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Free Paper Neurosurgery

BRAIN MASS IN PATIENTS WITH CANCER HISTORY IN CHONBURI HOSPITAL

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Background: Most frequent brain tumor is metastatic tumor. Overall patients with brain metastases typically have a mean survival of one month without treatment. With treatment, the mean age of survival is still less than one year.

Objective: To evaluate many factors such as gender, age, time lag between diagnosis of systemic cancer and brain mass, type of systemic cancer and brain tumor resection whether they affect the survival time.

Materials and Methods: Retrospective study of 241 systemic cancer with brain mass patients who were admitted in Chonburi Hospital during 30 December 2012 - 30 April 2018. Analysis using independent t-test and Kaplan-Meier survival curve to evaluate factors that affect the survival time.

Results: There were 121 males and 120 females in this study. Most of them age between 40-79 years. Lung cancer is the most frequent systemic cancer, found in 138 patients (57.26%). The others were ca breast, ca colon, unknown primary etc. Finding in CT or MRI brain revealed multiple brain masses in 124 patients (51.45%), single brain mass in 112 patients (46.47%) and leptomeningeal enhancement in 5 patients (2.07%). 211 patients died during admission; 30 patients had loss to follow up. Brain mass resection were done in 58 patients. The pathological diagnosis of cerebral metastases were 57 cases. One case was astrocytoma grade 2 with history of CA colon for 3 years. The median survival time in this study was 6 months. Analysis of survival time show no correlation with many factors such as gender, age, primary cancer site, time lag between diagnosis of systemic cancer and brain masses. The factors that correlate with survival time are brain mass resection and characteristic of brain mass. Brain mass resected group has longer survival time than non-operated group. Single brain mass group also has better outcome than multiple mass group.

Conclusion: Factors that affect the survival time of systemic cancer patients with brain mass are brain tumor characteristic and brain tumor resection.

Free Paper Pediatric Surgery

CLINICAL AND OUTCOME OF PEDIATRIC INTRAABDOMINAL LYMPHATIC MALFORMATION IN QUEEN SIRIKIT NATIONAL INSTITUTE OF CHILD HEALTH: PRELIMINARY REPORT

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Background: Intraabdominal lymphatic malformation is a rare entity in pediatric population. The etiology is caused by lymphatic channel obstruction leading to abnormal communication of the lymphatic systems. There are mostly benign and complete excision is the treatment of choice. The lesions vary from the simple cyst to the complicated cyst that encasing the organs and difficult to remove.

Objective: The purpose of this study is to analyses the clinical and outcome of intraabdominal lymphatic malformation in children.

Materials and Methods: Retrospective study of intraabdominal lymphatic malformation patients who were treated at Queen Sirikit National Institute of Child Health during January 2012 to December 2019. The demographic data, clinical presentation, radiological findings, operative findings, histology, procedures and outcomes were collected.

Results: Twelve patients [male 5, (41.7%), female 7, (58.3%)] were diagnosed and operated at age 5 months to 11 years (median age 4 years). The most common clinical presentation is abdominal pain [7 cases, (58.3%)]. The duration of symptom varied from 1 day to 1 year (median 1 month). Three of seven that presented with abdominal pain had the symptom like acute appendicitis [2 cases, (16.7%)] and peritonitis due to ruptured cyst [1 case, (8.3%)]. The root of mesentery is the common site of the lesion [9 cases, (75%)] and the jejunum is more common than other parts (5 of 9 cases). The range in size of the lesion was 3 to 20 cm in diameters (median 9 cm). Ten patients underwent complete excision (83.3%) but 7 cases required bowel resection. After surgery, all patients survived without recurrence.

Conclusion: This disease should be considered as the cause of acute abdomen. The preoperative diagnosis and localization for these cysts are difficult. Complete excision was possible in almost all cases despite the size, bringing a favorable outcome.

Keywords: Omental cyst, Mesenteric cyst, Intraabdominal cystic lymphangioma, Intra-abdominal lymphatic malformation

COMPARISON OF SURGICAL SITE INFECTION AFTER STOMA REVERSAL BETWEEN PURSE-STRING APPROXIMATION VERSUS PRIMARY LINEAR CLOSURE IN CHILDREN

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Background: Temporary stoma is a commonly procedure performed in children with emergency gastrointestinal problems. Surgical site infection (SSI) is one of the most common complication following stoma reversal, of which an incidence can be up to 40%. To reduce this complication, a purse-string approximation technique has been widely performed and recommended in adult stoma reversal. However, the optimal technique for stoma reversal in children is still debated.

Objectives: The goal of this study is to compare the SSI rate between purse-string approximation (PSA) and primary linear closure (PLC) for skin closure of stoma reversal in children.

Materials and Methods: The data of pediatric patients who underwent either PSA or PLC for elective surgery of stoma reversal between January 2016 and December 2019, at Srinagarind Hospital, Khon Kaen and Chulalongkorn Hospital, Bangkok were retrospectively reviewed. The surgical site infection was observed within 30 days after surgery.

Results: In total, 76 patients underwent stoma reversal in the aforementioned period. PSA was performed in 31 patients and PLC was performed in 45 patients. Patients in both groups did not differ regarding age, gender, comorbidity, preoperative hemoglobin and albumin, type of stoma, type of bowel preparation, ASA classification, operative time, volume of blood loss, and overall postoperative complications. Three patients in the PSA group developed a SSI compared to 14 patients in PLC group at 30 days after surgery (9.7 vs 31.1%, $p = 0.028$). The median time to SSI detection was 5 days after surgery in both groups ($p = 0.70$). No difference was noted in overall postoperative complication. Patients who developed SSI significantly had a longer length of hospital stay (16 vs 10 days, $p = 0.001$), but no difference was noted in the length of hospital stay between PSA with SSI and PLC with SSI patients (16 vs 15 days, $p = 0.53$). On univariate analysis, PSA was the only predictive factor of SSI (OR 0.24, 95% CI = 0.06 – 0.91, $p = 0.036$). In multivariate analysis, SSI were significantly lower in patients with PSA (OR 0.21, 95% CI = 0.05 – 0.86, $p = 0.029$).

Conclusion: Using purse-string approximation technique for skin closure of stoma reversal has significantly lower SSI rate compared to primary linear closure with no difference in length of hospital stay and postoperative care. However, further studies are required to identify the impact of PSA on stoma reversal as well as cosmetic outcome.

Keywords: Stoma reversal wound, Ostomy closure, Purse-string approximation, Primary linear closure, Surgical site infection

MANAGEMENT AND OUTCOMES OF GASTROINTESTINAL CONGENITAL ANOMALIES IN LOW-, MIDDLE-, AND HIGH-INCOME COUNTRIES: A MULTI-CENTRE, INTERNATIONAL, PROSPECTIVE COHORT STUDY

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Background: Congenital anomalies (CAs) are the 5th leading cause of death in children under 5 years, globally. Without emergency surgical care, many gastrointestinal CAs are incompatible with life.

Objective: We compared, for the first time, management and outcomes of a selection of common gastrointestinal CAs in low-, middle- and high-income countries (LICs, MICs and HICs) globally.

Materials and Methods: Children's surgical care providers across the globe were invited to participate in the study and collect clinical data prospectively on consecutive patients presenting primarily with seven CAs (Table 1) over a minimum of one month between October 2018 - April 2019. The primary outcome was all-cause in-hospital mortality. Univariate analysis was used to identify factors associated with mortality (p £ 0.01), which were then analysed using multivariate logistic regression, presented as (adjusted odds ratio, p value). All participating centers had study approval.

Results: 1,445 collaborators from 272 hospitals (11 LICs, 171 MICs, 90 HICs) in 74 countries contributed data. 3,841 patients with 3,967 study conditions were included. The following were associated with mortality: country income status (0.35, $p < 0.001$, Table 1), induced vaginal versus spontaneous delivery (0.42, $p = 0.024$), weight at presentation (0.61, $p < 0.001$), unavailability of ventilation when required (3.74, $p = 0.009$), unavailability of parenteral nutrition when required (2.95, $p = 0.001$), sepsis on arrival (1.99, $p < 0.001$), additional CA (1.63, $p = 0.001$), surgical site infection (1.62, $p = 0.034$), unavailability of a Surgical Safety Checklist (1.25, $p = 0.014$).

Conclusion: Significant disparities in mortality exist for common gastrointestinal CAs globally. Rapid action is required through a coalition of global stakeholders to eradicate these inequalities.

Keywords: Congenital anomalies, Global paediatric surgery, Management and outcomes

Table 1

	N	Mortality [95% Confidence Interval]		
		LICs	MICs	HICs
Gastroschisis	451	90.0% [87.2-92.8]	32.1% [27.8-36.4]	1.4% [0.3-2.5]
Oesophageal atresia	560	85.7% [82.8-88.6]	29.4% [25.6-33.1]	7.1% [5.0-9.2]
Congenital diaphragmatic hernia	447	-	38.3% [33.7-42.8]	14.2% [11.0-17.4]
Intestinal atresia	678	60.0% [56.3-63.7]	21.3% [18.2-24.4]	3.3% [2.0-4.7]
Anorectal malformation	990	20.0% [17.5-22.5]	12.1% [10.0-14.1]	1.7% [0.9-2.5]
Hirschsprung's Disease	517	11.8% [9.0-14.5]	6.6% [4.5-8.8]	1.9% [0.7-3.0]
Exomphalos (omphalocele)	324	28.6% [23.7-33.5]	20.4% [16.0-24.8]	17.1% [13.0-21.2]

Prior publication/ presentation details: This abstract has been submitted to the following conferences: British Association of Paediatric Surgeons Conference (July 2020, Bruges), Bethune Round Table (May 2020, Canada), KFAFH 15th National Conference (February 2020, Saudi Arabia; National results presentation), PAAFIS Spring Symposium (April 2020, Tunisia), Turkish National Paediatrics Congress (April 2020), 40th Continuing Medical and Dental Education Conference. Just one slide summarising the mortality for each condition in low-, middle- and high-income countries was shown as part of an invited presentation at the Global Initiative for Children's Surgery Meeting (Jan 2020).

Audio-Visual Presentation

BASCOM'S CLEFT LIFT PROCEDURE IN PILONIDAL SINUS DISEASE, HOW I DO IT?

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The etiology of Pilonidal sinus disease is unclear but it is associated with ingrown hair that causes infection and abscess. Pilonidal sinus can be the cause of chronic infection. Treatment of pilonidal abscess had many options including conservative treatment and surgery such as Bascom's cleft lift procedure, Karydakis procedure and Limberg flap procedure. The best procedure is controversial, but 88% Bascom's cleft lift procedure was successful in primary healing. Bascom's cleft lift flap is optional for treatment of pilonidal sinus disease to remove pilonidal tract. The scar of Bascom's flap lies just off the midline that can promote wound healing. A 17 years old male presented with 1 year of chronic pain at intergluteal cleft and 3 months prior to admission he found the abscess forming at this area. This abscess had resolved after antibiotic but recurrent for several times. The plan of treatment was discussed and scheduled for Bascom's cleft lift procedure. The patient was discharged home on the 5th postoperative day and 2 months after operation the surgical wound is completely healed and no postoperative complication. The result of Bascom's cleft lift incision was out of the cleft and off the midline to promote wound healing and less complication.

Keywords: Pilonidal sinus disease, Bascom cleft lift procedure

EVALUATION OF SENTINEL LYMPH NODE BIOPSY WITHOUT FROZEN SECTION IN BREAST CANCER PATIENT FROM COLLECTIVE DATA OF AXILLARY LYMPH NODE DISSECTION ANALYSIS

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Background: Sentinel lymph node dissection (SLND) have been decreased in early breast cancer fol-

lowing an ACOSOG Z0011 trial. SLND treated did not benefit from axillary lymph node dissection (ALND). So frozen section of sentinel lymph node (SLN) has been decreased significantly.

Objectives: To determine the re-operative rate in the patient that limited SLN metastasis treated and determine factors associated with metastatic involvement of axillary lymph nodes (ALN).

Materials and Methods: Patients who diagnosed early breast cancer and met criteria of ACOSOG Z0011 trial were retrospectively reviewed. All patients were initial treated with total mastectomy, lumpectomy, ALND and SLND from 2014 to 2018 were collected. Demographic data was recorded and the risk of metastasis to ALN were analyzed in relation to clinicopathological determinants. Binary logistic regression was used, yielding odds ratios (OR) with 95% confidence intervals (CI).

Results: 190 early breast cancer patients were enrolled in this study. 19 patients (10%) of patients required ALND. Factors associated with ALN metastasis in univariate analyses were age > 50 year, HER-2 expression, lymphovascular invasion (LVI), and extra nodal extension. All factors identified with univariate analyses were entered into a multivariate logistic regression model and HER-2 expression (OR = 2.54, CI 1.36-4.77, $P = 0.004$), LVI (OR = 3.53, CI 1.88-6.88, $P < 0.001$), and extra nodal extension (OR = 8.11, CI 1.74-37.83, $P = 0.005$) remained as independent factors of ALN metastasis.

Conclusions: In conclusion, the chances of having to re-operation are relatively low. HER-2 expression, LVI and extra nodal extension are factors that associated with ALN metastasis in patient with early breast cancer.

EXTENDED TOTALLY EXTRAPERITONEAL - TRANSVERSUS ABDOMINIS RELEASE (ETEP-TAR) FOR LARGE VENTRAL HERNIA REPAIR

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The interesting case that was presented in the video is a 72-year-old female known case IHD stone who underwent surgery two years ago then developed reducible mass at the surgical wound for 3 months. Physical examination showed the mirror L wound with the two bulging masses while standing. CT scan showed abdominal wall herniation size 6.4 cm at the mid anterior abdominal wall and the second one size 8.5 cm at the right lateral abdominal wall.

This case has large and multiple ventral hernias, so TAR has shown to be very useful in complex location as a subcostal in this scenario.

At the beginning of the case, the patient was positioned supine with split legs and supported the right back. The surgeon and cameraman stood on the patient's left side with the first assistant on the right. Then each trocar was inserted clockwise consequently. About the steps approach, first is dissection in retrorectus space toward the costal margin cephalad and to the space of Retzius caudally then cross over to the contralateral retrorectus space. Next, release the TA muscle just medially to the neurovascular bundle (TAR). Later sharp dissection of the hernia sac and then approximate the defect of posterior and anterior layers. After that, place the mesh sized extending at least 5 cm beyond the edge of the defect. Lastly, place the drainage above the mesh.

In the postoperative 3 months follow-up, the patient had a good function of the abdominal wall.

LAPAROSCOPIC DIVERTICULECTOMY WITH MYOTOMY AND DOR FUNDOPLICATION

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A 62-year-old woman presented with dysphagia, chest pain, and regurgitation for 1 year. The upper GI endoscopy and upper GI study found a 3 cm diverticulum on the right-side wall of the distal esophagus. The CT scan revealed a diverticulum 3.7 cm in diameter. The high-resolution manometry result showed the patient had distal esophageal spasm. The patient was diagnosed as having an epiphrenic esophageal diverticulum accompanied by an underlying distal esophageal spasm. Laparoscopic transhiatal diverticulectomy with myotomy and Dor fundoplication was performed.

The patient was placed in the reverse Trendelenburg position and the surgeon stand on the right side. First of all, mobilized the fundus and exposed to the left crus.

The gastrohepatic ligament was taken down, the right crus were exposed. The vagus nerve was identified and preserved. Place a cord tape around the esophagus for retraction. The esophageal diverticulum was found on the right-side wall located 4 cm above the EGJ. The intraoperative endoscopy was used to assess the level of the diverticulum and clear the contents. The diverticulectomy was performed using the Endo-GIA stapler. The resected diverticulum was removed through the 12-mm trocar. The myotomy was performed at anterior side upward to the neck of diverticulum and extend distally 2 cm at the stomach side. Finally, the anterior Dor fundoplication was performed. The patient's postoperative course was uneventful. The Upper GI study at post-operative day 2 showed no contrast leakage and she was discharged from the hospital 4 days after surgery. The pathologic diagnosis was diverticulum and no evidence of malignancy. At 3 months after surgery, her symptoms had improved. The high-resolution manometry result was improved and the upper GI study showed no evidence of residual epiphrenic diverticulum.

In conclusions, the epiphrenic diverticulum is associated with esophageal motility disorder so the manometry is recommended. The surgical treatment is diverticulectomy with myotomy. Dor fundoplication is the preferable anti-reflux procedure. The laparoscopic approach is safe and feasible.

LONG-TERM SURVIVAL OF REPEAT METASTATIC RESECTION IN RECURRENCE COLORECTAL METASTASES

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Background: Repeat metastatic resection in colorectal cancer is doubtful about benefits, especially in multiple repeat metastasectomy. Some patients had potential resectability even in second, third, fourth, or fifth repeat metastatic resection. The long-term outcome and risk factors that affected long-term survival were also questionable.

Objective: This study aimed to evaluate the benefit of repeat metastatic resection in colorectal metastases cancer regarding long-term survival.

Materials and Methods: We collected data of metastases colorectal cancer patients in Srinakarin Hospital from 1 January 2006 to 1 January 2017. Then we selected only patients who underwent the second metastasectomy to access the data. We analyzed the survival rate and the factors that affected survival. The survival of third, fourth, and fifth repeat metastasectomy was also assessed.

Results: The first colorectal metastasectomy was liver in 169 patients. There are only 16 patients were suitable for underwent the second metastasectomy. The second metastasectomy were liver (n=11), liver with portal vein (n=1) liver with lung (n=1), IMA lymph node (n=1), liver with spleen (n=1), liver with diaphragm (n=1). There are four patients underwent the third metastasectomy. Three patients underwent fourth metastasectomy. Only one patient survived for the fifth metastasectomy. The overall survival after the second metastasectomy was shown as medial survival time 5.01 years (95% CI 3.95-6.07). Survival probability after underwent the second metastasectomy in the first year was 93.75% (95% CI 63.23-99.10). At five years, the survival probability after the second metastasectomy was 57.44% (95% CI 22.32-81.46).

Conclusion: The second metastasectomy tends to have the benefit and good long-term survival outcome. These could be an option for the treatment of multiple recurrences of colorectal cancer in selected patients.

OUTCOME OF NON-OPERATIVE MANAGEMENT OF SPLENIC INJURY

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Background: The spleen is one of the most commonly injured organs following abdominal trauma. A widespread shift to non-operative management (NOM) for splenic injuries has been observed in most centers worldwide. Thus, the purpose of this study is to report our experience in treating patient with splenic injuries with NOM at a King Chulalongkorn Memorial Hospital.

Objective: The aim of this study is to describe the demographics, mechanisms of injury, management and outcomes in patients who suffered splenic trauma in King Chulalongkorn Memorial Hospital.

Materials and Methods: A retrospective study

included all splenic injury patients admitted to King Chulalongkorn Memorial Hospital between January 2009 and January 2019.

Results: A total of 106 patients were included, with a median age of 31.5 years. Of these, 91 patients (85.8%) had blunt injuries. Fifty-seven (59.8%) had high-grade injuries. A total of 43 (40.6%) patients were managed with observation, 1 (2.3%) patient had radiological intervention, 4 (3.7%) patients were managed with splenic salvage operation and 59 (55.7%) patients had splenectomy. Patients who died were significantly more likely to be multiple organ injuries.

Conclusion: Splenic injuries have shown a steady increase in the last decade. Splenectomy rates have decreased in favor of non-operative techniques. Radiological intervention with splenic artery embolization was successful in all selected patients with high-grade injuries.

Keywords: Non-operative management, Spleen, Trauma

ROBOTIC ASSISTED VATS ENUCLEATION VAGUS NERVE SCHWANNOMA

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Schwannoma is a rare form of tumor originating from nerve sheath fiber. Mediastinal vagus schwannoma is extremely rare. These tumors are usually asymptomatic, however, some patients have dysphagia and chest pain. The treatment of choice is resection. Thoracotomy has been traditional approach with significant morbidity. VATS seem to provide more advantages than open technique. However, VATS have limitation such as its rigidity and limited vision. Robotic approach offers less invasiveness with precise dissection.

Our 55-year-old patient presented with dysphagia. CT scan shown well-defined enhancing mass 3.2 x 1.8 x 3.4 cm. abutting right thoracic esophagus. EUS&FNA was performed and shown spindle cell neoplasm with neural differentiation. Provisional diagnosis was subepithelial lesion of esophagus. We set OR for Robotic assisted VATS enucleation. Da Vinci surgical system Xi was used. Intraoperative finding revealed the mass originated from vagus nerve. The tumor was removed carefully without esophageal violation. In postoperative period the patient dramatically recovered and tolerated soft diet well and discharged on post op day 3. The final pathological diagnosis was benign peripheral nerve sheath tumor without malignant transformation.

This VDO promotes the advantage of robotic approach. The lesion located in the mediastinum adjacent to esophagus. The operative field was restricted by the confine of chest wall and surrounded organ which limited mobilization. Robotics approach overcome these limitations from its flexibility and intuitive movement. It affords more range of motion and easier manipulation compares with traditional VATS.

The Robotic assisted surgery could optimize surgical outcome of intrathoracic lesion including patient's safety and completeness of surgery.

Keywords: Schwannoma, Vagus, Robotic

THE PREVALENCE OF INCIDENTAL THYROID CARCINOMA IN PATIENT WHO UNDERWENT THYROIDECTOMY FOR BENIGN THYROID DISEASE IN SURATTHANI HOSPITAL

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Background: Incidental thyroid cancer is a term applied to unsuspected cancer identified incidentally on pathologic examination of thyroid tissue removed for benign disease and it is quite high as been reported.

Objective: This study aims to evaluate the prevalence of incidental thyroid carcinoma (ITC) after thyroidectomy for benign thyroid disease and determine the clinical, imaging finding and pathological factors that correlated to the thyroid carcinoma.

Materials and Methods: Patients who underwent thyroid surgery for benign thyroid diseases from 4 January 2015 to 6 June 2016 were retrospective reviewed. Patients with preoperative cytology showed follicular lesion were excluded. Demographic data was recorded and factors that correlated to thyroid carcinoma were analyzed. Binary logistic regression was used, yielding odds ratios (OR) with 95% confidence intervals (CI).

Results: In our study, 211 patients underwent thyroidectomy and the incidence of incidental thyroid carcinoma was found in 23 (11.5%) patients.

Almost all of the factor's studies were related to thyroid carcinoma in univariate analysis. All factors identified with univariate analyses were entered into a multivariate logistic regression model and we founded that ultrasonography finding remained as independent factors of thyroid carcinoma.

Conclusion: Incidental thyroid carcinoma is always present, therefore an accurate diagnosis is important. A careful selection of nodules for FNA cytology on the basis of ultrasonography finding, could better select the choice of operation.

Keywords: Incidental thyroid carcinoma

Resident Paper Award

5-YEAR OUTCOME FOR ENDOLEAK TYPE 2 AFTER ENDOVASCULAR TREATMENT IN ABDOMINAL AORTIC ANEURYSM IN SONGKLANAGARIND HOSPITAL

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Background: Elective abdominal aortic aneurysm (AAA) repair is recommended for aneurysms greater than 5.5 cm, symptomatic, or rapidly expanding more than 0.5 cm in 6 months. 75% of AAAs are treated with endovascular treatment (EVAR) rather than open repair. Type II is the most common type of endoleaks and can potentially enlarge and pressurize the aneurysm sac with a risk of rupture. However, type II endoleaks spontaneously resolve or never lead to sac enlargement.

Objective: To study the incidence rate of endoleak type 2 in patients with abdominal aortic aneurysm treated with endovascular procedures. The results in Songklanagarind Hospital last 5 years.

Materials and Methods: Retrospective studies in patients receiving abdominal aortic aneurysm treatment using elective endovascular repair, from January 2012 - December 2016 and have followed up for 2 years to evaluate the incidence of endoleak type II and physical factors that are related to the occurrence of leaks.

Results: In 2012-2016, there was a collection of data of patients diagnosed with aneurysm that had elective surgery. A total of 250 patients underwent surgery, with an average age was 76 (70,80) years, representing 194 males (77.6%). The average size of aneurysms is 6 centimeters and the incidence of endoleak type II was 73 people (29%). In related factors, Dyslipidemia is likely to cause a significant endoleak type II ($P < 0.001$). At the same time, it is found that in the first year after surgery, there is a chance of endoleak type II.

Conclusion: In Songklanagarind Hospital, there was an endoleak type II 29% and found that the risk of dyslipidemia is related to the endoleak type II.

AORTIC ROOT REPLACEMENT IN PATIENTS WITH MARFAN SYNDROME: A COMPARISON OF COMPOSITE VALVE GRAFT REPLACEMENT VERSUS VALVE-SPARING AORTIC ROOT REPLACEMENT

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Background: Aortic root replacement improves survival in patients with Marfan syndrome (MFS) with aortic root disease. Composite valve graft replacement (CVG) and valve-sparing aortic root replacement (VSRR) both show favorable mid and long-term outcomes.

Objectives: The purpose of this study was to evaluate the early and late clinical outcomes after CVG and VSRR in patients with Marfan syndrome.

Materials and Methods: Marfan syndrome patients who had the CVG or VSRR at King Chulalongkorn Memorial Hospital between August 1999 and August 2019 were identified**.** Follow-up information was obtained from hospital charts and telephone contact. Kaplan-Meier survival analyses were performed. The mean follow-up time was 7 years.

Results: Thirty-seven adult (age > 15 years) patients with Marfan syndrome had either CVG (n=24) or VSRR (n=13) procedures. CVG patients had more aortic root dissection (62.5% vs 23.1%, $p = 0.022$), shorter aortic cross-clamp time (120 vs 175 minutes, $p = 0.007$) and shorter cardiopulmonary bypass time (161 vs 216 minutes, $p = 0.042$). In-hospital mortality was 4.2% (n=1) in patients undergoing CVG and 0% in patients undergoing VSRR ($p = 1.0$). Ten-year survival was 75.0% in patients undergoing CVG and 92.3% in patients undergoing VSRR ($P = 0.06$). Freedom from reoperation on aortic valve or root was higher in patients undergoing CVG compared to VSRR (100% vs 61.5%, $p = 0.004$). There was no case of endocarditis detected during follow-up. There was no significant difference in long-term survival and freedom from thromboembolic or hemorrhagic complication between the 2 procedures.

Conclusions: After aortic root replacement in patients with Marfan syndrome, patients undergoing CVG had worse survival outcome compared to VSRR but not statistically significant. Lower late survival among CVG patients probably reflects the preferential use of the CVG procedure for higher risk patients. CVG have similar freedom from thromboembolic or hemorrhagic complication but higher freedom from reoperation on aortic valve or root compared to VSRR.

Keywords: Aortic root replacement, Marfan syndrome, Composite valve graft replacement, Valve-sparing aortic root replacement, Survival outcome

COMPARISON OF ICED LIDOCAINE AND SPRAYING LIDOCAINE IN PATIENTS UNDERGOING ESOPHAGOGASTRODUODENOSCOPY (EGD): A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL

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Background: Esophagogastroduodenoscopy (EGD) is a common diagnostic intervention which is performed under topical anaesthesia, while spraying lidocaine is a conventional technique which is widely used before endoscopic procedures. We found that most of the patients had unpleasant symptoms and were annoyed by the conventional technique. Recent data suggest that pre-cooling the injection site prior to local anaesthetic injection can reduce the pain and discomfort in dental surgery. The iced lidocaine may improve patient satisfaction during endoscopy and enhance the quality of the procedure.

Objective: This study aimed to compare the effectiveness and patients' tolerance using the iced lidocaine and spraying for patients undergoing unsedated EGD.

Materials and Methods: We enrolled a total of 80 patients who were indicated for EGD. Patients were randomized to either iced lidocaine or conventional spraying lidocaine and underwent EGD by one endoscopist. After the endoscopic procedure, the endoscopist and patients would fill in a questionnaire rating the gag reflex and satisfaction respectively.

Results: Patients were equally randomized between the spraying lidocaine and iced lidocaine groups. The iced lidocaine group showed significantly less gag reflex, greater ease for esophageal instrumentation and also recorded improved patient and endoscopist satisfaction ($P < 0.05$). However, both groups were equal in quality of EGD, time of EGD and completion of the procedure without requiring sedation.

Conclusion: Both iced lidocaine and spraying lidocaine are safe, effective options for upper gastrointestinal endoscopy. We support the claim that iced lidocaine could be valuable for local oropharyngeal anaesthesia for EGD.

DETECTION OF DELAYED PANCREATIC FISTULA BY DRAIN AMYLASE LEVEL AFTER PANCREATICODUODENECTOMY

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Background: Pancreaticoduodenectomy is a complex, high risk surgical procedure performed for periampullary cancer and other periampullary disease. The duration of postoperative intraabdominal drain insertion still remains controversial. Some studies suggest to remove the drain on the postoperative day (POD) 3 if the

patient has no postoperative pancreatic fistula (POPF). However, some patients occur POPF after POD 3 that we define as delayed POPF.

Objectives: Primary outcome is to determine the incidence of delayed POPF in post-pancreaticoduodenectomy patients. Secondary outcome is to identify the risk factors related to delayed POPF and the postoperative complications.

Materials and Methods: All adult patients (n =60) who underwent pyloric-resecting pancreaticoduodenectomy (PRPD) in Songklanagarind Hospital by single hepatobiliary and pancreatic surgery team between 1st Aug 2017 and 31th May 2020 were enrolled in this study. The drain amylase was collected on POD 1, 3, 5 and 7. We stratified the patients into 3 groups: early POPF, delayed POPF and none of POPF. The postoperative complications in the 3 groups were compared.

Results: The overall incidence of clinically relevant POPF (CR-POPF) is 6.67%. The incidence of early POPF and delayed POPF are 21.67% (grade A 76.92%, grade B 23.08%) and 11.67% (grade A 85.71%, grade B 14.29%), respectively. There is no significant difference in risk factors associated with delayed POPF and postoperative complications among the three groups of patients.

Conclusion: The incidence of delayed POPF is high, and the extended duration of the intraabdominal drain to POD 7 is valuable in terms of early diagnosis of delayed POPF. It may attribute to decreasing the incidence of clinical-related POPF. Further study is needed to identify the risk factors associated with delayed POPF.

Keywords: Postoperative pancreatic fistula, Delayed pancreatic fistula, POPF, Drain amylase**,** Pancreaticoduodenectomy

EFFECTIVENESS OF THE TREATMENT OF INTERNAL HEMORRHOID GRADE 2-3 WITH RUBBER BAND LIGATION AND SCLEROTHERAPY COMPARE WITH RUBBER BAND LIGATION ALONE

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Background: The internal hemorrhoid is one of the common problems and some are able to treated with office-based procedure. High effectiveness procedure can decrease the rate of surgical treatment.

Objective: This study aimed to assess the effectiveness of the office-based procedure in internal hemorrhoid grade 2-3 treatment, compare the recurrence rate between rubber band ligation (RBL) alone and RBL combined with sclerosing therapy.

Materials and Methods: All patients diagnosed with internal hemorrhoid grade 2-3 at Surgical Clinic of Songklanagarind Hospital and had the hemorrhoid treatment; RBL alone or RBL combine with sclerosing injection, between 1st August 2012 and 31st July 2017. Recurrence rate was determined and compared between both groups.

Results: This study included 300 patients with an average age of 57.5 years. RBL combined with sclerosing injection was the most common procedure performed (n = 192, 64%) followed by RBL alone (n = 108, 36%). There were 180 patients (60%) with internal hemorrhoid grade 2 and 120 patients (40%) with internal hemorrhoid grade 3. The RBL combined with sclerosing injection group had lower 3 months and 12 months-recurrence rates compared with RBL alone group (For 3 months; 18 (9.7%) vs. 33 (30.6%), $p < 0.001$ and for 12 months; 42 (21.9%) vs. 45 (41.7%), $p < 0.001$). In internal hemorrhoid grade 2, patients in RBL combined with a sclerosing injection group had significantly lower 3 months-recurrence rate compared with RBL alone (6.2% vs. 20.6%, $p = 0.008$). For the patient with internal hemorrhoid grade 3 that received RBL combined with the sclerosing injection had significantly lower 3 and 12 months-recurrence rate compared with RBL alone (13.8% vs. 47.5%, $p < 0.001$ and 27.5% vs. 65%, $p < 0.001$ respectively).

Conclusion: RBL combined with sclerosing injection had more effectiveness for internal hemorrhoid grade 2 and 3 compared with RBL alone and had a low recurrence rate at 3 and 12 months.

Keywords: Internal hemorrhoid, Hemorrhoid, Rubber band ligation, Sclerotherapy, Office-based procedure

FAST ACCURACY IN MAJOR PELVIC FRACTURES FOR DECISION-MAKING OF ABDOMINAL EXPLORATION: SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Major pelvic fractures are often associated with intra-abdominal organ injuries. Considering patients' hemodynamic status, Focused Assessment with Sonography for Trauma (FAST) can facilitate decision-making for abdominal exploration. Non-therapeutic exploratory laparotomy from pelvic fractures should be avoided. Aim of this study is to determine the accuracy of FAST in diagnosing significant intraabdominal hemorrhage that leads to determine whether or not to pursue therapeutic abdominal exploration in patients with major pelvic fractures.

Materials and Methods: We systematically reviewed the PubMed and SCOPUS databases from 2009 to 2019 and also using a retrospective review of patients admitted to the Acute Care Surgery service at Ramathibodi Hospital from 2016 to 2019. We performed a meta-analysis by using a random effects model.

Results: A total 677 patients were analyzed. Mean patient age was 40.8 years. Leading mechanism of injury were motor vehicle collision (44.72%), fall from height (13.41%), and motorcycle collision (13.69%). Average injury severity score (ISS) was 32.5 (range: 24.1–50), and overall mortality rate was 11.65%. The pooled sensitivity, specificity, and accuracy of FAST to identify significant intra-abdominal hemorrhage was 79%, 90%, and 93%, respectively (95% confidence interval: 89%–94%). Meta-regression revealed no significant correlation between injury severity score and the accuracy of FAST.

Conclusion: Our meta-analysis revealed that FAST in major pelvic fracture accurately detected significant intra-abdominal hemorrhage. Using FAST in the presence of unstable hemodynamics, we can decide to perform abdominal exploration with the expectation of finding significant intra-abdominal hemorrhage require surgically control.

Keywords: Abdominal injury, Trauma, Major pelvic fracture, Unstable pelvic fracture, FAST

LONG TERM COURSE AFTER PEDIATRIC RIGHT VENTRICULAR OUTFLOW TRACT RECONSTRUCTION

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Background: Valved homografts have been the most commonly used valved conduit for RVOT reconstruction. However, they lack durability. Early results with homografts have been good.

Objectives: This study was designed to compare single center results of 143 RVOT conduit implantations for determining patient survival, graft failure rate, reoperation rate, and risk factors associated with reoperation.

Materials and Methods: All pediatric patients who underwent RVOT conduit implantations between January 2006 and December 2018 were reviewed. We stratified conduits by aortic, pulmonic homograft and Contegra and analyzed the role of patient sex, age, diagnosis, graft size. End points included freedom from graft failure, freedom from reoperation, and patient survival.

Results: 74 aortic homografts, 61 pulmonic homografts and 8 Contegra conduits were implanted for RVOT reconstruction. Median age at implantation was 3 years. The primary diagnosis was truncus arteriosus (41.3%). Survival rate was 83.2% at 10 years. Freedom from graft failure at 2,5,10 years was 100%, 97.9%, and 63.4%. Freedom from reoperation at 10 years was 85.8% for pulmonic homograft, 74.9% for aortic homograft and no reoperation for Contegra group during 6 years of follow up. Multivariable analysis identified only conduit diameter < 18 mm as risk factor for reoperation [HR 3.16 (1.38-7.23), $P = 0.007$]. Younger age, sex, conduit type or diagnoses were not risk factors.

Conclusion: Homograft valve used for RVOT reconstruction provided excellent long-term durability

and late survival. The factor that adversely affected graft longevity was smaller graft size (diameter < 18 mm). Reoperation for conduit failure was not significantly different between the groups.

Keywords: Right ventricular outflow tract, Homograft, Conduit failure, Contegra

PREDICTION OF SEROMA AFTER TOTAL MASTECTOMY USING AN ARTIFICIAL NEURAL NETWORK ALGORITHM

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Background: Seroma is a common complication after mastectomy. To the best of our knowledge, however, none of the prediction models has been developed.

Objective: To develop a seroma prediction model using a machine learning algorithm.

Materials and Methods: Medical records of total mastectomy patients were retrospectively reviewed. Data consisting of 120 subjects were divided into a training-validation data set (96 subjects) and a testing data set (24 subjects). Data were learned by a 9-layer artificial neural network (ANN), and the model was validated using 10-fold cross-validation. The model performance was assessed by the confusion matrix in the validating data set. The receiver operating characteristic curve was constructed, and the area under the curve (AUC) was also calculated.

Results: Pathology type, presence of hypertension, presence of diabetes, receiving of neoadjuvant chemotherapy, body mass index, and axillary lymph node (LN) management (i.e., sentinel LN biopsy and axillary LN dissection) were selected as a predictive factor in a model developed from neural network algorithm. The model yielded AUC of 0.760, corresponding with a level of acceptable discrimination. Sensitivity, specificity, accuracy, and positive and negative predictive values were 100%, 52.9%, 66.7%, 46.7%, and 100%, respectively.

Conclusions: Our model, which developed from the ANN algorithm can predict seroma after total mastectomy. Our model is suitable for screening because of its high sensitivity. Nevertheless, external validation is needed to confirm the performance of this model.

Keywords: Seroma, Mastectomy, Breast cancer, Artificial neural network

PREDICTIVE FACTORS OF THREE OR MORE POSITIVE AXILLARY LYMPH NODES IN PATIENTS DIAGNOSED WITH EARLY BREAST CANCER IN SONGKLANAGARIND HOSPITAL

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Background: Sentinel lymph node biopsy (SLNB) is a standard axillary staging in clinically node negative early breast cancer. Intraoperative frozen section of SLNs can help avoiding the second operation for completion axillary lymph node dissection (ALND) in case of ≥ 3 nodes involvement, according to ACOSOG Z-0011 trial. However, this process takes more times, needs pathologists and increases cost. This study was decided to investigate if clinicopathological factors can predict high-risk patients of having ≥ 3 positive ALNs, thus intraoperative frozen section would be required in this group and avoided in low-risk patients.

Objective: To identify predictive factors of ≥ 3 ALN involvement in early breast cancer.

Materials and Methods: The data were retrospectively collected from 758 early breast cancer patients (cT1-2, N0, M0) who underwent breast and axillary surgery between January 2008 and December 2018 in Songklanagarind Hospital. Patient age, clinical tumor size, operative procedures and tumor characteristics were collected and analyzed.

Results: Of 758 patients, 57 (7.5%) had ³ 3 positive ALNs. Mean age at diagnosis was 53.2 years (16-93). Mean tumor size was 2.0 cm (0.1-5.0). Univariate analysis showed that pathological tumor size (OR 1.85, 95% CI 1.07-3.18 $p = 0.03$) and presence of lymphovascular invasion (LVI) (OR 4.93, 95% CI 2.83-8.58, $p < 0.001$) were predictive factors of ³ 3 ALN involvement. For multivariate analysis, only presence of LVI (OR 4.98, 95% CI 2.73-9.08, $p < 0.001$) was a strong predictive factor of ³ 3 ALN involvement.

Conclusion: Only a small number of patients will have ≥ 3 ALN involvement in early breast cancer. SLNB could be performed without intraoperative frozen section. Patients with a presence of LVI in the primary tumor on core needle biopsy should be considered the intraoperative SLN frozen section.

Keywords: Early breast cancer, Intraoperative frozen section, Sentinel lymph node biopsy, Axillary lymph node involvement

SENTINEL LYMPH NODES BIOPSY AFTER NEOADJUVANT TREATMENT OF BREAST CANCER USING RADIOISOTROPE VS ISOSULFAN BLUE VS INDOCYANIN GREEN FLUORESCENCE: PROSPECTIVE COHORT STUDY

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Background: Dual technique sentinel lymph node biopsy is the standard in post neoadjuvant treatment. However, many hospitals are not equipped to use radioisotopes. Here we investigate the detection rate and accuracy of sentinel lymph node biopsy in post neoadjuvant treatment breast cancer, comparing radioisotope, isosulfan blue, and indocyanine green (ICG) approaches.

Objective: We investigate the detection rate and accuracy of sentinel lymph node biopsy in post neoadjuvant treatment breast cancer, comparing radioisotope, isosulfan blue, and indocyanine green (ICG) approaches.

Materials and Methods: This prospective study includes breast cancer patients (T2–4, N1–2) after neoadjuvant treatment. Patients who allergy to ICG, isosulfan blue or radioisotope were excluded from the study.

Results: Between 1 July 2019 to 31 March 2020. The mean age of participants was 53 years. The clinical-stage was: 2A (8.7%), 2B (34.78%), 3A (43.48%), and 3B (13.04%). The detection rates at the individual level were 95.23% with ICG, 85.71% with isosulfan blue, and 85.71% with a radioisotope. The detection rate increased up to 100% when combine ICG and blue dye. The FNRs of sentinel lymph node biopsy at the individual level were: 10% using ICG, 30% using isosulfan blue, and 40% using radioisotope. At the lymph node level, the detection rates were 93.22%, 81.78% and 53.87% respectively. The FNRs of sentinel lymph node biopsy at the lymph node level were 19.05%, 21.43%, and 18.03% respectively. However, the FNR was less than 10% when ICG, isosulfan blue, and a radioisotope were combined.

Conclusion: We can perform sentinel lymph node biopsy by combining blue dye with ICG as an optional modality and achieve a comparable outcome with combine radioisotope in locally advanced breast cancer after neoadjuvant treatment.

SUCCESS RATE OF LIMB-SALVAGE SURGERY AFTER ARTERIAL INJURY OF LOWER EXTREMITIES IN PRINCE OF SONGKLA UNIVERSITY

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Background: Lower extremities arterial injury lead to high morbidity. The number of patients with lower vascular injury is still high especially in southern of Thailand. We have fewer reports about these and limb-salvage surgery is not suitable for all patients.

Objective: This study aims to clarify the success rate of limb salvage surgery in patients with lower extremities arterial injury, associated factors and outcomes.

Materials and Methods: This retrospective study of lower extremities arterial injury patients that received treatment in Prince of Songkla University from 2013-2017. Patients were classified into limb salvageable group and amputation group. Demographics, comorbidities, injury, operative data and complications were collected. Comparisons of limb salvageable and associated factors were analyzed using the Pearson chi-square or Fisher's exact test. Logistic regression analysis was performed to evaluate factors that may be associated with amputation.

Results: 93 patients, 59 (63%) patients were successful in limb salvage surgery. The common site of injury was popliteal artery (49%) and Superficial femoral artery (16%) respectively. We found significant associated factors to limb salvageable such as blunt mechanism

(limb salvageable group, 50.8%; amputation group, 76.47% $P = 0.01$), multiple injuries (limb salvageable group, 15.25%; amputation group, 35.29% $P = 0.04$), complex fractures (limb salvageable group, 39.13%; amputation group, 15.63% $P = 0.02$) and smoking (limb salvageable group, 39.13%; amputation group, 15.3% $P = 0.04$). After multivariate analysis, blunt mechanism injury is only the predictive factor for amputation (OR, 5.2; 95% CI 1.40-19.06; $P = 0.01$). The common complications were surgical site infection (limb salvageable group, 20.34%; amputation group, 35.29% $P = 0.142$) and fail to perform skin closure of fasciotomy wound (limb salvageable group, 39.13%; amputation group, 15.63% $P = 0.02$).

Conclusion: Most patients with lower extremities vascular injury were successful in limb salvage surgery. However, our study found a higher amputation rate compared with previous studies. Limb salvageable was associated with blunt mechanism, multiple injuries, smoking and complex fractures.

Keywords: Limb salvage surgery, Lower extremities arterial injury, Amputation

SURVIVAL OUTCOME IN CRITICALLY ILL PATIENT RECEIVING EXTRACORPOREAL MEMBRANE OXYGENATION SUPPORT: EARLY EXPERIENCE FROM A UNIVERSITY HOSPITAL IN THAILAND

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Objective: Extracorporeal membrane oxygenation (ECMO) is a relatively new technology used for life support in patients with cardiopulmonary failure from various causes. Objective of this study is to review the first 5-year experience in adopting this technology to an intensive care unit of a teaching hospital in southern Thailand.

Materials and Methods: Data of ECMO-supported patients in Songklanagarind Hospital, from the years 2014-2018, were retrospectively reviewed. Data sources were from electronic medical record and database of the perfusion service. Parameters in-focus included prior conditions and indications of ECMO, type of ECMO and cannulation method, complications during and after the treatment and discharge statuses.

Results: A total of 83 patients received ECMO life support during the 5-year period. and the number of cases per year was increasing. The proportion of VV:VA ECMO in our institute was 49:34 cases and there were 3 cases who used ECMO as a part of cardiopulmonary resuscitation. There were 57 cases who used ECMO for cardiac failure when 26 cases were for respiratory causes. Premature withdrawal was decided in 26 cases (31.3%). Overall survival from ECMO was 35/83 cases (42.2%) and survival to discharge was 32/83 (38.6%). During therapy, ECMO could restore serum pH to normal range in all cases. Those who used ECMO for respiratory failure had significantly higher survival probability (57.7%) when compared to the cardiac counterpart (29.8%, *p*-value 0.03). Patients with younger age had significantly better survival outcome. Most common complications were cardiac (75 cases, 85.5%), followed by renal (45 cases, 54.2%) and hematologic system (38 cases, 45.8%). In those who survive to discharge, average ECMO duration was 9.7 days.

Conclusion: Extracorporeal life support is a technology that bridge the patients with cardiopulmonary failure to their recovery or definitive surgery. Despite of high complication rate, survival can be expected, especially in respiratory failure cases and relatively young patients.

Keywords: Extracorporeal membrane oxygenator, Life-support

THE ASSOCIATION OF SOUTHERN THAILAND METEOROLOGICAL CONDITIONS WITH ACUTE AORTIC EVENT IN SONGKLANAGARIND HOSPITAL

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Background: Recent studies have reported a significant correlation between meteorological condition and acute aortic events. The studies reveal that the seasonal variation and meteorological parameters impact acute aortic event with the highest occurrence in winter and at low atmospheric pressure. The aim of this study was investigated correlation between meteorological

condition and acute aortic event in the Southern region of Thailand which lie in the tropical zone of the world.

Materials and Methods: Descriptive and retrospective study. The patients with acute aortic events are retrieved 233 patients from Songklanagarind Hospital database between January 1st, 2012 and December 31st, 2016. Daily meteorological conditions of southern Thailand throughout in 5 years were retrieved and merged with patient database in a time-series dataset. The correlation between the incidence of acute aortic events and meteorological condition was analyzed using cross-correlation and Poisson modeling. East and west coast were analyzed separately.

Results:233 acute aortic events were identified, 130 patients with ruptured aortic aneurysm and 103 patients with acute aortic dissection. Acute aortic events steadily increased over the period 2012 -2016. Cross correlation study revealed no association between acute aortic events and meteorological condition on the west coast, but a significance cross correlation with maximum wind speed on the east coast. The highest correlation was seen at Lag day 6 [Lag day 6; Coef 0.084, *p*-value 0.018, (95% CI .016, 0.154)]. Poisson regression using standardized value of maximum wind speed suggest that an increase daily maximum wind speed from lowest to highest was association with increased incidence rate of acute aortic event 1.18 times [stdwindmax Lag day 6; IRR 1.186, *p*-value 0.018, (95% CI 1.03-1.37)].

Conclusion: The meteorological condition of southern east coast, namely maximum wind speed and 6 days before the day of event is associated with an increased incidence rate of acute aortic events.

Keywords: Meteorological condition, Acute aortic dissection, Ruptured aortic aneurysm, Thailand, Songklanagarind Hospital

THE EFFECT OF CILOSTAZOL IN REDUCING PERIVENOUS-ANASTOMOSIS NARROWING OF UPPER EXTREMITY ARTERIOVENOUS GRAFT FOR HEMODIALYSIS – RANDOMIZED CONTROLLED TRIAL

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Objective: Venous anastomosis stenosis is the most common cause of poor arteriovenous graft (AVG) flow leading to AVG thrombosis. The major cause of venous anastomosis stenosis is neointimal hyperplasia. Cilostazol, Phosphodiesterase III inhibitor, have been proved in reducing neointimal hyperplasia and prevent restenosis after coronary angioplasty and peripheral arterial revascularization. This study is designed for proving the effect of Cilostazol in reducing the stenosis in AVG for hemodialysis patients.

Materials and Methods: The triple-blinded randomized controlled trials were conducted in Ramathibodi Hospital from January 2019 to January 2020. Sixty new-created upper extremity AVG were enrolled in the study and divides into Cilostazol group and Placebo group. In Cilostazol group, patients received cilostazol 100 mg per day for 1 month then continued with 200 mg per day compare with Placebo group. The primary end point was the percent change of venous outflow diameter measured by Duplex ultrasound at 4 weeks and 12 weeks. The secondary end point was primary patency, graft failure, complication and compliant.

Results: Sixty ESRD patients were allocated to Cilostazol group (N=28) and Placebo group (N=33). The Characteristic information were not different. The percent mean residual lumen at 4 weeks in Cilostazol group is 68.06 + 17.041% compare Placebo group 72.58% + 16.353 (p = 0.429) and 12 weeks in Cilostazol group are 75.161 + 18.299 % compare Placebo group 74.08 + 16.353% (p = 0.884). Significant venous outflow stenosis (using PSV ratio criteria at 12 weeks) occurred 2 cases in Cilostazol group and 4 cases in Placebo group (p = 0.99). The surgical-related complication, adverse drug reaction and compliance were no statistically significant different.

Conclusions: This study showed cilostazol could not reduce venous outflow stenosis in short terms follow-up, the longer follow-up in medium to long term outcome study are needed. However, Cilostazol is safe to use in hemodialysis patient.

Keywords: Perivenous-anastomosis, Arteriovenous graft (AVG)

THE OMENTAL LYMPH NODE MAPPING PROJECT

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Background: Omental lymph node transfer become promising in lymphedema treatment at our center. The anatomy and number of lymph nodes are still unclear from previous studies. For deeper understanding, our study aims to define anatomic location and number of lymph nodes along right gastroepiploic artery.

Materials and Methods: Thirty omentums were harvested from 30 fresh cadavers. Each specimen composes of entire greater curve of stomach and greater omentum including gastroepiploic vessel. Number, size and location of lymph nodes were recorded in two steps. First, lymph nodes founded by direct vision, described as "macroscopic lymph nodes". Then, omentum was dissected under microscope to further identify "microscopic lymph nodes". Random samples of lymph nodes were confirmed histologically. Location mapping was done along X- and Y- axes, landmarked by gastric pylorus.

Results: Lymph nodes were found in 26 out of 30 omentums (87%). Despite microscopic dissection, lymph nodes could not be identified in other 4 omentums. Macroscopic lymph nodes were directly identified in 19/26 omentums (73%). The mean size of macroscopic lymph nodes was significantly larger than microscopic lymph nodes ($p < 0.05$). However, there was significantly a greater number of microscopic lymph nodes founded ($p < 0.05$). Lymph nodes could be found scatteredly along right gastroepiploic vessel and 87.37% of lymph nodes were found within 100 mm from pylorus and 88.2% within 20mm caudally from right gastroepiploic vessel.

Conclusion: Consider from quantity and location of lymph nodes, we suggested omental flap, based on right gastroepiploic vessel, as a reliable donor to treat lymphedema.

TRANSORAL ENDOSCOPIC THYROIDECTOMY VESTIBULAR APPROACH (TOETVA) FOR BENIGN THYROID NODULE: A COMPARISON OF SURGICAL RESULTS WITH OPEN THYROIDECTOMY

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Background: Transoral endoscopic thyroidectomy vestibular approach (TOETVA) is a novel alternative technique to perform thyroidectomy which provides excellent cosmetic and surgical outcomes.

Objective: To compare the surgical results with those standard open thyroidectomies in patients with benign thyroid nodule.

Materials and Methods: Between June 2018 to January 2020 all patients' pathological diagnosis with benign thyroid nodule in CRH were reviewed retrospectively. TOETVA and Open thyroidectomy (OT) were performed in 55 cases per each group, respectively. Patient baseline characteristics and surgical results, including postoperative pain, operative time, blood loss, duration of hospital stay and complications, were investigated and compared.

Results: TOETVA and OT was performed on 110 consecutive patients. The baseline characteristics were similar in both groups. The mean postoperative VAS pain score in the first three days was comparable for both groups [4.43 (2.01) vs 3.73 (2.5), $P = 0.126$]. Mean estimate blood loss was not statistically different for both groups [20 (76.19) vs 30 (44.28) ml, $P = 0.302$]. But the median operative time was longer for the TOETVA group compared to the OT group [120 (61.55) vs 60 (33.70) mins, $P = 0.00003$]. Mean length of stay was comparable for both groups [3.7 (0.98) vs 3.43 (1.05) days, $P = 0.072$]. For the postoperative complication, 3 patients (5.45%) in TOETVA and 6 patients (10.91%) in OT has RLN injury. One patient (1.82%) had hypocalcemia in both groups. In TOETVA group, one patient (1.82%) had wound infection and one patient (1.82%) had transient mental nerve injury.

Conclusion: TOETVA is an effective and safe surgical approach for benign thyroid nodule with excellent cosmetic outcome. This technique is a reasonable alternative treatment for patients who demanded to avoid a neck scar.

The surgical outcomes and complication rates were similar to those of OT but TOETVA is associated with longer operative time.

Keywords: TOETVA, Thyroidectomy, Transoral endoscopic thyroidectomy vestibular approach

USE OF ETHANOL LOCK FOR PRIMARY PREVENTION OF CATHETER RELATED BLOOD STREAM INFECTION IN PEDIATRIC SURGICAL PATIENTS: PRELIMINARY REPORT

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Background: Catheter related blood stream infection (CRBSI) is one of the most serious complication of central venous catheterization which can lead to severe sepsis, catheter loss and death. The ethanol lock is now wildly used as a second line therapy and secondary prevention of CRBSI especially in patients with intestinal failure.

Objective: This study's objective is to evaluate the effectiveness of ethanol lock as the primary prevention of CRBSI in pediatric surgical patients.

Materials and Methods: This prospective cohort study with period time 1,000 catheter's days uses ethanol lock in all pediatric surgical patients with central venous catheter admitted from February 2020 to January 2021. The ethanol lock was done by indwelling the central venous catheter with 70% ethanol for at least 4 hours per day then the ethanol was aspirated from the catheter before routine using of the catheter. Data collection of demographics, catheter days, complication of central venous catheter and ethanol lock were collected. Statistical analysis was done using SPSS statistics calculator program.

Results: All eight patients that enrolled the study had intestinal failure which required a long term central venous catheter. Preliminary results showed no CRBSI in all patients. After using the ethanol lock for 848 catheter days the incidence rate of CRBSI was 0 per 1,000 catheter days. Our CRBSI rates have declined from 4.79 per 1,000 catheter days in 2019 to 0 per 1,000 catheter days after using ethanol lock. One patient had central line removal due to mechanical breakage of the line while returning home.

Conclusions: Ethanol lock can prevent CRBSI effectively in pediatric surgical patients.

Keywords: Ethanol lock, Catheter related blood stream infection, Central venous catheter