The THAI Journal of SURGERY 2007; 28:147-167.
Official Publication of the Royal College of Surgeons of Thailand

Abstracts

Joint Scientific Meeting of the Royal College of Surgeons of Thailand and the Royal Australasian College of Surgeons and the 32nd Annual Scientific Meeting of the Royal College of Surgeons of Thailand, 27-30 July 2007 (Part II)

VASCULAR

RAMATHIBODI VASCULAR ANASTOMOSIS MODEL II: RELATION BETWEEN A LABORATORY-BASED MODEL AND SURGICAL COMPETENCY

Chumpon Wilasrusmee, MD, MSc, Prakasit Chirappapha, MD, Panuwat Lertsithichai, MD, MSc

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

Background: A new version of laboratory-based vascular anastomosis model was developed as a modality to improve technical skill. The purpose of the study was to determine the relation between the outcomes of vascular anastomosis in the laboratory and technical competency when performing similar vascular anastomosis in the operating room.

Materials and Methods: Twenty-nine residents participated in the study. All residents had at least one prior laboratory training session using the new vascular anastomosis model. The residents were to create a forearm arterio-venous bridge graft in the operating room (OR). Three measures were used to assess technical competency in the OR: completion time of the graft to vein anatomosis, leakage grade across the anastomosis, and the mini objective structured assessment of technical skills (MOSAT) score. Similar outcomes obtained in the laboratory were used as predictors of the OR outcomes. Significant predictors were identified using multiple linear regression and multiple ordinal logistic regression modeling.

Results: Worse leakage in the laboratory predicted worse leakage in the OR, as well as longer completion time and worse MOSAT score in the OR. Longer completion time in the laboratory was associated with longer completion time, but less leakage, in the OR. Higher year of training and more laboratory exposure were related to higher MOSAT score in the OR and shorter completion time in the OR, respectively.

Conclusions: Completion time and grade of anastomosis leakage measured in the laboratory were able to predict technical competency in the OR. The new vascular anastomosis model is useful for training surgeons in preparation for clinical surgery.

PERCUTANEOUS ATHERECTOMY OF SUPERFICIAL FEMORAL ARTERY WITH A PLAQUE EXCISION DEVICE: CASE REPORT

Chumpol Wongwanit, MD, Chanean Ruangsetakit, MD, Khamin Chinsakchai, MD, Nuttawut Sermsathanasawat, MD, Pramook Mutirangura, MD

Vascular Surgery Unit, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Objective: To evaluate the feasibility of using plaque excision device in the treatment of symptomatic superficial femoral artery (SFA) stenosis.

Materials and Methods: Based on clinical evaluation and computerized tomographic angiography (CTA) demonstrating a short segment of superficial femoral artery stenosis, percutaneous atherectomy was used as a primary treatment in 2 patients. The procedure was performed in an operating theater with the C-arm image intensifier. The ipsilateral common femoral artery was punctured and the catherter was inserted in antegrade fashion. After the distal artery was demonstrated by angiography, a hydrophilic

angiographic 0.035" wire was inserted through the stenotic SFA segment, and then the wire was replaced with a 0.014" wire. The replaced wire was used as a monorail of the plaque excision device during the procedure. The successful treatment included the complete correction of stenotic segment and the reestablishment of the distal circulation.

Results: The first patient presented with painful gangrenous toes of his left foot and the absence of distal popliteal pulse. The short segment of SFA was demonstrated by CTA. After the treatment, the pain disappeared and the severely stenotic artery was partially opened with the better distal run off. The second patient presented with limited bilateral calf claudication. Aorto-iliac and bilateral femoro-popliteal artery stenosis were demonstrated by CTA. He was successfully treated by a staged procedure. In the first stage, the aorto-iliac stenosis was managed by percutaneous aorto-iliac balloon angioplasty (with retrograde puncture of both superficial femoral arteries) as an inflow procedure. Four weeks later, an outflow procedure or bilateral SFA plaque excision was achieved (through antegrade puncture of both superficial femoral arteries). Strong palpable pulses of bilateral posterior tibeal arteries as well as the widening lumen of bilateral superficial femoral arteries with good distal arterial run-off were illustrated by angiograpgy after the procedure. The complication was a large hematoma at scrotum, completely subsided by conservative treatment. He had no incapacitating claudication after the treatment.

Conclusion: The plaque excision device may be a less invasive, alternative procedure to a conventional arterial bypass in the treatment of symptomatic SFA stenosis.

CATHETER-DIRECTED THROMBOLYSIS OF ACUTE LIMB ISCHEMIA CAUSED BY NATIVE ARTERY OCCLUSION

Chumpol Wongwanit, MD, Chanean Ruangsetakit, MD, Khamin Chinsakchai, MD, Nuttawut Sermsathanasawat, MD, Pramook Mutirangura, MD

Vascular Surgery Unit, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Objective: To evaluate the efficiency of catheter-directed thrombolysis (CDT) of acute limb ischemia resulting from thromboembolic occlusion.

Materials and Methods: A prospective study of catheter-directed thrombolysis was conducted in patients with acute thromboembolic arterial occlusion and marginally threatening ischemia in the lower extremities between February 2006 and April 2007. The catheter was inserted in either antegrade or retrograde direction with its tip exactly in the thrombus. Thrombolytic agent used in this therapy was recombinant tissue plasminogen activator (rt-PA). The procedure included the initial bolus injection of high dose rt-PA (5-7 mg) followed by continuous infusion (1-2 mg/hour) through the catheter. Complete reestablishment of patency of the occluded arteries without major amputation or death was considered a successful treatment.

Results: Eighteen patients (11 male and 7 female) with the mean age of 57.7 years were enrolled in this study. Causes of acute arterial occlusion included acute arterial embolism in 10 (55.6%) and acute arterial thrombosis in 8 (44.4%). The sites of embolism were aorto-iliac in 1, iliac artery in 1, popliteal artery in 6, and brachial artery in 2 whereas those of thrombosis were aorto-iliac in 1, iliac artery in 1, femoral artery in 3, popliteal artery in 2 and tibio-peroneal artery in 1. The mean duration of complete infusions was 28 ± 2 hours. Clinical improvement was 88.8% whereas a technical success (complete or at least 95% thrombolysis of the thrombus or embolus) was 83.3%. A 30-day amputation-free survival of the patients was 94.4%. Only one 80-year-old patient who underwent percutaneous balloon angioplasty of the left external iliac artery stenosis and CDT of acute left iliac artery thrombosis developed leakage of left external iliac artery with massive retroperitoneal hematoma and hypovolemic shock. This complication required emergency surgical exploration through extra-peritoneal approach. Although surgical hemostasis and left iliac artery to common femoral artery bypass were achieved, this patient passed away at 2 weeks post-CDT due to pneumonia, hepatic failure and renal failure. Therefore, a 30-day peri-operative mortality of CDT was 5.6%. One patient with popliteal artery embolism treated by CDT had a gradually enlarging calf hematoma and compartment syndrome from minimal extravasation from a branch of popliteal artery. This complication required an emergency exploration of popliteal artery, suture of bleeding points and calf fasciotomy followed by debridement and skin graft. Another patient with acute brachial artery embolism developed acute embolic stroke during the cessation of anticoagulant due to arm hematoma after CDT. Fortunately, the patient made a complete recovery after systemic thrombolysis within 3 hours of acute stroke onset. Large retroperitoneal hemorrhage requiring more than 4 units of blood transfusion occurred in 4 patients (22.2%). Distal thromboembolism in one patient resulted in treatment failure with critical foot ischemia and intractable rest pain requiring below knee amputation 5 weeks after the CDT was performed.

Conclusions: Catheter-directed thrombolysis was an effective armamentarium to salvage the acute ischemic limb. However, bleeding complication was a major and

common problem of this treatment. The intensive monitoring and effective treatment were essential to improve the outcome of the thrombolytic therapy.

NORMAL ABDOMINAL AORTIC DIAMETER IN THAI POPULATION IS SMALL

Witthawat Tantarattanapong, MD, Dhanakom Premprapha, MD, Boonprasit Kritpracha MD

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

Background: Aortic diameters widely used for treatment considerations were based on literatures which were measurements obtained from Caucasian population. The accepted normal aortic diameter of 2 cm may be too large for Asian populations. Using criteria based on such number, for example, definition of aortic aneurysm of 3 cm, 1.5 times of normal aorta, or the 5.5 cm threshold for aortic aneurysm repair may put the Asian patients at a higher risk of rupture from delay treatment.

Objective: To determine the average diameter of normal abdominal aorta in Thai population.

Materials and Methods: Abdominal CT scans of patients who had studies for non-vascular conditions were reviewed. Studies were excluded if aortic diameter was larger than 3 cm. Patients were categorized according to gender and age. Aortic diameters were obtained from the axial CT images measuring at the CT work station, at celiac artery, renal arteries and mid-infrarenal levels. Left and right common iliac arteries diameters were also measured. Student's t-test was used to compare the difference of aortic diameters between the different gender and age group.

Results: 350 CT scans were included in this study. The average aortic diameters at each level, each age group, both male and female were summarized in the tables. The average aortic diameter is significantly larger in male compared to female ($p = 0.02$). The common iliac artery diameters varied from 1.0-1.2 cm in males and 0.9-1.1 cm in females.

Male

Age (years)	40-59	60-79	≥80
Celiac level	1.9	2.1	2.2
Renals level	1.6	1.8	1.9
Mid-infrarenal	1.6	1.7	1.8

Female

Age (years)	40-59	60-79	≥80
Celiac level	1.8	1.9	2.1
Renals level	1.5	1.7	1.7
Mid-infrarenal	1.4	1.5	1.7

Conclusions: Aortic diameters in Thai population at the most common site to develop aneurysm, mid-infrarenal aorta, and at the most common age group, 60-79 years old, were much smaller than the number used in literature: 1.7 cm and 1.5 cm, in Thai male and female, respectively, compared to 2 cm. The average aortic diameter is significantly larger in male compared to female. There is a need to reconsider the definition and criteria for the treatment of aortic aneurysms in Asian populations.

RUPTURED ABDOMINAL AORTIC ANEURYSM: PREDICTORS OF THE MORTALITY AFTER EMERGENCY OPEN REPAIR AT SONGKLA NAGARIND HOSPITAL

Supparerk Laohawiriyakamol, MD, Boonprasit Kritpracha, MD

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

Background: The mortality rate in patients treated for ruptured abdominal aortic aneurysm (rAAA) remains high despite recent advances in anesthetic, operative, and postoperative cares. The mortality rate ranges from 39% to 70%. Questions are often raised by many physicians regarding good candidates for conservative treatment such as patients with poor physiologic reserve or severe multiple underlying diseases. Retrospective analysis of preoperative, intraoperative and postoperative data may lead to a conclusion as to which factor could predict the prognosis in these patients.

Objective: To evaluate factors predicting mortality in patients with ruptured abdominal aortic aneurysm after emergency open repair.

Materials and Methods: Retrospective study of 53 patients who had emergency repair for ruptured abdominal aortic aneurysm during January 1994 to December 2006 at Songkla Nagarind Hospital was conducted. Demographic, preoperative, intraoperative and postoperative data were collected and statistically analysed to identify predictors of the mortality.

Results: Mean age of the study population was 69.9 years. There were 42 males (79.2%). The mortality rate was 52.8%, of which 18.9% occurred intraoperatively and 33.9% postoperatively. Preoperative cardiac arrest (RR 2.042, 95% C.I. 1.534-2.717), preoperative hypotension (SBP < 90 mmHg) (OR 6.058, 95% C.I. 1.648-22.269), underlying diabetes mellitus (RR 2.714, 95% C.I. 1.790-4.116), preoperative Hct <20% (RR 2.136 , 95% C.I. 1.578-2.893), preoperative arterial base excess <-15 (OR 14.000, 95% C.I. 1.46-134.25), intraoperative packed red blood cell transfusion over 1,500 ml (OR 5.000, 95% C.I. 1.448-

17.271) and postoperative renal insufficiency (OR 4.51 95% C.I. 1.074-18.929) were identified as significant factors related with mortality (p <0.05) by univariate analysis. However, these factors were not significant in multivariate analysis.

Conclusions: Four preoperative factors: cardiac arrest, hypotension, Hct <20%, ABE <-15, together with underlying diabetes mellitus, intraoperative PRC transfusion ≥1500 ml and postoperative acute renal failure are related with high mortality after emergency open repair of ruptured abdominal aortic aneurysm. These clinical variables are useful for the treatment planning and information provided for family members of the patients.

A NEW MODIFIED TECHNIQUE TO RESTORE PERMANENT HEMODIALYSIS CATHETER PATENCY BY MANUAL FIBRIN SHEATH REMOVAL

Gorawee Tepsamrithporn, MD, Withoon Ungkitphaiboon, MD* Yuthapong Sangpayap, MD***

*HRH Princess Maha Chakri Sirindhorn Medical Center

** BMA Medical College and Vajira Hospital

Principles and Reasons: Despite their propensity for significant complications, tunneled cuff catheters have become a common means of vascular access for patients requiring maintenance hemodialysis (HD) for end-stage renal disease (ESRD). Reasons for their use include advanced patient age, peripheral vascular disease (arterial and venous) and late referral for creation of vascular access. The tunneled cuff catheters may also be a useful alternative permanent vascular access for hemodialysis patients when others vascular access are not possible. A well-functioning access should provide a blood flow of at least 250 ml/min in standard dialysis and up to 350-400 ml/min in the high efficiency dialysis. The thrombosed permanent HD catheter from fibrin sheath formation is the most common cause of malfunction that needs interventional procedure to restore patency such as thrombolytic therapy, endovascular stripping and replace the new one. We would like to introduce the alternative method providing additional patency of tunneled cuff catheter.

Technique: This technique needs only preoperative antibiotic and local xylociane injection. Small incision at the previous central vein puncture site is created, and then the tract around the catheter is opened. The catheter is pulled back and the fibrous sheath that covers the tip of catheter is manually removed. After the cleansing process of both intraluminal and extraluminal surface are completed, the catheter is reinserted via previous well-formed tract. We had observed 10 patients who underwent this technique. There was no immediate serious complication such as air embolism or late serious complication such as infection. This technique can give additional patency for more than 6 months and the patients have to pay only 2,000-3,000 baht for this procedure.

Conclusions: Manual removal of fibrin sheath by open technique is an easy, simple and safe surgical procedure. It is a good alternative method to restore the patency of the catheter and may be suitable for patients who need tunneled cuff catheter for long-term dialysis or have financial problems.

DEEP VENOUS THROMBOSIS IN SURGICAL INTENSIVE CARE UNIT: PREVALENCE, INCIDENCE AND RISK FACTORS

Kidakorn Kiranantawat, MD, Chumpon Wilasrusmee, MD, Suthas Horsirimanont, MD, Panuwat Lertsithichai, MD, Pinmanee Reodecha, MD, Yupa Soonthonkit, MD, Aree Boonbavonrutanakun, MD, Plubplung Tangsakuntong, MD, Saowaros Panichvisai, MD

Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Critically ill patients are at high risk of developing venous thromboembolism. The incidence and risk factors of deep venous thrombosis (DVT) in critically ill patients have been reported mostly from Western countries but few from Asia especially Thailand. The objective of this study was to determine the prevalence, incidence and risk factors of lower extremity deep venous thrombosis among critically ill surgical patients.

Design: Prospective cohort

Setting: Surgical intensive care unit of medical school-affiliated hospital

Materials and Methods: Patients older than 15 years of age admitted in the surgical ICU were enrolled. Bilateral lower extremity duplex ultrasound was performed to detect DVT within 14 days after ICU admission. Demographic data, main diseases, operation, co-morbidities, APACHE II score and length of ICU stay were analyzed for association with DVT.

Results: Among 203 patients with a mean APACHE II score of 10.10 ± 11.30 (0-119), the prevalence of deep venous thrombosis was 9.85%. There was no thromboprophylaxis in all of the patients. Two independent risk factors for intensive care unit-acquired deep venous thrombosis included patients with cancer (p value = 0.001) and patients with co-morbidities (p value = 0.003). Length of ICU stay, age, sex, APACHE II score and operation did

not increase the risk of developing DVT in ICU patients.

Conclusions: In Thailand, despite documented as a country with low incidence of venous thromboembolism, there are nowadays surgical and critically ill patients found to be at risk for lower-extremity deep venous thrombosis. The incidence was almost 10%. Further research is needed to evaluate the risks and benefits of venous thromboembolism prophylaxis in Thai patients.

EXTREMITY VASCULAR INJURIES: SONGKLA-NAGARIND HOSPITAL EXPERIENCE

Dhanakom Premprapha, MD, Boonprasit Kritpracha, MD
Prince of Songkla University, Songkla, Thailand

Purpose: To determine the magnitude and outcome of extremity vascular injuries in referral center of Southern Thailand.

Materials and Methods: All cases of vascular injury treated at Songkla Nagarind Hospital from January 2005 to April 2007 were reviewed.

Results: There were 50 males and 10 females with a mean age of 32 years (range 11 month to 74 years). The majority of the injuries were caused by blunt injuries and gunshot wounds in 38.3% and 33.3% respectively. The three most common sites of injuries were popliteal artery (28.3%), femoral artery (25%), and axillary artery (13.3%). Of all 60 cases, vascular reconstruction was achieved by autogenous saphenous vein graft in 38 (63.3%), primary anastomosis in 12 (20%), prosthetic graft in 6 (10%), and endovascular repair in 1. The time interval between the injury and revascularization was 13.9 hours in average which resulted in 12 amputations (20%) and 1 death from hypovolemic shock.

Conclusions: There is a high incidence of extremity vascular injury. The preference conduit for vascular repair is autogenous vein graft. Delayed diagnosis and treatment are the major challenge of achieving good treatment outcome.

A HIGH ABDOMINAL AORTIC ANEURYSM SHRINKAGE RATE AFTER AORTIC STENT GRAFT IN THAI PATIENTS: AN EARLY OBSERVATION FROM SONGKLANAGARIND HOSPITAL

Boonprasit Kritpracha, MD, Dhanakom Premprapha, MD
Department of Surgery, Prince of Songkla University, Songkla, Thailand

Objective: To determine the shrinkage rate of abdominal aortic aneurysm (AAA) after placement of aortic stent graft.

Materials and Methods: Endovascular aortic aneurysm repair (EVAR) has been started at Songkla Nagarind Hospital in September 2005. Up to May 2007, 40 patients, 32 abdominal and 8 thoracic lesions, were treated with this technique. Abdominal aortic aneurysm patients with postoperative follow-up of 6 months or more were included in this study. The maximum AAA diameters were obtained from the preoperative, 6-month, and 12-month follow-up CT scans. Significant AAA change was defined as a decrease or increase of 5 millimeters (mm) or more in the same diameter dimension compared to the preoperative CT study.

Results: There were 15 patients who had completed 6-month, and 8 patients with 12-month follow up. The average age was 73 years. The average pre-operative AAA diameter was 67 mm (range 39-110 mm). At 6-month, 6 out of 15 patients (40%) had significant AAA shrinkage, average -14 mm (range -6 to -28 mm). At 12-month, 7 out of 8 patients (87.5%) had significant AAA shrinkage, average -16 mm (range -6 to -36 mm). The only 1 patient who had stable AAA at 12-month follow-up had persistent type II endoleak.

Conclusions: This early results suggest a high AAA shrinkage rate in patients treated with aortic stent graft at Songkla Nagarind Hospital.

MESENTERIC CYSTIC LYMPHANGIOMA IN AN ADULT PATIENT: A CASE REPORT

Nattawate Tumrasvin, MD, Asada Methasate, MD, Jirawat Swangsri, MD, Thawatchai Akaraviputh, MD, Wiroon Boonnuch, MD, Darin Lohsiriwat, MD
Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Mesenteric cystic lymphangiomas are rare benign cystic tumors most often seen in pediatric patients. They usually present as benign large cystic masses. Surgical resection that may include removal of resectable intra-abdominal structure such as bowel, spleen or pancrease is the treatment of choice due to their potential to grow, invade vital structures, and frequently develop life-threatening complications.

We successfully resected mesenteric cystic lymphangioma in an adult patient. The patient was a 23-year-old male presented with a large intra-abdominal cystic mass for 1 year. CT scan of the abdomen revealed an intra-abdominal cystic mass with internal septum. The patient had no previous symptoms except for occasional fullness of the abdomen but later developed pain radiating to the back. Exploratory laparotomy revealed a 20x19x7 cm cystic mass which attached to jejunal mesentery and contained

large amount of chylous fluid (4 liters). Because the origin of the cyst was attached to mesenteric vessel, segmental resection of jejunum including the cyst was performed with end-to-end anastomosis. Pathological report was benign lymphangioma. Post-operative course was uneventful.

Resection of large mesenteric cystic lymphangioma could be achieved with meticulous dissection of the tumor and sometimes resection of adjacent organ, especially small bowel is necessary. Complete removal is essential to prevent recurrence of the tumor.

A STUDY OF PERIPHERAL BLOOD-DERIVED AUTOLOGOUS ANGIOGENIC CELL PRECURSORS THERAPY IN PATIENT WITH CRITICAL LIMB ISCHEMIA

Pramook Mutirangura, MD, Chanian Ruengsethakit, MD, Chumpol Wongwanit, MD, Nuttawut Sermsathanasawadi, MD, Khamin Chinsakchai, MD, Valentine Fulga, MD, Yael Porat, MD, Danny Belkin, MD, Adina Belleli, MD, Michael Belkin, MD, David Czeiger, MD

Vascular Surgery Unit, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Implantation of peripheral blood-derived autologous Angiogenic Cell Precursors (ACPs) in patients with Critical Limb Ischemia (CLI) was investigated.

Materials and Methods: Six patients with ischemic ulcer and/or digital gangrene resulting from CLI due to below knee artery occlusion confirmed by Ankle-Brachial Pressure Index (ABPI) or Toe-Brachial Pressure Index (TBPI) and not suitable for distal artery revascularization demonstrated by Computerized Angiography (CTA) were studied. ACPs were generated from cells isolated from non-mobilized peripheral blood of each patient and cultured ex vivo. An average of $54.5 \times 10^6 \pm 10.2 \times 10^6$ cells containing $17.1 \times 10^6 \pm 4.8 \times 10^6$ lineage-specific ACPs and 19% ± 2.4% CD34+ stem cells were administered by 30×1 ml intramuscular injections into the gastrocnemius muscle. Monitoring was by ABPI and TBPI at 1 and 3 months and CTA at 3 months.

Results: All 6 patients tolerated the injections well without procedure-related complications. Five patients (83.3%) had a clinically significant circulation improvement; two had complete healing of lesions; two with digital gangrene underwent toe amputation with rapid complete healing of stump; and one had severe foot infection in other toes and underwent amputation. These patients showed a significant increase in one or more of the following parameters: ABPI (>0.15), TBPI (>0.15) and pain-free walking distance. CTA of the lower extremities demonstrated increased collateral circulation in two and recanalization in three patients. There was no improvement of circulation in one patient (16.7%).

Conclusions: These preliminary results show that ACPs therapy is safe, practical and may provide circulation improvement in patients with CLI. A larger controlled trial is required to ascertain these preliminary results.

CARDIOTHORACIC SURGERY

PERICARDIECTOMY: SONGKLANAGARIND EXPERIENCE

Paradorn Jetwanna, MD, Chareonkiat Rergkliang, MD, Voravit Chittitavorn, MD, Apirak Chetpaophan, MD, Sakon Singha, MD, Vorapong Chowchuvech, MD

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

Background: Pericardiectomy is the accepted treatment for improving cardiac hemodynamics in constrictive pericarditis. In most patients, pericardiectomy corrects the hemodynamic abnormalities and produces dramatic clinical improvement. However, surgical outcome varies among institutes and conditions requiring this procedure.

Objective: In order to better understand the early and late results of pericardiectomy in the treatment of constrictive pericarditis at Songkla Nagarind Hospital, this study was designed to study the incidence and etiology of pericarditis necessitating pericardiectomy and results of the procedure performed in this institute.

Material and Methods: A retrospective analysis of 49 patients who underwent pericardiectomy from January 1993 to December 2006 at Songkla Nagarind Hospital was performed.

Results: Tuberculosis was found to be the most frequent cause (32.7%) followed by pyogenic pericarditis (26.5%) and idiopathic (20.4%). Presenting symptoms included dyspnea (95.9%), fever (57%) and chest pain (22.4%). Preoperatively, 36 of the 49 cases (73.5%) were

in NYHA classes III or IV. Preoperative echocardiography was performed in 47 of 49 patients. Eighteen patients were found to have cardiac tamponade as diagnosed by echocardiography. The operative approach for pericardiectomy was by median sternotomy in 41 patients. The hospital mortality rate was 10.2%. The overall survival rates at 1 and 5 years for all patients were 81.5% and 74.1% respectively. At 1-year follow up, there were 26 patients in whom functional capacity could be assessed; 21 were in class I and 5 were in class II.

Conclusion: Pericardiectomy is an effective treatment of symptomatic constrictive pericarditis. It provides improvement in symptoms and functional class, and it has low operative mortality and complication rate.

PREVALENCE OF ANEMIA IN THAI PATIENTS WITH CARDIAC SURGERY

Nattanun Sripunpipat, Jatuporn Wongsathikun, MD, Sineenart Taejaroenkul, MD

Maharaj Hospital, Chiangmai University, Chiangmai, Thailand

Introduction: Anemia in patients with heart failure is commonly found. This results in reduction in oxygen carrying capacity and exercise capacity, respectively. Clinically, their functional capacity and quality of life are diminished. Anemia is also associated with a reduction in survival rate in patients with heart failure and an increase in the mortality rate in surgical patients. Currently, the prevalence of anemia in Thai patients undergone for cardiac surgery was not determined.

Purposes: The aims of this study were to determine the prevalence of anemia in patients scheduled for cardiac surgery and to compare the effects of anemia on the demographic data and comorbidity.

Materials and Methods: The medical records of patients undergone cardiac surgery in 2005 at Maharaj Hospital, Chiangmai University, Chiangmai, Thailand were reviewed. Following variables prior to the surgery were collected: age, weight, height, diagnosis, hemoglobin, New York Heart Association Functional Class, ejection fraction, comorbidity and mediation. According to hemoglobin level, subjects were divided into 2 groups: anemic and non-anemic groups. The anemic condition was classified by using hemoglobin <12 g/dL.

Results: Five hundred and twenty four medical records were reviewed. Only 434 cases had completed data (M:F = 202:232) and were used for further data analysis. There were 166 cases (M:F = 61:105) considered as anemia. Thus, the prevalence of anemia in this population was 38.25%. Significantly difference was found on the hemoglobin level between the anemic and non-anemic group (10.51 ± 1.01 g/dL vs. 13.54 ± 1.10 g/dL; $p < 0.05$). The anemic group was significantly older than the non-anemic group (53.23 ± 12.93 yrs. vs. 47.09 ± 12.75 yrs; $p < 0.05$). The anemic group had lower weight than the non-anemic group (50.62 ± 9.32 kg. vs. 54.96 ± 11.59 kg.; $p < 0.05$). Also, the underweight condition (body mass index; BMI <18.5 kg/m^2) was more pronounced in the anemic group compared to non-anemic group (30.1% vs. 20.5 %). Acute renal failure was more frequently found in the anemic group compared to non-anemic group (14.5 % vs. 5.2%; $p < 0.05$).

Conclusions: The prevalence of anemia in the patients prior to cardiac surgery was 38.25%. The anemic group was more likely to have an underweight than its counterpart. Acute renal failure was more frequently found in the anemic group.

EARLY EXPERIENCE OF MITRAL VALVE REPAIR FOR MITRAL REGURGITATION

Somchai Waikittpong, MD

Yala Hospital, Yala, Thailand

Background: Mitral valve repair is considered to be the procedure of choice for mitral regurgitation whenever feasible. It gives better left ventricular performance and anticoagulation can be avoided.

Materials and Methods: Between September 2002 and February 2007, 61 patients with mitral regurgitation, age ranged from 8 to 68 years, underwent mitral valve repair at Yala Hospital. The etiologies included rheumatic valve (36), degenerative valve (18), infective endocarditis (4), and others (3). Nineteen patients also had associated lesions. The mechanism of mitral regurgitation was classified according to Carpontier Classification as follows: type one (5), type two (33), type three-B (17) and type two-three B (6). Most of the patients were approached through supero-transeptal incision. All patients recieved commercial ring insertion. The reparative procedures included chordal replacement with PTFE suture (22), resection of secondary chordae of PML (22), resection of failed part of PML (13), leaflet plication (12), commissuroplasty (5), chordal shortening (2), chordal transfer (2) and pericardial patch (1). The average number of procedures done for each patient was 2.4 (range 1 to 5).

Results: There was no hospital mortality. The immediate result was satisfactory. The post-operative echocardiogram taken before being discharged showed no MR in 52 patients and MR grade one in 9 patients. However, the mid-term results in non-rheumatic patients were better

than in rheumatic ones.

Conclusions: Mitral valve repair can be performed with acceptable result. But in rheumatic patients, there are their own characteristics, so the principles of reparative techniques are different from non-rheumatic patients and should be kept in mind.

THORACIC ENDOVASCULAR AORTIC ANEURYSM REPAIR: SIRIRAJ EXPERIENCE

Worawong Slisatkorn, MD, Chumpol Wongwanit, MD,* Thanongchai Siriapistith, MD,**Panasak Laksanabunsong, MD,* Somchai Sriyoscharti, MD**

*Department of Surgery, **Department of Radiology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Objective: To study the early outcome of thoracic endovascular aortic aneurysm repair at Siriraj Hospital.

Materials and Methods: Between February 2005 and April 2007, 18 patients (14 males and 4 females), with thoracic aortic disease underwent thoracic stenting for various thoracic aortic pathologies including 3 aortic arch aneurysm, 8 descending aortic aneurysm (4 ruptured aneurysm), 2 traumatic aortic transaction, 2 penetration aortic ulcer, 2 chronic aortic dissection and 1 mycotic aneurysm.

Results: The procedures were successfully performed in 17 patients. One patient needed to convert to open surgery intraoperatively due to failure to land the device. Four patients needed arch branch revascularization prior to stenting. One patient and type III endoleak needed early conversion to open repair. Endoleak type II was found in 4 patients.

Conclusions: Early outcomes of thoracic endovascular aortic aneurysm repair at Siriraj Hospital were impressive. Low early morbidity and mortality were achieved. However, long term follow-up is needed to be monitored.

LONG TERM RESULTS OF CORONARY BYPASS SURGERY (ON-PUMP TECHNIQUE) FOR TRIPLE VESSELS DISEASE

Vichai Benjacholamas, MD

Cardiothoracic Unit, Department of Surgery, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Objective: Coronary artery bypass surgery has been performed in Thailand for a long time. Up to now, there has been no report of long term follow-up. This report is a retrospective study of long term results of coronary artery bypass graft.

Materials and Methods: Between August 1992 and December 2003, coronary bypass surgery was performed on 362 patients with triple vessels disease by one surgeon. There were 48 patients who lost follow-up and were excluded from this study. All of the patients were operated under cardiopulmonary bypass. 711 saphenous vein grafts, 299 internal thoracic artery grafts and 72 radial artery graft were used in this group of patients. Follow-up coronary angiography was performed in 45 patients (14.33%). Graft stenosis was found in 18 patients and native coronary arteries stenosis in 4 patients. All of them, (22/314 or 7%) needed intervention or surgery. Percutaneous coronary intervention was performed successfully in 16 patients. One patient expired during the intervention. Only 5 from 314 patients (1.59 %) with graft stenosis need reoperation for coronary artery bypass and all of them survived from reoperation.

Results: A follow-up was done in 85% and completed in March 2007. The mean follow-up interval was 6.75 ± 2.42 years. Actual survival for all causes of death at 5 years was 93.11% and at 10 years was 85.24%. The overall freedom from signs and symptoms of coronary artery stenosis at 5 and 10 years after CABG was 94.81% and 91.32% (included new lesions). The freedom from sign and symptoms at 5 years and 10 years in patients with both ITA and SVG were 96.47% and 92.76% and in patients with SVG only were 92.31% and 84.62%.

Conclusions: On-pump technique in triple vessels disease had good long-term outcome, particularly if using ITA combined with SVG.

EARLY RESULT OF CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH LEFT VENTRICULAR DYSFUNCTION: QUEEN SIRIKIT HEART CENTER, KHON KAEN UNIVERSITY EXPERIENCE

Teerasak Srichaleum, MD, Cherdchai Tontisirin, MD, Sompop Prathanee, MD, Suthep Taksinachanekij, MD

Queen Sirikit Heart Center of the Northeast, Khon Kaen University, Khon Kaen, Thailand

Objective: To assess our experience and outcomes after coronary artery bypass grafting in patients with left ventricular dysfunction.

Patients and Methods: From August 2006 to January 2007, thirty patients with left ventricular dysfunction (EF = 15.49% - 48.32 %, average 35.40 ± 8.78) underwent coronary bypass grafting. The clinical data of these patients were reviewed. Complications and mortality rate were analyzed.

Results: There were 22 males and 8 females with age ranged from 38-75 years (average 61.60 ± 9.04). The

average post-operative hospital stay was 11.67 ± 12.76 days (range 5-60 days). All patients were followed from 2-12 weeks after being discharged from the hospital. Post-operative mortality was found in one patient (mortality rate 3.30%) and the post-operative complications developed in 4 patients (2 wound infection, and 2 acute renal failures).

Conclusions: Our experience has shown that the result of coronary artery bypass grafting in patients with left ventricular dysfunction was excellent and satisfactory with low mortality and morbidity. Post-operative survival rate was 96.70%. However, late complications might occur which require longer follow-up period.

DELAYED PERICARDIAL EFFUSION FOLLOWING VALVE SURGERY: ASPECT OF INTRAOPERATIVE PLEUROPERICARDIAL WINDOW FOR PREVENTION

Suthep Taksinacharekij, MD, Cherdchai Tontisirin, MD, Sompop Prathanee, MD, Teerasak Snchaleum, MD
Queen Sirikit Heart Center of the Northeast, Khon Kaen University, Khon Kaen, Thailand

Background: Delayed pericardial effusions are common after open heart surgery in patients with valvular heart disease and cases with cardiac tamponade are associated with significant morbidity and mortality.

Objectives: The purpose of this study was to investigate whether intraoperative pleuropericardial window of the right pleural cavity could prevent delayed pericardial effusion in patients undergoing conventional valve surgery.

Materials and Methods: From August 2006 to February 2007, a retrospective analysis of 205 consecutive patients undergoing valve surgery and survived at our institution was performed. The patients were divided into two groups; group I consisted of 105 patients who underwent conventional valve surgery alone and group II consisted of 100 patients who underwent conventional valve surgery plus intraoperative pleuropericardial window of the right pleural cavity for the prevention of delayed pericardial effusion. Patients with clinical suspicion of delayed pericardial effusion were evaluated by transthoracic or transesophageal echocardiography in the first to eight postoperative week and other clinical parameters were also analyzed. Differences between groups were demonstrated using the two-sample test of proportion (Z-test) for statistical analysis.

Results: Delayed pericardial effusion is significantly more common in patients undergone conventional valve surgery alone, as compared to conventional valve surgery plus intraoperative pleuropericardial window (11 patients versus 3 patients, $p < 0.05$).

Conclusions: Delayed pericardial effusion is more common in patients undergone conventional valve surgery alone, as opposed to conventional valve surgery plus intraoperative pleuropericardial window of the right pleural cavity. So the intraoperative pleuropericardial window may be the additional procedure which should be performed for the prevention of delayed pericardial effusion following valve surgery.

SEEDING OF CARCINOMA ALONG THE SUBCUTANEOUS TUNNEL OF TUBE THORACOSTOMY: REPORT OF A RARE CIRCUMSTANCE

Piya Samankatiwat, MD, Noppawat Samankatiwat, MD***
*Cardiothoracic Unit, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
**Department of Surgery, Ratchaburi Central Hospital, Ratchaburi, Thailand

Introcuction: Chest wall implantation of carcinoma is an uncommon circumstance. The most common primary tumour that metastasizes along the subcutaneous tunnel after insertion of a chest tube is mesothelioma. While metastatic pleural malignancies, for example lung and gastrointestinal carcinomas, although are more common, rarely implant down the tract.

Case Report: We report a case of an unusual situation where pleural metastatic caecal carcinoma seeded along the tract of tube thoracostomy and was treated successfully with wide excision. A 44-year-old man who presented with gut obstruction had right hemicolectomy. After recovering from abdominal surgery, the patient developed right pleural effusion. A large-bored chest tube was inserted. Medical pleurodesis was subsequently performed and finally the drain was removed. Six months later, there was a new tumour growing on top of the scar of the thoracostomy site. The tumour was successfully removed altogether with a wide margin. Pathological examination proved metastatic caecal carcinoma.

Localised seeding of metastatic carcinoma of the pleura following chest tube insertion is rare and resembles mesothelioma. However, wide excision is the palliative treatment of choice for this uncommon condition.

CONCOMITANT RADIOFREQUENCY ABLATION OF ATRIAL FIBRILLATION DURING MITRAL SURGERY

Suchart Chaiyaroj, MD, FACS
Cardiothoracic Surgery Unit, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: To present a technique of a modified

maze procedure using radiofrequency ablation in atrial fibrillation patient undergoing mitral valve surgery

Materials and Methods: This technique has been carried out successfully in 76 patients at Ramathibodi Hospital since June 2004. A video demonstrates a technique "step by step" of radiofrequency maze in one patient. Bilateral atrial ablation with bipolar and unipolar radiofrequency device using epicardial and endocardial approach is described. The lesion pattern is similar to the "cut and sew" modified Cox maze procedure. There are seven lesions on the left atrium and nine lesions on the right.

Results: From June 2004 to December 2006, 63 patients were followed from 1 month to 30 months after operation. The mean follow-up time was 18 months. The probability of sinus rhythm increases with time, from 40% at one month after operation to 92% at 30 months after operation.

Conclusions: The radiofrequency ablation modified maze is safe, effective and without adding any additional risk. This clinical experience showed high success rate of sinus rhythm conversion. The technique can be used as an additional procedure for atrial fibrillation patient undergoing mitral surgery.

PROGNOSTIC FACTORS FOR SINUS RHYTHM OCCURRENCE IN ATRIAL FIBRILLATION PATIENT UNDERGOING COMBINED RADIOFREQUENCY MAZE PROCEDURE AND MITRAL VALVE SURGERY

S Chaiyaroj, MD, T Ngarmukos, MD, P Lertsitthichai, MD
Cardiothoracic Surgery Unit, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: This study evaluated the prevalence of postoperative sinus rhythm (SR) and its prognostic factors in cardiac surgical patients undergoing radiofrequency ablation (RFA) maze and concomitant mitral valve surgery.

Materials and Methods: From June 2004 to December 2006, 63 patients (27 males and 36 females; mean age 51.4 ± 12.9 years) underwent RFA maze and mitral valve surgery. Fifty-four (86%) patients were in permanent atrial fibrillation (AF). At mean follow-up of 18 months, there were 54 (88.5%) patients in SR (group I) and 7 (11.5%) patients in AF (group II). Overall probability of time-related postoperative SR occurrence was estimated. Factors associated with failure of the ablation were determined. Preoperative variables between two groups were evaluated by univariable and multivariable analyses.

Results: Operative mortality was 3.17%. The probability of SR was 92% at 30 months after operation. Prognostic factors associated with occurrence of SR were identified. The only most significant prognostic factor on multivariable logistic regression analysis was left atrial diameter (hazard ratio 0.366; 95% CI: 0.147-0.914; p = 0.031). The cutoff value of preoperative left atrial diameter was 60 millimeters (100% sensitivity and 69.9% specificity; 95% CI).

Conclusions: The RFA maze can be performed in addition to mitral valve surgery procedure with high success rate of SR conversion. This study showed that preoperative left atrial diameter (<60 millimeters) is an important prognostic factor of SR conversion by RFA maze for AF patient undergoing combined procedure.

ELEVATED HOMOCYSTEINE LEVELS ARE ASSOCIATED WITH INCREASED POSTOPERATIVE MYOCARDIAL INJURY IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS GRAFTING

S Theingburanatham, MD, S Sriyoschat, MD, S Ponvilawan, MD
Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Objectives: This study was conducted to determine whether the amount of myocardial damage during acute coronary syndromes (ACS) is related to the admission plasma homocysteine concentration.

Background: Elevated homocysteine levels are associated with increased oxidative stress in vascular endothelium. This might potentiate the already overwhelming reactive oxygen species presented in reperfused myocardium of the patients undergoing coronary artery bypass surgery. There was no study that show whether higher plasma homocysteine levels would reflect the degree of increased myocardial injury in patients undergoing surgical revascularization.

Materials and Methods: We studied consecutive patients admitted for elective coronary artery bypass grafting. All of the patients included in this study had serum creatinine <1.8 mg/dl and had no other condition affecting homocysteine levels. Plasma samples were collected preoperatively on admission and were assayed for homocysteine by fluorescence polarization immunoassay (FPIA). Myocardial necrosis was assessed by measurements of cardiac troponin T (cTnT) on immediate postoperative periods (cTnT1) and approximately 12 hours after the operations (cTnT2). The patients were studied by quintiles of homocysteine concentration. The levels of cTnT were analyzed under logarithmic scales.

Results: The levels of cTnT1 significantly increased in the 5th homocysteine quintiles as compared to the 1st

and 2nd quintiles (p = 0.046 and p = 0.041, respectively, ANOVA, p = 0.019). The strength of association was greater when compared the homocysteine quintiles with cTnT2 (ANOVA, p = 0.008, p = 0.004, for 1st and p = 0.030 for 2nd vs. 5th quintiles, respectively). The levels of cut-points for each quintile were 9.000, 10.832, 12.496 and 14.360 for quintiles 1 to 5 respectively. In a multivariate regression model, predictors of cTnT2 were preoperative long standing hypertension, cardiopulmonary bypass time and the fifth homocysteine quintile. These relationships remained strong after adjustment of other confounders including age, gender, lipid profiles and smoking status.

Conclusions: Elevated homocysteine levels are associated with a higher degree of postoperative myocardial injury in patients undergoing coronary artery bypass grafting.

AUTOLOGOUS ANGIOGENIC CELL PRECURSORS INTRAMYOCARDIAL INJECTION FOR ISCHEMIC AND DILATED CARDIOMYOPATHY

Permyos Ruengsakulrach, MD, PhD,
Kitipan Visudharom, MD, PhD, Vibul Jotisakulratana, MD, PhD
Division of Cardiovascular Surgery, Bangkok Heart Hospital, Bangkok, Thailand

Objective: The objective was to determine safety and efficacy of intramyocardial angiogenic cell precursors (ACPs) injection for cardiomyopathy.

Materials and Methods: Between May 2005 and February 2007, 84 consecutive patients, 39 with dilated cardiomyopathy (DCM) and 45 with ischemic cardiomyopathy (ICM), underwent ACPs injection. Mean age was 58 ± 13 years. The ACPs were derived and expanded from autologous blood. The number of cells prior to injection was 24.8 ± 17.5 million cells. There was no statistically significant difference between DCM and ICM in relation to preoperative parameters. Cells were injected into all areas of left ventricle in DCM and were injected into non-viable myocardium and hypokinetic segments in ICM. Forty percent of ICM had combined coronary artery surgery and ACPs injection.

Results: There was no new ventricular arrhythmia. 30-day mortality was 5.2% (2/39) and 4.4% (2/45) in DCM and ICM, respectively. Preoperative and postoperative six-minute walk test at 3 months, B-type natriuretic peptide (BNP) at 5 days, NYHA/ ejection fraction at 6 months were summarized (Table 1).

There was no significant difference in changes of ejection fraction between combined coronary surgery plus ACPs injection and ACPs injection alone in ICM. Quality of life has improved in all domains at 161 ± 64.2 days after procedure in both groups. Myocardial infarction area decreased by 20 ± 16% at 5 ± 2 months follow-up in ICM.

Conclusions: Intramyocardial ACPs injection is feasible and safe in both DCM and ICM. The NYHA, quality of life and ejection fraction were significantly improved in both DCM and ICM.

Table 1 Comparison of pre and post-op evaluation in DCM and ICM

	DCM			ICM		
	Pre	Post	P value	Pre	Post	P value
NYHA	2.9	2	<0.001*	2.9	1.9	<0.001*
Six-min Walk Test (meters)	330	362	0.3	366	459	0.08
BNP (pg/ml)	4412	3268	0.2	3948	2341	0.005*
Ejection fraction (%)	25	29	0.04*	25	32	<0.001*

STERNAL SPARING CARDIAC SURGERY

Vitoon Pitiguagool, MD, Kitipan Visudharom, MD. PhD,
Vibul Jotisakulratana, MD, Sujit Banyatpiyaphod, MD,
Piyapan Pamornsing, MD, Sawat Asavapiyanond, MD,
Chokchai Suwanakijboriharn, MD,
Permyos Ruengsakulrach, MD, PhD,
Chayanin Vatcharasiritham, MD
Division of Cardiovascular Surgery, Bangkok Heart Hospital, Bangkok, Thailand

Objectives: The aim was to demonstrate the feasibility and early results of sternal sparing technique compared with conventional surgery (sternotomy).

Materials and Methods: Between January 2005 and December 2006, 349 patients underwent primary coronary artery surgery, 51 underwent single valve surgery and 21 underwent congenital heart surgery. Fifty three (53/421, 12.5%) patients had sternal sparing cardiac surgery procedures. Nineteen (19/349, 5.4%) had coronary surgery. Twenty seven (27/51, 52.9%) had valve surgery through right thoracotomy using the transthoracic clamp technique (5 were aortic valve and 22 were mitral valve). Seven (7/21, 33.3%) had atrial septal defect closure via right thoracotomy. Arterial cannulation was femoral artery and venous cannulations were internal jugular and femoral veins. Myocardial protection was tepid antegrade/ retrograde blood cardioplegia.

Results: There was no mortality in the sternal sparing group. These groups of patients were compared to the respective sternotomy group. For the valve surgery, age was lower in the sternal sparing group (P = 0.02). There was no difference between thoracotomy and sternotomy group in cross clamp time, cardiopulmonary bypass time, OR time, intubation time (all; P >0.1). However blood loss was less

in the thoracotomy group (P <0.004). For the coronary artery surgery, the number of grafts in the thoracotomy group was significantly smaller than the number of those in the sternotomy group (1.6 vs. 4.1, P <0.001). There was no difference between thoracotomy and sternotomy group in age, OR time and intubation time (all; P >0.1). There was no difference in complications between groups (infection, pneumonia, atrial fibrillation, strokes) in both coronary and valve surgeries.

Conclusions: Sternal sparing cardiac surgery is an alternative and reproducible approach. The mortality and morbidity rates were low. Thus, it results in extremely good cosmesis and eliminates the risk of sternal related complications.

ORTHOPEDIC SURGERY

DISTRACTION LENGTHENING OF THE FOREARM FOR CONGENITAL AND TRAUMATIC PROBLEMS

Shamsi Hameed, MD, Ishwara Keerthi, MD, Anil K Bhat, MD, Bhaskaranand Kumar, MD
Kasturba Medical College, Manipal, Karnataka, India

Study design: Cross sectional study

Objectives: To define the indications, technique and the complications of forearm and metacarpal lengthening in cases of shortening of upper limb as seen in congenital dysplasias or traumatic cases.

Setting: Kasturba Hospital Manipal, India

Methods: Twenty-one callus distractions were carried out from January 2002 to June 2006 in 21 patients (11male and 10 female) who were divided into 2 groups according to the cause of the shortening. Seventeen cases in group A had congenital dysplasia and 4 cases of traumatic injuries of upper limb in group B. All the patients were followed up for 2 years at regular intervals. Clinical, functional and radiological examinations were carried out.

Results: The mean amount of lengthening was 55.7 mm in group A, 89.6 mm in group B. The mean percentage of lengthening was 31% and 42% respectively. The mean duration fixation was 180 days and 114 days respectively. The healing index had a negative correlation with the age at surgery whereas there was positive correlation with length achieved and percentage of lengthening in group A, but not in group B. The main complication was callus deformity after the removal of the fixator especially in group A and pin-tract infection.

Conclusions: Forearm lengthening is a good procedure for cases of both congenital and traumatic shortening, if the indications and techniques were clearly defined while deciding the surgical protocol. To avoid the complications, close monitoring of the patients may be required. The lengthening is difficult in group A when compared to group B.

BILATERAL STRESS FRACTURES OF THE NECK OF FEMUR: A SERIES OF FOUR CASES

Jikku Haniball, MD, Sanjay S Mysore, MD, Shamsi Hameed, MD, Sharath Kumar Rao, MD, Bhaskaranand Kumar, MD
Kasturba Medical College Hospital, Manipal, Karnataka, India

Objective: Successful method of surgical fixation of femoral neck stress fractures is always an area of discusssion. The purpose of this study was to evaluate the results of fixation and fracture healing following varus angle correction by subtrochanteric valgus osteotomy and rigid fixation.

Design: Retrospective case analysis

Setting: Tertiary care trauma centre

Patients: 8 femoral neck stress fractures were studied in 4 middle-aged patients (3 females and 1 male) of 4 compression types and 4 tension types for which cancellous screw fixation was done in 3 hips and varus angle correction by subtrochanteric valgus osteotomy followed by dynamic hip screw fixation in 5 hips. Patients were followed up for 6 months to see fracture healing.

Results: 6 out of 8 hips showed good healing of fractures. Two hips with tension type fracture fixed with single cancellous screw had implant failure and required a second operation followed by valgus osteotomy and rigid fixation with dynamic hip screw. There were no complications in other patients with primary rigid fixation. All patients gained ambulatory status without support in six months time.

CHONDROSARCOMA OF ILIUM

Shamsi Hameed, MD, Roy Abraham, MD, Mohanty SP, MD
Kasturba Medical Colloege, Manipal, Karnataka, India

Case Report: Chondrosarcoma of the pelvis involving the sacroiliac region can pose a difficulty in diagnosis as

well as management. Herewith we present a case of chondrosarcoma of the ilium involving the sacroiliac region and presenting as a case of chronic sacroiliitis due to tuberculosis. A 25-year-old lady presented to Department of Orthopaedics with complaints of low backache with radicular signs consistent with sacroiliitis of the right side. She was earlier treated as a case of tubercular sacroiliitis because of clinical and radiological features which consisted of haziness of the sacroiliac joint on plain x-ray, erosion of the sacroiliac joint with evidence of paraosseous soft tissue shadow with patchy calcification, an attempted CT guided biopsy showing features of chronic inflammatory changes and erythrocyte sedimentation rate of 15 mm in the first hour.

However after 3 months of antitubercular treatment, there was no relief of symptoms and she was disabled because of pain and radiculopathy. Further evaluation with bone scan showed increase uptake around the right sacroiliac region. Repeat X-ray of the pelvis showed sclerosis of right sacro-iliac joint, erythrocyte sedimentation rate being the same. Open biopsy was undertaken which was not conclusive of tuberculosis and showed some abnormal chondroid tissue. CT scan of the pelvis showed a destructive lesion of the ilium extending into the sacroiliac joint and infiltrating into the psoas muscle. A bony growth with calcification was present which extended into the erector spinae muscle and involved a part of the L5 and S 1 vertebrae. Through the posterior approach, a radical excision of the tumor was done which included a part of L5 and S1 vertebrae. Post-operatively, histopathological diagnosis came as chondrosarcoma. She was later treated with radiotherapy.

This case is presented to highlight the uncommon presentation of a case of chondrosarcoma mimicking tuberculosis of sacroiliac joint and difficulties encountered during the management.

RECURRENT GIANT CELL TUMOUR OF THE THORACIC SPINE: A CASE REPORT

R Abraham, MS, DNB (Ortho), M.Ch. (Orth), MRCS,
SP Mohanty, MS, DOrtho, MNAMS
Kasturba Medical College, Manipal, India

Introduction: Giant cell tumours of the spine are uncommon lesions. Recurrent tumours involving more than one vertebral body in the thoracic vertebrae are difficult to manage surgically, due to the potentially malignant behaviour of the tumour, its location, proximity of the spinal cord and post-resection stability of the spinal column. We present a case of recurrent giant cell tumour of the thoracic spine in a young lady to highlight a solution to these challenges in management.

Materials and Methods: A thirty-three year old lady school teacher was initially diagnosed to have an aneurysmal bone cyst of the T8 vertebra with paraplegia in 1994. An anterior decompression and fusion was done. She recovered completely after surgery and post-operative radiotherapy. However, in 1999 she had back pain and follow-up radiographs and CT scans showed recurrence of the lesion with involvement of 7th, 8th and 9th thoracic vertebrae. The patient underwent radical excision of the tumour through a trans-thoracic, trans-pleural approach, anterior bone grafting (with fibula) and stabilisation. Posterior instrumentation and fusion was carried out under the same anaesthesia. Histopathological studies revealed a giant cell tumour with an aneurysmal bone cyst component.

Results: The post-operative period was uneventful. She was ambulated with a custom-made spinal jacket. On last review in 2006 (7 years follow-up), there was no evidence of recurrence or neurological deficit and she was continuing her occupation as a school teacher.

Discussion: Giant cell tumours of the spine are uncommon and the incidence is around 3.2%. This case is being reported because of its rarity, uncommon presentation and unusual histology. The advantage of trans-thoracic approach in prone position for excision of the tumour, bone grafting and stabilisation followed by posterior instrumentation and fusion is being highlighted.

DOES NEUROLOGICAL DEFICIT IN THORACO-LUMBAR AND LUMBAR BURST FRACTURES DEPEND ON THE EXTENT OF CANAL COMPROMISE?

SP Mohanty, MS, DOrtho, MNAMS,
R Abraham, MS, DNB (Ortho), MCh. (Orth), MRCS
Kasturba Medical College, Manipal, India

Study design: Prospective study

Objectives: 105 consecutive cases of thoracolumbar and lumbar burst fractures seen over a 6 year period were analyzed to determine whether the extent of canal compromise at the time of admission determines the extent of initial neurological deficit.

Setting: University teaching hospital in south India

Methods: The fractures were classified according to modified Denis' classification from radiographs taken at the time of admission. The degree of spinal canal compromise was assessed from computed tomography scans. The initial neurological status was graded according to American Spinal Injury Association's (ASIA) modified Frankel's grading for traumatic paraplegia.

Results: 48% of patients with neurological deficit had type B fracture. The mean canal compromise in patients with neurological deficit was 49.62% while in patients with no neurological deficit it was 36.16%. There was no statistically significant difference between the extent of canal compromise and degree of initial neurological deficit at thoracolumbar (T11, T12 and L1) and lumbar spine (L2, 3 and 4). However when analyzed separately, T11 and T12 fractures had a significant correlation but at L1 it was insignificant.

Conclusions: Although this study suggests that there is no overall correlation between the initial neurological deficit and the extent of spinal canal compromise in thoracolumbar and lumbar burst fractures, at T11 & T12 there was a significant correlation between the two. It may be necessary to consider T11 and T12 injuries and L1 injuries as distinct groups especially when studying neurological involvement in spinal injuries.

PEDIATRIC SURGERY

THE ROLE OF POST-OPERATIVE SERUM TOTAL BILIRUBIN IN PREDICTING EARLY OUTCOME IN BILIARY ATRESIA

Paisarn Vejchapipat, MD, Rojjana Passakonnirin, MD, Paiboon Sookpotarom, MD, Soottiporn Chittmittrapap, MD, Voranush Chongsrisawat, MD, Yong Poovorawan, MD

Department of Surgery and Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Introduction: Biliary atresia (BA) is a serious liver disease with uncertain prognosis.

Objective: To investigate the role of post-operative serum total bilirubin (TB) as a predictor for early outcome in BA.

Materials and Methods: BA patients between 2001 and 2005 were reviewed. Serum TB levels were determined at 7th day, 1 month, and 6 months following surgery. The patients were then categorized into 2 groups at 6th month post-operatively based on jaundice status; good outcome (serum TB <2 mg%) and poor outcome (TB >2mg%). Post-operative serum levels of TB at 7th day and at 1 month were analyzed to predict the outcome at 6 months post-operatively using descriptive study and Fisher exact's tests.

Results: Fifty BA patients underwent Kasai operation; 30 patients with good outcome and 20 patients with poor outcome. Age and gender between the 2 groups were comparable. At 7th day post-op, 56.7% (17/30) of patients with good outcome had their post-operative serum TB decreased, compared to pre-operative levels, whereas 55% (11/20) of patients with poor outcome had their serum TB decreased, P = 0.99. At 1 month post-operatively, 96.7% (29/30) of patients with good outcome had their serum TB decreased, compared to pre-operative levels whereas 65% (13/20) of patients with poor outcome had their serum TB decreased, P = 0.004. Predictive values using the decrease in post-operative serum TB at 7th day and 1 month as a predictor for good outcome were 60.7% and 69.05%, respectively. Further analysis revealed that, at 7th day post-operatively, the drop in serum TB more than 50% of its pre-operative levels occurred in only 8% (4/50) of all patients and they were all jaundice-free at 6 months post-operatively. In addition, 27% (8/30) of patients with good outcome was jaundice-free at 1 month post-op.

Conclusions: The decrease in serum TB at 7th day post-operatively is not a good predictor for good outcome in BA except when the drop in serum TB is greater than 50%. In good outcome group, only a small proportion of patients were jaundice-free at 1 month post-op. Although the decrease in serum TB at 1 month post-operatively might be a predictor for good outcome, its value in practice is limited.

NOVEL MUTATIONS OF STK11 GENE IN TWO THAI PEDIATRIC PATIENTS WITH PEUTZ-JEGHERS SYNDROME

Nitiwut Wongsa-ngiam, MD, Petcharut Leayglang, MD,** Paisarn Vejchapipat, MD,* Vorasuk Shotelersuk, MD***

*Pediatric Surgery Unit, Department of Surgery, **Medical Genetics Unit, Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Peutz-Jeghers syndrome (PJS) is an autosomal dominantly inherited disease characterized by harmatomatous gastrointestinal polyps and mucocutaneous pigmentation. Patients with this syndrome carry an increased risk for various neoplasms including extra-gastrointestinal malignancies. The PJS gene encoding the serine/threonine kinase (STK11) was mapped to chromosome 19p13.3. Its germline mutations were identified in

PJS patients.

Case Report: We reported clinical and pathological information of 2 Thai pediatric patients whose mutation analysis was performed. Using polymerase chain reaction and DNA sequencing analysis, 2 different kinds of mutation in 2 cases of Thai PJS patients, a deletion of 9 bases from codon 303-305 in one patient and a deletion of 1 base from codon 61 in the other patient, have been identified.

Conclusions: This study reports the presence of STK11 mutations in Thai PJS patients and also 2 novel mutations of STK11 in PJS patients.

SEPTIC COMPLICATIONS IN INFANTS WITH GASTROSCHISIS: AN ELEVEN-YEAR REVIEW FROM A REFERRAL HOSPITAL IN SOUTHERN THAILAND

Surasak Sangkhathat, MD,[1] Sakda Patrapinyokul, MD,[1] Piyawan Chiengkriwate, MD,[1] Prasin Chanvitan, MD,[2] Waricha Janjindamai, MD,[2] Supaporn Dissaneevate, MD[2]

[1]Pediatric Surgery Unit, Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat-Yai, Songkla

[2]Neonatology Unit, Department of Pediatrics, Faculty of Medicine, Prince of Songkla University, Hat-Yai, Songkla, Thailand

Objectives: The study aimed to 1) examine the incidence of septic complications (SC) in our referral hospital in Southern Thailand in infants with gastroschisis, with analysis of the impact of these complications on outcomes and 2) identify associated factors in order to improve the practice at our institution in dealing with this condition.

Materials and Methods: A retrospective review of consecutive gastroschisis cases at the major teaching and referral hospitals in Southern Thailand was conducted for an eleven-year period (1996-2006). Cases referred after a primary operation at other hospitals were excluded. The study focused on postoperative nosocomial infections as identified by CDC criteria.

Results: Sixty-eight gastroschisis patients were operated on. Twenty-seven patients (39.71%) underwent primary closure. Mortality rate was 5.9% (4/68 patients). SC occurred in 43 patients (63.2%). Complications, when occurring, significantly increased mechanical ventilation days (10.8 vs. 3.8 days), need for parenteral nutrition (25.3 vs. 14.5 days) and postoperative stay (33.7 vs. 21.1 days). Common SCs were wound infection (32.35%), blood stream infection (27.94%) and pneumonia (13.24%). Univariate analysis identified an association between the occurrence of SC and birth order (multigravida), time from birth until arrival at our center (5 hours or more), hypoalbuminemia, hypoglycemia, type of operation (staged closure), use of central venous line and prolonged use of ventilator. On multiple logistic regressions, prolonged referral time, use of central venous line, multigravida and staged closure independently predicted the risk of SC.

Conclusions: SC was significantly related to outcome parameter in gastroschisis cases and should not be overlooked. Our data suggest that prompt referral, limiting central line practice on a selective basis and an attempt to reduce the infection rate in cases requiring temporary silo may reduce the infection rate.

POSTTRAUMATIC ABDOMINOSCROTAL HYDROCELE

Kulsiri Tiansri, MD, Rangsan Niramis, MD

Queen Sirikit National Institute of Child Health, Bangkok, Thailand

Abdominoscrotal hydrocele is rare in children. It consists of scrotal and abdominal components with a central constricted communication, resulting in an hourglass or a dumbbell shape. We report a case of abdominoscrotal hydrocele treated at the Queen Sirikit National Institute of Child Health.

A 7-month-old boy was referred from a provincial hospital with the provisional diagnosis of abdominal mass following a fall from height. He had a history of falling from a 1-meter high table. He was admitted for observation for 2 days. He was doing well, except having a right hydrocele which had been detected since 1 month of age. Two months later, a right sided abdominal mass was palpated. CT scan of the abdomen revealed a retroperitoneal cystic mass extended to the inguinal region. At surgery, right abdominoscrotal hydrocele was noted. Excision of abdominal mass, repair of inguinal ring and appendectomy were done. His postoperative course was uneventful and he was discharged on the 7th postoperative day.

LEADING POINTS IN INFANCY AND CHILDHOOD INTUSSUSCEPTION

Supatra Chareekaew, MD, Rangsan Niramis, MD

Department of Surgery, Queen Sirikit National Institute of Child Health, Bangkok, Thailand

Background: The etiology of most intussusception is idiopathic. However, some cases may have leading points.

Objectives: The purpose of this study was to analyze and discuss the cases of intussusception in children with pathologic leading points.

Materials and Methods: From January 1988 to December 2006, there had been 1,025 episodes of intussusception in 956 children. Of these 956 patients, leading

points were identified in 37 cases.

Results: Of these 37 patients, the incidence of intussusception with leading points was 3.6%. Of these 37 cases from the study of 956 patients, 23 were male and 14 were female. The average age was 45 months (ranging from 14 days to 12 years). Hydrostatic barium enema reduction was attempted in 14 patients and only one case was successfully reduced. Pneumatic reduction was used in 11 patients and none had successfull reduction. The non-operative reduction was not attempted in the remaining 12 patients due to poor condition or unavailability of non-operative reduction. All but one of the 37 patients underwent laparotomy. The remaining one case required colonoscopy and polypectomy. Intestinal polyps were the most common leading points in this study (16 cases). Meckel's diverticulum, duplication cysts and lymphoma were noted in 14, 3, and 2 cases, respectively. Other causes included tuberculosis of the intestine, ectopic pancreatic tissue and pseudotumor of the colon. All of the leading points were resected and the postoperative courses were uneventful.

Conclusions: Children with intussusception having leading points could be found in all age group. Non-operative reductions were met with failure in all but one of our cases. Surgical resection should be done in all cases when the leading point was seen.

PLASTIC AND RECONSTRUCTIVE SURGERY

COMPARTMENTALIZED SCLEROTHERAPY FOR TREATMENT OF VASCULAR MALFORMATION IN MAXILLOFACIAL REGION

Surawej Numhom, MD, Vichai Srimuninnimit, MD
Division of Plastic and Maxillofacial Surgery, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.

Background: In patients with extended vascular malformation in the maxillofacial region, therapeutic decision may pose a challenge and difficulty to plastic surgeons. Total resection of these lesions necessitates complex reconstructive procedures and involves the risk of massive bleeding and can cause postoperative deformities. We present our experience in treating patients with vascular malformation by using compartmentalized sclerotherapy technique.

Materials and Methods: From 2000-2005, a total of 23 patients (16 females, 7 males, age range from 2 to 47 year) with vascular malformation of maxillofacial region were treated with compartmentalization using absorbable sutures followed by injection of sclerosant into each compartment. Followup ranged from 6 months to 4 years.

Results: Compartmentalized sclerotherapy alone or with surgical resection achieved good results. Patients with large vascular malformation required multiple treatments. No worsening of the initial clinical situation occurred and no persistent complication was observed.

Conclusions: Compartmentalized sclerotherapy is safe and effective for extended vascular malformation in the maxillofacial region. For large and extensive lesions the treatment is more complex; combined multiple sclerotherapy and surgical procedures may be required.

COMPARISON OF THE IONIC SILVER-CONTAINING HYDROFIBER AND PARAFFIN GAUZE DRESSING ON SPLIT-THICKNESS SKIN GRAFT DONOR SITES

Visnu Lohsiriwat, MD, Apirag Chuangsuwanich, MD
Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: The management of the split-thickness skin graft (STSG) donor site has been an inconclusive topic. Different types of wound care have been conducted in this field. Hydrofiber dressing is a sodium carboxymethylcellulose (NaCMC) hydrocolloid polymer which has high absorptive capacity and ability to form a soft, hydrophilic, gas-permeable gel that traps bacteria, conforms to the wound and aids in autolytic debridement without damaging newly formed tissue. Silver (Ag) was a topical wound dressing which has antimicrobial and wound healing process facilitating properties. Our study aims to compare the ionic silver-containing Hydrofiber dressing and paraffin gauze dressing on STSG donor sites. The data were compared on pain at rest, pain on dressing removal, day of completed re-epithelialization and donor site morbidities. This protocol was approved by the Institution Ethics Committee.

Materials and Methods: From February 2006 to February 2007, subjects who underwent STSG procedure were recruited. They would be excluded if the subjects had connective tissue disease, allergic to the silver or dressing components. All of the donor sites were anteromedial thighs. The STSG were harvested with Zimmer dermatome blade with 8-12/1000 inch thickness. The study population was randomized into 2 groups: ionic silver-containing Hydrofiber (group A) and paraffin gauze (group B).

Results: A total of 18 patients with 20 donor sites were collected. The mean age of each group was 47.2 ± 18.0 years and 49.0 ± 18.0 years respectively. The mean surface area of donor site was 145.5 ± 88.0 cm^2 in group A and 135.8 ± 119.4 cm^2 in group B.

Data	Ionic silver-containing Hydrofiber group (Group A) N = 10	Paraffin gauze group (Group B) N = 10	2-sided p-value*
Completed re-epithelialization (day)	7.90 ± 2.47	11.20 ± 3.52	0.031**
Average pain score at rest (0 to 10)	0.74 ± 0.40	0.80 ± 0.43	0.894
Average pain score on dressing (0 to 10)	3.12 ± 0.89	4.70 ± 1.57	0.027**

*Mann-Whitney U test (Exact method)
**Statistically significance
Note: No infection or seroma on donor sites detected in both study groups.

Conclusions: Ionic silver-containing Hydrofiber dressing can reduce STSG donor sites pain and promote re-epithelialization comparing to paraffin gauze dressing. The appropriate characters of the sodium carboxy-methylcellulose hydrocolloid polymer in Hydrofiber combining with the antimicrobial and wound healing process facilitating property of ionic silver make this material a good alternative dressing for STSG donor site.

INHIBITION OF COLLAGEN TYPE I SYNTHESIS IN KELOID FIBROBLASTS WITH SHORT-INTERFERING RNA

Tanongsak Panyawirunroj, MD, Panthakarn Tit-oon, MSc, Chanin Limwongse, MD, Chatchawan Srisawat, MD, PhD, Apirag Chuangsuwanich, MD

Plastic Surgery Division, Surgery Department, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Keloid is a fibroproliferative disorder of unknown etiology. It results from excessive collagen production during the wound healing process. Its occurrence usually associates with young age, dark skin color, high skin tension, and inheritance. The etiology of keloid is not fully understood and the treatment thus far is not very satisfactory. The components in keloid scars are heterogeneous, nevertheless, collagen type I is predominant among all components. Therefore, suppression of collagen production might be useful for the treatment of keloid. Recently, a breakthrough discovery of RNA interference provides a very powerful tool to suppress gene expression in mammalian. In this study, small interfering RNAs (siRNA) specific to COL1A1 and COL1A2 genes, the products of which comprise collagen type I, were designed and used to suppress expression of the corresponding genes in cultured keloid fibroblasts obtained from the clinical specimens.

Materials and Methods: Four siRNAs targeting human COL1A1 and COL1A2 genes were designed and generated using T7 RNA polymerase in vitro transcription techniques. The siRNA constructs were then used to transfect the cultured keloid fibroblasts and the levels of COL1A1 and COL1A2 mRNAs were quantified using semi quantitative RT-PCR.

Results: The preliminary results showed that the siRNAs could efficiently suppress COL1A1 and COL1A2 expression in keloid fibroblasts. The expressions of COL1A1 and COL1A2 were reduced to ~70-90% and 50-90% respectively, when compared with the negative-control scrambled siRNA.

Conclusions: The collagen type I plays an important role in keloids formation. The siRNAs targeting specific collagen type I has been shown to be an effective tool to reduce the expression of collagen type I genes in vitro. The use of siRNA might potentially be a novel therapeutic approach for reduction of scar formation in keloid patients by interrupting the collagen type I production.

UROLOGY

VISUAL URO-DILATOR

C Wingprawat, MD

Division of Urology, Sukhumvit Hospital, Bangkok, Thailand

Objective: Performing endourology such as ureteroscopy, urethrocystoscopy and especially ureteroscopy was not easy. This dilator was invented to solve this problem. This instrument composed of a round external sheath, diameter 0.5 cm, with tapering tips and near the proximal end. There were 2-sided channels for inflow and outflow of NSS. One channel at the bottom was for insertion of guidewire, ureteral catheter, stone dislodger, etc. Zero degree lens was placed in the sheath. The tip of lens was seen at the distal end.

Materials and Methods: After light cable was

connected with lens, inflows of NSS was connected to one sided-channel. NSS was from Uro-Mat-Machine. Stream of NSS was seen at the tips of the visual uro-dilator. It was inserted into ureteral orifice, passed and dilated the intramural ureter up to lower ureter about 15 cm. Before removal of this dilator guide wire, ureteral catheter could be retained in the ureter. Then the conventional ureteroscope no. 8- to 12 F. in diameter could be passed easily into mid and upper ureter and also into intrarenal collecting system especially for flexible ureteroscope. The lesions in ureter such as stones, stricture or tumor could be manipulated further. In case of urethra, the lesions such as stricture less than 0.5 cm, bladder neck contracture, BPH with obstruction or traumatic tear of urethra, this dilator could be passed across these lesions into bladder under vision. In patients with acute urinary retention (AUR) and when other instruments i.e. sounds or conventional dilators failed, with this dilator, the AUR would be treated immediately. Patient was then avoided from emergency open cystostomy. After this procedure the catheter could be retained in bladder.

Results: The purpose of this dilator was to facilitate ureteroscopy. Stones below 0.4 cm in diameter could be removed. With stone size greater than 0.4 cm, the next step was to use ureteroscopy with accessories such as stone basket, crocodile forceps or laser probe for further treatment. This dilator could be used satisfactorily in cases of urethral stricture less than 0.5 cm in length, BPH with obstruction and bladder neck contracture.

Conclusions: This new Visual-Uro-Dilator was very usefull and effective for ureteroscopy and urethrocystoscopy.

INCREASED URINARY EXCRETION OF OXIDATIVE STRESS BIOMARKERS AND SIALIC ACID ASSOCIATED WITH SEVERITY OF BLADDER TUMOR

Chavalit Honglertsakul, MD,[1] Julin Opanuraks, MD,[1] Wipawee Kittikowit, MD,[2] Chanchai Boonla, MD,[3] Rattiporn Wunsuwan, MD,[3] Piyaratana Tosukhowong, MD[3]

[1]Department of Surgery, [2]Pathology and [3]Biochemistry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Introduction: Reactive oxygen species- induced damage to lipids; proteins and DNA play a major role in carcinogenesis. This study aimed to determine urinary damage products of DNA (8-OHdG), lipid (malondialdehyde: MDA) and total sialic acid (TSA) in patients with transitional cell carcinoma (TCC) and to evaluate whether they are associated with severity of tumors.

Materials and Methods: Morning urine of 48 patients (28 no malignancy cell and 20 malignant TCC) and 30 healthy controls were measured for concentration of creatinine, proteins, 8-OHdG, MDA and TSA. The severity grade of TCC was determined by urinary cell cytology.

Results: Level of urinary proteins, 8-OHdG, MDA and TSA in patients with TCC were significantly higher than in healthy controls ($p = 0.002$, $p = 0.009$, $p<0.001$ and $p<0.001$, respectively). Urinary proteins, 8-OHdG, MDA and TSA level in patients with malignant TCC (C4 and C5 grade) were significantly higher than those with non-malignant (C1 and C2 grade) ($p = 0.043$, $p = 0.007$, $p = 0.024$ and $p = 0.018$, respectively). In addition, urinary TSA in patients with no malignancy cell was significantly higher than in healthy control. ($p = 0.004$).

Conclusions: These findings show that urinary excretions of oxidative stress biomarkers and total sialic acid are significantly higher in TCC patients and they correlate with the severity grade of the tumor. These noninvasive determinations may have potential for diagnosis and prognosing TCC as well as monitoring the patients after treatment. Reduction of oxidative stress is recommended to be a very important approach for primary prevention of TCC.

EARLY EXPERIENCE IN ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY WITHOUT PROCTORSHIP: THE FIRST SERIES IN ASIA

Sittiporn Srinualnad, MD, MSc (London), FRCS (Glasgow)

Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Introduction: Robotic Assisted Laparoscopic Radical Prostatectomy has been shown to provide the best surgical outcomes in terms of potency and continence. The program of robotic prostatectomy was started at Siriraj Hospital without proctorship. Early result of the author's experience was evaluated.

Objective: To evaluate the feasibility of Robotic Assisted Laparoscopic Radical Prostatectomy performed at the author's institute without proctorship.

Materials and Methods: From February 2007 to June 2007, 15 patients with localized prostate cancer underwent robotic prostatectomy by one surgeon. Perioperative data were evaluated and reported here.

Results: All patients underwent the operative procedure successfully. Mean operating time was 263 minutes. Average blood loss was 825 ml. There was no conversion to open or laparoscopic prostatectomy in the series. One patient required a suprapubic cystostomy tube due to high tension at the vesico-urethral anastomotic site.

Conclusions: The early experience of robotic prostatectomy without proctorship has shown that it is feasible in a robotic-naive-experience surgeon. However, oncological outcome can be improved when experience gained, and long term follow-up is needed to evaluate functional outcomes including potency and incontinence rate.

LAPAROSCOPIC RADIOFREQUENCY THERMAL ABLATION OF A RENAL TUMOR WITH SIMULTANEOUS LAPAROSCOPIC CHOLECYSTECTOMY: PRELIMINARY EXPERIENCE

Sompol Permpongkosol, MD, Charoen Leenanupunth, MD, Siroj Kanjanapanjapol, MD

Division of Urology, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: To report our experience with in situ laparoscopic radiofrequency ablation (RFA) for treatment of a small renal tumor with simultaneous laparoscopic cholecystectomy.

Materials and Methods: A 65-year-old lady was referred to our department for a solid nodule of lower pole of right kidney 1.2 cm diameter and chronic cholecystitis with gall stone. The patient underwent laparoscopic RFA with simultaneous laparoscopic cholecystectomy. Radiofrequency ablation was applied using a RITA Medical probe.

Results: There were no intraoperative or postoperative complications. Under laparoscopic control of tine placement, energy was applied for 10 minutes at an average temperature of 100 degree Celsius. The operative time was 275 minutes, with postoperative hospital stay of 14 days. Core biopsies taken in the same session just before ablation were sent for permanent section and the biopsy result demonstrated angiomyolipoma.

Conclusion: Laparoscopic RFA of renal tumor performed simultaneously with other laparoscopic procedure is feasible and effective.

LAPAROSCOPIC EXTRAVESICAL URETERAL REIMPLANTATION FOR DISTAL URETERAL STRICTURE

Sompol Permpongkosol, MD, PhD, Wisoot Kongchareonsombat, MD, Charoen Leenanupunth, MD

Division of Urology, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: We described our experience with laparoscopic extravesical neoureterocystostomy in the management of a distal ureteral stricture after transurethral resection of the prostate by using transperitoneally intracorporeal freehand suturing technique.

Material and Method: The 77-year old male patient with significant co-morbidity had a left distal ureteral stricture after a transurethral resection of the prostate 2 years previously. A pure laparoscopic approach using two 12 mm ports and two 5 mm ports was performed. The ureter was gently mobilized circumferentially down to the bladder. It was divided proximal to the stricture area. The serosal and muscular layers of bladder are opened and a Lich-Gregoir antireflux technique was done. A feeding tube was placed.

Results: Laparoscopic ureteroneocystostomy was successfully performed. The operative time was 240 minutes and mean blood loss was 50 ml. There were no intra- or post-operative complications. The average time to starting oral intake was 12 hours. A mean of a visual 10-degree pain score scale after the operation was 3 and there was no requirement for post-operative analgesia. A follow-up of four-month imaging revealed a good result.

Conclusions: Laparoscopic extravesical neoureterocystostomy in the management of distal ureteral stricture using transperitoneally intracorporeal freehand suturing technique is a safe and feasible procedure.

LAPAROSCOPIC EXCISION OF URACHAL CYSTS IN AGING MEN AND AFTER PREGNANCY

Sompol Permpongkosol, MD, PhD, Keith L Lee, MD, Charoen Leenanupunth, MD, Marsha L Stroller, MD

Division of Urology, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objectives: Persistent urachus was rarely presented in aging male and during pregnancy. We report our experience with the laparoscopic excision of urachal cysts in 65 and 70-year-old men with significant co-morbidities and after pregnancy in 32-year-old woman.

Materials and Methods: The patients presented with a lower abdominal mass, umbilical discharge and an incidental finding during pregnancy and underwent the operation at 4, 6 weeks and one year after diagnosis, respectively. Using 3 ports, the urachus and medial umbilical ligament were clipped and divided. In 2 cases, the specimens were separated from the bladder dome with the bladder cuff. To close the bladder defect, the additional port was required to facilitate intracorporeal freehand suturing in an oldest patient.

Results: All 3 procedures were completed successfully. No intra-operative or postoperative complications were noted. The operative time ranged from 120-180

minutes with minimal blood loss and hospital stay of 1-7 days. Pathological evaluation revealed a benign urachal remnant in each case.

Conclusions: Laparoscopic excisions of urachal cyst in aging male or after pregnancy are safe and effective procedures.

LAPAROSCOPIC EXCISION OF URACHAL REMNENTS IN AGING MEN

Sompol Permpongkosol, MD, PhD
Division of Urology, Department of Surgery, Ramathibodi Hospital, Faculty of Medicine, Mahidol University, Bangkok, Thailand

Objectives: Persistent urachus was rarely presented in aging male. Experience with the laparoscopic excision of urachal remnant in a 65- and 70-year-old male is reported.

Materials and Methods: The 2 patients presented with umbilical discharges and a lower abdominal mass, respectively. Both of them underwent laparoscopic excision of the urachal remnant. Using 1, 12-mm. optic-view camera, 1, 10 mm. and 1, 5 mm. ports, the urachus and medial umbilical ligament were clipped and divided. In the second case, the specimen was separated from the bladder dome with the bladder cuff.

Results: Both procedures were completely successfully. No intra-operative or postoperative complications were noted at follow-up. The operative time was 100 minutes, estimated blood loss was 50 ml and hospital stay was 2-7 days. Pathological evaluation revealed a benign urachal remnant in each case.

Conclusions: Laparoscopic excision of urachal cyst in aging male is a safe and effective procedure.

LAPAROSCOPIC EXTRAVESICAL URETERAL REIMPLANTATION FOR AN IATROGENIC DISTAL URETERAL STRICTURE

Sompol Permpongkosol, MD, PhD, Keith L Lee, MD, Wisoot Kongchareonsombat, MD, Marshall L Stoller, MD
Division of Urology, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: We described our experience with laparoscopic extravesical neoureterocystostomy for iatrogenic distal ureteral strictures using transperitoneally intracorporeal freehand suturing technique.

Patients and Methods: During the first 6 months of the year 2007, 28, 34 and 77-year-old patients with distal ureteral strictures underwent laparoscopic extravesical transperitoneal ureteral reimplantation at 2 urologic institutions. The first patient, after a transurethral resection of the prostate, underwent the Lich-Gregoir antireflux technique. The last 2 cases underwent the refluxing technique with a psoas hitch after the gynecologic surgeries. We reviewed the perioperative records to assess morbidity, recovery and outcome.

Results: All 3 procedures were completed successfully. There were no intra- or post-operative complications reported. Mean blood loss was 50 ml. The average time to starting oral intake was 12 hours. Pathological evaluation confirmed a benign in each case. All follow-up imagings revealed good results.

Conclusion: Laparoscopic extravesical neoureterocystostomy for iatrogenic distal ureteral strictures is a safe and feasible procedure; however, the long-term follow-up and results are required.

COMPLICATIONS DURING LAPAROSCOPIC RADICAL CYSTOPROSTATECTOMY LEARNING CURVE

Sompol Permpongkosol, MD, Wisoot Kongchareonsombat, MD, Panupong Kanjanawongdeengam, MD, Charoen Leenanupunth, MD
Division of Urology, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objectives: We report our preliminary complications during laparoscopic radical cystoprostatectomy learning curve.

Materials and Methods: We have performed laparoscopic radical cystoprostatectomy for transitional cell carcinoma of the bladder with extracorporeal ileal conduit urinary diversion in 51- and 71-year-old male patients. The 2002 TNM staging for these tumors were: T2-T3.

Results: The operating times for laparoscopic radical cystoprostatedomy were 4 hours during learning curve. Intra-operatively, the problems of crossing swords related to trocar placement and air leakage were the main causes of prolonged operative time. There were no bowel injuries or peri-operative mortality. Post-operative complications in both patients included ileus and in one case a compartment syndrome of right leg caused by excessive prolonged pressure.

Conclusions: Laparoscopic radical cystoprostatectomy shares several potential risks with traditional open approaches. Thus, efforts at prevention and patients' understanding should be maximized.

MISCELLANEOUS

BLOOD ORDER GUIDELINE FOR ELECTIVE SURGERY: IMPACT OF A GUIDELINE

Somrit Mahattanobon, MD, Somkiat Sunpaweravong, MD
Department of Surgery, Faculty of Medicine, Prince of Songkla University, Songkla, Thailand

Background: Cross-matched blood reservation without transfusion leads to a costly waste of resources. Prior study from our institution demonstrated an ineffective use of preoperative blood order with the blood cross-match to transfusion (C/T) ratio of 4.79 (887/185 units). A guideline for preoperative blood reservation was developed in our institute since 1 August 2006 by using cross-match to transfusion ratio (C/T), transfusion probability (%T), and transfusion index (TI).

Objective: To determine the efficiency of blood ordering in elective surgery before and after an implementation of blood order guideline.

Materials and Methods: A retrospective study using a prospective maintained database and medical record review was conducted. Patients underwent various elective surgical operations during a 6-month period before (1 January 2006-31 June 2006) and after (1 August 2006- 31 January 2007) blood ordering guidelines were examined for clinical characteristics and cross-match to transfusion (C/T) ratio.

Results:

	Before guideline (n = 483)	After guideline (n = 430)	P
Male: Female (%)	45.5 : 54.5	47 : 53	0.66
Age (years, mean ± SD)	56.1 ± 16.6	57.0 ± 15.6	0.37
ASA class I/II/III (%)	11.3/74.7/14	13.3/77.4/9.3	0.08
Preoperative Hb (gm%)	12.7 ± 1.7	12.6 ± 1.5	0.36
Acceptable blood loss (ml)	1216 ± 686	1227 ± 660	0.79
Estimated blood loss (ml)	464 ± 844	368 ± 710	0.09
C/T ratio	3.61 (726/201)	2.56 (557/217)	0.64

Conclusions: Blood order guideline for elective surgery may facilitate effective use of preoperative blood reservation. Continual guideline monitoring and periodic evaluation are encouraged.