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BREAST SURGERY

THE ROLE OF INTERACTION BETWEEN HER2 AND VEGF IN THAI BREAST CANCER PATIENTS

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Breast cancer is the most frequent cancer of women worldwide and also in Thailand. Vascular endothelial growth factor (VEGF), the key modulator of angiogenesis has been implicated in breast cancer susceptibility and aggressiveness. Without determination of VEGF status, several clinical trials showed significant benefit of anti-VEGF therapy. Assessment of VEGF status along with hormone receptor and Human epidermal growth factor receptor 2 (HER2) status may improve outcome of adjuvant treatments.

To investigate the effect of interaction between VEGF and HER2 on breast cancer aggressiveness, VEGF expression was determined in 101 breast cancer tissues by means of reverse-transcription polymerase chain reaction and immunohistochemistry. HER2 status was determined by immunohistochemistry. Associations between clinico-pathological data, survival and VEGF, HER2, and hormone receptor status were evaluated.

High VEGF mRNA expression was significantly correlated with presence of lymphovascular invasion, locally advanced, and metastasis breast cancer. The patients were classified into four groups according to hormone receptor and HER2 status. Triple negative breast cancer was correlated with high VEGF mRNA expression. In non-luminal A group, high VEGF mRNA expression was correlated with presence of lymphovascular invasion, axillary nodal metastasis, and lower overall survival.

These findings indicated that non-luminal A patients who had higher VEGF level had more aggressive disease and determination of VEGF status in this group of patients should result in better benefit of anti-VEGF treatment.

RANDOMIZED CONTROLLED TRIAL TALC REDUCING POSTOPERATIVE DRAINAGE AFTER MASTECTOMY

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Background: Talc, the most common pleurodesis agent, has recently been shown to prevent seroma and decrease drain duration when placed subcutaneously after large subcutaneous dissection accompanying open ventral hernia repair and axillary dissection in porcine, demonstrated no talc-related local or system complication.

Purpose: Hypothesis that talc would decrease amount of seroma and drain duration, prevent seroma after mastectomy without complication.

Method: The patients with diagnosis of breast carcinomas in Ramathibodi Hospital who underwent mastectomy or/and axillary lymph node dissection were prospectively randomized to application of subcutaneous talc group and control group (TALC vs. NOTALC). Amount of seroma and duration of drain removal were recorded and analyzed by blinded physician.

Result: Amount of seroma formation in TALC group compared with non-TALC group was 252 + 136 mL to 240 + 120 mL in IPD period, and 642 + 130 mL to 735 + 135 mL in OPD period, respectively. Expected drain duration in TALC group compared with non-TALC group was 13.1 days to 13.3 days and actual drain duration was 16.4 to 16.5 days. The result showed no statistical significant of seroma volume and drain duration between TALC group and non-TALC group (*P* value> 0.78).

Conclusion: We found that total amount of seroma formation and duration of drain removal were not different in both groups.

ASSOCIATION BETWEEN BREAST CANCER STEM CELL MARKERS (CD44+/CD24-/ALDH1+) AND POOR PROGNOSTIC MARKERS IN TRIPLE NEGATIVE BREAST CANCER (TNBC) PATIENTS

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Background: Breast cancer has been reported to contain a subpopulation of CD44+/CD24-/ALDH1 tumor cell (Cancer stem cell marker) in various intrinsic molecular subtypes. In TNBC subgroup, early recurrence and systemic metastasis was associated with poor outcome of treatment. Until now, no predictive markers for predict response of systemic treatment. CD44 was the cell adhesion glycoprotein and trans-membrane receptor for the extracellular matrix and has play central role of cancer initiation,invasion and metastasis. CD24 is highly glycosylated cell adhesion molecule, originated in B-cell but is also expressed in endothelium, platelets and malignant cell. CD24 has also play central role cell invasion and metastasis. CD44+/CD24-/ALDH1+ phenotype appear to be the most common in Basal-like tumors (lack of expression ER,PR,HER2) and in BRCA1 hereditary breast cancer. We have investigated on expression of CD44+/CD24-/ALDH1+ phenotypes in TNBC patients and association between expression of this marker and poor prognostic factors of this group of patients.

Objective: First, we investigated the relation between expression of CD44+, CD24-, ALDH1+ to poor prognostic factors of TNBC patients (High Grade, LVI, Advance TNM or stage, High Ki67, High p53 mutation) and second was investigated the incidence of CD44+/Cd24-/ALDH1+ expression in TNBC patients.

Material and Methods: 140 cases triple negative breast cancer patients (ER- .PR- / HER2-0 or 1+) who were surgery at NCI Thailand during 2553-2556 were reviewed. Primary modes of surgery were lumpectomy, total mastectomy and MRM. Tissue diagnosis was confirmed to triple negative breast cancer by IHC staining. Data such as age, tumor size, lymph node status, metastatic site, staging (TNM), LVI, p53, Ki67, tumor type were recorded from pathology report. CD44/CD24/ALDH1 was tested by IHC from paraffin-embedded tissue of primary tumor. Association between CD44+/CD24-/ALDH1+ expression by IHC and poor prognostic factors from primary tumor was calculated by Peason's Correlation Method ($p < 0.05$ was statistically significant)

Results: In 140 cases of TNBC patients, expression of CD44+/CD24-/ALDH1+ phenotypes was found in 23 cases, 16.42% of all cases. CD44+/CD24- was found in 82 cases, 58.57% . Mean age of patient was 53.5 year. In most cases are Invasive ductal CA (90%), Stage II disease (62.2%), Histologic grade III (75%). No statistically significant different between CD44, CD24, ALDH1 subgroups in all pathological factors. Expression of CD44+/CD24-/ALDH1+ phenotype was associated only with high Ki67 value (p = 0.026) but not other poor prognostic factors (Advanced Staging, Age , Lymph node status, Grading, p53, High Ki). All Pearson's correlation was *p* value > 0.05. But in subgroup of CD44-/CD24- and CD44-/CD24-/ALDH1- was associated with age of the patients (p = 0.042,0.043 respectively).

Conclusion: Expression of CD44+/CD24-/ALDH1+ markers in TNBC patients was associated with High Ki-67, but not associated with age, high grade, LVI, staging, lymph node status, p53 of the patients. CD44-/CD24- and CD24-/Cd24-/ALDH1- subgroups were associated with age of the patients. These phenotypic markers need further study whether they are predictive makes for systemic treatment of TNBC patients.

CARDIOTHORACIC SURGERY

SPR CONNECTOR: A SINGLE TUBE ICD CONNECTOR

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Background: Intercostal drainage is a common procedure in surgical practice, especially in trauma. In pneumo-hemothorax, if a single bottle system is used, the blood drained from pleural cavity will raise up the water level and results in difficult subsequent drainage. If a double bottle system is applied, there may be a reflux phenomenon, that when the patient takes a deep breath, the high negative

pressure will suck the water from the water sealed bottle into the reservoir bottle and cause open pneumothorax. Furthermore, the size of the tube of conventional connector is so small and usually causes a bottle neck phenomenon when connected to the chest tube, renders a difficult and inadequate drainage. From the problem of these two systems, an SPR connector is designed and invented.

Objective: To present an ICD connector which can solve the problems of both single and double bottle systems.

Materials and Method: The concept of SPR connector was to make a level-adjustable draining tube with larger diameter. When the water level increases, the tube is adjusted up to keep a constant 2 cm underwater. With this technique, it can remove an unnecessary reservoir bottle.

The SPR connector was composed of two parts, the SPRcap and a large draining tube. The cap was designed as a screwcap with a cylindrical tube in the center. The cylindrical tube was used as the passage of draining tube. It had four small sideholes, connecting its lumen to the outside air. There was a screwlock above the sideholes, used to fix the draining tube. The draining tube was a large long tube with a marker of 2 cm from the end.

To compose the apparatus, the draining tube is inserted into the cylindrical tube of the SPRcap and connected to the bottle. The lower tip of draining tube is placed at 2 cm below the water level and locked. There will be a space between the lumen of cylindrical tube and the draining tube. This space is used as an exit of air (from the pleural cavity), through the sideholes and out of the bottle. Once the drained blood increases the water level, the draining tube could be pulled up to keep the 2 cm underwater level.

Result: SPR connector could be applied to pneumo-hemothorax patient with only single bottle required, which will prevent a reflux phenomenon. With adjustable large draining tube, it offers a more convenient subsequent drainage. As a single tube designed, it can prevent a misconnection between chest tube and short tube of conventional connector.

Conclusion: SPR connector is an innovation which can solve the problems of conventional single and double bottle systems.

REPAIR OF SECUNDUM ATRIAL SEPTAL DEFECTS ON BEATING HEART

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Background: Even current cardioplegic myocardial protection techniques provide safe and effective cardiac protection.Also, reperfusion injury after declamping aorta was found due to ischemic period.We considered that closing atrial septal defect with this strategy could eliminate the ischemic component. We present our experience of repair secundum atrial septal defect with the absence of complications.

Objective: To demonstrate our experience of beating heart atrial septal defect repair

Patients and Methods: From August 2010 through April 2014, 96 patients (62 females and 34 males; ages 8-68 yr) underwent atrial septal defect closure by this method.

Results: The mean cardiopulmonary bypass time was 30.84 ± 12.55 minutes. All patients withstood the procedures well without complications.They were extubated within 6 hours after being transferred to intensive care unit and discharged within 4 days after the operation. No residual shunt was found in immediate intraoperative trans-esophageal echocardiogram.

Conclusion: Our primary aim of the beating-heart technique which is to avoid ischemic-reperfusion injury was achieved. It is a safe, reproducible and effective technique for the closure of atrial septal defect secundum type at our unit.

QUALITY OF SAPHENOUS VEIN GRAFT FROM MINIMALLY INVASIVE DIRECT VISIONS VERSUS CONVENTIONAL OPEN HARVESTING TECHNIQUE FOR CORONARY ARTERY BYPASS GRAFTING

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Background: A minimally invasive direct vision (MIDV) saphenous vein graft harvesting technique for coronary bypass graft (CABG) may reduce donor site wound complications when compared with conventionally open (CO) technique. However, we hypothesized that MIDV technique may injure venous graft by excessive force and traction.

Objectives: To compare (1) the integrity of saphenous vein grafts harvested by MIDV technique to ones harvested by CO technique and (2) donor site wound complications between two groups. (3) To identify associated factor(s) for

venous graft injury.

Method: Of 419 patients who underwent CABG at Siriraj Hospital from October 2012 to August 2013, 50 patients were included in the study. Other 369 patients were excluded because of private case (n=152), multiple vein graft harvesters or harvester outside of the study scope (n=92), patient unwilling (n=38), emergency or redo operation (n=26), venous disease (n=26) and peripheral vascular disease (n=22) and no available venous sample (n=13). Of 50 eligible patients, 25 had MIDV techniques. Venous graft integrity was determined macroscopically by total number of suture repair of side branch avulsion and microscopically by CD31 stain. Venous integrity and donor site wound complications in both groups were compared at the time of operation and at 1 month post CABG, respectively.

Results: Both groups were similar regarding age (CO 66 ± 11 years, MIDV 66 ± 10 years, $p = 0.95$), male gender (CO 56%, MIDV 64%, $p = 0.56$), cardiopulmonary bypass and aortic cross clamp time (CO 105 ± 39 min, MIDV 121 ± 34 min, $p = 0.14$; and CO 72 ± 29 min, MIDV 86 ± 24 min, $p = 0.06$, respectively), the number of vein graft segment (CO 1.8 ± 0.6, MIDV 1.6 ± 0.8, $p=0.16$) and total length of the vein graft (CO 396 ± 83 mm, MIDV 414 ± 142 mm , $p = 0.59$). However, the patients in CO group had lower LVEF (42 ± 31% versus 53 ± 27 %, $p= 0.008$), greater number of diabetes mellitus (64% versus 36% $p = 0.048$), longer operative time (215 ± 71 min versus 261 ± 50 min, $p = 0.010$), longer saphenous harvesting time (52 ± 17 min versus 72 ± 31 min, $p = 0.010$), and longer total incision length (464 ± 98 mm versus 281 ± 95 mm, $p < 0.001$).

The total number of suture repair of side branch avulsion were comparable in both groups (CO 0.88 ± 1.54, MIDV 1.68 ± 3.34, $p = 0.28$) even when compared by per unit length of the vein graft (CO 0.22 ± 0.36/cm, MIDV 0.37 ± 0.66/cm, $p = 0.32$) or by percentage to the non-avulsed branch (CO 7.9 ± 14.8%, MIDV 8.1 ± 13.7%, $p=0.95$). The CD31 immuno-staining in both groups were similar ($p = 0.48$).

Both groups were similar regarding first 72-hour total pain score (CO 19 ± 17, MIDV 18 ± 10, $p = 0.75$) and overall donor site wound complications (CO 56%, MIDV 60%, $p = 0.77$). However, wound echymosis was more prevalent in MIDV group (32% versus 8%, $p = 0.034$).

The associated factors for vein graft injury were dyslipidemia (relative risk 2.6, 95%CI 1.1 to 6.2, $p = 0.031$), and thigh vein harvesting (relative risk 3.5, 95%CI 1.3 to 9.2, $p = 0.031$). Saphenous vein graft side branch avulsion predicted donor site wound ecchymosis (relative risk 4.1, 95%CI 1.2 to 14.1, $p = 0.022$).

Conclusions: The saphenous vein graft integrity harvested by minimally invasive direct vision technique was comparable to conventionally open harvesting technique. The donor site wound complications were also similar in both groups. And thigh vein harvesting was associated with venous side branch avulsion.

THE POSTERIOR PERICARDIOTOMY. DOES IT REDUCE THE INCIDENCE OF POSTOPERATIVE ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING?

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Atrial fibrillation (AF) is the most common arrhythmia after coronary artery bypass graft surgery (CABG). Posterior pericardiotomy (PP) was reported to reduce pericardial effusion, AF trigger, and reduce the length of hospital stay and hospital costs without significant complications. A total of 20 patients, diagnosed as coronary artery diseases to be treated by an elective or urgency CABG between August and December 2013, were randomly divided into two groups; 10 patients received PP (PP group) and 10 patients did not receive PP (control group). The incidence of AF was equal (40% in both groups). Early pericardial effusion was slightly higher in the PP group (PP 70%, control 60%; $p = 1.00$). The incidence of left pleural effusion and pneumonia were higher in the PP group than in the control. Moreover, one patient in the PP group developed perioperative myocardial infarction (MI) that required intensive care with medication. The duration of ICU stay of the PP group was significantly longer than that of the control group.In conclusion, PP did not reduce the incidence of postoperative AF nor did early pericardial effusion. Rather, PP increased post-operative complications such as perioperative MI, left pleural effusion, and pneumonia resulting in prolonged ICU stay.

THE RESULTS BETWEEN BIATRIAL AND LEFT ATRIAL MAZE IN CONCOMITANT OPEN HEART SURGERY

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Background: Atrial fibrillation (AF) is associated with increased morbidity and decreased survival following

cardiac surgery. The Cox-maze III procedure remains the surgical treatment with the highest cure rates but it is lengthy and technically demanding. Many surgeons have tried to simplify the maze procedure.

Objective: The aim of this study was to assess the results of bi-atrial and left atrial maze procedure using radiofrequency (RF) ablation.

Methods: Between July 2011 and October 2013, 48 patients underwent modified maze procedure using the RF ablation technique for permanent AF associated with concomitant open heart surgery. The maze procedure was simultaneously performed with mitral valve surgery (n = 45) double valves replacement (n = 2), tricuspid annuloplasty (n = 16) and LA reduction (n = 33). Twenty four patients underwent biatrial ablation (group A), while 24 patients underwent left atrial and cavotricuspid isthmus ablation (group B).The pre-operative, perioperative and postoperative results were compared between two groups.

Results: The clinical characteristics of the patients in both groups were similar. Follow up was 96% completed, with median follow up time at 15 months. The hospital mortality was 8.4% in group A and 4.2% in group B. Freedom from AF at 6 months, 1 year and 2 years was 92%, 100% and 86% in the biatrial group and 68%, 63% and 38% in the left atrial group. Overall freedom from AF is significantly higher in biatrial group (*p*value 0.0002, Hazard ratio =2.01, 95% CI: 0.97- 4.17). Restoration of sinus rhythm in the first half and the last half cases was 89%, 100% and 45%, 100% in group A and B, respectively.

Conclusions: Bi-atrial maze procedure is superior to left atrial maze procedure in the restoration of sinus rhythm of concomitant AF. Restoration of sinus rhythm also related to the learning curve phenomenon in both groups.

MAJOR NEUROLOGIC COMPLICATION AND MYOCARDIAL PRESERVATION OF SINGLE CLAMP TECHNIQUE VERSUS MULTIPLE CLAMP TECHNIQUE IN CORONARY ARTERY BYPASS GRAFTING

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Background: Effective myocardial preservation and minimize the risks of post-operative cerebral dysfunction are main requirements for successful coronary artery surgery which may be determined by the surgical technique used or the direction of cardioplegia delivery. The increased aortic manipulation during coronary artery bypass surgery is known to be associated with embolic events. The use of the single cross-clamp technique for minimal handling of the aorta reduce the incidence of adverse neurological events post-operatively.

Objectives: Major neurologic complication and myocardial preservation of single clamp technique versus multiple clamp technique in coronary artery bypass grafting

Materials & Methods: Patients undergoing elective isolated CABG at QSHC and Srinakarin hospital from January 2010 to October 2012, identified as having multiple clamp technique (aortic cross clamp and side biting clamp) or single clamp technique (aortic cross clamp only), were included in the study. Data were collected by study personnel and clinicians to determine major neurologic complication, post-operative MI, low cardiac output state and mortality rate for 619 patients, with single clamp technique 197 pts (32%) and multiple clamp technique 420 pts (68%).

Results: Six hundred and nineteen patients consisted ofsingle clamp technique 197 pts (32%), multiple clamp technique 420 pts (68%) There were no differences in mean age, previous stroke, hypertension, or diabetes. Intraoperatively, patients with single clamp technique had shorter bypass times, longer aortic cross clamp time. Postoperatively, no difference in major neurological complication, post-operative MI and low cardiac output start. The single clamp group had higher hospital stay (16 days vs 13.5 days, $p = 0.008$)

Conclusions: During elective CABG in patients with no clinical evidence of aortic or cerebro-vascular disease the incidence of peri-operative MI/low cardiac output state and post-operative neuropsychological disturbances are no difference in both techniques.

PRELIMINARY REPORT OF MITRAL VALVE REPAIR IN RHEUMATIC MITRAL STENOSIS AT LAMPANG HOSPITAL

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Between January 2010 and September 2013,we have performed 255 cases of mitral repair at our unit. Ninety four patients with rheumatic mitral stenosis (mean age 50.0 ±8.72 years) underwent mitral valve repair. Fifty six patients (59.6%) had preoperative atrial fibrillation. Twenty-three cases (24.5%) were in NYHA class 3 or 4. Sixty-five cases (69.1%) had pure mitral stenosis (MS) and twenty-nine cases (30.9%) had mixed mitral stenosis and regurgitation. The repair procedures include leaflet correction 53 (56.4%), chordal-correction 75 (79.8%), commissurotomy

94(100%), commissuroplasty 7 (7.4%), papillotomy muscle splitting 85 (90.4%), ring or band annuloplasty 85 (90.4%). Early mortality was 1(1.1%). Follow-up ranged from 2 months to 45 months(mean 28.05 ± 8.12 months). 83 (88.3%) had trivial to mild mitral stenosis, 11 (11.7%) had moderate mitral stenosis, 88 (93.6%) had trivial to mild mitral regurgitation and 6 (6.4%) had moderate to severe mitral regurgitation. Four patients underwent re-operation (redo MVR). There were 1 TIA and 1 late embolic stroke. There were 1(1.1%) 30-day mortality and 1 (1.1%) late death. MV repair in rheumatic mitral stenosis is feasible with acceptable in early follow-up.

At the latest follow-up, the MR grade was none/trivial in 64.5 of patients, mild in 22.6, moderate in 6.5, moderately severe in 4.8 and severe in 1.6%. Two patients had redo mitral surgery. At 5 years postoperatively, the estimated rates of freedom from reoperation and valve failure were 96.8 and 91.6%, respectively.

Age and sex distribution of patients

Age(years)	Male	Female	Total(%)
0-20	0	0	0(0)
21-40	0	8	8(8.5)
41-60	22	52	74(78.7)
>60	4	8	12(12.8)
Total	26(27.7%)	68(72.3)	94(100)

BILATERAL IMA IN CABG

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The clinical and prognostic benefits of coronary artery bypass grafting (CABG) are well accepted for certain subgroups of patient with coronary artery disease, and most CABG patients require grafting of more than two coronary arteries. For the last 20 years the standard operation has achieved this using a single internal mammary artery (SIMA) with saphenous vein grafts. Although this procedure achieves good short and mid-term outcome, the long term results are limited by progressive vein graft failure. The possibilitythat bilateral mammary artery grafting may offer additional clinical and survival benefits to SIMA grafting, especially in long term outcome, has been addressed in several studies. On the other hand several studies reported BIMA grafting is risk factor of sternal ischemia and infection.

Recently we try to work on CABG (including OPCAB) using BIMA actively, and this study evaluated the mortality and morbidities of BIMA grafting compared with SIMA grafting in our institute.

From December 2012 to June 2014, 117 patients underwent isolated CABG in our institute, and BIMA was used in 67 patients (57.3%). Seventy two patients (61.5%) underwent OPCAB (67.1% in BIMA group and 54.0% in SIMA group), and average anastomosis was 2.53 (2.77 ± 0.63 in BIMA group and 2.20 ± 0.88 in SIMA group). There were no significant difference between BIMA group and SIMA group in preoperative characteristics.

In BIMA group, hospital mortality rate is 2.9% (6.0%, in SIMA group). One patient (1.5%) had sternal infection (0% in SIMA group), the other (1.5%) had re-sternotomy for bleeding (4.1% in SIMA group) and no patient had stroke (1.5% in SIMA group). There were no significant difference between both groups about mortality and morbidities.

In our study, CABG with BIMA was a safe procedure with no risk factor of sternal infection.

COLORECTAL AND ANAL SURGERY

AN INTERIM ANALYSIS OF A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL : CAN CO_2 MAKE COLONOSCOPY QUICKER THAN ROOM AIR?

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Background: Colonoscopy is the most accurate and complete modalities in screening and surveillance for colorectal cancer. Room air insufflations are still routinely used during colonoscopy. However, from recent studies, Carbon dioxide (CO_2) insufflations have more advantages in terms of less post procedural pain, decreased abdominal distention, patient satisfaction and acceptance for another colonoscopy if indicated but no previous study shows that CO_2 insufflations may make colonoscopy quicker than room air insufflations.

Objectives: Aims of this randomized double-blinded

controlled trial are to evaluate effects of CO_2 insufflations in comparison with room air insufflations on cecal intubation time, post procedural pain, end tidal CO_2, abdominal circumferences and patient satisfaction and acceptance for another colonoscopy if indicated.

Materials and Methods: Fifty three patients who met inclusion criteria were enrolled into this study between June 2012-December 2013. After computer randomization, 27 patients were in CO_2 insufflation group and 26 patients were in room air group. Double-blinded methods for colonoscopy in all patients were done. The primary end point is cecal intubation time and the secondary end points are measuring of post procedural pain (at 15, 30, 60 minutes after colonoscopy), abdominal circumferences (before and 15, 30, 60 minutes after colonoscopy), end tidal CO_2 immediate before and after colonoscopy and patient satisfaction and acceptance for another colonoscopy if indicated were recorded. Sample size calculation for achievement of power 0.8 and alpha 0.05 shows that 132 patients have to be enrolled into each study group.

Results: The demographic characteristics between two groups were similar. The median cecal intubation time (min-max) was 10 (4-27) minutes in CO_2 group and 11 (5-50) minutes in room air group (*p*-value = 0.377). There was association between body mass index (BMI) and cecal intubation time in CO_2 group (-4.66, *p*-value = 0.016). Median increased values of end tidal CO_2 (min-max) was -1.5 (-27 to 13) mmHg in CO_2 group and -1.5 (-19 to 15) mmHg in room air group, (*p*-value = 0.828). Mean visual analog scale (VAS) score of post procedural pain (max = 10, min = 0) in CO_2 group at 15, 30, 60 minutes were 0.56 (± 1.863), 0.48 (± 1.905), 0.32 (± 1.201) and in room air group were 1.08 (± 1.758), 0.91 (± 1.418), 0.46 (± 1.108) (*p*-value = 0.112, 0.243, 0.399). Median increased length of abdominal circumferences (cm) at 15, 30, 60 minutes in CO_2 group were -0.98 ± 2.81, -0.5 ± 2.92, -0.42 ± 3.45 and in room air group were -1.42 ± 2.69, -1.28 ± 3.09, -1.12 ± 3.75 (*p*-value = 0.879, 0.748, 0.784) Mean satisfactory VAS score (max = 10, min = 0) in CO_2 group was 9.12 ± 0.978 and in room air group was 9.5 ± 2.147 (*p*- value = 0.43). The patient acceptances for another colonoscopy if indicated in CO_2 group were 100% and in room air group were 95.8 % (*p*- value = 0.49).

Conclusion: Although without statistical significant differences of parameters in the interim analysis, the study showed the trends of faster cecal intubation time, reduction of post colonoscopy pain and safety use of CO_2 insufflations in colonoscopy. Lower BMI was the risk factor that may predict prolonged cecal intubation time, therefore trainee and less experienced colonoscopist should be aware of possibility of incomplete total colonoscopy in thinner patient. The study will be continued until the calculated sample size is reached, then studied parameters will be again analysed and more definite conclusion can be reached.

FACTORS DETERMINING LOW ANTERIOR RESECTION SYNDROMEAFTER RECTAL CANCER RESECTION; A STUDY IN THAI PATIENTS

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Aims: Defective defecation function known as low anterior resection syndrome (LARS) is a common problem after surgical treatment of rectal cancer that had an effect of quality of life. This study aimed to look for the incidence of LARS in patients whose native rectum could be kept and determine factors influencing major LARS.

Methods: Rectal/rectosigmoid cancer patients who underwent tumor removal with mesorectal excision and colorectal anastomosis by a single colorectal surgeon during the year 2004 and 2013 were asked to participate in a structured interview using the verified version of Low Anterior Resection score. Clinical parameters were analyzed against the major LARS (LARS score > 30). Cut-off anastomotic level that the best discriminate risk of having major LARS was calculated by using a receiver operating characteristic curve.

Results: One hundred and thirty-one cases (68 males and 63 females) participated in the study. Minor and major LARS were detected at 16.8% and 17.6%, respectively. On univariate analysis, factors associating with major LARS consisted of extent of operation, presence of temporary ostomy, and chemo-radiation therapy. Major LARS was found at 27% in those who underwent low anterior resection, which was significantly higher than the incidence of 5% in the anterior resection ($p < 0.01$). Radiation therapy was the only factor independently associated with major LARS at the odds ratio 6.5 (95%CI: 2.37-18.15). ROC curve plot between sensitivity and 1-specificity of anastomotic level in determining major LARS showed area under the curve at 0.74. The cut-off anastomotic level that best predicted major LARS was at 5 cm, which give negative predictive value at 89%. Individual defecation symptoms that were significantly associated with major LARS included pain on defecation, difficulty-holding stool and need to use pad.

Conclusion: LARS is a significant problem found in a half of rectal cancer patients after colorectal anastomosis. Symptoms that were concerned included pain on defecation and decrease ability to hold. Risk of having major LARS increases with adjuvant treatment and lower anastomotic level.

INFLUENCE OF PAYER SOURCES ON TREATMENT AND OUTCOMES IN COLORECTAL CANCER PATIENTS IN A UNIVERSITY HOSPITAL IN THAILAND

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Aim: The study aimed to compare between 2 types of insurance used by colorectal cancer (CRC) patients in a university hospital in Thailand; universal coverage (UC) and "Civil Servant Medical Benefit Scheme" (CSMBS) in terms of hospital expenditure and survival outcomes.

Methods: CRC cases stage I-IV who were operated on and had completed their adjuvant therapy in Songklanagarind Hospital during the year 2004 and 2013 were retrospectively reviewed regarding their hospital expenditure focusing on surgical expenditure and chemotherapy cost. Cases were allocated into 2 groups according to their registered type of payment. Survival analysis was done by Kaplan-Meier survival probability plot and Log-rank test.

Results: Of 1,013 cases analyzed, 524 (51.7%) were in the UC group while 489 (48.3%) belonged to the CSMBS. Cases with stage IV disease were significantly higher in the UC group. Average total treatment expenditure (TTE) was THB 143,780. The TTE increased with tumor stage and chemotherapy cost contributed the most to the TTE increment. TTE in the CSMBS group was significantly higher than the UC group in stages II-III CRC. When the majority of cases in the UC group (65.5%) used deGramont or Mayo as their first line regimen, proportion of cases who started with capecitabine-based regimen (XELOX or Xeloda®) was significantly higher in the CSMBS group (61.0% compared with 24.5% in the UC group, p-value < 0.01). On survival analysis, overall survival (OS) and progress free survival in the CSMBS group were significantly better than those of the UC group. The 5-year OS in the CSMBS and the UC were 84.3% and 74.6%, respectively (p-value < 0.01).

Conclusion: The study concluded that type of insurance influenced resource utilization, especially choice of chemotherapy, in CRC. The disparity in treatment, in turn, resulted in a gap in treatment outcome.

OUTCOME OF SURGICAL CORRECTION IN ANORECTAL MALFORMATION IN MAHARAJNAKORN CHIANG MAI HOSPITAL

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Background: Anorectal malformation [ARM] is a very interesting topic in Pediatric Surgery. In MaharajNakorn Chiang Mai Hospital, patients with ARM vary in different aspects, such as age at diagnosis, treatment and outcome. Many benefits in early definitive surgery [Posterior Sagittal Anorectoplasty, PSARP]. Suitable age for surgical correction depends on surgeon skill, anesthetic and nursing availability. But the major problem in Anorectal Malformation surgical correction in Maharaj Nakorn Chiang Mai Hospital is age-group variation. We conducted a retrospective descriptive study to demonstrate and compare the outcome of surgical correction in anorectal malfor-mation in MaharajNakorn Chiang Mai hospital.

Objective: This aim of this research was to study about results of definitive surgery for anorectal malformation in many aspects and age group that related to effective outcome for definitive surgery for anorectal malformation.

Patients and Methods: A retrospective descriptive study was performed on all anorectal malformation without cloacal and rare malformation that registed in electronic record data between 2548-2555. We evaluated character, diagnosis, treatment and used Krickenbeck classification for outcome evaluation of definitive treatment.

Results: The study included 121 patients with ARM. The proportion of patients with low and non-low type [male 26.15% vs 73.85% p 0.005, female 51.79% vs 48.21% p 0.003, age 18.9 vs 22.5 p 0.680, weight 6.04 vs 9.64 p 0.999] are not different. Association anomaly are not significant in two groups. The proportion of colostomy [low-type 17.58% vs non low-type 82.42% p 0.000] are different. Results showed that PSARP had soiling complication [Anoplasty 8.33% PSARP 75.00% AP Pull Through 16.67% P value 0.017].

Conclusion: Definitive surgery for anorectal malfor-mation in many aspects in MaharajNakorn Chiang Mai Hospital is very different. Age group is not related to effective outcome for definitive surgery for anorectal malformation in Maharaj Nakorn Chiang Mai Hospital.

A DARN TECHNIQUE FOR RECTOCELE REPAIR

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Background: Transvaginal rectocele repair shows the impressive success rate (79-87%), and transvaginal mesh repair demonstrates a very good outcome (94% of anatomical success rate) but carries high morbidities such as mesh erosion, dyspareunia and pelvic abscess. With aim to minimize complications from a foreign material, while maintaining the good outcomes, we followed the idea of darn hernia repair by using 2-0 polypropylene for darning of rectocele defect.

Materials and methods: Twelve rectocele patients who met the inclusion criteria; difficult defecation, digital assisted defecation, retaining contrast in post-defecation phase of defecogram and non-active sexual life, were recruited for transvaginal darn technique rectocele repair.

Results: The mean follow-up was 14.8 months with no complication (erosion, wound infection or defecographic recurrence). Anatomical defect of all patients were corrected (100% anatomical success rate) which were confirmed by defecogram. Most of the patient symptoms were improved. But there was one patient who had recurrent of symptoms caused by pelvic floor descent.

Conclusion: Transvaginal darn technique rectocele repair can achieve a good result in the term of clinical and anatomical success rate (100%) without complication (graft erosion or infection) due to reduced foreign body reaction. However, long-term follow-up and high patient volume are needed for safety aspect.

LAPAROSCOPIC LATERAL PELVIC LYMPH NODE DISSECTION

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Background: The colorectal cancer at lateral pelvic lymph node (LPLN) is still debated whether it is regional or distant lymphadenopathy. However, the survival rate in patients with LPLN metastasis alone is better than in patients with metastases in other organs. The lymphadenectomy may benefit in this group of patients, especially with laparoscopic approach.

Objective: To demonstrate the technique of laparoscopic LPLN dissection in case of metastatic LPLN disease.

Materials and Methods: The VDO demonstrates the laparoscopic techniques for dissection of LPLN in patient with single metastatic LPLN disease.

Results: This technique needs advanced laparoscopic skills. LPLN dissection should be considered in many cases.

Conclusions: Though the necessity to dissect LPLN is debatable, LPN dissection should be considered in many cases. Laparoscopic technique can remove the lesion, with less complication and it should be chosen when the expertise, and facility are available.

ENDOSCOPIC MANAGEMENT OF COLONIC ANASTOMOTIC STRICTURE, THE NOVEL APPROACH: COMBINED BALLON DILATATION WITH STRICTUREPLASTY

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Introduction: Stricture occurs in 5.8-20% of colonic anastomoses.The incident is higher in the patients with adjuvant chemotherapy. Symptomatic strictures have previously been treated by resection and re-anastomosis and more recently by radiographically guided dilatation. However, balloon dilatation alone shows high failure and recurrent rate.

Method: This video describes the endoscopic management of colonic anastomotic stricture by using balloon dilatation combined with strictureplasty in patients with previous colorectal anastomosis due to rectal cancer.

Result: From October 2012 to September 2013, The procedure were performed in 13 patients with colonic anastomotic stricture. Average time of procedure was 32 min. Average number of sessions required was 1.8 sessions. The procedure was in all patients without recurrent after six months follow up. Longest time of follow up was 19 months. There was no mortality and major complication occurred.

Conclusion: The balloon dilatation combined with stricturoplasty is effective and safe for treatment of colorectal anastomotic strictures.

ENDOSCOPIC TRANSANAL TOTAL MESORECTAL EXCISION (EATME)

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Introduction: Total mesorectal excision is the

standard procedure for rectal cancer. However, the procedure, either laparoscopic or open technique, requires a very good surgical skill especially in large low rectal tumors, narrow pelvis or obese patients. In those cases, it is difficult to reach the pelvic floor for making a secure anastomosis and adequate distal margin. We have developed the "endoscopic transanal total mesorectal excision" which may have benefits to these patients.

Method: The video shows technique of first endoscopic transanal total mesorectal excision in human soft cadaver. Left side colonic mobilization was performed until reaching the peritoneal reflection distally. Purse string suture was placed 2 cm. below the tumor transanally . Then transanal intersphincteric dissection was performed. After entering intersphincteric plane, SILStm Port was inserted into the anal canal and sutured to anal verge. Gas insufflation was done and flexible tip laparoscope was inserted. The dissection was performed along TME plane under direct vision until fully mobilized of rectum. The specimen was removed transabdominal approach.

Result: The endoscopic transanal total mesorectal excision shows clear anatomical plane and the dissection could be simply performed in stepwise.

Conclusion: Transanal minimally invasive surgery is a feasible and promising technique. The technique may provide benefits in patient with difficult pelvic access for transabdominal TME.

COMPARISON OF INTERSPHINCTERIC ABDOMINOPERINEAL RESECTION, CONVENTIONAL ABDOMINOPERINEAL RESECTION, AND LOW HARTMANN'S PROCEDURE: A CASE-MATCHED STUDY

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Aim: To compare the short-term outcomes of intersphincteric abdominoperineal resection (IS-APR) with conventional abdominoperineal resection (APR) and low Hartmann's procedure (LHR).

Methods: A cross-sectional study of patients between January 2012 and April 2014, reviewed a total of 60 patients with low rectal cancers, who were enrolled at a tertiary care hospital and underwent IS-APR (N=15), APR (N=30), and LHR (N=15). Patients with poor sphincter tone, advanced age, and a high risk of coloanal anastomosis were candidates for IS-APR. The clinicopathological parameters were matched and short-term outcomes were collected and analyzed. The IS-APR was performed in patients with tumors located at 1.5-3 cm from the dentate line, without involvement of the external sphincter or invasion of the pelvic floor musculature. The extent of tumor involvement was determined by digital rectal examination, computed tomography, magnetic resonance imaging, endoanal ultrasound, or a combination.

Results: Operative times and post-operative complications were not different between the three groups ($P = 0.173$ and $P = 0.808$, respectively). The overall rate of complete (R0) resection was 81.7%. The rate of R0 resection and number of resected lymph nodes were comparable ($P = 0.683$ and $P = 0.630$, respectively) in all groups. There were no significant differences between groups in terms of time to diet, 24-h postoperative pain, and length of hospital stays. The distal margin in the LHR group was significantly smaller than in the other two groups ($P = 0.002$). The overall postoperative complications were comparable in all groups, occurring in a total of 16 patients in all three groups (26.7%). Perineal complications in the IS-APR group was lower, when compared to APR group, but not statistically significant (0% vs 13.3%, $P = 0.168$).

Conclusion: In selected patients, IS-APR can be performed safely with comparable short-term outcomes, but with less perineal complications than APR and a longer distal margin than LHR.

PROSPECTIVE STUDY FOR SAFETY AND EFFICACY OF TRANSLEVATOR VENTRAL RECTOPEXY FOR TREATMENT OF RECTAL PROLAPSE

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Introduction: Translevator ventral rectopexy was first described by Dr.Pattana-arun et al. as the optional procedure for rectal prolapse treatment especially with concomitant pelvic floor descent. Our propose is to evaluate the safety and efficacy of the procedure in patients suffering from rectal prolapse with difficult defecation.

Method: From May 2013 to March 2014, 19 patients with rectal prolapse underwent translevator ventral rectopexy. The preoperative status, complications, recurrent rate and postoperative status were assessed. Data were collected prospectively at base line and three months after operation from standardized questionnaires for the assessment of constipation by modified Longo's obstructed defecation syndrome (ODS) score system.

Results: Twenty translevator ventral rectopexy were

performed in 19 patients with rectal prolapse. Mean age of patients was 65.47 years. Mean operative time was 2.08 hours. Average pain score at 24 hour was 2.88. One perioperative complication was found as rectal injury (5.2%) which could be managed by direct repair. One recurrence found immediately after surgery and another at 2 months after surgery (10.5%). At 3 months follow-up, significant improvement in the constipation scoring system was observed with *p* value < 0.0001 (mean ± SD preoperative= 16 ± 4.59 VS postoperative = 4 ± 2.13). The symptoms of constipation improved in 95% of patients at 3 months after surgery.

Conclusion: Translevator ventral rectopexy is effective with significant improve obstructive defecation symptom in patients with rectal prolapse and can be performed safely without major morbidity or mortality.

OUTCOME AND SURVIVAL OF URGENT/EMERGENT PELVIC EXENTERATION IN 31 PATIENTS WITH UNFIT CONDITIONS AT KING CHULALONGKORN MEMORIAL HOSPITAL

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Background: Pelvic exenteration, the definite approach for locally advanced pelvic tumor, carries high morbidity and mortality rate. Mostly, this procedure is performed in medically fit patients in an elective setting. However, pelvic exenteration may be reasonable in patients with poor preoperative conditions. The outcome of pelvic exenteration in the patients with unfit conditions has never been reported. Aim of this study is to report the short-term outcome and survival of 31 patients with inappropriate preoperative status who underwent pelvic exenteration at King Chulalongkorn Memorial Hospital.

Methods: A retrospective review of 31 patients who underwent pelvic exenteration at King Chulalongkorn Memorial Hospital between October 2006 and June 2012 was performed. The inclusion criteria was patients with urgent/emergent was performed conditions or poor preoperative status e.g. albumin < 3.5 g/dL, Cr. = 2 mg/dL, Hct < 30% and ASA = 3.

Results: Of 31 patients, 25 (80.6%) had primary colorectal cancer, 3 (9.7%) had recurrent colorectal cancer, 2 (6.5%) had gynecologic malignancies and 1 (3.2%) had other pelvic tumor. Seventeen (54.8%) cases underwent total pelvic exenteration, 7 (22.6%) underwent posterior pelvic exenteration, 6 (19.4%)underwent total pelvic exenteration with sacrectomy and 1 underwent posterior pelvic exenteration with sacrectomy (3.2%). Pelvic exenteration was performed in 22 (71%) urgent cases and 9 (29%) emergent cases. Nine of these emergent cases, 4 (44.45%) were perforation, 3 (33.33%) were obstruction, 1 (11.11%) was pelvic abscess and 1 (11.11%) was uncontrolled UTI sepsis from tumor invasion. The median operative blood loss was 2,100 (500-9,000) mL., the mean operative time was 571.61 ± 137.36 minutes, median postoperative ICU stay was 1 (0-24) day and mean postoperative hospital stay was 22.77 ± 14.71 days. The 30-day morbidity was 48.4% and 50% of the patients could be managed with conservative treatment. There was no 30-day mortality. The median follow up time was 30 months (range 3-90 months), the 2-year overall survival was 71%. The 2-year disease free survival was 54.6%.

Conclusion: Pelvic exenteration for urgent/emergent situation and poor preoperative conditions can provide acceptable outcome.

ACCURACY OF SELF-CHECKED FECAL OCCULT BLOOD TESTING FOR COLORECTAL CANCER DETECTION

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Background and Objective: Using fecal occult blood testing (FOBT) as a screening tool for colorectal cancer (CRC) has been associated with a 20% reduction in CRC incidence and a 33% decrease in cancer-related mortality. However, this conventional FOBT required stool collection and stool handling, which may be inconvenient for participants. The EZ-DetectTM (Siam Pharmaceutical Thailand) is an FDA-approved chromogen-substrate based FOBT which is basically a self-checked FOBT (no stool handling required). This study aimed to evaluate the accuracy of EZ-Detect for CRC detection.

Materials and Methods: This prospective study was conducted at Siriraj Hospital between November 2013 and May 2014. Some 96 patients with histologically-proven CRC and 101 patients with normal colonoscopic findings were invited to perform self-checked FOBT according to the EZ-Detect manufacture's instruction. Results were compared with endoscopic and pathologic findings. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) for CRC detection were calculated.

Results: The present study revealed the sensitivity, specificity, PPV and NPV of this self-checked FOBT for CRC detection to be 41% (95% CI: 31-51), 97% (95% CI: 92-99), 93% (95% CI: 81-98) and 63% (95% CI: 55-70), respectively. The overall accuracy of EZ-Detect for identifying CRC was

70%. The sensitivity for CRC detection based on 7th AJCC staging was 29% for stage I, 32% for stage II and 50% for stage III/IV (P= 0.19). The sensitivity was 33% for proximal colon and 42% for distal colon and rectal cancer (P= 0.76). However, none of 9 infiltrative lesions had a positive FOBT.

Conclusion: The self-checked FOBT had an acceptable accuracy of CRC detection, except for infiltrative tumors. This home-administrated or 'DIY' do-it-yourself FOBT could be considered as one of non-invasive and convenient tools for CRC screening.

LAPAROSCOPIC PERITONEAL LAVAGE FOR PERFORATED SIGMOID DIVERTICULITIS

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Background: Standard treatment of perforated sigmoid diverticulitis is Hartmann's operation. Recently, laparoscopic peritoneal lavage has been introduced for this condition. However, it is questioned about safety and effectiveness of this procedure.

Objectives: The aim of this study was to evaluate outcome and safety of this procedure at Ratchaburi Hospital.

Materials and Methods: All patients with perforated sigmoid diverticulitis between January 2004 and May 2014 were retrospectively reviewed. Patients treated with laparoscopic peritoneal lavage were included in this study. Data retrieval included patients' demographic data, intraoperative parameters and postoperative outcomes.

Results: Three of 20 patients with perforated sigmoid diverticulitis were treated with laparoscopic peritoneal lavage. All patients are female with the mean age of 76 years (73-78). They received intravenous broad spectrum antibiotics preoperatively. Diagnostic laparoscopy was performed to confirm diagnosis and peritoneal lavage with normal saline solution was done after aspiration of purulent fluid. Two patients were found to have free perforation with purulent discharge (Hinchey stage 3) while one patient had pelvic abscess (Hinchey stage 2). All patients were successfully treated with laparoscopic procedure. Mean operative time was 60 minutes (55-64) whereas mean length of stay was 17 days (13-20). There was no morbidity and mortality during postoperative period. All patients refused to undergo definitive sigmoid resection. There were no recurrent symptoms of diverticulitis during mean follow-up period of 10 months (8-11).

Conclusion: Laparoscopic peritoneal lavage is safe, feasible and effective for treatment of perforated sigmoid diverticulitis. It should be an alternative treatment for this condition and may be a new standard treatment in future.

ENDOCRINE SURGERY

SAFETY AND COST-EFFICIENCY IN THYROID SURGERY

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Australia

Aim: Recent developments in technology aim to reduce operative time and improve safety, albeit at significant cost. Thyroidectomy is a common procedure worldwide and an assessment of cost-efficiency is important.

Method: An audit of prospectively collected data on all thyroidectomies performed by a single endocrine surgeon at 2 private hospitals from 2009 to 2013. The technique was a conventional open dissection emphasizing capsular dissection with diathermy, ligature and Ligaclip and without intra-operative nerve monitoring. Multivariate analysis was performed with the primary end point being operative duration.

Results: There were 503 thyroidectomies with the expected mix of pathologies including multinodular goiter, benign tumors, carcinoma and Graves' disease. There were zero permanent recurrent laryngeal nerve injuries (0.5% temporary, 746 nerves at risk), 0.6% permanent hypoparathyroidism (19.5% temporary, 308 completion and total thyroidectomies) and 0.6% hematoma. These outcomes compare favorably with published best practice.

The median skin to skin operating time was 59 minutes for total thyroidectomies and 35 minutes for hemithyroidectomies. The cost was lower and operating times shorter than reported with the use of vessel sealing devices.

Conclusion: Despite the current popularity of vessel sealing devices and the promotion of intra-operative nerve monitoring, their routine use may not be justified. Technique is more important than technology.

COMPARATIVE STUDY OF ENDOSCOPIC THYROIDECTOMY VERSUSCONVENTIONAL OPEN THYROIDECTOMY IN BENIGN THYROIDNODULE (CLINICAL SOLITARY THYROID NODULE)

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Background: Endoscopic technique for thyroid

surgery have recently been applied at Thabo Crown Prince Hospital. This technique improved in postoperative cosmetic outcome. The purpose of this study was to evaluate and compare the complication between endoscopic thyroidectomy and conventional open thyroidectomy in unilateral clinical solitary thyroid nodule

Method: Retrospective study of patients between January 2009 and March 2014 at Thabo Crown Prince Hospital was performed. Thirty three patients were enrolled, 15 patients underwent open thyroidectomy and 18 patients underwent endoscopic thyroidectomy via trans axillary approach. Data analysis include demographic data, size of lesion, operative time, hospital stay, and complication within 30 days post operation between two groups. The Chi-square test, Mann-Whitney U test, mean, and mode were used for statistical analysis.

Result: The age group of endoscopic thyroidectomy was younger than open thyroidectomy. Size of lesion of endoscopic technique was close to conventional technique. Hospital stay was shorter in endoscopic thyroidectomy. But operative time of conventional open thyroidectomy was shorter than endoscopic thyroidectomy (48.46 min and 117.55 min). Complication in open technique was found in only 2 cases(13.33%) from wound pain post operation. For complications of endoscopic thyroidectomy, we detected burning sensation in 8 cases(44.44%), hoarseness in 1 case(5.5%), seroma in 1 case(5.5%), skin burn in 1 case(5.5%)

Conclusion: According to our experience, endoscopic thyroidectomy had a statistic significance in complication comparing with conventional open thyroidectomy. Serious complication such as skin burn from dissection was present, but endoscopic technique gave benefit in cosmetic outcome in young patients. Endoscopic thyroidectomy needs advanced laparoscopic skill and experience to achieve good outcome.

TRANSORAL ENDOSCOPIC THYROIDECTOMY: A FIRST NOTES THYROID SURGERY IN THAILAND

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Endoscopic thyroidectomy has become widely accepted over the past 10 years. Various approaches and techniques have been invented and preformed. The aim of these procedures is to prevent the neck scar but it still has the scar on the skin incision of each approach. We performed the transoral endoscopic thyroidectomy which is the first natural orifice transluminal endoscopic surgery(NOTES) and the first case in Thailand. The patient had the recurrent left thyroid cyst about 4 × 3 cm. The patient was in supine position under nasotracheal intubation. We used the 3-port technique. The incisions were at the vestibule of mouth, in the oral cavity. The space was created under the Platysma muscle from the oral vestibule down to the sternal notch. The left thyroid gland with cyst was found and dissected using both harmonic scalpel and monopolar coagulator. The recurrent laryngeal nerve was revealed and preserved. No surgical drain was placed. The oral vestibule incisions were closed using polyglactin 4/0 double layer. Bleeding was 20 cc. No complication was found. Average pain score was 4/10 on day 1 postoperatively and the patient had no pain at all from day 2 after surgery. The patient was discharge on day 4 postoperatively. Transoral endoscopic thyroidectomy is safe and feasible and has the best and excellent cosmetic result among the various thyroid surgeries.

LOCAL ADVANCED PAPILLARY CELL CARCINOMA OF THYROID WITH TRACHEAL INVASION PRESENTED WITH STRIDOR

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Introduction: Papillary carcinoma of the thyroid (PTC) infrequently invades upper aerodigestive tract which can present as airway Insufficiency & dysphagia, and causes a significant morbidity, in this condition with an otherwise good prognosis. Invasive thyroid cancer, the most commonly involved structures included the strap muscles (53%), recurrent laryngeal nerve (47%), trachea (37%). Stridor is the presenting symptoms in approximately one third of patients with laryngotracheal invasion.

Case presentation: A 60-year-old woman with long standing thyroid goiter presented with on & off shortness of breath, noisy breathing with impending stridor. There was a history of rapid enlargement over past two-month duration. Clinical examination revealed multinodular goiter with retrosternal extension. As patient presented with stridor, she underwent emergency tracheostomy. It was a difficult procedure as the tumor had invaded tracheal lumen from thyroid isthmus extending below to the level of jugular notch. Patient was stable after that and we optimized patient and performed with total thyroidectomy. We have selected to perform complete excision of the thyroid cancer, without resection of the trachea. Her postoperative period was uneventful.

Discussion: Papillary thyroid carcinoma is known for their indolent nature and erratic behavior. A judicious combination of surgical clearance combined with

radioablation is the key to the management of such tumors. In conclusion there is no consensus regarding the management of patients with thyroid malignancies invading larynx and trachea. The surgeon would decide between a complete ablation of tumor at the cost of extensive mutilation and a less radical dissection which leaves residual tumor to be treated by complementary radiotherapy and radio-iodine.

HEPATOBILIARY AND PANCREATIC SURGERY

PROGRESS IN SURGICAL ONCOLOGY: RECENT SURGICAL TREATMENT FOR HEPATOCELLULAR CARCINOMA

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Hepatocellular carcinoma (HCC) is the fourth common cancer in Japan. Many small HCC less than 5 cm in diameter are detected because of the nature of the health care system and the establishment of screening programs. Therefore, the strategy for HCC in Japan has shifted to earlier stages of HCC than in other countries. There are a variety of treatment options ranging from radiofrequency ablation therapy to molecular targeting treatment. An overview of surgical treatment for HCC in Japan with particular focus on small HCC will be presented.

ANTERIOR APPROACH TO RIGHT HEPATECTOMY WITH CAUDATE LOBECTOMY FOR PERIHILAR CHOLANGIOCARCINOMA

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The anterior approach has been conventionally used for giant hepatocellular carcinoma in the right liver. Takasaki et al. reported the safety of this approach in 1984. Liu et al. reported that compared with the conventional approach, the anterior approach improved surgical and survival outcomes (2000). Right liver mobilization followed complete mobilization of the caudate lobe before parenchymal dissection is considered as a basic maneuver in right hepatectomy with caudate lobectomy for PHC. The right liver should be rotated to the left side in the conventional method. However, it is sometimes difficult to dissect the caudate lobe from the inferior vena cava before hepatectomy becauseof the inflammation between caudate lobe and inferior vena cava due to cholangitis or abscess and /or the deep surgical view of the caudate lobe. Further, the remnant left liver would be congested by this rotation to the right side and the lymphatic vessels and the artery in the ligament would be dissected. In this presentation, we would like to show the video of an anterior approach without the Pringle maneuver to right hepatectomy with caudate lobectomy for PHC and its surgical outcomes. This approach allows removal of the right liverand caudate lobe safely from the ventral side with excellent surgical view, with minimal mobilization of the remnant left liver and limited disturbance of hemodynamics.

METOCLOPRAMIDE VERSUS ITS COMBINATION WITH DEXAMETHASONE IN THE PREVENTION OF POSTOPERATIVENAUSEA AND VOMITING AFTER LAPAROSCOPIC CHOLECYSTECTOMY: A DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL

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Background and objectives: Postoperative nausea and vomiting (PONV) are significant problems in laparoscopic surgery. This double-blind, randomized controlled trial compares the prophylactic use of metoclopramide and its combination with dexamethasone in the prevention of PONV in patients undergoing laparoscopic cholecystectomy (LC). The present study aimed to provide a simple, safe, inexpensive, and effective postoperative nausea and vomiting prevention method in LC.

Patients and methods: One hundred patients aged 18 to 75 with American Society of Anaesthesiologists (ASA) class I-II who were candidates for elective LC were included in the study. All of the patients underwent general anesthesia

with similar medications. Patients were randomly divided into two groups of A and B. Group A received 8 mg dexamethasone and 10 mg metoclopramide, and Group B received 10 mg metoclopramide. These medications were administered intravenously when the gallbladder was removed from gallbladder bed. Postoperatively the incidence of nausea and vomiting was assessed at four time intervals (0-2 hours, 2-6 hours, 6-12 hours and 12-24 hours after the operation). An overall score of PONV in each patient (0 = no nausea and vomiting, 1 = nausea, 2 = nausea with vomiting, 3 = repeated vomiting 2 times) was used to compare groups. STATA software version 11.0 was employed to analyze the data. *T* test/Rank sum test and Fisher's exact test were performed to analyze baseline characteristics, and general operative data with the level of significance $P < 0.05$. Ordinal logistic regression was performed for analyzing the antiemetic effect of the two groups.

Results: There were no significant differences between age, gender proportion, body mass index (BMI), ASA class, and operative time of patients in the two groups. The combination of dexamethasone and metoclopramide group indicated a greater antiemetic effect with significant statistical analysis, odds ratio = 0.25 ($p = 0.001$, confidence interval 0.11-0.55). The postoperative hospital stay in the combined group and metoclopramide group were: 1 day = 47 (94%) and 37 (74%), > 2 days = 3 (6%) and 13 (26%), respectively ($p = 0.012$).

Conclusions: Intravenous administration of dexamethasone combined with metoclopramide had significant effects in the prophylaxis of nausea and vomiting after laparoscopic cholecystectomy and also shortened the hospital stay.

COMBINATION OF ETORICOXIB AND LOW PRESSURE PNEUMOPERITONEUM VERSUS STANDARD TREATMENT FOR THE MANAGEMENT OF PAIN AFTER LAPAROSCOPIC CHOLECYSTECTOMY: A RANDOMIZED CONTROLLED TRIAL

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Background and Objectives: Postoperative pain is a significant problems in laparoscopic surgery, especially during first 6-12 hours postoperatively. This randomized controlled trial aim to investigate the effect of combined pre-emptive etoricoxib 120 mg and low pressure pneumoperitoneum for the management of pain after laparoscopic cholecystectomy (LC).

Patients and methods: One hundred and twenty patients aged 18 to 75 with American Society of Anaesthesiologists (ASA) class I-II who were candidates for elective LC included in the study. Patients were randomly divided into two groups. Treatment group received preemptive analgesia (etoricoxib 120 mg) and intra-abdominal pressure 7 mmHg, control group received placebo and intra-abdominal pressure 14 mmHg. The study medications were administered orally 2 hours before surgery. Postoperativepain score at rest and on movement were record on numeric rating scale (NRS) every hour for the initial 2 hours and then every 4 hours until discharge. STATA software version 11.0 was employed to analyze the data. *T* test/Rank sum test and Fisher's exact test were performed to analyze baseline characteristics, and general operative data with the level of significance $P < 0.05$. Random effects model was performed for analyzing postoperative pain of the two groups.

Results: There were no significant differences in baseline characteristics of the two groups. Pain score of treatment versus control group of incisional pain were significant at rest and on movement; at rest: -0.15 [2.69] VS -0.12 [3.20], $p = 0.022$, and on movement: -0.18 [3.59] VS -0.14 [4.57], respectively ($p = 0.032$). Pain score of the other sites (abdominal, shoulder, and flank pain) were lower in treatment group, but not statistically significant. The postoperative hospital stay in the treatment group and control group was: 1 day = 53 (96.4%)and45 (75.0%), >1 day = 2 (3.6%) and 15 (25.0%), respectively ($p = 0.001$).

Conclusions: Combination of preemptive analgesia (etoricoxib) and low pressure pneumoperitoneumhad significant effects in decreasing incisional pain after LC, and also shortened the hospital stay.

THE ROLE OF OPEN COMMON BILE DUCT EXPLORATION FOR PATIENTS WITH COMMON BILE DUCT STONE IN ENDOSCOPIC ERA

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Introduction: At King Chulalongkorn Memorial Hospital(KCMH), a medical institute with highly experienced endoscopic center in Thailand, we prefer endoscopic treatment for the patients with common bile duct(CBD) stone and have very high success rate of CBD

stone removal.

Objectives: The purpose of this study is to report the remaining role and outcomes of open CBD exploration at KCMH in endoscopic era.

Methods: The retrospective chart reviews of all open CBD explorations at King Chulalongkorn Memorial Hospital over a period of 11 years were conducted. Demographic data, indication for CBD exploration, surgical techniques and perioperative outcomes were recorded.

Results: Thirty one open CBD explorations were performed during study period. There were emergency cases in 7 (22.5%). The indications were failed endoscopic treatment in 13 (41.9%), gangrenous or empyema cholecystitis in 6 (19.3%), unable to exclude biliary tract malignancy in 6 (19.3%), recurrent primary CBD stone in 1 (3.2%), anatomical problem in 1 (3.2%) and doctor preference in 4 (12.8%). The mean duration of surgery was 197 mins (60-570). The mean blood loss was 374 ml (10-1,500). Stone clearance rate was 90.3%. Complete intra-operative choledochoscopic CBD exploration was done in 16 from 31 (51.6%). Retained CBD stone was found 7 from 31 (22.5%). Subgroup analysis revealed that the patients with complete intra-operative choledochoscopic CBD exploration tended to have lower rate of retained CBD stone compared with the patients without choledochoscopic CBD exploration (12.5% vs 33.3%, p = 0.16). Four bilioenteric bypasses were performed (2 choledochoduodenostomy and 2 roux-en-Y choledochojejunostomy) due to recurrent primary CBD stone, impacted CBD stone and impacted concomitant IHD stone. Overall morbidity rate was 48.3% (retained CBD stone, fluid collection, wound infection, splenic injury, *T*-tube dislodgement, *T*-tube leakage). Mortality rate was 6.4% due to sepsis with multi-organ failure.

Conclusions: Open CBD exploration still plays an important role for patients with CBD stone in endoscopic era. The general surgery resident should learn the proper surgical techniques of open CBD exploration.

DETECTION OF SERUM GOLPH3 IN CHOLANGIOCARCINOMA PATIENTS: EVALUATION OF DIAGNOSTIC ACCURACY

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Background: At present, there is no available tumor marker that can differentiate cholangiocarcinoma from benign bile duct disease. Previous studies demonstrated that a high serum Golgi phosphoprotein 3 (GOLPH3) level is detected in patients with various cancers. However, the clinical significance of serum GOLPH3 in cholangiocarcinoma patients remains unknown.

Methods: This study was designed to determine whether the serum levels of GOLPH3 can discriminate cholangiocarcinoma patients from benign biliary tract disease patients in comparison to carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA19-9). We measured the level of CEA, CA19-9 and GOLPH3 in the serum of 43 cholangiocarcinoma and 40 benign biliary tract diseases patients.

Results: The serum levels of CEA, CA19-9 and GOLPH3 were significantly higher in the patients with cholangiocarcinoma compared with benign biliary tract disease patients (Mann Whitney U; $p < 0.001$). A receiver operating characteristic (ROC) curve analysis revealed that the detection of the serum GOLPH3 level is reasonably accurate in differentiating cholangiocarcinoma from benign biliary tract disease patients (area under curve = 0.71; 95% CI = 0.596-0.826) while the areas under the curve of the ROC curves for CEA and CA19-9 were 0.76 (95% CI = 0.660-0.866) and 0.76 (95% CI = 0.662-0.865), respectively.

Conclusion: Serum GOLPH3, CEA and CA19-9 appear to be a valuable diagnostic marker in the discrimination of cholangiocarcinoma from benign biliary tract disease. Further prospective studies for the serum measurement should be carried out to further investigate the potential of this molecule as a biomarker of cholangiocarcinoma.

LAPAROSCOPIC RADICAL CHOLECYSTECTOMY FOR POSSIBLE GALLBLADDER CANCER

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Background: Gallbladder cancer is a fatal disease. Radical surgical resection including regional lymph node dissection and liver resection is applied in possible gall bladder cancer to provide the beneficial survival outcomes.

Objectives: The aim of this study was to assess whether laparoscopic radical cholecystectomy is beneficial to patients with early gallbladder cancer and a safe procedure for possible gallbladder tumor cases.

Material & Methods: A 65-year-old man with history of check-up screening ultrasound finding gallbladder mass was included in the study.

The magnetic resolution imaging abdomen revealed polypoid shape soft tissue lesion at superolateral wall of

gallbladder of about 1.6 ± 0.9 cm. His laboratories reported CEA, CA19-9 were normal, also his liver function test was normal. Laparoscopic radical cholecystectomy with lymph node dissection was performed. The operative time was 180 minutes and total blood loss was 300 ml.

Results: There was no 30-day postoperative morbidity and mortality. The patient starts diet post-operative day on 1 and discharge on day 9. Now he is doing well 1 month after operation. The pathology result was Adenomatous polyp.

Conclusion: Laparoscopic radical cholecystectomy is an effective surgical treatment in possible gallbladder tumor.

RIGHT ANTERIOR SECTIONECTOMY: HOW I DO IT

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Introduction: Glissonean pedicle approach is one of many methods for anatomical liver resection. This technique can be applied to many types of liver resection which helped shorten operative time and created bloodless surgery. We here presented a video demonstration right anterior sectionectomy which detailed steps to perform of this procedure.

Methods: A 51-year-old female with underlying chronic hepatitis B viral infection for 20 years which her annual imaging was diagnosed with HCC involving segment V and VIII of liver. Right anterior sectionectomy was performed. Operation started with mirror-L incision, cholecystectomy and right lobe of liver was mobilized. Right anterior (RAP), right posterior (RPP) and left portal pedicle (LP) were encircled. RAP and RPP were clamped during parenchymal transection between right anterior and right posterior section, then RAP and LP were clamped during transection between right anterior section and segment IV. RAP was ligated and specimen was removed in the last step.

Results: The operation was done without intra-operative complication. Operative time was 240 minutes and blood loss was 50 ml. Post-operative course was uneventful. Patient was discharged on 6th post-operative day. Pathological report revealed a 6.5 × 5.3 × 4.7 cm, moderate differentiated HCC with free resection margin. The patient did not receive any adjuvant treatment and was doing well at 6 month after operation.

Conclusions: Anatomical knowledge of liver and glissonean system is a great tool to perform Glissonean approach in liver resection. With increasing experience, this technique is likely to become the best method for liver operation.

EXTENDED RIGHT HEPATECTOMY WITH LEFT COLECTOMY IN GIST LIVER METASTASIS AND LOCAL PERITONEAL SEEDING: A CASE REPORT

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Introduction: Gastrointestinal stromal tumor (GIST) is a neoplasm of the gastrointestinal tract of usually less aggressive behavior but 40% of patients can develop metastasis and recur after a long remission period. The emergence of tyrosine kinase inhibitors has altered controversy over the surgical role in this advanced case. We here report a successful operation in the patient who failed second line medical treatment.

Methods: A 49-year-old man was diagnosed with a small bowel GIST and received an exploratory laparotomy with small bowel resection 10 years ago. He presented with abdominal pain for 6 months, imaging showed large liver mass and mesenteric tumor, compatible with liver metastasis and peritoneal seeding. His condition was controlled by imatinib as first line treatment for 3 years. After disease progressed, treatment was changed to high-dose imatinib followed by sunitinib with no response.

Results: Extended right hepatectomy with left colectomy was performed. Operative time was 490 minutes and blood loss was 3500 ml. Pathological report revealed a 20 cm, high grade GIST in liver, tumor involved liver segment IV, V, VI, VII & VIII containing necrotic tissue inside and a 15 cm, high grade GIST at mesentery which adhered left side colon, free all resection margin. Post-operative course was uneventful. Length of ICU stay was 1 day and hospital stay was 7 days. He did not receive any adjuvant treatment. He is doing well 12 months after operation.

Conclusions: In the event of progression of disease after second line treatment, surgery may be curative when all metastases have been eradicated and negative surgical resection margins are attained.

SPONTANEOUS RUPTURE OF HEPATOCELLULAR CARCINOMA: A CASE SERIES

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Introduction: One of life-threatening complications of hepatocellular carcinoma (HCC) is rupture of the tumor with intraperitoneal hemorrhage. Advancement of imaging

equipment and screening program allowed early detection of HCC but mortality rate was still high when patient came with rupture condition. We here reported experience of the management of spontaneous ruptured HCC in 16 cases.

Methods: From January 2009 to December 2013, medical record of 16 ruptured HCC patients referred to our institute were reviewed. Cases included 14 men and 2 women, giving male to female ratio of 7:1, with a mean age of 58.6 years (range 34-85). Ruptured HCC was diagnosed by CT scan in 13 stable patients. Three remaining unstable patients with history of advanced HCC were evaluated by obtaining blood from abdominal paracentesis. According to Child-Pugh classification, number of patients categorized as Child A, B and C were 7, 2 and 7 respectively. Mean tumor diameter was 12.7 cm, ranging from 4 to 21 cm. Location of tumor was right side in 13 cases and left side in 3 cases.

Results: Seven cases(6 men and 1 woman) with Child C classification and large tumor(more than 10 cm) who received best supportive treatment expired within 7 days from massive bleeding or subsequently multi-organ failure. Two cases (1 man and 1 woman) with Child B classification was treated by embolization, serial Transarterial chemoembolization(TACE) and targeted therapy, both of them alive with lung metastases until now (12 and 24 months). Last seven men with Child A classification received successfully various treatments including emergency exploratory laparotomy with liver packing (2 cases), embolization (2 cases) and conservative treatment (3 cases). All of them were scheduled for surgical resection but one case loss follow up. Right hepatectomy was performed in 4 cases with large tumor, disease free survival ranged from 3 to 12 months and overall survival ranged from 14 to 22 months. All of them died of carcinomatosis peritonii or lung metastases. Remaining 2 cases with small tumor(less than 5 cm) who received left lateral segmentectomy and segment V resection, are alive until now(6 months and 24 months).

Conclusions: Prognosis of patients with ruptured HCC depended on liver function and size of tumor. Prolonged survival can be achieved in selected patients with ruptured HCC with liver resection.

MINIMAL INVASIVE AND ROBOTIC SURGERY

LAPAROSCOPIC GASTRECTOMY: HOW I DO IT

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In Japan, standard gastric cancer treatment is based on Japanese gastric cancer treatment guidelines (3rd edition) and Japanese Classification of Gastric Carcinoma (14th edition).

In this lecture, we divided my talk into three parts; First, our procedure of laparoscopic gastrectomy, then challenging cases in gastric cancer, and finally treatment guideline of gastric cancer in Japan.

In the first part, we will show the precise technique of LNs dissection and reconstruction following purely laparoscopic distal gastrectomy with video.

In the difficult cases, proximal gastrectomy and total gastrectomy with splenectomy in our department will be presented by the video.

Finally, in the Japanese gastric cancer guidelines part, we will focus on the strategy for surgical treatment of gastric cancer, especially for the range of LNs dissections.

STRICTURE OF GASTROJEJUNAL ANASTOMOSIS IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS USING 21-MM OR 25-MM CIRCULAR STAPLER : A PRELIMINARY REPORT OF PROSPECTIVE RANDOMIZED CLINICAL TRIAL

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Introduction: Bariatric surgery is considered to be the effective long-term treatment for morbid obesity. Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) is the preferred bariatric procedure for the treatment of morbid obesity. The most common early complication after LRYGB is stricture of gastrojejunal anastomosis (GJA). The stricture rate appears to be correlated with the size of the circular

stapler.

Objective: We compared the anastomoses performed with 21-mm or 25-mm circular stapler.

Methods: Morbidly obese patients, scheduled for our standardized LRYGB, were randomized into 21-mm or 25-mm circular-stapler. Stricture of GJA was defined as patient complainted of frequent nausea, emesis and/or dysphagia with liquids or meals leading to endoscopy within 12 weeks of surgery, in which a 9-mm endoscope would not pass through the anastomosis without dilation. Stricture of GJA, %EWL at 6 months after surgery, perioperative complications and mortality were evaluated.

Results: Fourty six patients were randomized to 27 patients in 21-mm group and 19 patients in 25-mm group. There was no difference in basic characteristics between both groups. Stricture of GJA was reported in 1 patient of 21-mm group and 1 patient of 25-mm group (3.7% vs 5.3% respectively, p = 0.79) (Table 2). Patient of 21-mm anastomosis developed stricture 3 weeks after surgery, and patient of 25-mm anastomosis developed 7 weeks postoperatively. Perioperative complication and %EWL at 6 months after surgery were no significant difference. There was no operative-related mortality.

Conclusion: In this preliminary report, 21-mm and 25-mm circular stapled gastrojejunal anastomosis are safe, effective and feasible technique with our standardized Laparoscopic Roux-en-Y Gastric Bypass. There were no difference in stricture rate and bariatric results. However, a final report of this prospective randomized clinical trial and long-term follow-up are mandatory.

A PROSPECTIVE RANDOMIZED TRIAL FOR EVALUATE EFFECT OF 3D IMAGING SYSTEM TO TIME FOR COMPLETE LAPARSCOPIC SKILL TEST COMPARE WITH 2D IMAGING SYSTEM

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Background: Development of three-dimensional (3D) imaging system can improve depth perception of surgical field and facilitate surgeons to operate laparoscopic surgery. We compared the effect of 3D imaging system to time for complete laparoscopic skill test over two-dimensional (2D) imaging system.

Materials and Methods: Forty of 4th and 5th year medical student were assigned in to two groups (2D and 3D) to perform 4 laparoscopic skill tests (ring transfer, threads the silk, pattern cutting, grasp and transfer object into collecting bag). Time to complete all tasks and each task was measured and number of mistake was noted in both groups. All participants completed questionnaires about inconveniences that occurred when performed skill tests.

Results: Time to complete all tasks in 3D group was shorter than 2D group (912.9 versus 1401.05 seconds, $p <$ 0.001). When we evaluated each task the result showed shorter time in 3D group than 2D group for ring transfer 432.65 versus 548.40 seconds (p = 0.007), threads the silk 239.05 versus 440.9 seconds (p= 0.001), and pattern cutting 168.05 versus 295.15 seconds ($p <$ 0.001). In task grasp and transfer object into collecting bag, times were not different. About mistake in ring transfer, there was significantly difference in number of ring drop between 2D and 3D group, 6.05 versus 4.75 (p = 0.047). Number of gross deviation from marking in pattern cutting was higher in 2D group, 5.45 versus 2.75 ($p <$ 0.001). There were only two side effects that was significantly different in two groups; disorientation, 9 versus 1 (p= 0.003) and poor visualization, 9 versus 2 (p = 0.013).

Conclusions: Three-dimensional imaging display system can improve inanimate laparoscopic skill training by reducing time to achieve skill test and can facilitate the non-experienced trainees about depth perception, eye-handed coordination, spatial transfer, two hand maneuver and precision to train their basic laparoscopic skills.

LAPAROSCOPIC TOTALLY EXTRAPERITONEAL REPAIR (LAP TEP): BASIC AND ANATOMY

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Inguinal hernia repair is the most frequently performed operation in general surgery. The standard method for inguinal hernia repair had changed a little over one hundred years. Totally extraperitoneal (TEP) inguinal hernia repair has gained popularity in the recent two decades since the first introduction in 1992 by J. L. Dulucq.

Laparoscopic inguinal hernia repair has been shown to be advantageous for bilateral or recurrent hernias and for morbid obesity because it reduces postoperative pain and the patient can return to work earlier when compared

with the open technique. However, it has not gained widespread acceptance. One of the reasons for this is the more learning curve compared to the open technique. In general it is considered to be more difficult than the latter because of the peculiarity of anatomy and limitation of working space. Therefore it has been assigned with a "steep learning curve" that the surgeon needs to climb steadily and slowly. I believe that a better understanding of the laparoscopic anatomy is extremely important before one can attempt this technique.

This VDO presents the basic of groin anatomy in preperitoneal space, operative field set up, step and technique of the operation by using picture combined with the video of the real operation. I hope this VDO will help spectator to better understand anatomy and step of the operation for reducing learning curve and perform the best outcome for the patient.

TOTAL EXTRAPERITONEAL LAPAROSCOPIC HERNIA REPAIR

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Background: Laparoscopic hernia repair has many advantages over open repair, such as less early postoperative pain, less long term nerve pain, equal or lower risk of recurrence, and bilateral hernias are easily done with the same incision.

Method: A total extraperitoneal repair was done on a 82-year-old Thai male presenting with a recurrent left indirect inguinal hernia.

Conclusion: Laparoscopic inguinal hernia repair is a promising alternative to open surgery. This video aims to provide a step-by-step guide on how to perform the procedure.

TIPS AND TECHNIQUES IN STANDARD COLONOSCOPYWITH MAGNETIC GUIDANCE-ASSISTED IMAGING

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Backgrounds: Colonoscopy was accepted to be a gold standard method for colorectal cancer screening and treatment of colorectal polyps. Today many surgeons perform colonoscopy as a common routine procedure and in part of general surgery resident training program. To perform colonoscopy effectively and safely still required a learning curve. There are many published papers of innovations and techniques to date to reduce learning curves effect. Magnetic guidance imaging system is the one of this kind, by detecting position & locate of the scope relate to patient anatomy help the operator understand how the loop is created and how to correct the looping of the scope. This VDO helps learning of colonoscopy easier by combining many tips and techniques in both manipulating scope skills and relate to magnetic imaging to understand how to correct the loop, and prove to be useful in learning colonoscopy.

Methods: This VDO was recorded from the patents that had received screening colonoscopy in Surgical Endoscopy Unit, Rajavithi Hospital between 1-30 November 2013. After Informed consent, by the use of ScopeGuide system (Olympus) for magnetic guidance imaging, the patient position related with surgeon manipulation was recorded at the same time as patient colonoscopic view and magnetic view. The images were recorded and edited for this presentation.

BENEFITS OF LAPAROSCOPIC SURGERY IN VESICAL FISTULA POST RADIATION FOR CANCER: NCI EXPERIENCE

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Background: Diverticulitis accounts for approximately 50%-70% of vesicoenteric fistulae, almost all of which are colovesical. Crohn disease accounts for approximately 10% of vesicoenteric fistulae and is the most common cause of an ileovesical fistula. Malignancy accounts for up to 20% of vesicoenteric fistula and is the second most common cause of enterovesical fistula. Rectovesical fistula is the most common presentation, as rectal carcinoma is the most common colonic malignancy resulting in fistula formation. The increased risk of radiation bowel injury is recognized in patients who have had previous operations. Surgery to manage radiation-induced fistulae can be difficult. In severe cases, the colorectal and adjacent organs are matted together with no natural planes, making mobilization and resection hazardous. In this situation, diverting proximal colostomy or ileostomy is advisable. Small bowel resection is recommended with localized segments of disease. Bypass operations are preferable to avoid any extensive dissections. Multiple operative procedures should be anticipated because the natural

history of radiation bowel injury is slowly progressive. Future treatment of typical enterovesical fistulae may focus on development and refinement of minimally invasive surgical techniques, such as laparoscopic and robotic, to shorten recovery time and to potentially decrease hospital stay.

Aim: To present the early outcome of a minimally invasive surgical treatment of enterovesical fistula in cancer cases after radiation, laparoscopic total exclusion of the fistula.

Material & Methods: We reported 2 cases of an 84-year-old female with enterovesical fistula post rectal cancer therapy, low anterior resection-radiation-chemotherapy about 20 year ago and a 54-year-old female with sigmoid colovesical fistula post cervical cancer radiation therapy 1 year ago. Both underwent laparoscopic total exclusion of fistula.

Results: The surgical outcome was successful in both patients.

Discussion: It would seem that this technique is applicable for treating enteric fistulas in the bottom of the pelvic cavity, which were difficult to be managed. Total exclusion of the fistula from the gastrointestinal tract, either by excision or by total bypass, is mandatory to achieve satisfactory results. Improved surgical techniques, including laparoscopic procedures that greatly enhance visualization of the operative field, hold promise for fewer fistula-related complications of gynecologic and urologic procedures.