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Abstracts
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VASCULAR SURGERY

Local versus General Anaesthesia in Carotid Endarterectomy

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Backgrounds: Carotid endarterectomy (CEA) reduces the risk of stroke in people with recently symptomatic, severe carotid artery stenosis. However, there are significant peri-operative risks which may be lessened by performing the operation under local rather than general anaesthetic.

Objective: To determine whether CEA under local anaesthesia (LA) is safer and as effective as under general anaesthesia (GA). A systematic review of the randomised and non-randomised studies was carried out.

Setting: Maharaj Nakorn Chiang Mai Hospital.

Methods: Studies were identified from the Cochrane Stroke Group's database, Medline (1966 to 2004) Embase (1980-2001). 13 relevant journals were hand-searched. Two authors independently selected studies for inclusion and extracted details of trial quality and data on death, any stroke, myocardial infarction and other operative complications. Meta-analysis was performed using the Peto method.

Results: There were 44 non-randomised studies (about 26,909 operations) and eight randomised studies (730 operations). The non-randomised studies suggested that the use of LA was associated with clinically important reductions (approximately 50%) in the odds of stroke, stroke or death, myocardial infarction and pulmonary complications during the peri-operative period. Among randomised studies, there was no significant difference in major clinical outcomes, but there were too little data to confirm or refute the findings of non-randomised studies.

Conclusions: Non-randomised studies suggested potentially important benefits from performing CEA under LA. However, these studies were seriously flawed and can only be hypothesis generating. The results must be confirmed in large well-designed randomised trials before any recommendations on the use of LA can be made.

The Prevalence of Carotid Stenosis in Maharaj Nakorn Chiang Mai Hospital

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Background: Atherosclerosis around carotid bifurcation can cause stroke. Carotid endarterectomy (CEA) is beneficial in some selected patients e.g. patients with moderate to severe symptomatic carotid stenosis (50-99%). However there has been a limited data in the prevalence of carotid stenosis (CS) in Thais.

Objective: To identify the prevalence of CS in patients who came to hospital with ischemic symptoms and find out the number of patients who should have benefited from CEA.

Setting: Faculty of Medicine, Chiang Mai University

Methods: The data of patients, who were investigated for CS by duplex scan, were collected retrospectively from

1998 to 2004. The demographic data, risk factors and the degree of stenosis were analyzed. We classified the degree of CS, by using the percentage of stenosis, into five categories; no CS, mild CS (1-50%), moderate CS (51-70%), severe CS (71-99%), and total occlusion (100%).

Results: There were 495 patients and the mean age was 60.7 years. 80.1% of these patients were symptomatic (45.3% hemiparesis, 3.7% aphasia and 3.1% amaurosis fugax). In the symptomatic patients, the prevalence of ipsilateral CS in no CS, mild CS, moderate CS, severe CS and total occlusion were 6.9%, 59.5%, 1.7%, 8.6% and 7.8% respectively. In asymptomatic patients, these figures were 11.1%, 50.0%, 11.1%, 5.6% and 22.2% respectively.

Conclusion: Most patients in this study had carotid stenosis. 10.3% of symptomatic patients are supposed to gain benefit from CEA. Therefore carotid stenosis is not a rare disease in Thais and many strokes may be prevented by CEA.

Cerebral Ischemic Disease and Histomorphometric Analysis of Atherosclerotic Plaque

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Background: Atherosclerotic carotid plaque morphology especially intraplaque hemorrhage (IPH) are assumed to be related to neurological symptom. IPH is a characteristic of complicated plaques.

Objective: This study aimed to quantify the amount of plaque component between symptomatic and asymptomatic carotid stenosis.

Setting: Southampton University Hospitals NHS Trust

Methods: Carotid endarterectomy plaques were collected from 151 patients (88 men) and processed for histological analysis. The amount of plaque component (e.g. IPH, fibrosis, lipid) is determined by using histomorphometry.

Results: There were carotid specimens from 118 symptomatic and 33 asymptomatic patients. The high incidence of IPH was found in both the symptomatic (60.2%, 71/118) and asymptomatic patients (60.6%, 20/33), but no significant difference was found between the two groups (P = 1.00). The amount of IPH was very small within the plaque of the symptomatic (2.3% ± 0.5) and asymptomatic (1.3% ± 0.3) patients. The plaques of the symptomatic patients contained more lipid than fibrosis (52.3% ± 2.1 and 35.0 ± 2.0 respectively), as did the plaques of the asymptomatic patients (56.2% ± 4.2 and 30.2% ± 4.3 respectively). No significant difference was found between the 2 groups in the proportion of these two plaque components.

Conclusion: The amount of IPH was not significantly difference between symptomatic and asymptomatic cases and we therefore question its direct role in the development of neurological symptoms.

Percutaneous Ultrasonographically Guided Thrombin Injection of Iatrogenic Brachial Pseudoaneurysm: A Case Report

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Introduction: With an increase in cardiac and radiological intervention as well as some therapeutic procedures such as hemodialysis that require vascular access, the number of iatrogenic vascular injury and sequelae has been dramatically rising in the last two decades. One of its sequelae includes pseudoaneurysm. In the past, surgical repair and ultrasound-guided compression were the treatment of choice for post-procedural or traumatic pseudoaneurysm. Nowadays, these traditional treatments were abandoned and replaced with less invasive and less time-consuming procedure, percutaneous ultrasonographically guided thrombin injection (PUGTI). Majority of PUGTI was used for femoral pseudoaneurysm treatment but few for brachial pseudoaneurysm. We report a non-operative treatment with PUGTI for pseudoaneurysm at an unusual site.

Case Report: A 58-year-old man with end stage renal disease and a pulsatile mass at his right arm was referred by a nephrologist. Instead of using the left arm with well created arteriovenous fistula (AVF), with misunderstanding, a hemodialysis nurse inserted a hemodialysis needle into the right brachial artery of non-fistula arm 2 months before the patient visited our vascular clinic. Subsequently, the patient had slowly developed enlarging and painful expansile pulsatile mass at right arm just above anticubital fossa. His right brachial pseudoaneurysm was confirmed as a large brachial pseudoaneurysm with 4.4 cm by 2.1 cm in size at right arm measured by color duplex ultrasonography (CDU) and computer tomographic angiography (CTA). After informed consent was obtained, PUGTI was performed

under real-time CDU monitoring. Low dose of bovine thrombin, at a dilution of 100 U/mL, was slowly injected through a 25-gauge needle into the center of pseudoaneurysm. Following 300 units (3 mL) of bovine thrombin injected into the aneurysm sac, all of the sac was obliterated with clot except for an area adjacent to the aneurysmal neck. Since the risk of distal brachial artery thrombosis and hand ischemia resulted from re-positioning the needle close to persistent neck and additional given thrombin, as mentioned in some literature reports, was considered, only direct compression with ultrasound probe was therefore applied over the neck of aneurysm for 5 minutes. Accordingly, the pseudoaneurysm was successfully thrombosed. After having been applied with local elastic bandage compression for a week, the pseudoaneurysm was revealed by CDU that there was neither persistent flow nor enlarging sac.

Conclusion: Apart from more invasive traditional surgical repair as well as more time consuming and less convenient ultrasound-guided thrombin compression, PUGTI can be a safe alternative for brachial artery pseudoaneurysm treatment with an aid of a short period of local compression.

Endovascular Aortic Aneurysm Repair (EVAR): Early Experience in a University Hospital

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Introduction: With the advent of endovascular technology, EVAR has dramatically been increased in popularity for a principal alternative to treat Abdominal Aortic Aneurysm (AAA) in patients who were unfit for open repair (OR) especially in the last decade. It is inevitable to keep pace with this modern technology all over the world including Thailand. As the biggest and an oldest University Hospital in Thailand, our institute therefore has adopted this new therapeutic option for high-risk patients with AAA.

Research design: A prospective study was designed to delineate the results and complications of EVAR in our learning period.

Patient selection: All patients except one had either large (more than 5.5 cm. in greatest diameter) or rapid expanding (more than 1 cm/year) asymptomatic AAA and evaluated as non-fit patients for open repair (OR) were recruited in this study. Merely one patient in this study had difficult and too risky anatomy for the management of bilateral large common and internal iliac aneurysms. Open repair in this patient was terminated followed by EVAR in the consecutive procedure.

Methods: Between 2002 and 2005, data of 6 patients who underwent EVAR were analyzed for outcomes and complications. These included operative time, procedural blood loss, transfusion requirements, volume of contrast media consumed during the procedure, endoleak, device migration, limb patency, AAA sac growth/regression, open conversion and mortality.

Results: All six patients, successfully treated with EVAR, neither required open conversion nor passed away during the studying period. Bifurcated GORE stent-grafts were used for the first three cases whilst the last three patients underwent EVAR with Medtronic stent-graft. The latter included 2 bifurcated graft and an aorto-uni-iliac (AUI) graft. For this case, we considered AUI to treat bilateral large iliac aneurysms with small AAA. As an indication for EVAR in 5 high-risk patients, 3 were of cardiac co-morbidity, 1 of morbid obesity and one of severe COPD. Two patients had bilateral common iliac artery (CIA) and internal iliac artery (IIA) aneurysms requiring 2 separated attempts at coil embolisation at least 2 weeks before undergoing EVAR. Fortunately, there was no evidence suggestive of pelvic organ ischemia such as ischemic colitis or buttock claudication. One patient developed ischemic rest pain in his left leg resulting from an extended graft limb kinking. This limb-threatening complication detected 5 months post-EVAR required right external iliac artery to left superficial femoral artery bypass with externally supported PTFE graft. Post-operative period was uneventful. Another patient had experienced persistent pulsatile AAA following successful EVAR. Abdominal contrast-enhanced CT on his first post-operative day demonstrated undetermined endoleak whether caused by type II or type III endoleak. He was carried to an angio-suite where his type III endoleak was excluded. Nevertheless, we did the balloon angioplasty at the junction between short limb of the main body and extension graft. In addition, his type II endoleak was confirmed and managed expectantly. Patient did very well with the absence of abdominal pulsatile mass in the following week.

Conclusions: EVAR can be accomplished in AAA of those with either limited co-morbidity or hazardous aneurysmal morphology for open repair (OR). There has been no mortality, open conversion or unresolvable life or

limb threatening complications. The early excellent experience resulted from several factors: careful patient selection and aneurysmal sizing; well co-operation between surgeons, radio-interventionist, anaesthesiologists and physicians; meticulous procedural technique; and regular post-operative surveillance. Nevertheless, the team has still required more patient volume for regularly practicing and passing our learning curve of EVAR.

Epidemiologic Study of Peripheral Arterial Occlusive Disease of Lower Extremity in Thai Patients

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Between January 2000 and December 2004, there were 565 cases of peripheral occlusive disease of the lower extremity admitted in Vascular Surgery Unit, Department of Surgery, Siriraj Hospital requiring vascular assessment for revascularization procedures. Among these, there were 449 atherosclerosis obliterans, 101 arterial embolisms, 6 late manifestations of arterial trauma, 4 thromboangiitis obliterans, 4 arteritis and 1 aneurysm of iliac artery.

Revascularization procedures included 187 arterial bypass surgeries and 81 embolectomy as the major surgical treatment of limb salvage. 162 patients underwent major amputation due to unreconstructable distal artery, infection beyond forefoot level and unfit for major arterial bypass surgery.

Factors influencing outcome of limb salvage were analyzed. The major factors inhibiting limb salvage procedure included ischaemic cardiac status, associated renal failure and associated multiple risk factors in a single patient.

Attempt for successful revascularization procedure in ischaemic limb will be the future of the management of peripheral arterial occlusive disease in Thai patient not only for the better quality of life after limb salvage but also for the improvement of cost-effectiveness of the management of this problem.

CARDIOTHORACIC SURGERY

Combined Chest Wall and Lung Resection for T3 Giant Cell Lung Cancer

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Objective: Giant cell lung carcinoma is a rare entity of non-small cell lung cancer. It is usually bulky and may directly invade chest wall. Surgical resection of chest wall and lung may be the best option for the treatment of these patients.

Patients and Methods: A retrospective study of three male patients at the age of 60, 70 and 81 years old at the time of surgery who presented with bulky lung mass invading the chest wall were carried out. The first patient also had two liver nodules. Resection of chest wall and right upper lobectomy were performed in two patients and left upper lobectomy in one patient. Systematic lymph node dissection was also performed. The numbers of resected rib were three in two patients and four in one patient. Reconstruction of chest wall with propypropylene mesh (Marlex) and methylmethacrylate was performed in all.

Results: Weaning from ventilator was successful in 4, 2 and 5 hours after surgery. There was no complication. The pathological report was giant cell lung carcinoma invading chest wall in all. The resected margins were free without lymph node involvement in all three patients. The patient who had liver nodule underwent fine needle aspiration and alcoholic injection of the nodules. They were well without recurrences for 2 years, 1 year and 8 months and 1 month after surgery.

Conclusions: Giant cell lung carcinoma is usually a bulky, peripheral lung cancer. It frequently invades chest wall without lymph node metastasis. Combined chest wall resection and lobectomy are effective for local control of tumor. The morbidity of such extensive surgery is minimal with current technique of chest wall reconstruction with Marlex and methylmethacrylate.

Surgical Treatment of Valvular Heart Disease: Early Experience

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Objective: To evaluate the results of surgical treatment of valvular heart disease in a new open-heart surgery unit.

Patients and Methods: Between January 2001 to March 2005, there were 173 patients underwent surgical treatment of valvular heart disease. The etiologies included rheumatic valvular disease in 153, myxomatous mitral valve in 13, infective endocarditis in 4, degenerative aortic valve in 2, and bicuspid aortic valve in 1. The operations performed included 133 valve replacement; 28 mitral valve repair, 6 mitral valve repair combined with aortic valve replacement, and 6 mitral commissurotomy.

Results: There was one hospital death and seven serious postoperative complications. In rheumatic patients the mitral valve was involved in 142 patients (92.8%). In these patients the pathology of mitral valve was pure mitral regurgitation in 37 patients (26%) of which 20 (54%) were treated by mitral valve repair.

Conclusions: The early result of surgical treatment of valvular heart disease was satisfactory. Rheumatic valvular heart disease is still common in the rural area. The results of mitral valve repair for rheumatic mitral regurgitation, especially in the young patients, were encouraging. But long term results in this group of patients remained to be determined.

Atrial Fibrillation Ablation During Valve Surgery Using the Radiofrequency System

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Background: Surgical treatment of atrial fibrillation with the COX MAZE Three procedure is successful but the operation is complex and adds more risk. Several modifications are used for intraoperative ablation to reduce complexity, risk of bleeding, and operative time.

Objective: This report documents the results achieved in patient with atrial fibrillation undergoing valve surgery using radiofrequency ablation.

Methods: Thirty patients underwent valve surgery and modified COX MAZE Three procedure using radiofrequency ablation between June 2004 and May 2005. There were 15 males and 15 females. Mean age was 55.8 years. 76.6% (23/30) were in permanent atrial fibrillation. Valve surgery procedures included MVR (18), MVR+TV repair (8), MVR+AVR (2), MVR+AVR+TV repair (1), and MV repair (1).

Results: There was no operative mortality. Post-operative AF prevalence was 43.3% (13/30) at first month, 29.1 % (7/24) at three month, and 17.6% (3/17) at six month.

Conclusions: Radiofrequency ablation is a good alternative method for the treatment of atrial fibrillation in patient undergoing valve surgery. Early results at six months are satisfactory. Success rate of this modified MAZE procedure is improving with refined technology and defined lesion pattern.

Mediastinoscopy and Non-small Cell Lung Carcinoma

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Background: Mediastinal lymph node biopsy is a fundamental role in diagnosis, staging and management of lung cancer. Mediastinoscopy is considered complimentary for determining mediastinal node pathology. Our aim of this study was to assess the results of mediastinoscopy in our institute

Methods: Between September 2000 to April 2005, 51 patients with suspected or biopsy proven non-small cell lung carcinoma (NSCLC) with node seen in MRCT scan and other mediastinal mass or node enlargement in other reason underwent mediastinoscopy for mediastinal node biopsy or mediastinal tissue biopsy.

Results: There was no operative mortality. One case had serious accidental tear of the great vessel that needed sternotomy for repair. Nine patients (17.6%) had positive node and were sent for neoadjuvant therapy. Other cases with negative node went on with further surgical treatment

Conclusion: In clinical practice neoadjuvant therapy is proven to improve outcome in N2 NSCLC. Mediastinoscopy was rewarding for detecting N2 mediastinal node. Mediastinoscopy has therefore improved the management of N2 NSCLC and avoid unnecessary thoracotomy.

Techniques and Results of OPCABG Using Home-Made Intra Coronary Artery Shunt

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Background: The outcome of OPCABG (Off Pump Coronary Artery Bypass Grafting) is highly dependent on the surgical techniques. To overcome the problems of intraoperative hemodynamic instability and to avoid

potential injury to coronary artery with occlusive technique, we have modified the strategy of performing distal anastomosis by using our home-made intra coronary artery shunt.

Objective: This report documents the results achieved in OPCABG using our home-made intra coronary artery shunt. The characteristics of shunt and techniques will be demonstrated.

Methods: The shunt is modified from silicone tubing (Allied Biomedical Company). We have successfully used the shunt for all distal anastomosis in off pump coronary artery bypass surgery. All 170 consecutive patients who had OPCABG from October 2002 to May 2005 were evaluated. Data were collected retrospectively. Average grafts per patient were 3.5. Arterial grafts were used in most cases (90%). Conversion rate was 2.2%. Patients were followed up at 3 weeks, 6 weeks, and two monthly there after.

Results: The operative mortality rate was 0.5% (one patient). Complications included stroke in 3 patients (1.8%) and post-operative AF in 12 (7.1%). Twelve patients (7.05%) required intraoperative or postoperative intra-aortic balloon pump support. The early results are good and satisfactory.

Conclusions: OPCABG can be successfully performed using our home-made intra coronary artery shunt with better hemodynamic control. The techniques are safe, simple, reliable, and effective.

Successful Treatment in Severe Infective Endocarditis Complicating Ventricular Septal Defect: A Case Report

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Ventricular septal defect is a common congenital heart disease that many of which have to be cured by an operative closure in the early period of life. However, there are some patients who have been neglected, due to the very small size of the defect, until there are complications. We report our experience in a successful repair of an unusual case complicated by severe infective endocarditis.

The patient is a 22-year-old Thai male presenting with low-grade fever and tiredness for one month with rapid deterioration 3 days prior to admission. On cardiovascular examination, there were bounding pulse, increased jugular venous pulse, active precordium, pansystolic murmur at the left parasternal border and to and fro murmur at the aortic valvular area. An echocardiography showed a small perimembranous ventricular septal defect, multiple large vegetations (varying from 1-1.5 cm) on tricuspid, aortic and pulmonic valves as well as on the right ventricular outflow tract. Moreover, moderate to severe aortic regurgitation, severe pulmonic and tricuspid regurgitation were also detected. The diagnosis was infective endocarditis from Streptococcus viridans. The patient had been on systemic antibiotics for 6 weeks before undergoing the corrective operation. The VSD was closed using a PTFE patch, and aortic and pulmonic valves were replaced using a mechanical and stentless porcine valves respectively. Thereafter the vegetations were removed as many as possible. Finally, the tricuspid valve was repaired using the chordal replacement technique. The patient recovered from the operation very well, and postoperative echocardiography demonstrated residual tricuspid regurgitation. At last, he could be discharged home at 2 weeks after the operation.

Intraoperative Identification of Sentinel Lymph Nodes in Clinical T1-3 N0 M0 Non-Small Cell Lung Cancer with Blue Dye Technique

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Objectives: To evaluate the efficacy (detection rate and accuracy) of Guerbet patent blue dye as the tool to detect sentinel lymph nodes (SLN) in clinical stage T1-3 N0 M0 Non-Small Cell Lung Cancer (NSCLC) during thoracotomy.

Methods: From December 2003 - January 2005, 19 patients with clinical stage T1-3 N0 M0 NSCLC were operated with primary tumor removal and mediastinal lymphadenectomy. Patent blue dye was injected in the early part of the operation. The SLN were observed and recorded. After that, we analyzed detection rate and accuracy of this dye from the pathologic diagnosis of tumor and all dissected nodes.

Results: The SLN detection rate of intraoperative patent blue dye injection was 42.1%. Accuracy of this dye (both SLN and all other nodes pathologically negative) was 50%. There were skip metastasis in 33% of pathologically positive N2 nodes. Mean operative time for tumor removal and mediastinal lymphadenectomy was 3 hr 40 min. Mean blood loss was 263 ml and postoperative ICU stay was 0.9 day. There was no peri-operative mortality, but minor complications included postoperative bronchospasm in 3 patients and atelectasis in 2 patients.

Conclusions: We found that the patent blue dyes has low detection rates corresponding to other dye techniques from other studies and the accuracy tend to be low. Larger

further study about improved detection rate and techniques may be beneficial. Currently we could say that this dye is not proper to detect SLN. Because of low rate of complication from mediastinal lymphadenectomy, this technique is still the standard treatment for clinical node negative NSCLC.

One and One half Ventricular Repair

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Introduction: The One and One half ventricular repair recruits the hypoplastic right ventricle, presumably providing kinetic energy and pulsatility to pulmonary circulation, while the bidirectional Glenn reduces the volume load of the right ventricle. By this operation the poor outcome of biventricular repair and the well know complications of the Fontan circulation seems to be avoided.

Patients and Methods: From August 2001 to March 2005, three patients underwent One and One half ventricular repair (correction of intracardiac anomaly in association with a bidirectional Glenn). Preoperative diagnoses included hypoplastic RV in two patients (2 and 6 years old), Ebstein's anomaly in one patient (37 years old).

Results: All patients survived, with good functional class I in two patients with hypoplastic RV and another patient with Ebstein anomaly was in functional class II

Conclusions: Surgical treatment of congenital cardiac anomalies in the presence of a hypoplastic or impair RV function by mean of one and one half ventricle repair has the advantage of reducing the surgical risk of biventricular and univentricular repair.

Video Assisted Thoracoscopic Lobectomy in Chest Disease Institute

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Introduction: Video assisted thoracoscopic surgery (VATS) is a minimal invasive technique that allows intrathoracic operation to be performed without making a thoracotomy incision. Our surgical team at Chest Disease Institute (CDI) started this procedure in 1993. At the beginning most of the cases were diagnostic procedure and surgery for pneumothorax. First VATS for lobectomy was done in 2000.

Material and Methods: There were 28 patients who underwent lobectomy at CDI from June 2000 to April 2005. The underlying disease were primary lung cancer (21/28), bronchiectasis (2/28), tuberculosis (2/28), actinomycosis (1/28), sequestration (1/28), and metastatic lung mass (1/28).

Results: There was no peri-operative mortality. Hospital stay was not different from those with conventional procedure. However, longer operative-time is unavoidable. The successful rate of this operation was 63%.

Discussion: Although VATS lobectomy needs steep learning curve and is more expensive for disposable equipments, we modified some techniques to reduce cost. Limitations of VATS are pleural symphysis (75%), incomplete long fissure (25%), enlarged node (8%) and bleeding (8%).

Conclusion: VATS lobectomy is minimally invasive procedure that requires smaller incision, causes less pain, with better perioperative pulmonary function, but needs long learning curve. However the result is encouraging.

Our Experience with Skeletonized Right Gastroepiploic Artery (RGA)

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Background: To evaluate the use of skeletonized RGA for all arterial conduits in OPCAB, by mean of feasibility, indications, early outcomes and the best means to identify the graft patency.

Methods: During March 2002 and September 2004, 144 patients received RGA for revascularization. Harmonic scalpel (Ethicon endosurgery, Cincinnati OH, USA) was used to dissect and skeletonize the RGA pedicle. The RGA to CAD graft is not indicated when the distal end of RGA is less than 2.0 mm and coronary occlusion is less than 95%. Post-op graft patency was evaluated by Medi-Stim butterfly flow meter immediately and, doppler flow study before patient's discharge. Stress echo for wall motion abnormality was done at 6 month and multi-slice CT angiogram at 1 year.

Results: 142 (98.6%) of RGA was anastomosed to RCA system and 2 GEA went to OM. Among this, 14 (9.7%) went to distal RCA, 110 (76.4%) to PDA, 8 (5.5%) to PL, 7

(4.9%) sequential to PDA and PL. Two patients received RGA-Radial composite to PDA, PL and LCx. The total number of graft per patient = 4.2 ± 1.2. The overall operative mortality was 3.3% with 2.2% conversion to on-pump.

Conclusions: Skeletonized RGA increases the graft size up to 5mm. Medi-Stim butterfly diastoic flow = 3.9+2.8 ml/min. Transabdominal doppler flow inconsistently identifies the course of the graft superficial to the liver and diastolic flow curve. Stress echo at 6 month revealed no good conclusive results. Multi-slice CT angiogram identifies RGA at ease. Skeletonized RGA is very feasible and easy to perform. Multislice CT in our hands is the best technique to identify the RGA after CABG.

Minimal Invasive Repair for Pectus Excavatum: Ramathibodi Experience

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Background: Pectus excavatum (PE) is the most common chest wall deformity in children. In 1997, Donald Nuss introduced a new technique of minimal invasive repair for pectus excavatum (MIRPE) by placing a convex metal bar into intrathoracic cavity, which was passed from one side to the other side of the chest behind the sternum and rotated 180o degree, to push the sternum and lower costal cartilages upward. It has been recommended that the pectus bar should be left in place for 2-3 years. Subsequently, the bar can be removed with low recurrence of the deformity. We, thus, present our early experience on MIRPE.

Methods: We performed MIRPE in 17 consecutive patients between September 2004 and May 2005. The median age was 12.7 years. Twelve patients were in pediatric age group (<15 years). Preoperative investigations, namely CT scan, pulmonary function test and echocardiography, were required in all patients. MIRPE was performed under general anesthesia, and an epidural catheterization was employed for pain control intraoperatively and post-operatively for 3 days. We used a 30o thoracoscope for optimal intrathoracic visualization of the placement of the pectus bar; it was positioned intra-thoracically behind the deepest point of sternum and secured with two stabilizer wings. The stabilizers were fixed to the fascia of latissimus dorsi on both sides.

Results: In this study, the average operating time and hospital stay was 97 minutes and 6.2 day respectively. A major intraoperative complication which is pericardial penetration altogether with right atrial injury occurred in one patient. Postoperative complications occurred in 5 patients, including pneumothorax in 3 patients who needed no treatment, wound seroma in one, and pectus bar displacement in one patient that needed a re-operation to re-position the bar.

Conclusions: The early results of MIRPE in our experience are satisfactory in most children making contentment for the patients and parents. We believe that MIRPE has substantial advantages, including short operative time, less or no need for blood transfusion, short hospitalization, limited surgical trauma and good cosmetic results. Therefore, the Nuss procedure (MIRPE) should become the surgical technique of choice for the correction of pectus deformity.

Thoracoscopic Sympathectomy for Hyperhidrosis: A Review of 10-Year Experience and Patient Satisfaction

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Aim: To evaluate the clinical outcome and patient satisfaction of thoracoscopic sympathectomy (TS) for hyperhidrosis.

Methods: Medical records of all patients who underwent TS for hyperhidrosis in Queen Mary Hospital between June 1994 and February 2005 were reviewed. Telephone survey was conducted to evaluate the severity of pre-operative symptoms, clinical outcome of TS and patient satisfaction. A visual analogue scale (VAS) was employed to quantify the effect of TS and the level of satisfaction.

Results: Fifty patients underwent TS during the study period. Thirty-eight patients were successfully contacted to complete the telephone survey with a mean age of 28. Overall response rate was 72%. All patients underwent bilateral TS and reported clinical improvement in hyperhidrosis after TS by a mean VAS score of 84.4% and 86.8% initially after the operation and on follow-up respectively. Compensatory sweating occurred in 31 patients (86%). Thirty-four patients were satisfied with the outcome of the operation with a mean VAS score of 84.4% and 86.8% initially after the operation and on follow-up respectively. Mean duration of follow-up was forty-seven months and 32 patients were followed up for more than one year. Only two patients regretted the decision for operation because of over-dried hands and deterioration of symptoms after TS.

Conclusion: TS is an effective form of treatment for hyperhidrosis with a durable effect. Despite the side effect

of compensatory sweating, nearly all patients reported a high level of satisfaction with the outcome of the operation.

Can Surgeons Do Complete Revascularization in Diabetic Patient Using Off-Pump Technique?

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Background: One argument of interventionists to proceed with multivessels PCI+DES in diabetic patients is that surgeons are unable to complete bypass due to smaller native arteries. To dispute the claim, a retrospective review of 228 DM and 221 non-DM patients was carried out.

Material and Methods: The preoperative co-morbidity, intraoperative measurement of the size of artery at the site of anastomoses with different gauged probe, and number of grafts per patient were recorded. Post operative variables between two groups were compared. The observed number of grafts (0) after surgery was compared to the number of grafts predicted (P) before surgery. The O/P ratio of equal or better than one, signify complete revascularization.

Results: DM patients are older with more co-morbidity (CHF, PVD, dialysis dependent). The grafts/patient = 4.36 + 1.18 (DM) and 4.33 + 1.17 (non-DM). The size of 994 DM and 956 non-DM arteries were gauged. There was no statistical different in size between DM and non-DM, in mm. at each artery.

Conclusion: DM patients were sicker but tolerated OPCAB as well as non-DM. Number of grafts/patient and O/P ratio signify the ability to perform complete revascularization. We are able to bypass the small target vessels at least equal to preoperative anticipation.

COLORECTAL SURGERY

Surgical Resections for Pulmonary and Liver Colorectal Cancer Metastases: A Case Report.

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Liver metastases are observed in 10% to 20% of patients operated on for colorectal cancer, and metachronous liver metastases appear later in approximately 10% to 20% of patients. In the past, only solitary, small, unilobar metastases were resected. Recent advances in liver surgery has brought about a significant reduction in operative mortality to less than 5% even in the resection of as much as 80% of the liver. Since no other treatment is as effective as the surgical resection of colorectal metastases, which offers long-term survival and potential cure, the current approach is to be more aggressive.

We report a case of a 50-years-old male who had undergone sigmoid resection in other hospital 4 months before the present admission. He was asymptomatic, but his CEA level rose to 1,720 mg/ml. The histopathologic examination revealed a moderately differentiated adenocarcinoma of Dukes' C with clear resection margins. CT examination revealed multiple liver metastases of greater than 5 cm and a solitary pulmonary metastasis. Right hepatic lobectomy (segment 5 through 8) and left lateral segmentectomy (segment 2 and 3) were performed with no complications. Resection of the upper lobe of the right lung was performed one month later. Combined 5-FU and folinic acid chemotherapy was given postoperatively. One and a half months after the liver surgery, the CEA level decreased to 50.7 mg/ml, and liver function tests were normal.

Experimental Comparative Study of the Efficacy and Side Effects of Cissus Quadrangularis L.; Vitaceae to Daflon 500 mg. (Servier) and Placebo in the Treatment of Acute Hemorrhoids.

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Background and Aims: Hemorrhoid is the most common cause of bleeding per anus and also many other suffering symptoms. There are both modern medical therapy and herbal medicine for the treatment in mild to moderate severe cases.

Objective: The aim of the study is to compare the efficacy and side effects of Cissus quadrangularis L.; Family Vitaceae to Daflon 500 mg. (Servier) and Placebo in the

treatment of acute hemorrhoids.

Methods: From January 2000 to December 2001, double blind randomized study was designed for acute hemorrhoid patients in 3 hospitals (Rajavithi, Cholburi, and Somdej Sriracha Hospitals). Each group of 80 patients was randomly treated with C. quadrangulris, Daflon or placebo with a total of 240 patients in each hospital. Inclusion and exclusion criteria were as described in the protocol. The results of the treatments, side effects and laboratory blood tests were recorded on the first day and seventh day follow-up after taking 36 tablets of drug (3x2 P.C. for 4 days and 2x2 P.C. for 3 days). ANOVA test descriptive and chi-square were used in this comparative study.

Results: 570 patients could be collected into this study (C. quadragularis 191, Daflon 189, Placebo 190). There were 271 males and 299 females with age ranged from 25 to 40 years. Most of them were workers and middle class people. There was no significant difference in age, sex, occupations, and history of disease among the 3 groups. After 7 days of treatment, it was found that the results from each hospital were somewhat different. However, taken together, the results showed significant efficacy of C. quadrangularis, Daflon and Placebo on the symptoms and clinical manifestations of the patients. No differences in the reported side effects, blood chemistry, or hematological results among groups. No serious adverse event was reported and no discontinuation due to disease progression that required surgery. Both patients and physicians were satisfied with the treatments.

Conclusions: Cissus quadrangularis L. can be used to treat acute hemorrhoids with satisfying efficacy and no serious side effect. However, the behavior of the patients, diet, bowel habit, socioeconomic and culture of Thai people can play significant roles on the study, especially for the diseases like hemorrhoid that have no definite measurement to assess drug efficacy in a comparative study.

Laparoscopic versus Open Right Hemicolectomy for Carcinoma of Colon

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Background: Controversy of whether laparoscopic colonic surgery is superior to conventional open approach still present. The aim of this study was to compare the outcomes of the laparoscopic (LR) and open right hemicolectomy (OR) in our center.

Methods: Between June 2000 and December 2004, 105 patients underwent OR were compared with 77 LR patients. Patients recruited including malignant tumour at right colon underwent either open or laparoscopic right hemicolectomy. Emergency operated patients were excluded. Intra-operative parameters and post-operative outcomes were evaluated.

Results: Patients' demographic factors were comparable between the two groups. Among the 77 LR, 7 (9%) were converted to open. There was no difference in blood loss. The mean operative time of OR was 115.4 compared to 165.1 minutes in LR ($p<0.001$). There was no difference in post-operative surgical related complications including wound infection, leakage, intestinal obstruction, post-operative ileus. Non-surgical related complications were also similar. The median hospital stay was shorter in the LR group vs OR group (6.0d vs 7.0d, $p<0.001$). In the converted to open (LCO) group, the stay is longer (LR vs OR vs LCO, 5.5d vs 7.0d vs 9.0d respectively, $p<0.001$). The median time of resume normal diet was 3 day in LR instead of 4 day in OR. The two-year overall survival rate were 74% in both OR and LR groups, $p=0.904$.

Conclusion: Laparoscopic right hemicolectomy is superior to conventional open approach in terms of shorter hospital stay and earlier resume of normal diet. The complication rate is comparable to conventional open approach.

Laparoscopic versus Open Appendicectomy: Comparison of Results in a Private Institution

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Background: Appendicectomy is one of the most common operations in surgical practices. The general advantages of laparoscopic surgery have been well established in terms of less postoperative pain, shorter hospital stay, and shorter convalescent period. However, the results of laparoscopic appendicectomy are controversial in terms of these advantages.

Objective: The purpose of this review is to compare the results of laparoscopic (LA) and open appendicectomy (OA) in one private institute during the same period of time.

Patients and Methods: All appendicectomy during April 2000 to April 2005 were reviewed. General demographic data, operative time, postoperative hospital stay, needs for postoperative intravenous analgesia and oral analgesia, and complications were collected. All 94 LA's were performed by a single surgeon, while 94 OA's were performed by other certified surgeons.

Results: There were more female patients in the LA group, but other demographic data were not significantly different. Operative diagnoses were acute appendicitis in 76 and 82 cases, ruptured appendicitis in 10 and 4 cases, and gangrenous appendicitis in 5 cases each, of LA and OA groups respectively. There was one conversion due to an appendiceal mass, one coincidental finding of ovarian cyst in LA group, one ruptured ovarian cyst, and one severe endometriosis in LA group which were treated laparoscopically by intraoperative laparoscopic gynecologist consultant. Operative time (40.64 vs. 48.74 minutes, p = 0.006) and LOS (1.37 vs. 2.01 days, p = 0.000) were significantly shorter in LA group. Postoperative IV analgesia requirement (0.27 vs. 1.7 doses, p = 0.000), and oral analgesia requirement (0.6 vs. 2.89 doses, p = 0.000) were significantly less in LA group. Complications included wound infection in 5 vs. 3, ileus in 3 vs. 5, urinary retention in 3 vs. 0, and open wound for delayed primary closure in 2 vs. 0 in OA and LA groups respectively.

Conclusion: LA has advantages over OA in terms of postoperative pain, hospital stay, and postoperative analgesia requirement. The rate of complications was of no difference in LA and OA groups.

Sphincter Preservation with Preoperative Chemoradiation Therapy in Locally Advanced Rectal Cancer

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Purpose: To evaluate the influence of the preoperative chemoradiation in locally advanced rectal cancer on feasibility of sphincter preserving surgery.

Research design: A prospective clinical trial

Materials and Methods: Between 1998 and 2005, preoperative chemoradiation therapy (CTX/XRT) that delivered 45 Gy in 25 fractions over 5 weeks with bolus infusion of 5-fluorouracil (300 mg/m2/day) or capecitabine (2000mg/m2/day) was given to 42 rectal cancer patients admitted to the Department of Surgery, Siriraj hospital, Bangkok. The pretreatment stage distribution, as determined by endorectal ultrasonography and computed tomography of the pelvis, included uT3N0 in 90.48% and uT3N1 in 9.52% of cases. Approximately 6 weeks after completion of CTX/XRT, surgery was performed in every patient. The choice of the surgical procedure was at the surgeon's discretion.

Results: The patient population consisted of 25 males (59.52%) and 17 females (40.48%) with a median age of 57 years (range 32-79 years). Distal border of the tumors was located at a median of 5 cm (range 2-10 cm) above the anal verge. Thirty cases (71.43%) had distal border of the tumors within 6 cm from the anal verge. The pathological tumor stages were T1N0 in 2 cases (4.76%), T2N0 in 9 cases (21.43%), T2N1 in 4 cases (9.52%), T3N0 in 12 cases (28.57%), T3N1 in 8 cases (19.05%), T3N2 in 2 cases (4.76%) and T4N0 in 1 case (2.38%). The results revealed a 9.52% pathological complete response, a 42.86% downstaging and a 50% sphincter preservation rate. Of the tumors located <6 cm from the anal verge, sphincter preservation was accomplished in 30% of patients. The pretreatment location of the distal border of the tumors (<6 cm vs. >6 cm from anal verge) was the only factor predictive of sphincter preservation (p <0.001). No local recurrence was detected during the period of follow up (median 23 months).

Conclusions: The administration of preoperative chemoradiation for locally advanced rectal cancer is associated with tolerable toxicity and high rates of tumor downstaging. The treatment allowed anal sphincter preservation without increasing rate of local recurrence.

A Comparison of Postoperative Complications between Urgent and Elective Closed Hemorrhoidectomy: A Prospective Study

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Purpose: To compare postoperative complications between urgent and elective closed hemorrhoidectomy in the following aspects: bleeding within one week, wound infection, and wound dehiscence at 2nd and 4th week.

Research design: Prospective, non-randomized study

Methods: From May 2003 to Nov 2004, 46 patients with thrombosed hemorrhoid undergoing urgent hemorrhoidectomy were collected and compared with 54 patients undergoing elective hemorrhoidectomy. Gender, age, and number of hemorrhoidectomy of the two groups were studied. Immediate postoperative bleeding together with wound dehiscence at 2nd and 4th week was analyzed by Chi-sqaure test.

Results: There were no significant differences in gender, age, and number of hemorrhoids resected in each patient (urgent/elective, 2.24 /2.17) between the two groups. In urgent group, one patient experienced bleeding which ceased spontaneously. In elective group, there were

2 patients with post-op bleeding. One needed surgery to stop bleeding and the bleeding stopped spontaneously in the other. At 2nd week, there were 5 wound dehiscences (10.8 %) in urgent group and 7 (11.7 %) in elective group which were not significantly difference (p = 0.120). At 4th week, no more new wound dehiscence was detected and all wounds completely healed.

Conclusions: There was no difference in postoperative bleeding and wound dehiscence between urgent hemorrhoidectomy and elective hemorrhoidectomy. Early complications of urgent hemorrhoidectomy were comparable to elective hemorrhoidectomy.

Laparoscopic Restorative Proctocolectomy

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Background: The modern era of restorative proctocolectomy began just over 20 years ago. Now this technique is increasingly being performed using minimal invasive surgery. In the literatures, reported technique of laparoscopic restorative proctocolectomy has usually included a Pfannenstiel incision to enable the major part of the operation to be done openly and also included a protective ileostomy.

Method: I would like to report a technique of laparoscopic restorative proctocolectomy using a small Mc Burney incision for ileal pouch construction; all other steps were performed entirely laparoscopically. Protective ileostomy was not done routinely.

Conclusion: Laparoscopic restorative proctocolectomy using Mc Burney incision for pouch construction is technically feasible and safe. Protective is not mandatory.

Laparoscopic D3 Dissection for Right Colectomy

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Background: Oncologic principle of colon cancer surgery is composed of good bowel margins and adequate lymphadenectomy. Especially for potential curable diseases, D3 dissection should be performed. Now there is an evidence to support that laparoscopic colectomy is as equivalent as open surgery in terms of adequate resected margins, adequate lymphadenectomy and lymph nodes harvesting. But the technique of dissection, especially D3 dissection for right colectomy, seems to be technically difficult because of high vascular variation of right colon and pancreatic head area.

Method: To describe the steps and simplify the technique of laparoscopic D3 dissection for right colectomy including patient position, ports placement, colon mobilization, vessel dissection and ligation by medial to lateral approach.

Conclusion: Laparoscopic D3 dissection for right colectomy provides an oncologic resection as equivalence as open surgery and this technique is simplified and safe.

Closed Lateral Internal Sphincterotomy Using Modified Endoshere Cut Scissors.

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Backgrounds: Internal sphincterotomy remains the gold standard for the treatment of chronic anal fissure. However, it is associated with immediate wound bleeding and hematoma which can usually be corrected by pressure dressing for half an hour.

Purpose: The aim of this procedure was to study the intra-operative and immediate postoperative wound bleeding, hematoma, and duration of pressure dressing by using modified Endoshere cut scissors for closed lateral internal sphincterotomy.

Methods: Patients with chronic anal fissures received closed lateral internal sphincterotomy by using modified Endoshere cut scissors in standard technique. The self-retaining retractor was inserted into the anal canal to permit adequate exposure of the anal fissure after local anesthetized with 0.5% xylocaine with adrenaline 40 ml at perianal area. The intersphincteric groove was identified, and then the small stab incision was made at the lateral side. The surgeon (our staff or fellows in colorectal surgery department) used the forceps to expose the internal sphincter, then sphincterotomy was done with modified Endoshere cut scissors. After the operation was finished, no pressure dressing was applied at sphincterotomy wound.

Results: Ten patients had closed lateral internal sphincterotomy performed by using modified Endoshere cut scissors. Our results showed that there were no intra-operative and immediate wound bleeding, hematoma, and escharing on anal mucosa and anoderm. No pressure dressing was required.

Conclusions: Modified Endoshere cut scissors is useful for closed lateral internal sphincterotomy. Our experience in 10 patients showed no intra-operative and immediate postoperative wound bleeding and hematoma. The pressure dressing is unnecessary. The long term results remain to be studied.

NEUROSURGERY

Symptomatic Tarlov Cyst: Report and Review

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Tarlov or perineural cysts are nerve root cysts found most commonly at the sacral spine level arising between the covering layers of perineurium and endoneurium. The cysts are relatively rare and most are asymptomatic. Some Tarlov cysts can exert pressure on nerve element resulting in pain, radiculopathy and even cauda equina syndrome. There is no consensus on the appropriate therapeutic options of Tarlov cysts.

The authors present a case of two sacral cysts diagnosed with magnetic resonance imaging. Surgical treatment was performed by sacral laminectomy and wide cyst fenestration. The neurological deficits recovered and had not recurred after a follow-up period of nine months. The literature was reviewed and discussed.

Surgical Results of Craniocervical Junction Tumors

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Introduction: Craniocervical junction tumors are rare diseases which have complexity and variety in management. We report our findings and surgical outcomes in the last 8 years experience (Jan 1997-Dec 2004).

Research design: Retrospective descriptive study.

Method: Clinical data, radiological examinations, and operative notes were evaluated, and additional follow-up information was obtained from out-patient examinations, and telephone calls.

Results: There were totally 25 patients. We treated 9 chordomas, 8 meningiomas, 3 cysts, 2 schwannomas, one each of aneurysmal bone cyst, plasmacytoma, and tumor metastasis. Twenty-nine operative procedures were performed, classified as 12 anterior approaches, 9 posterior-lateral approaches, and 8 posterior approaches. Gross total removal was achieved in 17 cases (68%), subtotal removal in 6 cases (24%), and partial removal in 2 significantly improved cases (8%). Re-operation was performed in 6 cases. Median follow-up time was 31 months. We found significant improvement in Karnofsky Performance Scale (KPS) scores (69.41 vs 85.29, p=0.003).

Conclusion: Appropriate surgical approaches can help surgeons for successful tumor removal with less surgical morbidities, nevertheless recurrent tumors occasionally occur, so long term follow-up is needed to fulfill successful management.

Three Dimensional Frameless Stereotactic Guided Pedicle Screw Fixation of the Spine: Early Experiences in King Chulalongkorn Memorial Hospital

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Objective: To study the accuracy and safety of pedicle screw insertion by three dimensional frameless stereo tactic guided technique.

Setting: Division of Neurological Surgery, Department of Surgery, Faculty of Medicine, Chulalongkorn University

Research Design: Descriptive study

Materials and Methods: Twelve patients undergone spinal surgery using three dimensional frameless stereotactic guided technique at King Chulalongkom Memorial Hospital (KCMH) during June - December 2004. In all patients, post-operative CT scan of the operated spinal segments were obtained and evaluated for the position of each screw placed. Medical records were reviewed and all patients were interviewed by telephone to assess clinical outcome and complications

Results: 51 pedicle screws were inserted in 12 patients. Postoperative CT scan of the instrumented spine revealed that 50 screws were considered grade I screw while one screw was considered grade II. No patient suffered direct vascular or neurological injury.

Conclusion: Three dimensional frameless stereotactic guided technique provides additional safety to spinal instrumentation

Expression of J1-31 Protein in Astrocytic Lesions

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We evaluated the expression of J1-31 protein in 72 astrocytic lesions, including 16,17,2,4,4,20, 2 and 7 cases of reactive gliosis, pilocytic astrocytoma (PA), pleomorphic

xanthoastrocytoma (PXA), subependyrnal giant cell astrocytoma (SEGA), ganglioglioma (GG), low-grade diffuse astrocytoma (AII), anaplastic astrocytoma (AIII) and glioblastoma multiforme (GBM), respectively. J1-31 was strongly expressed in all cases of reactive gliosis, in contrast to the negative result in all AIIIs, GBMs, SEGAs, PXAs and GGs. The antibody also recognized tumor cells in all PAS, but the degree of intensity tended to be weaker and less diffuse than that observed in piloid gliosis. Of the 20 AIIs, 6 were completely negative for J1-31, whereas 10 contained J1-31 reactive astrocytes and/or reactive neuropil.

In summary, expression of the J1-31 protein is strongest in reactive astrocytes, and it is markedly reduced in high-grade diffuse and circumscribed astrocytomas (except PA), and GG. J1-31 immunostain cannot differentiate PA from piloid gliosis, but may be helpful in the distinction between AII and reactive gliosis.

Operative Results of Traumatic Intracranial Hematomas with GCS 3 and Fixed Dilated Pupils

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Background: In patients who suffer severe head injury and develop transtentorial brain herniation from intracranial hematoma to the degree that there are no brain stem reflexes, no response to pain stimuli, with Glasgow coma scale score (GCS) of 3 and fixed dilated pupils, it is generally accepted that surgery will not improve their condition. However there are some reports that surgery may improve the patient's condition.

Objective: The purpose of this study is firstly to determine the results of surgery in patients who suffered head injury with intracranial hematoma, transtentorial brain herniation, GCS 3 and whose pupils did not respond to light, and secondly to decide what factors determine the result of treatment.

Patients and Methods: This is a retrospective study of patients who sustained head injuries with intracranial hematoma, transtentorial brain herniation, GCS of 3, pupils not react to light and were not in a state of shock. All cases received emergency surgical craniotomy with preoperative medication of a bolus dose of 20% Mannitol 1gm/kg. Factors for consideration included the type and size of the hematoma, distance of midline shift, time from admission to consciousness deterioration (to GCS 3), the response to Mannitol, and the time from falling to GCS 3 to surgery. The results were measured by using Glasgow Outcome Scale (GOS) at 6 months after treatment. The study period was from 1995 to 2004.

Results: There were 10 patients, all male, aged between 15 and 49 years. The diagnosis was subdural hematoma (SDH) in six patients, epidural hematoma (EDH) in three patients, and a combination of SDH and EDH in one patient. In the six SDH patients, three made good recoveries (GR) and three expired. The three patients that made GR were operated on within 0.5 to 2 hours since their GCS falling to 3. The time from admission until their GCS fell to 3 was between 0 to 2 hours. Three patients with SDH and one patient who had EDH combined with SDH who expired were all operated on between 2 and 10 hours after their GCS fell to 3. Of the three patients who suffered EDH, one made a GR while two expired.

Summary: In this study of ten patients, six suffered SDH and their treatment results were GR in three and three expired. Three of the remainders suffered EDH and one made GR and two expired. The last patient who suffered both SDH and EDH expired. A factor that influenced the outcomes was the time between the falling of GCS to 3 and surgery.

ORTHOPEDIC SURGERY

Therapeutic Effectiveness of Siriraj Hospital Practice Guidelines in the Treatment of Lumbar Disc Herniation

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Study design: A retrospective review of data and results of treatment in patients with lumbar disc herniation in Siriraj Hospital, compared before and after the guideline usage.

Objectives: To evaluate the outcome of treatment and the length of hospital stay before and after using Siriraj Hospital practice guidelines for lumbar disc herniation.

Summary of background data: Lumbar herniated nucleus pulposus (HNP) can be managed with various types of methods. Effectiveness of treatment depends on physician's experience. So Siriraj Hospital had developed practice guidelines in managing lumbar disc herniation.

Methods: One hundred and nineteen new cases of lumbar HNP were treated by conventional one level

discectomy at Siriraj Hospital from December 2000 to March 2002. Fifty nine cases were before using the guidelines (December 2000 to June 2001) and 60 cases after using the guidelines (October 2001 to March 2002). They were reviewed for sex, age, occupation, underlying disease, site of pain, neurological deficit, level of operation, intra-operative finding, complication, and length of hospital stay (LOS). The data were analyzed by Chi-squire, T-test, and Mann-Whitney test.

Results: The LOS in the after guideline usage group was significantly lower than the before guideline usage group (P = 0.002). The average LOS after using guideline was 9.82 days (4-26 days), and before using guideline was 12.90 days (5 - 40 days). Pre-operative data in the two groups were not statistically different. The most common level of operation was at L4-5 level (59.32% in before group and 71.67% in after group) and no one was operated at L3-4 level. Complication was found each in both groups; foot drop in the former group and dural tear in the latter group.

Conclusions: Siriraj Hospital practice guidelines for lumbar disc herniation provided benefits for physicians in the management of lumbar HNP patients. The protocol was proved to reduce the LOS and could apply to patients without increasing the post-operative complications.

The Safety and Efficacy of Total Knee Arthroplasty in Patients 75 Years of Age and Over

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Background: Recent studies have established the cost effectiveness and safety of total knee arthroplasty. As the population aged, it is important to determine whether these procedures are equally beneficial in the elderly.

Objectives: To evaluate the short term safety and efficacy of total knee arthroplasty in patients 75 years of age and over at our institute.

Materials and Methods: Between July 2001 and June 2003, the preoperative and postoperative physical and functional data were collected from 66 consecutive patients (70 knees), age 75 years and over (averaged 78 years), who underwent total knee arthroplasty. The collected data were focused on the patient demographics and characteristics, co-morbidities, postoperative complications, morbidities, mortalities, knee scores, and functional scores. The average follow-up period was 2 years.

Results: Our results showed that the peri-operative mortality rate was zero. Only one (1.5%) patient died from congestive heart failure at 20 months after surgery. The peri-operative morbidity rate was low and postoperative surgical complication rate was 6%. Patient satisfactions were good and excellent in 86% of the patients. The most dramatic postoperative functional gains were seen in the most disabled patients. With careful patient selection and closed peri-operative monitoring to minimize medical complications, total knee arthroplasty can be performed safely in patients 75 years of age and over, with promising excellent pain relief and improved functional outcome.

Results of Treatment of Legg-Calve-Perthes' Disease in Siriraj Hospital

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Background: The optimum choice for the treatment of Legg-calve-Perthes' disease (LCPD) was unknown. Multiple factors affected the decision of management and the patients were presented to the doctor with various degree.

Objectives: To assess the results of the treatment of the LCPD in Siriraj hospital by mean of the epidemiologic data and comparison in various surgical treatments.

Methods: The data of patients with LCPD between 1990 and 2003 were collected for retrospective cohort study. Additional studies through hand searches from major orthopaedic journals and textbooks were also carried out. We initially identified 27 eligible children for evaluation and 9 patients were dropped out by various reasons. Six patients were treated with innominated osteotomy and 4 patients by varus derotation osteotomy. The remainders were treated with combined surgery. All patients were assessed at 1 year or more, for age, sex, side, radiographic and clinical at risk signs, Catteral classification, Struberg classification, Herring classification, Salter and Thomson classification and complications. The surgical techniques were compared among the three procedures for the functional outcome and satisfaction. The statistical assessment was by ANOVA method.

Results: From 1990 to 2003, at Siriraj hospital, 27 cases were treated for LCPD. There were 25 boys and 2 girls. Eighteen patients underwent surgery. According to the criteria and procedures, the patients were divided into three groups by types of surgical procedure, first group by the Salter or innominated osteotomy in 6 patients, second group by the varus derotation osteotomy in 4 patients, and third group by the combination procedure in 8 patients. The other 9 patients were dropped out because 4 patients

used brace orthosis and 5 patients were lost to follow-up. Of the 18 operated patients, 5 boys and 1 girl received Salter osteotomy and 3 boys and 1 girl received varus osteotomy. The remainders, all boys, received combined procedure. Mean age at onset was 8.11 years. The ANOVA statistic method was used to assess functional outcome and the results was not significantly different.

Conclusion: The results of three different surgical procedures for LCPD were not significantly different in functional outcome.

Prevalence of Various Clinical Signs in Patients with Cervical Spondylotic Myelopathy

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Background: Cervical spondylotic myelopathy (CSM) is the most common cause of acquire spastic paraparesis in adults. Early diagnosis by history, physical examination and further imaging study will meet our goal in early treatment before severe neurological deterioration occurs. There were several data in prevalence of various tests in patients with CSM in medical journals but there was still no study about the prevalence of these clinical tests in Thai patients with CSM.

Objective: To study the prevalence of various clinical signs and their correlation to the pathological level in patients with cervical spondylotic myelopathy and provide epidemiologic clinical data.

Methods: Forty six Thai patients who were admitted at Siriraj Hospital with clinical and imaging study that indicate CSM were enrolled in a cross-sectional, descriptive study. Various clinical tests were done on these patients to find out the prevalence of various clinical signs and their correlation signs with each pathological level.

Results: There was high prevalence of Hoffman reflex (86.96%) and hyperreflexia (91.30%) in CSM patients. There were high prevalence of scapulohumeral reflex in pathology from C 3, 4 disc level and above (88.24%) versus low prevalence of this sign in pathology below this level (6.89%). There was no significant difference between prevalence of inverted radial reflex in pathology from C 4, 5 disc level and above (65.71%) versus pathology below this level (63.63%). There was high prevalence of Hoffman reflex in pathology from C 5, 6 disc level and above (88.64%) versus pathology below this level (50%).

Conclusions: There was high prevalence of positive Hoffmann reflex and hyperreflexia in patients with CSM. There was also high prevalence of positive scapulohumeral reflex in pathology from C 3, 4 disc level and above. There was no difference in prevalence of inverted radial reflex in pathology from C 4, 5 disc level and above versus below this level. There was high prevalence of Hoffman reflex in pathology from C 5, 6 disc level and above.

Anatomical Variation of Lateral Femoral Cutaneous Nerve around Anterior Iliac Crest in Thais

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Background: Lateral femoral cutaneous nerve usually passes along the inner surface of the crest and medial to the anterior superior iliac spine. Many orthopaedic procedures that are operated around anterior superior iliac crest may cause injuries to the nerve.

Objective: To investigate normal variation of the nerve in relationship to the anterior superior iliac spine.

Materials and Methods: The study was carried out as a survey research in preserved 40 Thai cadavers. Dissection was performed on both sides. The anterior superior iliac spine was used as the referent point. The distribution of the nerve was dissected from spinal foramens down to iliac crest, anterior superior iliac spine and at about 5 cm below the spine. Distances between the nerve and the iliac crest and anterior superior iliac spine were measured.

Results: Mean distance between iliac crest and the nerve is 4.52 cm. All the nerves ran medially to the iliac crest and inferiorly below the ASIS. In all specimens the nerve passed medial to the anterior superior iliac spine. In addition, there were 2 nerves (2.5 %) with a branch joining with the ilioinguinal nerve.

Conclusions: Most of the specimens reveal classical nerve distribution while 2.5 % had variation in the course of the nerve in which a branch of the nerves joined with the ilioinguinal nerve, making it vulnerable to injury during surgical procedure around the anterior part of iliac crest.

Functional Outcome after Surgical Treatment of Pathological Fracture & Impending Fracture at Peritrochanteric Region

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Seventeen patients with pathological intertrochanteric fracture and impending fracture were treated by internal fixation at Siriraj Hospital from 1998 to 2003. Four men

and thirteen women between the age of 16 and 71 years (average 45 years 7 months) at time of surgery were interviewed by telephone or questionnaire at an average of 3 years and one month after surgery (ranged from 1 to 8 years).

Ten patients had metastatic lesion (CA breast 3, CA lung 2, Multiple myeloma 1, others 4); one had aneurysmal bone cysts; five had fibrous dysplasias; one had chondroblastoma. Eleven patients had impending fracture, the remainders had fracture. All except for one patient who was treated by valgus osteotomy, were treated with curettage in conjunction with a sliding hip compression screw and plate. Seven patients were augmented with bone grafting, eight with bone cement, and two without augmentation.

The result of treatment, using Functional Evaluation Form of Reconstructive Procedures After Surgical Treatment of Tumors of the Musculoskeletal System, was reported in percentage of 13 to 93 (average 78%). Four patients, all with metastatic diseases, died before the interview. Two were loss of contact.

The Radiographic Measurement of the Acetabular Diameter of Cadavers in Comparison to the Direct Measurement

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Background: In the surgical procedure of the acetabulum, especially in the total hip arthroplasty, it is necessary to evaluate the diameter of the acetabulum as a step in the preoperative planning. According to previous paper about the radiographic measurement of the acetabulum, the iliac oblique view gave the most accurate value comparing to the direct measurement of the cadaver pelvis.

Objective: To find a new view of radiograph that gives a more accurate measurement than the iliac oblique view

Materials and Methods: This study was performed in 10 cadavers; 5 males and 5 females with the mean age of 69.7 years (range 42 - 86 years). Twenty hips were studied by taking their radiographs in 10 positions: 90 degrees (AP view), 80 degrees, 70 degrees, 60 degrees, 50 degrees, 40 degrees, 30 degrees, 20 degrees, 10 degrees and 0 degree. The cadaver pelvis was placed on the x-ray machine in antero-posterior view and rotated in 10 degree steps. The direct measurement of the acetabular diameter in the cadaver and the measurements in all views of pelvis radiographs were accomplished by using a Vernier caliper. The landmark to be measured was in the direction from the anterior superior iliac spine to the ischial tuberosity. Intraobserver and interobserver reliability of all of methods were evaluated by 3 physicians, each performed 3 measurements. Each observer measured each radiograph 3 times with an interval of 2 weeks between each reading.

Results: The mean diameter of the acetabulum measured directly from the cadaver was 44.18 mm. ± 4.44 mm., while those measured from the pelvis radiographs in 90 degrees, 80 degrees, 70 degrees, 60 degrees, 50 degrees, 40 degrees, 30 degrees, 20 degrees, 10 degrees and 0 degree were 56.16 ± 3.97, 55.14 ± 4.81, 54.13 ± 4.48, 52.67 ± 4.88, 51.59 ± 4.96, 50.74 ± 4.65, 49.13 ± 4.68, 47.63 ± 4.59, 45.47 ± 4.43, and 44.44 ± 4.68 mm. respectively. The 0 degree view gave the most accurate value. The diameters measured from 0-40 degree views were not statistically different from that obtained from the direct measurement, while the diameters measured from 50-90 degree views were statistically different (p-value <0.001). The intra-observer and interobserver reliability of the 3 observers showed excellent correlations (p-value<0.001).

Conclusions: From our study, the 0-degree view of the pelvis radiograph provided the most accurate value compared with the direct measurement. The 0-degree view is the best view of the pelvis radiograph for measuring the acetabular diameter as a step in the preoperative planning for hip arthroplasty and as a guide to choose the proper prosthetic size.

Preoperative Radiographic Technique for Predicting Patellar Tendon Graft Length

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Background: In cruciate ligament reconstruction surgery, multiple grafts were used. Autogenous bone patellar tendon bone graft (BPTB) was commonly used. Some problems arise from inappropriate length of patellar tendon. If it is too short, selection of another type of graft may be necessary. If it is too long, graft fixation other than an interference screw (standard procedure) may be required. If the length of the BPTB graft could be estimated preoperatively, graft selection and graft fixation can be appropriately prepared.

Objective: To measure the accuracy of preoperative radiographic technique in the estimation of BPTB graft length.

Methods: The study was performed in 14 cruciate ligament insufficiency patients. Preoperative lateral radiograph at 90-degree knee flexion was measured to

compare with actual patellar tendon length that measured intraoperatively under 50 N tension.

Results: The results showed average length by pre-operative film of 41.4 mm (80=3.5) and actual length of 42.6 mm (80±3.4), mean different 1.20 mm, and correlation coefficient = 0.817 (P <0.0001), 95%CI (0-2.4).

Conclusion: This technique can be used to estimate patellar tendon graft length.

PEDIATRIC SURGERY

Diagnostic Laparoscopy Prevented Unnecessary Laparotomy in Selected Cases of Pediatric Intra-abdominal Mass

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Introduction: In certain circumstances, an abdominal mass in children can not be easily diagnosed by clinical data or diagnostic imaging. Examples of those situations are diffuse masses without specific organ confinement, or a mass localized in an uncommon region. We present our experiences of diagnostic laparoscopy which emphasized its role as an intermediate procedure, before an exploratory laparotomy.

Patients and Procedures: Six children, age ranged from 3 to 12 years, with the diagnosis of intraabdominal mass underwent diagnostic laparoscopy. Each operation was begun with one-port technique. One or two instrument ports were added as appropriate for additional procedures, such as organ mobilization, biopsy, or peritoneal fluid sampling, Except for the patient No. 2, cases with tuberculosis and lymphoma could be preceded to further chemotherapy. Patient No.2 experienced gastric bleeding due to gastric involvement of lymphoma, necessitating partial gastrec-tomy. Appendiceal mass in patient No. 4 was managed conservatively and the patient did not experience appendicitis up to 2 year of follow-up

Conclusion: Diagnostic laparoscopy is a valuable tool in the setting of pediatric abdominal mass. The procedure can replace laparotomy in selected situations.

High-dose Steroid Therapy Did Not Affect Early Outcome in Post-operative Biliary Atresia

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Purpose: To review early results in the treatment of biliary atresia (BA) and to evaluate the use of short-term steroid therapy after Kasai operation in infants with BA.

Methods: Consecutive BA patients undergoing Kasai operation between 2001 and 2004 were reviewed. In the first two years, the use of steroid was not implemented in the protocol. In the last two years, all patients received prednisolone (4 mg/kg at alternate day) up to 12 weeks. Both groups received ursodeoxycholic acid and oral antibiotics for at least 6 months post-operatively. Early outcome was assessed by the status of jaundice at 6 months after surgery.

Results: Thirty-eight BA patients (17 in control group and 21 in steroid group) were studied. Mean age at operation was 92.4 (34.5 days (52-198 days). Overall, 60.5% of patients were jaundice-free at 6 months post-operatively. Serum total bilirubin at 7 days after surgery was not a reliable predictor of early outcome. Thirteen of 21 (62%) in the steroid group and 10 of 17 (59%) in the control group were jaundice-free at 6 months after surgery, which was not significant.

Conclusions: Satisfactory early outcome of the treatment for BA was achieved in 60% of cases. Short-term steroid therapy in post-Kasai BA patients was not significantly beneficial based on the status of jaundice at 6 months in this series. This might be due to the fact that the majority of the patients received definitive treatment too late.

Successful Separation of Thoracopagus Conjoined Twins with Single Extrahepatic Biliary System at Khon Kaen Hospital

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Separation of conjoined twins remains one of the greatest challenges to surgeons and multidisciplinary teams. The aim of this study was to report a successful separation of thoracopagus conjoined twins at Khon Kaen Hospital.

Male thoracopagus conjoined twins were delivered by Caesarean section with a total weight of 5,590 gm. They had a small common omphalocele with an umbilicus containing one vein and four arteries. Investigations showed separate hearts and joined duodenum. Fusion of the liver was demonstrated and separation of extrahepatic systems was suspected. Separation of the twins was performed at the age of 3 months. Operative findings revealed fusion of the intestine from the second part of the duodenum to the terminal ileum with two normal colons. Surprisingly, an intussusception was found at the terminal ileum of twin B and invaginated retrogradely into the joined jejunum. Fusion of the liver with ill-defined line of demarcation and only one extrahepatic bile duct was noted. The GI tract and the liver were divided with difficulties. One area of good bile drainage at the edge of twin B liver was noted. It was anastomosed with Roux-en-Y enteric loop similar to the Kasai's procedure. The abdomen of each twin was closed and synthetic materials were grafted in some areas. Postoperative course was hectic but both twins recovered satisfactorily within one month.

The experience in this case suggested that conjoined twins could be successfully separated at a provincial tertiary hospital. Meticulous preoperative planning was very important for a successful separation of conjoined twins.

Transanal Endorectal Pullthrough for Hirschsprung's Disease: An Experience of 28 Cases

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Purpose: To study post-operative complications and short-term outcome in patients with Hirschsprung's disease (HD) who underwent transanal endorectal pullthrough operation.

Methods: HD children who were operated by transanal endorectal pullthrough technique between January 2001 and December 2004 were recruited. Post-operative complications after surgery were reviewed and analyzed. Functional outcome of defecation and urination were assessed at 1, 3 and 6 months postoperatively. Data are expressed as mean and SD.

Results: Twenty-eight pediatric patients (M:F = 22:6) were selected to be operated upon by transanal endorectal pullthrough technique which is the less invasive definitive treatment for HD. Even though a new technique in the design of the remain muscular rectal cuff-Modified Swenson-Soave-Soottiporn (SSS) technique, introduced by Soottiporn Chittmittrapap in 2001, was applied to some patients, they will be counted as the same as others who underwent classical transanal endorectal pullthrough. Two of them had protective colostomy from other hospitals prior to the definitive operation. Most of the patients were diagnosed with the evidence of clinical signs and symptoms which were confirmed with positive barium enema. Manometry and/or rectal suction biopsy were also performed in 14 patients (50%) and rectal biopsy was very useful to confirm the diagnosis in 5 patients with questionable barium enema findings. Duration between symptoms and the operation was 2.8 + 6.9 months. Most of the patients (22/28) underwent surgery within 1 year of age (range 0.7-108 months). There was no intra-operative complication. Mean operative time was 198 + 51 min. Four patients (pts.) received blood transfusion post-operatively. Mean time to full feeding was 5.05 + 1.7 day. Early complications detected within 6 months included persistent constipation (3 pts), frequent defecations (>5 /day) with perianal excoriation (5 pts), all of them responded to conservative treatment, enterocolitis (4 pts), and anastomotic strictures (3 pts), all responded to 1-3 anal dilatation). All of the patients had retained urinary catheterization for only 48 hours and then removed on the third day postoperatively. No any urinary dysfunction was detected in all patients. Generally, 20 patients had excellent functional outcome, 5 had minor problems, and 3 had major problems. These three patients (3/28 - 10.7%) required another trans-abdominal operation with successful outcome (2 dilated ganglionic segments, 1 retained aganglionic segment).

Conclusions: Although transanal pullthrough is a safe, effective and less invasive procedure, it is not without significant morbidity. Early functional outcome in this series was acceptable. However, further study of long-term outcome is mandatory.

Rare Presentations of Pancreatic Tumors in Children

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Case Presentation: Unless compressing the pancreatic duct or the duodenum, tumors of the pancreas are asymptomatic. We report two cases of rare pancreatic tumors in children. The first child complained of abdominal discomfort and had a full investigation. Her CT scans revealed a cystic lesion suspected to be choledochal cyst. Operative findings revealed a mixed cystic mass of the pancreas,

histologically comfirmed to be dermoid cyst of the pancreas. The second child had a check up as she was small for her age. Her ultrasonography and CT scans revealed a solid mass at the pancreatic head. The histological reports confirmed a carcinoid tumor of the pancreas.

Conclusions: Pancreatic tumors may result in various presentations and mostly are asymptomatic. These tumors are curable in early stages. Thus, awareness of the disease along with thorough physical examination and appropriate investigations in children should make early diagnosis possible.

Early Post-operative Complications of Liver Resection in Children

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Purpose: To review early post-operative complications of liver resection in children.

Methods: Children surgically treated for liver mass between January 1996 and December 2004 were reviewed. Demographic data, clinical data, and pathological information were collected. Post-operative complications within 60 days after surgery were reviewed and analyzed. Data are expressed as mean and SD.

Results: There were 52 pediatric patients (M:F = 7:6) underwent resection for liver masses. Their age range was between 2 and 180 months old (36.64 + 44.05 months). Mean weight was 12.02 + 6.76 kgs. Their main clinical presentations were asymptomatic mass and abdominal distension. CT scan was performed in all patients to assess the resectability. Surgical procedures included 17 hepatic lobectomies, 3 extended hepatic lobectomies, 3 segmentectomy, and 2 multiple segmentectomies. Histologically, there were 38 hepatoblastomas, 5 hemangioendotheliomas, 2 harmatoma, 4 hepatocellular carcinoma, and one each of embryonal sarcoma, nodular hyperplasia and teratoma. Mean operative time was 251.04 + 89.22 min. Mean blood loss was 72.68 + 66.03 mL/kg. (ranged from 5.6 to 270 mL/kg). Mean ICU stay was 2.8 + 3.2 days (0-14 days). Intraoperative complications occurred in 6 (11.5%), all related to IVC problems either involvement that needed partial resection or injury. Most of the patients were discharged from the hospital within 10 days after surgery. Postoperative complications occurred in 15 patients (29%) including intra-abdominal bleeding requiring emergency surgery (3), subphrenic collection successfully treated by percutaneous drainage (1), acute liver failure with spontaneous recovery after operative treatment (3), wound infection (2), and atelectasis (6). No mortality within 60 day after surgery occurred.

Conclusion: There was no postoperative mortality related to liver resection in our series. Although all post-operative complications were manageable, its fatal potentials should not be underestimated.

Primary Transanal Endorectal Pull-Through in Neonate with Hirschprung's Disease

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Background/Purpose: Hirschprung's disease is the most common cause of intestinal obstruction in neonates. The patients usually have intestinal obstructive symptoms since birth. There are different types of definite surgical procedures for Hirschprung's disease. We present results of our treatment using primary transanal endorectal pull-through for the patients during neonatal period.

Materials and Methods: Between 2001 and 2005 primary transanal endorectal pull-through was performed in 7 neonates with Hirschprung's disease with informed consent. All patients had frozen section biopsy confirmed Hirschprung's disease. Serial rectal washout and rectal dilatation were done to decompress obstructive symptoms before pull-through operation. Broad spectrum intravenous antibiotics were administered before surgery and continued for another 1-2 days. Results of the surgery were reviewed

Results: There were 7 patients, 3 boys and 4 girls. The patient body weight ranged from 3,100 grams to 4,200 grams. All 7 patients had clinical intestinal obstruction that needed rectal tube wash out. Six patients had delay passage of meconium. Barium enema suspected Hirschprung's disease in 6 patients and was inconclusive in one. Full thickness frozen rectal biopsy was done at the same setting with pull-through operation and demonstrated absent of ganglion cell in all patients. Transanal mucosectomy was done at 1-1.5 cm above dentate line. The lengths of colon resection including rectal mucosa were from 10-19 cm. The patients tolerated full oral feeding within 24-48 hours after surgery. Stooling frequency was 5-9 bowel movements per days in the first week and declined to 2-3 bowel movements per days within 6 months. There was perianal excoriation in 2 cases because of liquid stool but responded well to medical treatment. The duration of hospital stay after surgery was 2-4 days.

Conclusion: Primary transanal endorectal pull-through in neonate is a simplified surgery, no serious

complications, potential for cost saving, comfortable and rapid relieve of parents' difficulties in taking care of their children.

Acute Abdomen in the Neonate: A 2-year Experience at Maharat Nakorn Srithammarat Hospital.

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Objective: To review epidemiologic data, diagnosis, treatment and results in neonatal surgical patients admitted at Maharat Nakorn Srithammarat Hospital.

Materials and Methods: Systematic review of medical records and radiography were done in all neonates with an acute abdominal condition at Maharat Nakorn Srithammarat Hospital, admitted from June 1, 2003 to May 31, 2005.

Results: Fifty-two patients were included in this study. Of these 52 patients, 41 (78.8%) were referred from another hospital. The abnormality could usually be detected by digital per rectal examination in 41 patients (78.8%). All cases needed the abdominal film as a guide for further management, but 4 patients (7.7%) had an incorrect diagnosis. The patients were divided into three groups: high gut obstruction, low gut obstruction and intra-abdominal infection. The high gut obstruction group consisted of duodenal atresia in 2 (3.8%), malrotation with midgut volvulus in 2 (3.8%), and duodenal stenosis in 1 (1.9%). The low gut obstruction group consisted of intestinal atresia in 2 (3.8%), meconium plug syndrome in 13 (25%) and Hirschsprung's disease in 11 (15.4%). The intra-abdominal infection group consisted of necrotizing enterocolitis in 18 (34.4%), meconium peritonitis in 2 (3.8%), and duodenal perforation in 1 (1.9%). These patients were treated by surgical intervention (55.7%), rectal irrigation (21.1%) and medication (30.8%). The overall mortality rate was 23.1%.

Conclusion: Digital per rectal examination and abdominal film are still useful tools to diagnose and treat acute abdomen in the neonate. Almost all these patients required operative intervention with good results, except in the necrotizing enterocolitis patients.

PLASTIC & RECONSTRUCTIVE SURGERY

Two-Staged Scrotal Tunnel Flap Repair: Treatment of Self-administered Penile Injection

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Background: The number of patients suffered from complications of self-administered penile injection increase every year. We present a 2-staged scrotal tunnel flap repair to solve their problems.

Methods: From August 2002-May 2004, we performed 8 cases using this technique. All patients used olive oil injection except one misused Formalin injection. The case with previous bead-embedded penile skin was included. The first stage operation utilized the excised skin lesion of penis buried to form subscrotal tunnel. Three months later, the second stage operations, the flap detachment, were managed in 3 styles: 4 cases by linear incision, 2 cases by W-shapes incision and the last 2 cases by Z-plasty incision.

Results: In all of the cases, the flaps were healthy and the wounds had neither dehiscence nor infection. The patients had normal sensation and painless erection.

Conclusion: We have found that in the 2-staged scrotal tunnel flap repair, especially with Z-plasty style, is a simple operation that regains satisfied function and cosmetic outcome in the complicated self-administered penile injection patient.

Microvascular Free Flap Reconstruction - Functional and Aesthetic Considerations: Experiences in 200 Consecutive Cases

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Purpose: Free tissue transfer has been accepted as one of reconstructive option, offering one stage and composite tissue reconstruction. With more experience and better refinement of surgical technique, the functional and aesthetic results of this work have been considered more than in the past. The objectives of this study are to present the outcomes using this technique in the reconstruction of various defects in consideration of functional and esthetic results.

Materials and Methods: A retrospective study was

conducted by reviewing the patient records of 200 consecutive cases in Srinagarind Hospital, Khon Kaen University, Thailand during the year 1987-2005, in whom microvascular free flaps were used for reconstruction of defects in various parts of the body. The primary defects, types of the flaps, and results, particular in consideration of functional and cosmetic aspects, were reported.

Results: The study included 200 patients, 117 females and 83 males whose ages ranged from 2 to 85 years. The causes of the primary defects were malignant tumors in 135, benign tumors in 23, trauma in 23, congenital deformities in 12 and other deformities in 7. 209 free flaps were used for reconstruction of these defects. The types of the flaps were radial forearm flaps in 100, fibular flaps in 37, latissimus dorsi flaps in 27, rectus abdominis flaps in 16, parascapular flaps in 10 and other free flaps in 19. There were 1 triple free flap, 7 double free flaps and 3 prefabricated flaps. The flap survival rate was 96.5%. Acceptable functional and cosmetic results were achieved.

Conclusions: With proper surgical technique as well as appropriate preoperative and post operative care, the microvascular free flaps are reliable technique and good choice for reconstruction of various challenging defects. Sometimes, it may be the only method to allow a single stage and composite reconstruction of the complex defect. Additionally, inconsideration for reconstructive unit in extensive and difficult defect, a prefabricated flap or multiple free flaps reconstruction will be a better choice that provides new dimensions for reconstruction of these defects. The proper analysis of reconstructive unit of a defect and selection of the appropriate flap(s) with respect to the requirement of the recipient site are important for achieving good results as well as aesthetic and functional outcomes.

Modified Bilateral Neurovascular Cheek Flaps: A New Technique for Reconstruction of Difficult and Extensive Lower Lip Defects and Review of 85 Cases

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Purpose: The reconstruction of extensive lip defects after resection of tumors is challenging. Ideally, reconstruction of lip defects should restore an adequate oral aperture bounded by a lip capable of sphincteric activity, possessing acceptable sensation, and having satisfactory appearance. Each layer of excised tissue should be replaced. The authors present a modified bilateral neurovascular cheek flap as a new technique for extensive and difficult lower lip reconstruction.

Materials and Methods: The technique is modified from the bilateral neurovascular cheek flap for lower lip reconstruction described by Vatanasapt and colleagues in 1987, by designing rectangular flaps in the cheek tissues lateral to the lip defect on both the skin and mucosal sides. Eighty five cases at Srinagarind Hospital, Khon Kaen University, Thailand, with lower lip defects from resection of carcinoma operated using this technique from April 1988 to January 2005 were reviewed.

Results: There were 72 females and 13 males with ages ranged from 45 to 89 years. Acceptable functional results have been reviewed by intercommissural distance, soft tissue gap, sulcus depth and lip sensitivity. The acceptable cosmetic standpoint was achieved by the reconstruction of skin, mucosa and vermillion border. There remained a noticeable scar from reconstruction of the lip and cheek, but this was considered acceptable by both patients and clinicians, especially since good oral competence was experienced and observed. The changing of the scar lines into line of minimal tension may also improve the cosmetic results.

Conclusion: The technique allows easier flap design and produces better aesthetic and functional outcomes and is a good choice for functional reconstruction of near total, total or difficult lower lip defects

Speech Therapy in Male-to-female Transsexuals

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Background: Transsexual, who appears live as a woman, will often continue to be identified as a man because of his voice, thus hindering his social assimilation. An operative intervention is one method to raise the voice pitch of the patients, but invasive and more complicate than conservative procedure such as speech or hormonal therapy. It has never been studied and reported about speech therapy in Thai language before.

Objective: To assess the potential value in increasing voice pitch after Thai language standard speech therapy in male-to-female transsexuals

Design: Prospective study

Setting: Plastic and Reconstructive Surgery Division, Department of Surgery, King Chulalongkorn Memorial Hospital, Bangkok, Thailand.

Patients: 10 male-to-female transsexuals who had undergone the sex reassignment surgery and never received speech therapy before.

Methods: Voice training consisted of four processes. First, begin with Thai standard fundamental frequency measurement for baseline. Second, training about breathing; toning exercise by compared to musical instrument; words, phrases and sentences were constructed to represent various types of intonation patterns and speech exercise for at least 30 days. The last process composed of instrumental and perceptual assessment.

Results: The results of two assessments agree well with the purpose of the study. For instrumental assessment, 9 of 10 patients showed increased in voice pitch, mean 15.61 Hz (range 4.12-40.76 Hz). For perceptual assessment, 6 of 10 patients were identified as woman's voice, correlated with their post therapeutic fundamental frequency.

Conclusions: In general, fundamental frequency (F0) of male voice ranges from about 100 to 150 Hz; for female voice, F0 ranges from 170-220 Hz. In this study, speech therapy can improve fundamental frequency about 10-20 Hz. The 10-20 Hz. increasing of frequency is clinically significant only in the inconspicuous baseline group (F0 = 150-170 Hz). The lower (<150 Hz) or higher (>170 Hz) baseline groups have potential for useless. The Thai speech therapy appears to be clinically significant only in the inconspicuous fundamental frequency baseline voice transsexual.

UROLOGY

Circumcisor: An Instrument for Circumcision

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Background: Circumcision is a common procedure in surgical practice. However, the operation sometimes doesn't make a good result when using conventional technique "clamp and cut" with arterial forceps and metzenbaum scissor. The unsatisfactory look of asymmetrical cut of right and left wing of prepuce and the difficult hemostasis that renders post-op wound hematoma are the problems of this technique. To solve these problems, an instrument "Circumcisor" is invented.

Objective: To present an instrument for circumcision.

Materials and Methods: Between January 1, 2000-April 30, 2005, "Circumcisor", an instrument used for circumcision was designed, developed, and applied to 21 adult patients who received circumcision in 4 hospitals (Kamphaengphet Hospital 10 cases, Lopburi cancer center 1 case, Rajthani Hospital 5 cases and Petcharat Hospital 5 cases). The instrument composed of two parts, the stand and the splint. The stand was a cylindrical tube with expanded circular base. At the outer surface of the tube there were spiral grooves ran along its length. The splint was also a cylindrical tube with spiral grooves at its inner surface that matched with the grooves of the stand. At the upper part of the splint there were two grooves circled around the tube to indicate the cutting line. To apply the circumcisor, the two parts were connected together. After the prepuce was dorsally slit and hanged with multiple sutures, the instrument was applied to the penis. The splint was adjusted its height (by screwing up or down) to the level of corona of glan penis. The prepuce was then everted down and against the splint. The right and left wing of prepuce were stretched down and symmetrically approximated for cutting line, a loop of stainless wire was then applied on the groove. The prepuce was crushed for 10 minutes and then resected. The raw surface (skin and mucosal layer) was peeled open to stop bleeding points. Then the skin and mucosa were sewn together with plain catgut suture.

Results: The instrument provided a symmetrical cut between right and left wing of the prepuce and offered a good hemostatic control at the raw surface. No complication was found in this study and the patients accepted the cosmetic appearance satisfactorily.

Conclusions: Circumcisor is a new device. It makes circumcision an easy procedure with good cosmetic results and less wound hematoma compared to conventional technique. It is suitable for a general practitioner or a less experienced surgeon.

Is Radical Retropubic Prostatectomy after TURP Feasible?

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Objectives: Radical Retropubic Prostatectomy (RRP) is usually difficult after TUR-P. We assessed the possibility and studied outcomes of Radical Retropubic Prostatectomy in patient who had TUR-P done previously.

Methods: Between August 2001 and April 2005, we

performed 11 cases of RRP in cancer-localized patients who had TUR-P done previously. The patients' operative data and outcomes of the operation were compared to those 47 cases of RRP without previous TUR-P. The operation was performed by one surgeon using the same surgical technique.

Results: Time to the operation, operative time, blood loss, catheterization time and hospital stay were not different among the 2 groups. Bladder neck involvement and anastomosis stricture rate were higher in patients who had TUR-P done beforehand.

Conclusion: Radical Retropubic Prostatectomy after TUR-P is feasible. However, meticulous surgical technique is needed to prevent complication.

Management of Symptomatic Renal Angiomyolipoma: A Review of 7 Cases

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Introduction: Angiomyolipoma (AML) is a benign renal tumor that occasionally requires intervention. Diagnosis and treatment of 7 cases were discussed.

Patients and Methods: A total of 7 cases who were diagnosed of symptomatic angiomyolipoma at Maharaj-nakorn Chiangmai Hospital between January 2004 to May 2005 were reviewed. Of 7 cases, 6 were female (86%). The mean age was 31.6 yrs (range 22-60 yrs). Clinical symptoms were dominated by palpable mass and flank pain (71%). Every case was diagnosed by CT scan findings. The tumor size averaged 15.0 cm. (range 8.5-28 cm.). Treatment consisted of elective partial nephrectomy in 3 cases, emergency total nephrectomy in 1 case and emergency renal embolization in 3 cases.

Results: All cases had no post operative or post embolization serious complication, and none required dialysis. The follow-up period, all three cases in surgical group had no related symptom and 2 cases in this group did not have residual tumor. All cases that had embolization of the kidney had mild flank pain post renal embolization, but did not have other symptom and 2 cases showed decrease in size by follow-up CT scan.

Conclusion: The management approach of angiomyolipoma should be aimed at parenchymal preservation which can be effectively accomplished by limited surgery (partial nephrectomy) or preferably by embolization. Partial nephrectomy or renal embolizations are effective in symptomatic angiomyolipoma, but elective partial nephrectomy post embolization or second embolization may be required.

Laparoscopic Donor Nephrectomy: Preliminary Report.

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Objectives: Laparoscopic Donor Nephrectomy is an established care in many transplant centers. We reported our results of Laparoscopic Donor Nephrectomy.

Methods: Between September 2001 and March 2004, we performed 23 cases of Laparoscopic Donor Nephrectomy. The patients' operative data and outcome of the operation were analyzed.

Results: Of 23 patients, 22 patients successfully underwent the operation. Mean age of the patients was 36.04 years. Average operative time was 242 minutes. Median blood loss was 250 mls (100-1600 mls). Average ischemic time was only 191 seconds. The patients stayed in the hospital for 5.1 days with most of them required Morphine injection less than 2 doses postoperatively. Two patients were re-explored due to massive bleeding. The other one case was converted to opened donor nephrectomy due to technical reason.

Conclusion: Laparoscopic donor nephrectomy is feasible and should be encouraged in transplantation centers as the patients may gain benefit of minimally invasive procedure.

Laparoscopic Radical Prostatectomy versus Open Retropubic Radical Prostatectomy: Short Term Outcome

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Objective: We evaluated the short term outcome of laparoscopic radical prostatectomy (LRP) compared to open retropubic radical prostatectomy (RRP) by retrospective study to see the reproducibility of LRP.

Materials and Methods: Twenty cases of LRP and 44 cases of RRP were reviewed and compared. The demographic data among the two groups were similar in term of age and presenting PSA but different in term of clinical staging.

Results: The mean operating time of the LRP group

(367 min) was longer than the RRP group (165min). However, the mean intraoperative blood loss of the LRP group (650ml.) was lower than the RRP group (1482ml.) and the mean catheter time of the LRP group (11.5 days) was shorter than the RRP group (14 days). The pathologic stage and margin status between both groups were not different.

Conclusion: LRP is feasible and seems to offer benefit over RRP in term of less intraoperative blood loss and shorter catheter time in our early experience. However LRP took a lot more time consumption over RRP. This reflected that LRP was a demanding procedure with a steep learning curve.

Repair of Long Ureteral Segment Loss from GSW Injury with Appendiceal Interposition

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Introduction and Objectives: Ureteral injuries after external violence are rare and occurring in less than 4% of penetrating trauma. The treatment of GSW injury with destroyed long segment of ureter is difficult and we report our experience with replacement of loss ureteral segment by interposition of appendix.

Material and Methods: A 20-year old male presented with abdominal gun shot wound underwent repair of the bladder, rectum, right ureter, and ligation of right iliac vessels. After the operation, he had urine leakage from the wound and was transferred to Rajavithi Hospital. The retrograde pyelography showed complete disruption of ureteral anastomosis. Right percutaneous nephrostomy was done for preservation of right renal function and controlled ureterocutaneous fistula. The patient was re-operated upon 7 months later and found a long segment loss of upper and middle ureter. The loss ureter was replaced by interposition of the appendix.

Results: The patient had an uneventful recovery from the operation and intravenous pyelography at 3 and 8 months after the operation showed normal right renal function.

Conclusion: Appendiceal interposition is suitable option for replacement long right ureteral defect with good result.