong oxygen dependence and hospitalization.

Objectives: To identify the risk factors associated with posttransplant pleural effusion and patients' outcomes in Ramathibodi hospital in order to predict the prognosis after liver transplantations.

Materials & Methods: This is a retrospective review of 140 patients who underwent pediatrics liver transplantations between March 2001 and June 2018 in Ramathibodi hospital. The medical records were missed in 31 patients, so 107 patients were included to this study. Then they were categorized into pleural effusion and no pleural effusion group. Pre and perioperative data including age, body weight at transplantation, etiology, pre-operative albumin level, lung disease, Pediatric End-Stage Liver Disease score (PELD)/Model For End-Stage Liver Disease score (MELD), intraoperative ascites, liver graft characteristics, length of stay in ICU/hospital and O2 dependence time were compared between 2 groups by multivariable logistic regression analysis.

Results: Post-transplant pleural effusion occurred in 64 (59.8%) patients. PELD score ≥ 25, presence of intraoperative ascites, LDLT (left lateral segment donor grafts) were significant factors for postoperative pleural effusion. Prolonged length of stay in ICU ($p = 0.013$) / hospital ($p = 0.018$) and oxygen dependence time ($p = 0.001$) were significant outcomes in pleural effusion group following liver transplantations.

Conclusions: Pleural effusion following Pediatrics liver transplantations incidence is high. Pre-operative risk factor assessment can use to predict the prognosis of post-transplant pleural effusion. Consequently, this may diminish morbidity and length of stay in hospital.

Keywords: Pleural effusion, Pediatrics liver transplantations, Pulmonary complications after liver transplantations

SURGERY FOR DISORDER OF SEXUAL DEVELOPMENT: A RETROSPECTIVE DESCRIPTIVE STUDY

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Background: Disorder of sex development (DSD) is defined as a congenital condition in which development of chromosomal, gonadal, or anatomic sex is atypical. DSD is a rare disorder requiring a multidisciplinary approach. Surgical management plays an important role in treating this condition.

Objective: To describe the characteristics of DSD patients who underwent genital surgical procedures.

Materials and Methods: Data of DSD patients (0-15 years of age) between January 2002 and December 2017 were retrospectively reviewed.

Results: One-hundred and five patients underwent genital surgical procedures during the studied period. There were 13 cases (12%) of sex chromosome DSD, 41 cases (39%) of 46XY DSD, and 51 cases (49%) of 46XX DSD. For sex chromosome DSD, mix gonadal dysgenesis was the most common (11 cases, 85%). For 46XY DSD, androgen insensitivity syndrome was the most common (19 cases, 41%). For 46XX DSD, congenital adrenal hyperplasia was the most common (43 cases, 84%). In all male patients with DSD, urethroplasty was the most common procedure (51 cases, 91%). However, in female patients with DSD, clitoroplasty is the most common (36 cases, 73%). The median age for urethroplasty and clitoroplasty were 3 years 4 months and 3 years 11 months, respectively. The most common post-operative complication among male patients with DSD undergoing urethroplasty was urethrocutaneous fistula (25/51 cases, 49%). All patients having genital procedures were pre-operatively evaluated and approved by DSD team and their parents. Finally, it was the surgeon who would make the decision regarding the possible surgical procedures.

Conclusions: Surgery of genital structures plays an important role in treating DSD patients. Although the treatment of this condition needs multidisciplinary approach, the types of surgery for these patients were designated by the surgeon. Awareness of the types of surgery, its complications, and life-long effects are helpful in the therapeutic strategy.

PLASTIC SURGERY

A LITTLE THING THAT IS IMPORTANT IN WOUND CARE: A PERIWOUND

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In wound care, we usually focus nearly all of our efforts on the wound area while paying little attention to the periwound area. Although the periwound area may seem unimportant, it matters to patients. A female patient was admitted with a wound at the perianal area. Wound dressing was performed using standard wet-to-dry gauzes. The patient had several small complaints including irritant contact dermatitis, skin maceration, pain during dressing change, and fecal contamination to the wound. In this case, we ended up switching to a different method of wound dressing. We went from using wet-to-dry gauzes for the primary dressing to a hydrofiber with silver dressing and from gauze and Micropore as a secondary dressing to an adhesive sodium carboxymethylcellulose foam dressing. This resolved all complaints. The patient's satisfaction score using visual analog scale increased from 2 to 10 (out of 10 points). This example shows how even small details can make a significant difference in wound care. Because periwound care is often neglected, therapeutic algorithm that integrates major challenges in periwound care into wound healing strategies is proposed.

Video link: https://1drv.ms/vs!AqzA8KxTww0WgccvaBl36jCLpzv6IQ

ARTERIOVENOUS OF THE HEAD AND NECK: TREATMENT AND OUTCOME

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Background: Arteriovenous malformations (AVMs) are fast-flow vascular malformations that comprise a complex

network of primitive vessels directly connecting feeding arteries to draining veins. AVM is an aggressive disease with a high tendency to recur; its treatment is complex and very challenging, especially in the anatomically delicate head and neck area and requires extensive experience and an interdisciplinary approach.

Objectives: This study evaluated the outcome after treatment and analyzed the correlation between the pattern of head and neck AVM and the frequency of recurrence.

Materials and Methods: We retrospectively assessed the outcome and recurrence of head and neck AVM after treatment by embolization and resection. Recurrence is defined as expansion following embolization or resection. The effect of sex, age, size, location, stage and treatment modalities on recurrence of head and neck AVM were analyzed.

Results: This study includes of 60 patients. All patients were treated by embolization and then resection. Of these, we have follow-up information of at least 6 months after treatment on 55 patients. The outcome was excellent in 73%, good in 20%, fair in 5% and poor in 2% (mean follow-up time, 38.6 months). Of the 55 patients, 14 had recurrences after treatment (long-term recurrence rate, 26%). Recurrence was less likely for lower-staged or small lesions, and did not correlate with age or location.

Conclusions: AVM of the head and neck is a one of the most challenging diseases and has a high risk of recurrence. The best chance for long-term control is early and total resection.

PENILE REPLANTATION: THE FIRST THREE SUCCESSFUL CASES IN VIETNAM

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Penile amputations are uncommon injuries, that requiring urgent microsurgical intervention. Accidental trauma can be caused by genital self-amputation in patients with mental disorders, circumcision injury inflicted by a partner following marital discord. Other reasons are results of farming or workplace accidents, gunshot wounds and human or animal bites. Currently, microsurgical replantation helps to reduce skin, urethra constricted and glans loss but these complications is still occurring. This report describes a series of the first three successful replantation cases with penile amputation in Vietnam (all complete, from 2007 to 2016) and the outcomes are discussed.

Keywords: Penile replantation, Genital self-amputation, Microsurgery

THORACIC SURGERY

DURABILITY OF RV-PA HOMOGRAFT AT PULMONIC POSITION IN CONGENITAL HEART PROCEDURES AT RAJAVITHI HOSPITAL

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Background: A homograft considered as a standard conduit in right ventricular outflow tract reconstruction.

Objectives: To determine long-term outcome, conduit longevity and durability after right ventricular outflow tract reconstruction using homograft in pulmonic position.

Materials & Methods: We retrospectively reviewed patients underwent right ventricular outflow tract reconstruction using homograft in pulmonic position between 1st January 1998 and 31st December 2016 in Rajavithi Hospital. There are four major operations including Rastelli's operation, Ross procedure, Trancal repair and RV-PA reconstruction. Two methods of homograft preservation used in our study, one from Rajavithi-preserved homograft and one from Thai national bank preparation.

Results: A total of 138 patients with right ventricular outflow tract reconstruction using homograft in pulmonic

position in this study. 58.7% were male with mean age of 8.90 ± 5.72 years. The major diagnosis of pulmonary atresia with a ventricular septal defect was 39.86%, congenital aortic valve disease 23.91%, complex transposition 15.22%, double outlet right ventricle 10.87%, tetralogy of Fallot 6.52% and truncus arteriosus 3.62%. Rastelli's operation performed in 71.7%, Ross procedure 23.0%, truncal repair 3.6% and RV-PA reconstruction 0.7%. Homograft using in our study was harvest from aortic origin 73.91% and pulmonic origin 26.09%. Among this homograft, Rajavithi-preserved homograft was 49.3% and from Thai national bank preparation 50.7%. The overall 5-year survival was 93.48%, and 10-year survival was 91.30%. Homograft harvested from pulmonic origin was the only predictor for homograft degeneration in multivariate analysis ($p = 0.003$). Freedom from explantation was 97.22%, 88.89% and 75.0% at 5, 10 and 15 years. There are no patients explanted or died with complication of homograft endocarditis.

Conclusions: RV-PA homograft implantation in the pulmonic position can perform with good long-term freedom from explantation and provide excellently outcome. Factors affect homograft durability include a patient with truncus arteriosus, homograft from the pulmonic origin and Rajavithi preserved homograft.

Keywords: Right ventricular outflow tract, Valve conduit, Homograft, Congenital heart