The THAI Journal of SURGERY 1995; 16:57-94.
Official Publication of the Royal College of Surgeons of Thailand

July 12-15, 1995
Jomthien, Thailand

Abstracts

20th Annual Congress of the Royal College of Surgeons of Thailand

General Surgery

Survival After Surgical Treatment of Cholangiocarcinoma in Patients with Opisthorchiasis

Prasit Watanapa

Cholangiocarcinoma is common in Thailand particularly in endemic area of the liver fluke *Opisthorchis viverrini.* Survival after surgical treatment of this cancer was studied in thirty patients with opisthorchiasis, all resided in endemic area of the fluke. The median age was 52 years (range 32-69 years) and twenty-five patients were male. Jaundice was the most common presenting symptom found in 26 patients (87%). The median duration of jaundice before treatment was 4 weeks (range 1-20 weeks), and the median serum total bilirubin was 23.5 mg/dl. Seven patients had their tumours removed, four with concomitant liver resection. The remaining 23 patients underwent palliative biliary bypass procedures using the segmental duct. The diagnosis was confirmed by histology in 24 patients. None of these thirty patients had postoperative chemo- or radiotherapy. Patients were followed by either visiting the follow-up clinic or answering the questionnaire sent to them by post. All patients were followed up to 2 years or until death. One-year survival after treatment was 30 per cent whereas two-year survival was 10 per cent. The median survival period of those undergoing bypass procedure was 8.0 months (range 1.5-22.0 months). For those whose tumour could be removed, 2 patients are still alive (2 years after the resection). Five patients died at 7, 14, 15, 21 and 34 months after surgery, hence the 2-year survival after tumour resection was 42.9 per cent. The result of surgical treatment of cholangiocarcinoma in patients with opisthorchiasis is quite similar to those reported among patients without associated liver fluke infection.

Surgery of Conn's Syndrome

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Kijja Sindhvananda
Narong Lertakyamanee
Kalapangha Bhavakula

We reported the management of 34 patients with Conn's syndrome who were operated upon at our institution from 1976-1995. Male: Female ratio was 8:26 and the common age group was 31-60. The common symptoms and signs were weakness of extremities, hypertension and hypokalemia which were present from 1-7 years. The tumors were localized by CT scan and the patients received 75-400 mg/d of aldactone for approximately 2 weeks before surgery. Anti-hypertensive drugs were used in half of the group. We approached the tumor from the posterior of the back and resected 27 adenomas and 7 nodular hyperplasia of adrenal cortex.

Plasma Level of Tissue Factor in Pancreatic Cancer Patients

V Chinswangwatanakul
S Tebbutt
AK Kakkar
RCN Williamson

Tissue factor (TF), the glycoprotein transmembrane cell surface receptor that initiates coagulation through the extrinsic pathway and leads to thrombin generation may be involved in tumour angiogenesis and invasion. We have studied circulating tissue factor (TF) levels in 14 patients with pancreatic carcinoma, and 14 age-related control subjects. Five ml of venous blood was collected in 0.2 per cent EDTA, and platelet-poor plasma was prepared by centrifugation at 2,000 g for 15 minutes and stored at -20°C until assay. TF levels were measured using an enzyme-linked immunosorbant assay (ELISA) (American Diagnostica, Greenwich CT, USA). The median TF level in pancreatic cancer patients was 788.35 pg/ml compared with 195.93 pg/ml in the control group ($p = 0.02$). This study demonstrates a marked elevation of TF levels in the plasma of pancreatic cancer patients and suggests that this procoagulant may play a part in the thromboembolic complications associated with this disease.

Tissue Factor Expression Promotes the Invasive Property in Human Pancreatic Cancer Cell Lines

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S Tebbutt
AK Kakkar
RCN Williamson

Among solid tumours, ductal carcinoma of the pancreas is one of the most aggressive and particularly associated with a tendency to venous thromboembolism. These characteristics may reflect expression of the procoagulant tissue factor (TF). The presence of TF in 2 pancreatic cancer cell lines, Panc1 and BxPC3, was detected by using an ELISA kit and its activity was confirmed by an in vitro clotting assay. Tumour cell invasiveness was determined by culture on Matrigel. The level of TF content in Panc1 was 1.85 pg/1x10^5 cells and in BxPC3 219.9 pg/1x10^5 cells. The procoagulant effect of TF was inhibited by tissue factor pathway inhibitor (TFPI). In Matrigel culture TFPI prevented the attachment of Panc1 and BxPC3 seen in control cultures ($p<0.05$). The data indicate that the expression of TF by pancreatic cancer cells promotes their invasiveness, this process is inhibited by the physiological TF inhibitor, TFPI.

Endoscopic Treatment of Pancreatic Duct Stone and Relapsing Pancreatitis

Sukij Panpimanmas
Tawee Ratanachu-ek
Suchart Chanthaviboon

The use of interventional endoscopy of the biliary and pancreatic ducts has increased dramatically in recent years. Although choledocholithiasis is the most common reason for endoscopic treatment, other indications include pancreatolithiasis, biliary pancreatitis, cholangitis, papillary stenosis and sphincter of Oddi dysfunction. From 1990 we have done E.R.C.P. over 500 cases with 95 per cent success rate, endoscopic sphincterotomy and removal of biliary tract stones more than 100 cases with 70 per cent success rate. In our experience of pancreatic duct calculi, three patients with two relapsing pancreatitis and another one retained pancreatic duct stone after operation, 50 years average age, underwent E.R.C.P. and sphincterotomy and attempted stone extraction by basket and balloon. It was ultimately successful in 2 of 3 patients with no immediate complications. They have not had a symptomatic flare at a mean follow up of 6 months.

Endoscopic extraction is however, not without complications. It is technically difficult, and many attempts may be required. The combination of endoscopic therapy and extracorporeal shock-wave or laser lithotripsy may be a better alternative for the clearance of the pancreatic duct.

Biliary Cystadenoma : *A Case Report*

Wiroon Boonnuch
Kanit Atisook

Biliary cystadenomas are rare, slow-growing, multiloculated, cystic tumors arising from biliary epithelium. They are generally intrahepatic, but can be extrahepatic in location. They generally produce relatively few symptoms until late in their course, unless complications occur. The potential for malig-

nant degeneration does exist.

We report a case of 61-year-old Thai male with cyst in his left lobe of the liver, presented with epigastric pain and fever. The white blood cell count was 6,900 without a left shift. Laboratory studies showed the following serum values. Total bilirubin 0.8 mg/dl, alkaline phosphatase 569U/l, gamma glutamyl transpeptidase (GGT) 1164U/l, serum albumin 4.2 g/dl. Ultrasound examination demonstrated a large, septated hypoechoic mass with internal irregular and linear echoes. An enhanced CT showed non-homogeneous mass at left lobe of the liver. Angiography showed normal vascular pattern.

On surgical exploration, a large multiloculated cystic mass measuring 5 cms was found at left lobe of the liver. Left lobectomy was performed. Pathologically, a papillary cystadenoma of intrahepatic bile duct was confirmed. The patient's postoperative course was unevenful, and he remained in good health six months after surgery with no evidence of residual or recurrent disease.

Surgery for Pheochromocytoma

Narong Lertakyamanee
Thanyadej Nimmanwudipong
Kijja Sindhvananda
Kalapangha Bhavakula

Management of pheochromocytoma is challenging as it requires knowledge in pathophysiology and cooperation among surgeon, physician and anesthesiologist. During 1976 to 1995, there were 31 patients who underwent pheochromocytoma resection. The most common symptoms and signs they presented were headache, palpitation and hypertension, which were experienced for less than one year. The tumors were localized by CT scan since 1979, right and left adrenal tumors were equally found (16 and 11), a few (3) occurred at the organ of Zucherkandl and only 1 case had bilateral adrenal involvement. Preoperative preparation included α blocker or α and β blockers treatment to decrease vascular resistance and replenishing intravascular volume. However, sodium nitroprusside was needed to control the fluctuating blood pressure during anesthesia induction and surgical manipulation. Tranverse incision was chosen for clear exposure and adequate control of blood loss. Intraoperative death occurred in one patients due to massive blood loss. Post operative hypoglycemia occurred in 4 patients.

Derotation of GI Tract with Duodenomyotomy for Superior Mesenteric Artery Syndrome, The Operative Technique

Chanvit Tharathep

Superior Mesenteric Artery Syndrome is usually diagnosed in the weight loss or chronic medical illness patients, after failure of conservative treatment surgery is indicated. The most common procedure is duodenojejunostomy that requires enterotomy and anastomosis. Derotation of the GI tract is another choice that can avoid enterotomy and anastomosis in these malnutrition patients. In some cases, the 4th part of duodenum was still narrow postoperatively. A female case of SMA is reported. She presented with weight loss and vomiting. The upper GI study showed obstruction at the third part of duodenum with gastric dilatation. After failure of conservative treatment for 2 months, derotation of GI tract with duodenomyotomy was performed. Her symptoms improved during the 2 years follow-up without any complication.

Derotation of GI tract may be the better treatment of SMA, because of avoiding enterotomy and anastomosis. Duodenomyotomy may be performed if there is constriction part after derotation, in selected case.

Gallbladder Function Test in Acute Cholecystitis

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Chanean Ruangsetakit
Kanit Atisook
Yongyut Sirivatanauksorn

Acute cholecystitis is one of the urgent surgical disease. The accurate diagnosis is essential to decide whether urgent surgical procedure is required. This situation can be more critical when serious medical diseases are associated. The study designed in order to improve the efficiency of diagnosis.

Gallbladders of twenty patients with severe abdominal pain at right subcostal region within seven days were examined by ultrasonography at fasting stage and after liquid fatty meal. Acute cholecystitis was the clinical diagnosis in all patients. Fifteen patients (75%) had no gallbladder contraction after liquid fatty meal. Open cholecystectomy was carried out for these patients. Gallbladder in five patients

(25%) was contractable during the test. Three of them underwent cholecystectomy, however the other two were treated conservatively. All cholecystectomy specimens were sent for histopathologic study in order to demonstrate the severity of cholecystitis. Microscopically, ten gallbladder specimens in the non-contractable group (NCG) had acute suppurative cholecystitis. No evidence of acute cholecystitis was seen in contractable group (CG). Enlarged and distended gallbladder was seen intraoperatively in all NCG but not in CG. In NCG, bile contents were purulent in 2, cloudy brownish in 11, and white bile in 2. The CG, bile contents were yellow. Bacteriologic study, 8 bile-specimen cultures were positive. All of them were in NCG. No positive culture was seen in CG.

The severity of gallbladder disease was more in non-contractable group than contractable one. No serious complication occurred during the process. The test is safe, simple, tolerable and practical. In addition to clinical informations and conventional ultrasonography, this test may improve the accuracy in diagnosing acute cholecystitis.

Acute Appendicitis or Acute Renal Colic?

Sampan Watanapanyasakul

Objective: To differentiate acute appendicitis from acute renal colic.

It is sometimes difficult, to differentiate acute appendicitis from acute renal colic and vice versa. Back pain on pounding at the kidney areas can sometimes occur in acute retrocecal appendicitis. On the other hand, conventional symptoms and signs of acute appendicitis may occur in acute renal colic. Furthermore RBC and WBC in the urine may not indicate acute renal colic.

Clinically prospective study (within 24 hrs of admission) of 31 cases of acute appendicitis mimicking acute renal colic (cells in the urine, pain in RLQ) has been carried out and compared to prove acute renal colic (40 cases) since January 1987. The author has found that by using urinalysis, psoas sign, McBurney sign and back pounding sign, we can differentiate acute appendicitis from acute renal colic in 9 out of 11 cases (90%) and in 19 out of 20 cases (95%) when using additional ultrasonogram and/or IVP. Ten ambiguous cases (including proved acute renal colic) were ruled out by ultrasonogram (and IVP). Thirty acute renal colic cases were confirmed by the above examinations including ultrasonogram (and/or IVP).

Conclusion:

(1) Physical examinations still remain as the diagnosing tool in acute appendicitis.

(2) Ultrasonogram of the kidney and/or IVP are less practical, but more specific than physical examinations in ruling out acute renal colic.

(3) In combination with the physical examinations urinalysis is the most practical and reliable (if not the most specific), and is still the mainstay in the differentiation of acute renal colic from acute appendicitis.

Dysphagia due to Cervical Spondylosis:
A Case Report

Somcharoen Sae Teng

Although cervical spondylosis is a common disorder, dysphagia induced by osteophyte formation is uncommon. Less than 20 cases of cervical osteophyte induced dysphagia have been reported since 1985.

We presented a 51 year-old man with history of progressive dysphagia about 2-month duration. No any abnormal finding was detected from physical examination. The feature on barium study showed osteophyte causing extrinsic compression of the esophagus at the level of cervical spine 5-6. While endoscopy showed normal mucosa. The patient recovered from dysphagia after conservative treatment with antiinflammatory drug.

Breast Abscess in Charoenkrug Pracharak Hospital

Songsak Kornsuthisopon
Amnard Chitvaranund

Breast abscess is one of the common breast problem of the patients at Charoenkrung Pracharak Hospital surgical OPD unit. The number of patients is higher (four time) last year than few years ago. It is questionable whether this pattern is related to the campaign of the breast feeding program in our hosptial. A retrospective study of 85 patients diagnosed as having breast abscess (from 832 breast complaint patients or 10.22%) at Charoenkrung Pracharak Hospial surgical OPD unit from January 1991 to June 1994 (3 years 6 months) is presented. All are women.

The patients are separated into two groups: nonlactating (NLBA, 12.94%) and lactating breast abscess (LBA, 87.06%). In the lactating group, the factors possible related to breast abscess are the first pregnancy (78.46%), infant weights (48.39% in 2500-3000 g group and 46.77% in more than 3000 g group), onset during 2-3 weeks of puerperium (59.26% : 1-2 weeks 33.33%, 2-3 weeks 25.93%), first month breast feeding (68.29%) but type of delivery was not related. The management of these two groups are different: incision and drainage (I/D) was the main treatment (85.13%) in LBA and fine needle aspiration (FNA) (45.45%) in NLBA. The predominant organism in LBA was *Staphylococcus aureus* coagulase positive (94.44%), but in NLBA the organisms varied. The incisional wounds were the conventional open drainage with pack dressing method (80.77%) and primary closure (with drain) method (19.23%). Breast care during lactating period is the best preventing method, the target patients are the first pregnancy ranging in age of 16-30 years.

Cytomegalovirus Related Gastrointestinal Manifestation of Surgical Significance

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Vibul Jotisakulratana
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Thongdee Shaipanich
Vatana Supromajak
Chinda Suwanraks
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This article presents 3 surgical cases with cytomegalovirus (CMV) infection of gastrointestinal tract in recent years (1994-1995). The first patient had perforation of CMV infected duodenum with defect in cellular mediated immune response. The second patient was a six-week-period renal transplanted recipient who developed CMV colitis and grafted kidney infection. The third patient, with normal immune response, had massive gastrointestinal hemorrhage from CMV jejunitis. Surgical resection had to be performed to control the bleeding. Only the third patient had satisfactory response to antiviral therapy.

In the era with rising incidence of immune suppressed patients, complicated CMV infection should be more often encountered, especially in these particular groups of patients. Preventive measurements should be employed to reduce rate of CMV infection among organ transplanted patients. High index of suspicion should be the mainstay of early detection and management in the immunosuppressed patients, especially those who harbour HIV. However, patients with normal immune response but have atypical clinical presentation of CMV infection should be cautiously search for. Only early detection and prompt antiviral management will reduce the morbidity and mortality of the CMV infected patients. Nevertheless, failure of treatment is high for patients with defect in immune response even with early and proper management.

Conclusion: Three patients with different presentation of gastrointestinal CMV infection were reported. Even with early detection and timely management the result of antiviral therapy is still unsatisfactory. This implies that better prophylaxis and therapeutic means have to be carried out in the future.

Intraoperative Leakage of Surgical Gloves

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Suttipol Udompunturuk
Thavat Chanchayanon
Pannee Jeetaniyom
Jariya Lertakyamanee

Nowadays the problem of cross infection of contagious diseases receives much attention. We wanted to study intraoperative leakage of surgical gloves, its prevalence and factors affecting it. We collected surgical gloves from 230 operative cases done in 5 departments of a teaching general hospital. The gloves were tested by immersing into water and air bubbles were detected as leakage. We found that among the 2,222 gloves studied, there was a prevalence of 11.7 per cent leakage (7.1-14.7%). Gloves from general surgery procedures had the highest prevalence of leakage whereas obstetric procedures had the lowest prevalence. We found that gloves used in operation on soft tissue and bones had equal risk of leakage. The gloves of the operating surgeons had more holes (14.5%) than their assistants. The scrubbed nurses had the second highest prevalence (13.1%). Longer duration of operation did not result in a higher prevalence of leakage except when the operation took more than 5 hours. Left and right sides of gloves had no significant difference. We found that in those who

wore double gloves, the outer gloves had a significantly higher prevalence of leakage than the inner ones, and leakage in the same finger was found in only 1.2 per cent. The high percentage of leakage should forewarn operating personnel of possible contact with diseases. Because of economic reason, we recommended using double gloves.

Totally Extraperitoneal Laparoscopic Lumbar Sympathectomy

Somkiat Wattanasirichaigoon

A 27-year-old man with a diagnosis of Buerger's disease presented with vasospastic symptom of coldness and rest pain of his right foot. Physical examination of his affected limb revealed absent popliteal pulse, cool skin, hyperhidrosis and dry gangrene of big toe. He was operated upon for the treatment of ruptured liver and liver absess 20 years ago. Totally extraperitoneal laparoscopic lumbar sympathectomy was scheduled on July 26, 1994.

Technique: Under general anesthesia, the patient position was the same as an open retroperitoneal approach. The working space was created by digital blunt dissection and direct insufflation of carbon dioxide without a balloon. The right sympathetic trunk was in between the medial edge of the psoas muscle and inferior vena cava. The L2, L3, L4 sympathetic ganglia were identified above the vertebral column and meticulously dissected cephalocaudally.

Conclusion: Based on the concept of traditional approach, we believe that this laparoscopic technique is considerably safe and should become the procedure of choice in the future.

Gasless Laparoscopic Cholecystectomy: Police General Hospital Experience

Rachit Hakeem
Phoomin Sermdamrongsak
Naris Janviriya

The first gasless laparoscopic cholecystectomy (GLLC) in Police General Hospital was performed in January, 1995. Prospective study of 30 cases will be presented. The purpose of this study is to observe any adverse effects on abdominal wall by lifting method as well as advantages and disadvantages when compared to LC.

All gallstones cases were symptomatic. Acute attack, complicated cases and cases with CBD problems were excluded. Average ages were 21 to 86 yrs. Male/female ratio was 3/7. Pre-ops investigations included U/S & LFT. Gastroscopy & ERCP were done in selected cases. Average time of surgery was 2 hrs. No conversion to open method nor major introoperative complications occurred. No ill effects on abdominal wall was seen. Average dose of postoperative analgesic, pethidine 50 mg. (M), was only 0-3 doses. Average hospital stay was 4.7 days. Follow-up at 2 weeks revealed no problem.

GLLC imposes no ill effect on abdominal wall except one extra incisional scar. Post-operative pain is negligible as compared to LC. Other advantages are low overall cost, requiring no CO_2, thus no CO_2 related complication or leakage, no frustration and uninterrupted operation for surgeon. Increased intra-abdominal pressure due to gas will not occur. No expensive disposible ports are required. Low income patients can afford this laparoscopic cholecystectomy at the cost similar to open cholecystectomy. Disadvantages includes requirement of special lifter. A slightly more painful step as compared to LC. There will be one more incisional scar.

The intra abdominal organs move more with respiration as compare to LC.

Laparoscopic Cholecystectomy: The First Experience in Community Hospital

Wattana Pareesri

Laparoscopic cholecystectomy (LC) was initially performed in France since 1987 and has become the treatment of choice for patients with gallstone disease. This technology has been rapidly spread throughout many parts of the world. The LC is superior over the conventional open cholecystectomy due to less post operative pain, reduced hospital stay and cost, return to normal work sooner, improved cosmesis, and comparable safety to the open technique. In Thailand, this procedure has been performed since 1991 but confined only in the well known hospitals in Bangkok, some central and/or general hospitals, but never in community hospitals. At Thabo Crown Prince Hospital, a 60-bed community hospital, LC was started in July 1994. Until April 1995, we performed this procedure in 81 cases. There were 61 female and 20 male patients. The mean age

was 49.4 years (ranging 24-79 years). Five cases (6.2%) were switched to open method due to densely scarred around the gallbladders and porta hepatis. The mean operative time was 62.2 minutes (ranging 30-150 minutes) and post operative stay was 4.7 days. There was one death due to cardiac complication, but not by technical error. Complication rate was 2.4 percents (2 cases), caused by leakage of cystic stump and stricture CBD respectively. Our result is comparable to other international reports. We, therefore, concluded that the aforementioned technique is safe and better than the conventional one. Especially, it is quite suitable for the treatment of patient suffering from gallstone disease requiring surgery in community hospital.

Laparoscopic Surgery in Peptic Ulcer Disease

Wuttichai Thanapongsathorn
Chanchai Nimitrvanich
Prinya Akranurakkul

The effective result of minimally invasive surgery in peptic ulcer disease makes laparoscopic operation more attractive and offers to be an alternative surgical treatment. This report presents indications and variations of laparoscopic treatment of peptic ulcer in 18 patients during 1993-1994 at Vajira Hospital with procedures as follows:-

- Nine cases of chronic duonenal ulcer [posterior truncal vagotomy and anterior seromyotomy (2), posterior trancal vagotomy and anterior highly selective vagotomy (1), truncal vagotomy and antrectomy BII (6)]
- Three cases of perforated peptic ulcer [simple suture with omental graft (3)]
- Two cases of bleeding peptic ulcer [subtotal gastrectomy (1), truncal vagotomy and antrectomy BII (1)]
- Four cases of pyloric obstruction [subtotal gastrectomy (2), truncal vagotomy and gastrojejunostomy (2)]

Results: No laparoscopic morbidity and mortality. Three patients were converted to open surgery due to mechanical problem of equipments, laparoscopic technique inexperience and severe adhesion of peptic ulcer.

Conclusion: The result is similar to open surgery due to same surgical procedure but different surgical approach. The advantage of laparoscopic surgery is less invasive operation but more expensive cost and longer operating time. However, the success of laparoscopic surgery depends on these conditions:- (1) Good experienced surgical team, (2) The indication and physical status of the patient and (3) The availability of instruments with no financial problem.

Laparoscopic Adrenalectomy: *A Case Report*

Trichak Sandhu
Hongsin Trakultivakorn

Laparoscopic surgery has developed rapidly due to minimally invasive nature of such procedures. This technique is currently applied to many operations. Herein we report a case of Conn's syndrome treated by laparoscopic method. The patient was a male, 35 year-old, came to hospital with symptom of hypertension and hypokalemia. Investigation revealed left adrenal tumor, so laparoscopic adrenalectomy was performed successfully. The patient was discharged from the hospital 3 days postoperatively with uneventful recovery. So we thought that adrenal tumors which are relatively small and deep in postion, could be a good candidate for laparoscopic surgery.

Role of Laparoscopy for Undetermined Chronic Abdominal Pain

Chingyiam Panjapiyakul
Siriroj Chanthachaiwat
Vibul Jotisakulratana

Occasionally patients may present to us with chronic abdominal pain which could not determine the causes by other means of investigation. We have found that laparoscopy may be the only effective diagnostic and therapeutic measure for these patients.

There were five cases of patients who suffered from chronic abdominal pain which interfered with their normal life. They were all women, every case described the symptom as colicky, at right lower quadrant in two and at left side in three. Four of them had had previous abdominal operations. But physical examination revealed no sign of intestinal obstruction. Upper GI study with small bowel follow through and barium enema could not demonstrate any abnormality, nor obstructive site. All other possible causes according to symptoms of each patient were excluded

preoperatively by other investigations. Then all underwent laparoscopy under general anesthesia and were found to have multiple intraperitoneal adhesions in three cases and only single band adhesion in two. They were lysed to free the bowel loops laparoscopically. Post-operatively three were completely relieved and the rest were much improved, as 80 per cent less suffered. No post-operative complication was observed.

Laparoscopy dose have benifit, both diagnostic and therapeutic, for selected group of patients with chronic abdominal pain in which the causes could not be determined by any other investigation.

Experience with Infected Abdominal Aortic Aneurysms

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Vichet Smavatkul
Sathaporn Chiamananthapong
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Tanit Vajarabukka
Praphan Kitisin
Patpong Navicharoen
Visist Dhitavat
Supawit Nivatvongs
Yod Sukonthaman

Twelve infected abdominal aortic aneurysms operated on between 1990 and 1994 were reviewed. Fever, abdominal pain, back pain, pulsatile abdominal mass and leukocytosis were the principal symptoms and findings. Two patients were seropositive for HIV. Cultures of the aneurysm wall or aneurysm contents grew gram negative enteric bacteria in all. Salmonella (53.5%), Enterobacter (16.7%) and Acinetobacter (16.7%) were the most common organisms. CT scan demonstrated abdominal aortic aneurysms in all except one who was diagnosed as a psoas abscess. Angiography was performed in 2 patients and saccular aneurysms were shown in both. The operative findings were classified into 3 groups according to extent of infections. Group 1 had no extraaortic involvement, group 2 had mild periaortic involvement and group 3 had severe periaortic and/or retroperitoneal sepsis. All patients in group 1 and 2 (7 patients) underwent excision of the infected aneurysms and in situ prosthetic graft, all of whom survived and were discharged home. Of the 5 patients in group 3; 4 underwent excision of the aneurysms and axillobifemoral bypass, only 1 patient survived. The remaining 1 patient had excision of the aneurysm with in situ prosthetic graft and died in the early postoperative period. Of the 8 patients who were discharged home; 4 subsequently died during the follow up period (1 from acute myocardial infarction, 2 from full blown AIDS and 1 from occlusion of the axillobifemoral bypass and sepsis) from 4 months to present, 1 lost to follow up and 3 are still well 5, 8 and 32 months postoperation. All survivors at present had in situ prosthetic graft. Although definite conclusion cannot be drawn owing to the small number of patients and short follow up, this review suggests that in situ aortic graft may be performed in patients with infected abdominal aortic aneurysms if severe periaortic and retroperitoneal sepsis are not present. The procedure is simpler and less time consuming than extraanatomic bypass. Long term antibiotic administration is required. When severe infection involves the periaortic tissue and/or retroperitoneal area, extraanatomic bypass should be performed, however high mortality and morbidity are expected due to the seriousness of the disease.

Technique of Laparoscopic Right Adrenalectomy for Pheochromocytoma

Chanchai Nimitrvanich
Prinya Akranurakkul

Laparoscopic adrenalectomy has been successfully performed by many authorities since 1992. On November 15, 1994 laparoscopic adrenalectomy was successfully performed at Vajira Hospital in a case of pheochromocytoma of the right adrenal gland.

Technique of right laparoscopic adrenalectomy

The patient was kept in a full lateral decubitus position with right side up. Pneumoperitoneum was established with a Veress needle in the subcostal area, 2 cm below the costal margin at the mid-clavicular line. The pressure was maintained at 12-15 mm Hg during the procedure. An 11 mm trocar was inserted and diagnostic laparoscopy was performed with a 30° angle scope. Two more 11 mm trocars were inserted, under direct vision, at 4cm below the costal margin, anterior axillary line and mid axillary line for operating channel and grasping forceps port respectively. The last 11 mm trocar was inserted dorsally, after the retroperitoneal space had been entered, for endoretractor of the liver.

Perinephric fat was dissected superiorly and closed to the vena cava, exposing the right adrenal

gland. The superior pole of the right adrenal gland was dissected first and the vessels were secured with titanium clips. Meticulous dissection of the lateral branches of vena cava terminating in the right adrenal was carried out. The inferior pole was resected last before extraction.

Vascular Access for Hemodialysis - A Decade of Personal Experience

Prasert Trairatvorakul

The increasing number of patients with end stage renal disease requiring long term hemodialysis make access related surgery a significant proportion of vascular surgical practice today. Reported here is a personal experience of the author over the ten year period (May 1985-April 1995). During that period, 231 patients with end stage renal disease underwent autogenous arteriovenous fistula (126 patients, 127 AVF) and arteriovenous bridge fistula (96 patients, 108 grafts). Retrospective review of all but nine patients' record was performed. There were 105 males (47%), and 117 females (53%) ranging in age from 23 to 90 years (median 63 years). One hundred fifty three patients (69%) has diabetes. All procedures were performed under local anesthesia with the exception of 4. Preoperative antibiotic prophylaxis with one gram of first generation Cephalosporin was parenterally given routinely. End vein to arterial side AVF (Brescia-Cimino) was the method of choice if radial artery and cephalic vein were both satisfactory (88 of the 127 AVF). When autogenous AVF was deemed impossible, arteriovenous bridge fistula with polytetrafluoroethylene (PTFE) graft was then performed. Of 108 grafts placed, 92 (85%) were loop grafts in the forearm between the distal brachial artery and an antecubital vein. During the follow up of the autogenous AVF group, ten developed thrombosis (8%). Of this, only one continued to function after revision. Three AVF (2.4%) did not function well due to poor maturation of the veins. There were two cases (1.6%) of venous hypertension and one case (0.8%) of steal syndrome.

In the group with PTFE grafts, 17 out of 108 grafts (16%) developed thrombosis, but 13 of these continued to function after successful revision. Three patients developed steal syndrome (2.8%), pseudoaneurysm developed in 3 (2.8%), 4 grafts became infected (3.7%) and 1 had venous hypertension (0.9%). The 13 month cumulative patency rate of the group with autogenous AVF was 87.1 per cent while the 14 month cumulative patency rate of the group with graft was 82.2 per cent. The difference was not statistically significant.

In conclusion:

1. One can expect a lower complication rate in patient undergoing autogenous AVF than those with bridge grafts.

2. Despite the higher thrombosis rate in the group with bridge graft, most can be successfully revised and continued to serve the patients well.

3. Judicious choice of operative procedures will reduce patients' morbidity and surgeons' frustration.

Laparoscopic Simple Suture and Omental Graft in Perforated Peptic Ulcer

Wuttichai Thanapongsathorn

Three patients of perforated acute peptic ulcer were treated by laparoscopic simple suture and omental graft during 1994. The operative technique is similar to open surgery except the surgical approach is difference.

Technique: Laparoscopic operation was done through two 10 mm. trocars and two 5 mm. trocars. After perforated peptic ulcer was sutured with 2-0 chromic catgut and an omental graft was applied to cover the suture, the peritoneal cavity was cleaned up with 6-8 litres of warm normal saline by 10 mm. suction-irrigation tube. No peritoneal drainage was used. All patients received intravenous antibiotics and H2-antagnonist.

Result: Operative findings were two anterior prepyloric ulcer and one anterior duodenal ulcer. Average operating time was 80 mins and average hospitalization was 6 davs. Two patients needed no analgesics except one patient needed single dose of intramuscular pethidine. There was no post-operative complication. Gastroscopy showed no recurrent ulcer at 2 months and 4 months follow-up, so definitive surgical treatment was not required in all three patients.

Conclusion: Laparoscopic treatment of perforated peptic ulcer offers an alternative surgical treatment that less invasive than open surgery, especially the advantage of reduced wound pain and shorter convalescence.

Neurosurgery

Comprehensive Management of Skull Base Tumors

Christer Lindquist

To define the role of radical surgery in the managment of skull base meningiomas the outcome for 250 patients followed for a minimum of 10 years (10-36, mean 18) was studied. Within 5 years 25-45 per cent of patients had progression of symptoms after less than radical surgery (grade 3-5 in Simpson's classification). After 10 years 42 of 69 patients who had undergone a grade 4-5 operation had died from their tumor and few were clinically stable. Death occurred within 3 years for 17 and within 3-10 years for 13 of these patients. In 38 patients with tumor remaining in the cavernous sinus 29 patients succumbed to the tumor. Death resulted within 5 years in 14 of them and an additional 7 patients were killed by the tumor within 10 years. Despite the histologically benign nature of most skull base meningiomas it must be concluded that they are clinically aggressive and that attempts at radical removal should be made at least in patients with a life expectancy of more than 10 years. Radical removal of meningiomas from the cavernous sinus is seldom if ever accomplished, but the price of surgery in terms of postoperative cranial nerve deficits is often high. A comprehensive management strategy for cavernous sinus and other difficult meningioma locations has therefore been used at the Karolinska Institute. The management entails subtotal removal followed by Gamma Knife surgery. Among 30 patients treated under such a protocol more than 10 years ago, 9 patients followed for less than 10 years showed no tumor progression.

Risk of Hemorrhage and Considerations for the Management of AVM

Christer Lindquist

Microsurgery, endovascular obliteration and Gamma Knife radiosurgery are all treatments applicable to small and medium-sized arteriovenous malformations. Microsurgical removal and endovascular obliteration can at best achieve an immediate cure for the patients but the location of the malformation and/or its angioarchitecture may incur an unacceptable management risk for the patient. Gamma Knife surgery may in this and in another situations offer a better alternative. Obliteration of an AVM following the delivery of ionizing radiation occurs over a time span of 1-3 years. Assesment of management risk for radiosurgery must therefore also account for complications such as hemorrhage which may occur during this 'latency period'. The management risk for all treatment modalities must also be compared to the natural history of the AVM. In particular, the question whether a previous hemorrhage should have a significant impact on the choice of treatment modality must be considered. Based on an analysis of more than 1000 patients presenting with hemorrhage from an AVM it was found that the risk of hemorrhage increases with age, is higher for fertile women compared to men and increases with size of the AVM. The results of this risk analysis allowed the evaluation of the impact of Gamma Knife surgery on the natural history before obliteration occurs. It was found that the risk for hemorrhage may decrease by 50 per cent already by 6 months after treatment. During a 3 year period about 1/3 of new AVM patient in an unselected population of 2 million were considered good candidates for primary treatment by Gamma Knife surgery using assessment of management risk based on patient parameters such as age, sex, AVM size, risk of hemorrhage in the latency period and treatment parameters such as AVM volume and dose required for reasonable chance of obliteration.

An Early Surgical Approach in Ruptured Aneurysms: A Retrospective Study in 33 Consecutive Cases at Rajvithi Hospital

Krissanee Karnchanapandh
Parin Mahatano
Pravit Prachasilchai

A retrospective study was made in 33 aneurysmal hemorrhage admitted at Rajvithi Hospital from November 1992 - February 1995. Of 33 cases - 35 aneurysms, 33 were anerysms of internal carotid system, 2 were of vertebrobasilar system. According to Hunt & Hess classification, 21 cases were grade I-III, 12 were grade IV. In all cases an early surgical

approach was analysed in order to find the appropriate policy regarding the management of ruptured aneurysms in Rajvithi Hospital. The conclusion is that microsurgical technique and neurosurgical intensive care makes early surgical approach suitable for nearly all grade I-IV ruptured aneurysms.

Paraganglioma of the Filum Terminale :
Case Report

Pradith Chaiyabud
Puripakorn Pakdirat
Bussaba Pakdirat
Tumtip Saengruji

Neoplasms of the paraganglion system (paragangliomas) have been found in diverse sites throughout the body. Paragangliomas involving the spine have been rarely reported. The authors present a case of an adult male with complaints of symptoms of low back pain and sciatica. Myelographic and MR studies showed an intradural mass at the T12-L2 levels. After complete removal, diagnosis of paraganglioma was made by pathologic examination and immunoperoxidase studies. The literature was reviewed. The authors drew the attention to paraganglioma as a differential diagnosis of the intradural mass at the conus medullaris and cauda equina level. Surgical manipulation of a mass in this region may involve a risk of neurosecretory activity.

Blunt Injury to the Internal Carotid Artery

Sura Saksilaporn
Sutthikorn Tantbirojn
Prakanpong Chandravitoon
Supachoke Chitvanich
Pornchai Yodvisitsak

Blunt trauma to the cervical internal carotid artery is rare but has been associated with high mortality rate (about 40 per cent) and permanent neurological deficit (about 40-80 per cent).

From 1989 until 1995, we encountered 4 cases of blunt internal carotid arterial injury with major neurological deficit. The first patient underwent decompressive craniectomy for cerebral infarction with brainstem compression. Now he can return to work with hemiparesis. Three patients underwent direct revascularization. Two patients recovered with good outcomes and the last patient died from cerebral edema.

Until now direct repair for carotid arterial injury is still controversial. In our opinion, early diagnosis and prompt surgical treatment can provide good outcome in some selected cases and the clues of diagnosis are evidences of neck injury such as skin contusion or mandible or spine fracture etc and unexplained neurological deficit.

Angiographic Submentovertex View in Aneurysm of Anterior Cerebral Circulation

Anusak Liengudom

Details of the cerebral angiography is necessary for the surgical planning of the aneurysms especially when a minicraniectomy, the Key-Hole technique, is used. In addition, the radiographic pictures of the aneurysm such as the neck and the fundus as well as the related vascular structures must be clearly demonstrated.

During July 1992-April 1995, 72 cases of aneurysms of anterior circulation were operated by the author at Prasat Neurological Institute. In some cases, conventional (anteroposterior, lateral, and both oblique) views were insufficient. We found that the submentovertex view can add some important informations which can help us to select the proper route of entry and to discard some cases from the minicraniectomy operation.

Transsylvian Approach to Basilar Terminus and P1 Segment Aneurysms

Anusak Liengudom

Surgery upon aneurysms around the basilar terminus and the P1 segment of the posterior cerebral artery (P.C.A.) is a challenging procedure. Basically, there are three approaches: subtemporal, pterional, and transsylvian approaches with a variety of modification.

During July 1992-April 1995, we had operated on 6 cases of the basilar terminus and the P1 segment of the P.C.A. aneurysm along the transsylvian route. We opened the sylvian fissure widely and retracted the middle cerebral artery medially until the optic tract was visualized. After that, we entered the interpeduncular cistern along the lateral aspect of

the internal carotid artery and then followed the path of the posterior communicating artery (P.Co.A.). After meticulous dissection of the perforating branches of the P.Co.A. and the P1 segment of the P.C.A. we could enlarge the space and made adequate room to assess the P1 segment, the superior cerebellar artery, and the perforating branches of both P.Co.A. and P1 segment before clipping the aneurysm.

The retractor tip on the temporal lobe occasionally slipped and traumatized the oculomotor nerve (C.N. III) which caused transient C.N. III deficit in 2 cases. Our advice is to rest the retractor tip far deeper in the middle cranial fossa and lateral to the C.N. III in order to avoid such unfavourable complication.

Approaches to Cranial Base Meningioma

Thirasak Puenngarm

Meningioma is the most common benign tumor of the cranial base. Because of its benign nature, total removal means cure or long term survival rate. The recurrent rate correlates well with the degree of its removal (Simpson's grade). The best chance for total removal is the first operation. Therefore, approach must be well planned. The author presented 20 cases of cranial base meningioma operated by different techniques (conventional microsurgical technique, key hole technique, and skull base technique) to attempt total removal. In most cases total removal (Simpson's grade 2) was achieved. Partial removal was in some cases particularly for those recurrent ones. There was no mortality in this series. Varieties of approaches are discussed according to the location of tumor.

Stereotactic Aspiration of Intracerebral Haematomas and Fibrinolysis: Pramongkutklao Hospital Experience

Pranot Nipatasaj
Parkorn Phavichitr

The majority of patients with spontaneous intracerebral hematomas are those with hemorrhagic strokes or hypertensive hemorrhage. Conventional management of these patients comprises of supportive medical therapy, external ventricular drainage, open craniotomy or craniectomy and evacuation of hematomas. Aggressive surgical as well as medical management strategies have had limited success of improving outcome. Promising prospects of treatment should be less invasive and better tolerated procedures to remove hematomas in selected patients. We present our experience in using stereotactic technique for aspiration of intracerebral hematomas in 20 patients. This report describes surgical procedures and using urokinase irrigation for fibrinolysis of residual haematomas. The initial evaluation of outcome in these patients is very encouraging. We feel that this procedure is very promising and conld be an effective alternative treatment.

Cranial Base Meningioma

Thirasak Puenngarm

Twenty cases of cranial base meningioma from different locations were operated between September 1993 and May 1995. Meningioma was reported as meningothelial (syncytial), transitional, fibroblastic, atypical meningioma, malignant meningioma in our institute. In this series comprise 3 cases of meningothelial (syncytial) type, 1 case of transitional type, and 16 cases of fibroblastic type. No atypical or malignant meningioma was reported. Most of them are hypervascularized regardless to their types particularly in their origin at the cranial base.

Because of the benign nature, total removal should be attempted.

Anterior Cervical Fusion with Caspar Instrumentation System in Siriraj Hospital

Wurawat Kittiwuttanakul
Chumrieng Tandhavadhana

Twenty-four consecutive patients who had undergone anterior cervical fusion with Caspar instrumentation system from June 1992 to December 1994 were reported. There were 16 men and 8 women whose ages ranged from 14 to 71 years (mean 42.5 years). These patients were prospectively studied, 10 patients had traumatic disc herniations, 4 cases of traumatic spondylolisthesis of C2, one case of fracture vertebral body at C-5, 14 cases of cervical spondylosis with two-level fusions in 5 cases and three-level fusions in 9 cases. The durations of follow-up period were 1 week, 1 month and 6 months. Clinical and radiographic evaluation revealed satisfactory alignment and sound union of the cervical spine in all cases.

Complications consisted of 1 soft tissue infection, 8 transient dysphagia, 1 permanent hoarseness of voice and 2 screw loosening that required reoperation. There was no neurological compromise due to surgical procedure. In conclusion, the Caspar instrumentation provided immediate and effective stabilization with minimal complications. Its use should be considered in the surgical treatment of patients requiring anterior cervical arthrodesis. The potential risk for injury to the spinal cord or soft tissues involvement with their use is the main reason of not gaining greater acceptance. To improve this situation, the instrumentation and surgical technique require surgeons of proven experiences.

Peripheral and Spinal SEPs in the Evaluation of Non-Penetrating Brachial Plexus Injuries

Nipit Piravej
Adisorn Patradul
Sek Arksaranugraha

Peripheral (N9) and cervical (N13) SEPs as recorded at Erb's point and over the fifth cervical spinous process respectively, from the musculocutaneous, median and ulnar nerve stimulation, were examined in 30 cases of unilateral non-penetrating brachial plexus injuries. Among 14 cases (42 nerves examined) who underwent surgical exploration, the SEPs were found to give good prediction of the actual lesions in 9 cases (correct in all 27 nerves), give helpful information in 1 (correct in all 3 nerves) and correlate partially in the other 4 (correct in 8 and incorrect in 4 nerves). In none of the cases that SEPs gave totally misleading data. The results indicated that this SEPs testing package was simple, convenient and could be a useful adjunct to the conventional electrodiagnosis in the evaluation of non-penetrating brachial plexus injuries.

Squashed Cytopathology of Neoplasms of the Central Nervous System

Peera Narkla-or
Tara Poonpracha
Parkorn Phavichitr

The neurosurgical specimen is a delicate and tough task of diagnosis, especially in frozen section specimen due to confronting with small bits of tissues, tissue artifacts and indistinct nuclear details. Squashed technique is simple, convenient, cheap, rapid and less demanding technological advances than frozen section technique. In addition, the smears from this technique give more cellular details, such as arrangement, cytoplasm and nuclear morphology than from frozen section. The accuracy of diagnosis from squashed smears compared with frozen section and histopathology (gold standard) shows high accuracy and no difference. We should stress, however, that squashed cytopathology is not a substitute technique for frozen section or conventional surgical histopathology, it should be regarded as an extremely valuable and complementary component form increasing accuracy of diagnosis. This study is the first step for accumulating experiences that eventually makes the definition of diagnostic crteria for CNS neoplasms. Awareness of the limitation of this technique is of most importance and is the result of increasing experiences and understanding of the use of this technique.

The Role for Intraoperative Image Guided Neurosurgery

Christer Lindquist

Two years following Roentgen's discovery of the X-rays a skull film was obtained after 4 hours of exposure of a man shot in the head. Guided by this image the bullet was found during an operation performed at the Karolinska Institute in Sweden. Neurosurgeons have ever since brought X-ray films to the operating rooms to help them in their approach to the pathologies. Stereotactic techniques developed by Leksell and others allowed a precise approach for conventional stereotactic procedures as well as for microsurgical operations. A laserguide for such operations was developed and has been used for microsurgery of small vascular malformations and benign as well as malignant tumors. Although this type of simple equipment allows preplanning to make the procedure less invasive, it does not afford the possibility of precise intraoperative identification of structures visible on images obtained preoperatively. A number of systems often called neuronavigation systems are now available for this purpose. The commonality of these systems is that points in the operative field selected by the surgeon can be displayed on the computer image (CT or MR) obtained of

the patient preoperatively. The image is displayed by a computer workstation, which also allows image processing. Thus image reformatting can e.g. create images orthogonal to the optical axis of the operating microscope in its focal plane and thus relate the surgeon's view to the image of the pathology and to eloquent areas of the brain. Three-dimensional displays of volumes of pathology can also be made. Accumulating experience indicates that intraoperatively guiding imaging systems diminish morbidity and cuts hospitalization for neurosurgical patients.

Ten Years Experiences in Aneurysm Surgery at Songklanagarind Hospital

Nakornchai Puenpathom
Sanguansin Ratanalert
Sukit Tussanasunthornwong

Between December 18, 1984 and April 21, 1994, a total of 70 patients with surgically treated ruptured and non ruptured aneurysms were reviewed retrospectively in regard to age, sex, aneurysm site distribution, clinical grading, rebleeding, timing of surgery and longterm results. The most common aneurysm site was in the anterior communicating artery. Half of the cases were operated in 2 weeks after episodes. The overall mortality rate was 12.9 per cent (9 in 70). The results may be improved by a well planned operation, prevention and carly detection with appropriate management of the complications.

CT-Guided Free Hand Brain Biopsy

Sanguansin Ratanalert
Nakornchai Puenpathom

Though the advances in neuroradiological technique have provided a sensitive tools in early detection of intracranial lesions, histological diagnosis is still necessary for proper management.

Needle biopsy of the brain utilizing computerized tomography (CT) scan data was performed in 41 patients at Songklanagarind Hospital during April 1987 to March 1995. The size of lesion ranged from 20 mm. to 90 mm. There was 88 per cent accuracy in histologic diagnosis. In the nondiagnostic group, the lesions were at brain stem in four and cerebellar in one. Tabulation of complication revealed 0 per cent incidence of scalp and bone infection, 3 per cent incidence of insignificant postoperative bleeding and one patient developed postoperative hemorrhage leading to coma and death at one month later. We concluded that: (1) Where stereotactic surgery is not available, the free hand CT-guided technique can be an extremely useful for performing biopsies of many brain lesions, (2) Open biopsy may be the suitable procedure in obtaining diagnostic tissue from brain stem lesions.

En Plaque Dural Metastasis: *A Case Report*

Veerasak Theerapuncharoen
Anant Ananthanandorn

A 58 year-old female was diagnosed to have stage IV breast cancer with lymph node and bone metastasis 9 years prior to this admission. She was treated with simple mastectomy and an incomplete course of chemotherapy then was lost to follow-up.

This admission, she presented with confusion, agitation and left hemiparesis for one day duration. She also suffered from chronic headache, anorexia, nausea and vomiting for a period of times. Computerized tomography of the brain showed mixed hypo- and iso-density subdural collection with meningeal enhancement and underlying brain edema at the right frontotemporo-parietal area. Craniotomy revealed no subdural hematoma but generalized thickening of the dura of more than 3 millimeters with multiple nodular invasion of the arachnoid membrane. Pathological section of the dura reported to be malignant neoplastic cellular infiltration arranging in strands and ductal feature compatible with metastatic carcinoma of the breast. This dural metastasis is a rare manifestation of hematological spread of carcinoma.

Surgery in Spondylolisthesis in Prasat Neurological Hospital and Institute

Sawing Punjaisee

Summary of background data: There have been many techniques for surgical management of spondylolisthesis such as decompression, spinal fusion and instrumentation. Controversy exists as regard to value, results and advantage of each technique.

Objective: To reveal and to evaluate the

results of the four different techniques of surgical management in spondylolisthetic patients.

Study design: 58 spondylolisthetic patients having neurological involvement were operated in four different techniques; Group 1 (9 cases) spinal decompression only, Group 2 (7 cases) decompression with lateral spinal fusion, Group 3(17 cases) decompression with lateral fusion and transpedicular screw fixation, and Group 4 (26 cases) decompression with transpedicular screw fixation.

Materials and methods: The patients who had stable spondylolisthesis (proved by films) were selected in group 1. The unstable with financial problem were in group 2. The unstable without financial problem were selected in group 3 and 4. The clinical results were graded as very good, acceptable and not-acceptable.

Results: Group 1: 7 cases=acceptable, 2 cases = not-acceptable. These two cases were re-operated, one not improved and the other was changed to group 4 with very good result. Group 2: all cases=acceptable. Only one case was re-operated for re-positioning the graft. Group 3: 1 case=acceptable, 15 cases=very good, 1 case=not-acceptable who was reoperated but not improved. Group 4: 5 cases=acceptable, 19 cases=very good, 2 cases=non-acceptable. 5 cases were re-operated, 3 cases were improved but 2 not improved. In groups 3 and 4, 80 per cent of each demonstrated good alignment of the spine in one year follow-up film. In group 1 and 2 patients still demonstrated spondylolisthesis.

Conclusion: The results in groups 3 and 4 were much better than in groups 1 and 2. In groups 3 and 4 not only had decompression but also had spinal reduction and fixation, this may be the reason why they had much better results than in groups 1 and 2 whose spines were not reduced nor fixed. Ability in spinal stabilization was not different in groups 3 and 4 because 80 per cent of each group demonstrated good alignment of the spines in the follow-up films. Although the transpedicular screw fixation is the most reliable technique in the surgical management of spondylolisthesis, it is too expensive but it may become the favour technique if the cost of the screw can be made cheaper.

Urology

Predicting the Fertilizing Potential of Human Sperm Suspensions in vitro: Importance of Sperm Morphology and Leukocyte Contamination

Narasorn Sukchareon

Objective: To determine the relationships between sperm function test and fertilization of human oocytes in vitro.

Design: Analysis of infertile patients undergoing in vitro fertilization therapy.

Settings: Diagnostic Andrology Laboratory and IVF-ET Clinic.

Interventions : None

Main Outcome Measures: The ability of human spermatozoa to achieve fertilization in vitro was examined in relation to numerous criteria of semen quality, including the conventional semen profile, the computer-aided assessment of sperm movement, ionophore induced acrosome reaction, acridine orange staining, sperm morphology and chemiluminescent signals induced by phorbol ester and N-formyl-methionyl-leucyl-phenylalanine (FMLP).

Results: Significant correlations were observed between fertilization rates and several attributes of the sperm preparations including elements of sperm function (acrosome reaction), movement (percentage motile, hyperactivation, the amplitude of lateral sperm head displacement), morphology (normal morphology, midpiece defects, multiple anomalies index), nuclear integrity (acridine orange staining) and reactive oxygen species generation (chemiluminescence induced by phorbol ester and FMLP). In a step-wise multiple regression analysis an accurate prediction of fertilization rates (R=0.78) was obtained using a multiple regression equation incorporation 6 variables of which sperm morphology and FMLP-induced chemiluminescence were the most informative.

Conclusion: Semen quality has a significant

impact on the success of conventional in vitro fertilization therapy. A set of criteria have been identified that accurately predict the fertilizing potential of human sperm suspensions, which place particular emphasis on sperm morphology and the degree of leukocytes contamination.

Extended Uses of KTP Laser for Contracted Bladder Neck and Median Lobe BPH

Paibul Boonyapanichskul

VDO presentation of KTP laser treatment for contracted bladder neck secondary to TURP as well as technique of using contact KTP to get rid of median lobe hypertrophy of the prostate were shown. Minimal or even no bleeding were shown from the procedure. All patients had immediate recovery with urinary catheter removal in 2-3 days postoperatively.

Intraoperative Urologic Consultation in Obstetric and Gynecologic Surgery

Vorapot Choonhaklai
Krisada Ratana-olarn

The urologists may be occasionally consulted by the obstetricians and gynecologists during their operations in the operating rooms. The reasons for consultations are either observations of abnormal urologic findings in the surgical fields or injuries to the urinary systems.

Between January 1985 and December 1994, there were 47,474 obstetric and gynecologic surgical procedures in Ramathibodi Hospital. Among them, there were 65 (0.14%) intraoperative urologic consultations. Fifteen (0.03%) patients were found to have some incidentally abnormal urologic findings. Forty-six (0.1%) cases had intraoperative injuries to the urinary systems while 4 (0.01%) cases had no sufficient records of the reasons for consultations. Among 46 cases with injuries, 39 had bladder injuries and 7 had ureteral injuries. All of the obstetric (11 caesarian sections or caesarian hysterectomies) cases had bladder injuries while the rest (gynecologic cases) had either bladder or ureteral injuries. The main causes of injuries significantly correlated with adhesion from previous surgery, massive intraoperative hemorrhage and prolonged operating time.

Iatrogenic Injuries to the Ureter During Gynecologic Operation

Bannakij Lojanapiwat
Supot Wudhikarn
Surithorn Soonthornpun
Vorvat Choomsai

Iatrogenic injuries to ureter are hazardous complications of gynecologic operations, causing severe morbidity and even mortality. This retrospective study examined ureteral injuries during January 1988 to March 1995. Nineteen injuries in seventeen patients were treated in our hospital. All initial operations complicated by ureteral injury are transabdominal hysterectomies. Twelves injuries were diagnosed at the time of injury and seven injuries diagnosed in postoperative period. Two patients had bilaterally injury. Eight of all were treated by end to end anastomosis, nine injuries by reimplantation, one by deligation and nephrectomy.

The Use of Alprosterdil Intracavernous Injection in Male Erectile Dysfunction

Apichat Kongkanand

The self intracavernous injection of prostaglandin E1 program was preparation of freeze dried powder premix, to use at home. The database were recorded by individual as out-patients. Dose in microgram and degree of rigididy were recorded parallel to length of duration.

Total of 30 out-patients were recorded, 2 were excluded and total 28 patients were really skilful and happy to continue using the medication.

There is no serious complication and no priaprism and side effect noted.

The alprosterdil injection will be the most effective way of treatment of the male erectile dysfunction in the future, both organic and psychogenic causes.

The Macrosurgical, Side-to-Side Anastomosis Technique of Vasectomy Reversal

Krisada Ratana-Olarn

The macrosurgical end-to-end anastomosis technique of vasectomy reversal yields inferior out-

come as compared with the microsurgical technique. However, with the equipment limitation and few microsurgical experts, the macrosurgical technique is still widely practised in many institutes.

In order to improve the macrosurgical results, we explored the macrosurgical side-to-side anastomosis. A 1 cm longitudinal incision, 1 cm from the vasal end was made on each side. A continuous all-layered suture with 6.0 Prolene was performed. The adventitia was approximated interruptedly with 6.0 Prolene. No stent was used.

From March 1992 to June 1993, there were 24 men undergoing this reversal operation. One to 6 months after, 15 of 17 men (88.2%) had sperm reappearance. As of January 1995, of the 17 men we could contact, there were 11 impregnations (64.7%).

We do believe that this technique of vasectomy reversal might be an alternative method in many institutes, especially in those where there are limitation of microsurgical equipments and experts.

Tuberculous Granulomatous Prostatitis Following Bacillus Calmette-Guerin Immunotherapy of Bladder Cancer

Suchai Soontrapa
Wittawas Sriprayoon
Paisal Parichatikanond

Granulomatous prostatitis is a recognized complication of intravesical bacillus Calmette-Guerin immunotherapy of superficial bladder cancer. Herein we report one case of recurrent bladder cancer after transurethral resection of superficial bladder cancer and bacillus Calmette-Guerin vaccine intravesical therapy.

We performed total cystoprostatectomy with ileal conduit. The pathological section showed transitional cell carcinoma grade III/IV, stage B1, for the bladder and caseous granulomatous tuberculosis of the prostate.

Technique of Lasing Urinary Bladder with KTP/YAG Laser in Radiation Cystitis Patient

Paibul Boonyapanichskul

The author showed the technique of using KTP/YAG laser to lase telangiectatic lesion in urinary bladder. The majority of the lesion was lased by KTP laser for fear of deeper penetration of the YAG laser. For larger vascular lesion, the YAG laser was used. Faster result of devascularisation was found when KTP was used. Slower but less superficial coagulation defect was found when the YAG was used. Problem of mark fibrinous exudate was found up to 2 months post lasing requiring cystoscopic irrigation. Cystoscopic appearance of the bladder showed less telangiectasia at 2 months post lasing.

Penile Squamous Cell Carcinoma and Groin Nodes Treatment

Banterng Thanadpojanamart
Damrongsak Wangpe-Tra
Teerawan Wanamkang
Wuttipan Banjong
Apichart Wangviwatcharoen
Yongyudh Vongslertvidhya

We analyzed the management of 20 patients treated for penile squamous cell carcinoma who were followed for 1-3 years. Tissue sections from all cases were reviewed. Three cases of stage I underwent only partial penectomy and observed, 1 case had inguinal nodes metastasis 3 months later. Six cases with stage II underwent partial penectomy and immediate modified inguinal lymphadenectomy which the nodes were sent for frozen sections and if there was metastasis, radical ilioinguinal lymphadenectomy was done. Other 6 cases with pathological stage III underwent partial or total penectomy and radical ilioinguinal lymphadenectomy. Other 5 cases with stage IV underwent palliative inguinal lymphadenectomy after neoadjuvant chemotherapy and after lymphadenectomy also received adjuvant chemotherapy.

Analysis showed no recurrence in all cases of pathological stage II after modified inguinal lymphadenectomy and all cases of stage IV were able to reduce staging by chemotherapy and obtaining palliative lymphadenectomy in most cases.

Management of Radiation Cystitis with KTP/YAG Laser

Paibul Boonyapanichskul

Severe radiation cystitis has been one of the problem case for all urologists to manage. Conserva-

tive treatment, electric cauterization, chemical instillation including formalin instillation have not satisfied either urologists or patients regarding result, recurrence, and side effect. Formalin instillation or failure of the treatment often end up with urinary diversion which may cause complication from healing process. The author has tried KTP/YAG laser to lase telangiectasia in the bladder in an elderly female who suffered from severe radiation cystitis. She had several episodes of hematuria which all required blood transfusion. Finally she requested laser treatment. Both KTP and YAG were compared initially. The author found that for overall lesion KTP laser gave much faster result for vessel obliteration than the YAG. But for large vessel lesion, YAG laser seemed to give less superficial coagulation defect. The result of laser treatment for the patient was favorable. Up to 6 months now that the patient had not got any episode of gross hematuria requiring treatment. She was admitted a few times post treatment, suffering from radiation proctitis but not having any episode of gross hematuria. The author concluded that KTP/YAG combination could be effectively used to treat severe radiation cystitis and save the elderly patient from major operation.

Vesico-Vaginal Fistula: 25 Years Experience of 225 Cases

Wachira Kochakarn
Vira Viseshsindh
Phaitun Gojseni
Krisda Ratana-olarn
Virasing Muangman
Charoen Leenanupunth

We reviewed 225 cases of vesico-vaginal fistulae in Ramathibodi Hospital, Mahidol University from 1969-1994. The cases of fistulae included 156 cases after transabdominal hysterectomies, 8 cases after radical hysterectomies, 23 cases after vaginal hysterectomies, 3 cases after anterior colporrhaphies, 5 cases after caesarian sections, 3 cases after forceps deliveries, 2 cases after normal labours with dead fetus, 9 cases after radiotherapies, 7 cases of tumour invasion, 2 cases after suprapubic cystolithotomies and 2 cases after traffic accidents. Most of them were referred from other hospitals.

In 7 cases the fistulae closed spontaneously after indwelling urethral catheters for 4-6 weeks. Five cases were cured after transurethral fulgurations. The rest were treated with different surgical procedures ie transvaginal, transvesical and retrovesical repairs.

Ten cases were treated by urinary diversion (bilateral cutaneous ureterostomies and ileal conduit) usually after failure from other surgical procedures. Many of the 225 patients required between 1-7 operations.

Screen Procedure for Carcinoma of Prostate by Way of PSA, TRUS and DRE in Chulalongkorn Hospital: Random Trial of 300 Cases

Apichat Kongkanand
Vacharee Buachum

In spite of many more cases of carcinoma of prostate found each year the early cases which fit or suitable for radical surgery were rare (low grade and low stage). Attempt to find random trials of CA prostate in Thai male was made.

Male over 40 years old, total of 300 cases ranging 40 to 82 with history of prostatism and asymptomatic men were recorded and put into the screening process for early carcinoma of prostate. The procedures including PSA, prostate ultrasound and DRE were recorded and analysed.

Transrectal biopsy with ultrasound guidance was done in numbers of patients to obtain the diagnosis, also by TUR prostate in the inpatient cases.

The results of first attempt revealed that the unscreen process to detect early cancer of prostate in Thai male was not cost effective.

PSA and DRE are still excellent for early detection of cancer of prostate.

The Usage of Andrographis Paniculata (Kelmegh) Following Extracorporeal Shock Wave Lithotripsy (ESWL)

V Muangman
K Ratana-Olarn
V Viseshsindh
S Baudilok

We have used the herbal medicine prepared from the dry acrial part of andrographis paniculata Wall ex Nees, known as anti-inflammatory and antipyretic drug for treatment of cold, fever, laryngitis,

diarrhea and cystitis in 50 renal stone patients post ESWL, and evaluated its result at one month later.

One hundred consecutive cases with renal stone less than 3 cm in size and normal renal function underwent ESWL during January to March 1994. Out of these, 50 were given Andrographis paniculata tablet (250 mg), 4 tablets TID, 25 were given Co-trimoxazole 2 tablets BID and 25 received Norfloxacin 200 mg BID, starting immediately after ESWL and to continue for 5 days. All tolerated the treatment well and none had complication.

At one month follow-up, pre and post ESWL pyuria, hematuria and proteinuria among the Andrographis paniculata group were 84, 58, 72, 40, 52, 22 per cent, the Contrimoxazole group; 88, 64, 84, 64, 56, 44 per cent, the Norfloxacin group; 92, 56, 72, 40, 56 and 28 per cent respectively.

The results showed that pyuria and hematuria post ESWL in patients receiving Andrographis peniculata reduced to 0.69 and 0.55 time of pre ESWL value. We think that this herbal medicine is beneficial in treatment of post ESWL urinary tract infection. Besides, the herbal drug given to 18 previously sulfa sensitized patients showed no allergic reaction.

Cardiothoracic Surgery

Preliminary Report on Open Heart Surgery at Bhumibol Adulyadej Hospital

Suchart Chaiyaroj

Open Heart Surgery programme at Bhumibol Adlyadej Hospital commenced on December 6, 1994. Over a 5-month period, a total of 20 patients have undergone open heart operation. Included were 6 males and 14 females. Mean age was 32.6 years (range 23-62). There were 11 mitral (MVR), 2 aortic (AVR) and 7 cases of Secondum Atrial Septal Defect Repair. Seventy-five percent of the patients were in NYHA Class III-IV preoperatively. Follow up was complete. There were no perioperative deaths. Eighteen of twenty (90%) survivors are in NYHA Functional Class I. All patients have performed well and satisfactorily to the time of follow-up. Early results of our first 20 open heart surgery patients are excellent.

Thymectomy for Myasthenia Gravis: Factors Influencing Outcome

Cherdchai Tontisirin
Sompop Prathanee
Chusak Kuptanon
Raywat Chunhasuwankul

Myasthenia gravis is an autoimmune disorder that affects voluntary muscles and results in weakness and fatique of affected muscles. Thymectomy remains an important method of treatment for myasthenia gravis although the role of thymus in the pathogenesis of the disease remains unclear.

This retrospective review was made to assess the change in clinical course of patients with myasthenia gravis treated with thymectomy and to identify clinical factors that influence the outcome.

The clinical courses of all 120 patients (26 males and 94 females); mean age 33 ± 14 years, with myasthesnia gravis who underwent thymectomy through a median sternotomy over a 13-year period were reviewed. Clinical staging was determined preoperatively, postoperatively and last follow-up (mean time, 34 months) using modified Osserman classification. Changes in severity of disease were graded as *Remission, Improved,* and *Not Improved.*

Remission was achieved in 29 patients (24%), 66 patients (55%) were improved and 6 patients (5%) were not improved. There were 13 patients (11%) who lost follow-up postoperatively and 6 patients (5%) were dead.

Clinical factors that might influence the outcome (age, sex, duration of symptoms, tissue pathology and preoperative stage) were determined by *Chi Square Technique*

From our study, we concluded that the combination of surgical and medical treatment was appropriate for myasthenia gravis because many studies showed that about 25 per cent of patients had *Remission* and 50-60 per cent were *Improved* after thymectomy. The remaining were *Not Improved* (20-25%) which we could not explain the reason. However, thymectomy is still the operation of choice for myasthenia gravis patients. We still found that no

any factor (age, sex, duration of symptoms, tissue pathology, associated disease and preoperative stage) is statistically significant to influence the clinical outcome after thymectomy. Further study should be placed on identifying risk factors that distinguish those patients who were likely to benefit from surgery as well as from newer medical therapy.

Aortic Valve Repair: An Initial Experience from Central Chest Hospital

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Ukrit Charupatanapong
Pradistchai Chaiseri
Promporn Petchyoongthong

Aortic valve replacement has long been a standard surgical treatment for aortic valve disease. However, facing with increasing younger patients, females in child bearing age, problem of drug compliance and those patients who have contraindication to anticoagulation, aortic valve repair has recently gained more attention as an attractive alternative treatment.

Between September 1994 to April 1995, 12 patients with aortic valve disease have been successfully repaired at Central Chest Hospital. There were 7 males and 5 females. The age was between 20-55 years with the mean age of 33.9 years. The causes of aortic valve disease were rheumatic (11) and congenital (1) disease. Pre-operatively, the degree of aortic regurgitation (AR) was graded as moderate to severe in 10 cases and as mild in the other two. For those cases with aortic stenosis, the average aortic valve area (AVA) was 0.73 cm^2 and the mean pressure gradient across the aortic valve was 74.6 mmHg. Surgical procedures involved commissurotomy (9), cusp thinning (7), free edge thinning (4), free edge unrolling (6), subcommissural annuloplasty (7), decalcification (4) and resuspension of aortic cusp (1). Cusp extension using autologous pericardium treated with glutaraldehyde was needed in 3 patients. There were no hospital mortality nor valve- related complication. Post-operatively, all of the patients were in NYHA functional class I and II. Eleven of them had trivial to mild AR. Only one patient was left with moderate degree of AR. The average AVA in patients with AS increase from 0.73 cm^2 to 1.17 cm^2. The mean pressure gradient across the aortic valve decrease from 74.6 to 29.6 mmHg.

In conclusion, aortic valve repair offers an encouraging immediate post-operative result. It may be a good alternative surgical treatment in certain groups of aortic valve disease patient. However, long term follow up is needed before its durability could be confirmed.

Comparative study of CABG in Private and Government Hospitals

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Samphant Pronvilawan
Somchai Sriyoschart
Pradistchai Chaiseri
Prinya Sakiyalak
Kampol Prachuabmoh

During the last decade, there has been increasing number of coronary artery bypass grafting (CABG) and other surgical procedures performed for treatment of coronary artery disease in both private and government hospitals. This retrospective study was carried out from the first 500 consecutive cases of CABG operated upon between August 1988 and May 1995 at Bangkok Heart Institute (BHI) compared with 616 cases at Siriraj Hospital (SH) between January 1990 and December 1994.

Results: The sex distribution was the same at BHI and SH with male predominate, male to female ratio was 3:1. The age ranged from 32 to 85 years at BHI with mean age of 60.68 years compared to SH age ranged from 23 to 84 years with average age of 59.0 years. Most (75%) of the patients in both groups were triple vessel disease. The number of internal mammary artery (IMA) used as an arterial conduit was 78.6 per cent at BHI compared to 88.2 per cent at SH. Concerning about the number of grafts, most of the patients received 3 to 4 grafts in both institutes with average of 3.37 grafts per patient at BHI compared to 3.0 grafts at SH. Early postoperative mortality was nearly the same with average of 3.6 per cent early hospital deaths at BHI and 4.17 per cent at SH. CABG alone showed lower postoperative mortality when compared with CABG plus concomitant valvular surgery. This finding was the same in both institutes especially if aortic valve replacement was performed in the same setting of CABG, the mortality rate rose up to 20 per cent. However, there was no hospital mortality in 132 consecutive CABG operated on since July 1994 at Bangkok Heart Institute.

We concluded that CABG could be done safely in private hospital with good early result. There was

no different pattern of patients in term of age, sex, number of native coronary vessels involved, number of grafts, frequency of IMA used, and early postoperative mortality.

Closure of ASD Through Right Thoracotomy

Somboon Boonkasem

Right thoracotomy incision is an alternative approach for closure of atrial septal defect (ASD). The first case presented with tuberculous constrictive pericarditis and ASD. The patient was firstly treated by pericardiectomy. Subsequent closure of ASD was made through a right thoracotomy incision. This approach was used to avoid resection of previous surgical adhesions.

Thereafter it was used to alleviate the problems concerning sternotomy wound:- eg. pain from metal wire knots along the wound scar, a big midline scar formation.

Between May 1976 to May 1995, 32 cases of ASD were closed through this approach. They were 9 males and 23 females; M:F = 1:2.6. The age ranged from 1 2/12 year to 51 years (average = 14 years). The type of ASD includes 28 secundum and 4 sinus venous defects. The associated anomalies were: MR 2, TR 1, PAPVC 2, RPA stenosis 1.

There was no early and late mortality. Only 1 case developed late complication - occasional episode of palpitation from arrhythmia during the first postoperative year. It was improved by administration of cordarone. All of the other cases were healthy and doing well.

In conclusion, closure of ASD via right thoracotomy incision is safe and is a good alternative to median sternotomy.

Massive Hemoptysis and Surgery

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Vichai Benjacholmaj
Seri Singhtanadkij
Kittichai Leungtaveeboon
Virulh Khaoparisuthi
Somsak Watanapat

Records of patients with massive hemoptysis in 1994 were reviewed. Underlying disease were TB in 45, bronchiectasis in 18 (one with Katargener's syndrome), abscess 2, cancer 2, pneumonia 1, hamartoma 1, vegetative ball 1, radiation pneumonitis 1, and Behcet's disease 1. Five patients felt the side of hemorrhage. Chest X-ray showed bilateral lesions in 12 (hemorrhage from more extensive lesion). Chest X-ray was normal in one (hemorrhage from left lower lobe bronchiectasis). Bronchoscopy revealed sites of hemorrhage in 35, undetermined in 3, otherwise interventions were done on more extensive side. Frequency of massive hemoptysis was one to numerous (mean 3). Lung resections were done in 66, three of them had prior unsuccessful selective bronchial arterial embolization (SBAE). One patient, with postradiation pneumonitis and SBAE was considered contraindicated, underwent ligation of several intercostal arteries. Six patients did not undergo surgery: 2 with poor respiratory reserve in whom one underwent unsuccessful SBAE and died; another underwent ice cold bronchoalveolar larvage which stopped hemorrhage for 3 hours; two IVDU in whom one with HIV + had successful SBAE. One Behcet's disease had 2 successful SBAE. One refused surgery and died 12 hours later from recurrent massive hemorrhage.

Among 66 lung resections, 35 were done during active hemorrhage, 30 with double lumen endotrachial tube (DLET). Complications were hemothorax in 2, empyema in 2, aspiration pneumonia in 1, and mucus plug atelectasis in 1. There were 3 operative deaths, 2 from respiratory failure, 1 from ruptured known inoperable cerebral AVM.

It is concluded that interventions be done earlier, not waiting for sustained (continued) hemoptysis. SBAE is for poor risk or poor compliance case eg. IVDU, HIV +, Behcet's disease. Ice cold BAL in patient required ET tube to buy time for further treatment. DLET is useful for surgery during active hemorrhage.

Single Lung Transplantation for End Stage Pulmonary TB

Kittichai Leungtaveeboon
Visith Udompanich

Single lung transplantation is now an established treatment of certain types of end stage lung disease. Lung transplantation for end stage lung infection is quite a controversial issue because of the risk of severe infection in immunosuppressed patient. A young female patient was referred for treatment of endstage bilateral TB with cor pulmonale. Her dis-

ease was inactive and sputum examinations did not show evidence of TB. She was very dyspnic, hypoxic with carbon dioxide retention. While staying in ward several episodes of CO_2 narcosis developed. Her lung donor was an asthmatic patient who developed brain dead after cardiac arrest. His lungs were clear to auscultation, and chest X-ray was normal. Arterial blood gas was satisfactory. Left single lung transplantation was performed using telescopic bronchial anastomotic technique. Her postoperative course was rather uneventful. Antituberculous drugs were continued after the operation. The immunosuppressive regimen included cyclosporin A, azathioprine and corticosteroid. Now it is 7th month posttransplantation, she is active with mild dyspnea on strenuous exercise. There is no recurrence of either TB in her lung nor severe asthmatic attack.

VAT Thymectomy for Myasthenia Gravis

Charun Gherunpong

Video-assisted thoracoscopic (VAT) thymectomy for the treatment of myasthenia gravis is a new technique and has been performed in foreign countries recently. At Siriraj Hospital, 4 patients (1 grade I, 2 grade II B, 1 grade II C) with myasthemia gravis underwent thymectomy between October 1994 and May 1995. Their ages were 18, 21, 25 and 32 years respectively. All were female. The procedure was carried out with one lung ventilation, left lateral position, 3rd, 4th, 7th and 6th ICS. thoracoports. The dissection was started at the inferior pole of the gland on the left side just anterior and along the phrenic nerve cephaladly to the thoracic inlet. The gland was dissected off the sternum and pericardium until the innominate vein was identified. The thymic arterial and venous branches were isolated and doubly clipped with endoscopic hemoclips. Dissection was then continued superiorly to the left and right until the superior poles of the gland were identified without injury to the right phrenic nerve and pleura. The fibrous ligament was incised and the entire thymus gland was removed through the trocar site. There were no serious complication except one patient had to be reintubated due to imbalance of anticholinergic agent. There was no mortality and all patients have rapid recovery and were discharged without any incidence. This early experience further confirms our confidence to thoracoscopic thymectomy.

Orthopedic Surgery

Soft Tissue Interposition at the Fracture Detected by the Ultrasound During Closed Femoral Nailing

Banchong Mahaisavarlya
Charoen Chotigavanich
Panupan Songcharoen

Introduction: Fracture reduction during closed femoral nailing is usually impossible when there is soft tissue interposition at the fracture site. Normally, this problem cannot be diagnosed clinically or by radiography. Definite diagnosis is usually only possible after the fracture has been explored. Inability to recognise the problem will delay open reduction of the fracture and prolong the wasteful attempt in closed manipulation. This will prolong the operating time, the exposure to radiation and increase in soft tissue damage from forceful manipulation. Ultrasound has been used effectively for diagnosis in several soft tissue problems in musculoskeletal disorders. We therefore investigate the possibility to use ultrasound for documentation of the soft tissue interposition during closed femoral nailing.

Patients and Methods: We performed a retrospective study of ultrasonographic findings of the femoral fracture alignment in 5 cases with soft-tissue interposition between 1993 and 1995 at Siriraj

Hospital. All these fractures were not reducible during closed femoral nailing under both ultrasound and fluoroscopic monitoring. All underwent open reduction and the fractures were found to have soft-tissue interposition from the quadriceps muscle. The sonographic findings from these cases were compared to those of 36 femoral fractures that could be successfully reduced.

Results : The ultrasound could demonstrate that the proximal fracture fragment had penetrated anteriorly through the quadriceps muscles in all problem cases. The transverse scans from the anterior aspect of the thigh revealed that the soft tissue thickness anterior to the fractured end of the proximal fragment was thinner in the problem cases than that of the successful cases without soft tissue interposition. There was no difference between the problem group and the successful group in the amount of fracture displacement in the sagittal plane when the patients were placed on fracture table with traction.

Conclusion : This study has shown that ultrasonography can provide information to diagnose soft tissue interposition during closed femoral nailing. This will aid prompt diagnosis and avoid the wasteful attempt in closed manipulation.

Temporary Perfusion with Small Nasogastric Tube in Major Limb Replantation

Saranatra Waikakul
Somjet Sakcankosol
Prakit Piempetchakul

To minimize the warm ischemic time in the major limb replantation, heparinized silastic nasogastric tube No. 3 and 6 were used to immediately byp-ass the blood into and out of the amputated part before initial and definite debridement and bone fixation were done. The tube No. 3 was used for arterial perfusion from the stump to the amputated part and No. 6 for venous drainage from the amputated part back to the stump. Simple ligatures with 3/0 silk were used to fix the tubes and the vessels. One to two arterial and three to four venous by-passes were used each time. Blood letting to prevent systemic effects of toxic substances from amputated part could be controlled better than before. We used this technique in 5 patients, 3 forearm amputations, 1 arm and 1 wrist amputations and found that we could lessen the ischemic time about 1.75 + 0.5 hours. Perioperative blood loss and blood transfusion also less than previous experience in comparable patients.

Using the tubes gave a persuasive result, however more experience and longer term follow-up of the functions of the replanatation have to be studied.

Trans Osseous Wiring Condylar Fracture

Somsak Kongpaichitwong

Mandibular fracture is the most common fracture among other maxillofacial bones. The management of condylar fracture has generated more discussions and controversies than any other in the field of maxillofacial trauma. This is a report study for management of fracture of mandibular condyle in Maharaj Nakhonrajsima Hospital that come into the author's service between October 1989 and January 1995. Among 413 cases of fracture mandible, 21 cases (5%) were fracture mandibular condyle, of which 15 cases (71%) needed operative reduction and fixation. Transosseous wiring technique via preauricular incision is used in every case. The indications for open reduction and internal fixation were severe displacement fracture and fracture dislocation. The intermaxillary fixation was applied in every case for 3 weeks for fracture without dislocation, and 1 week for fracture with dislocation. After intermaxillary fixation was removed, the lower arch bar was left further until complete 6 weeks period in case of coincident with symphyseal fracture. By this time, the patient was allowed to take only liquid diet. The coincident fracture symphysis was fixed by monocortical wiring in cases of unstable and displaced fracture after the intermaxillary fixation was applied. Follow-up period was 2 to 3 months. All patients have satisfactory occlusion without ankylosis. Minimal complications were transient frontal and orbital branches of facial nerve palsy in 2 cases which all completely recovered in 3 months, and a case of unilateral fracture dislocation that was found to have trismus after intermaxillary fixation for 3 weeks that can be resolved by a single post-operative dilatation. The reduction and stabilization by preauricular incision transosseous wiring compared with other technique (simple bone plating, dynamic compression plate, pin fixation technique) is quick, reliable, cost saving and can be used for any level of mandidular condyle fracture.

Serum Potassium as the Predictor of the Immediate Outcome of Major Limb Replantation

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Prakit Piempetchakul
Somjet Sakcankosol
Narucha Sangkachai

To find out the reliable index in determining immediate outcome of major limb replantation, this study was performed at Siriraj Hospital, Srivichai Hospital 1, 2 and 3 between 1992 to 1994. There were 17 patients, 14 males and 3 females in this study. All had major traumatic amputation of upper limb including, 2 mid palm, 9 wrist, 3 forearm, 1 elbow and 2 arm amputations. All patients were healthy with the age between 18 to 26 years and all had the injuries while they were working in the factories. The type of injuries, ischemic period, smoking habit, working status, underlying diseases and primary treatment were recorded and the correlation to the outcome were analysed. Radiograph, complete blood count, serum electrolyte and blood chemistry, before and after the operation were investigated and analysed. We found that the type of injuries and the ischemic period were good indices and correlated well with the results. However, only serum potassium is the most interesting index. No replantation was immediately successful when the serum potassium of the initial venous blood from the amputated parts was higher than 8.5 meq/L. After reanastomosis of the veins if the systemic serum potassium was persistently higher than 5.5 meq/L for more than 3 hours, immediate reamputation should be performed to save the patient's lives. Serum potassium can be used to predict the survival of major limb replantation perioperatively.

Treatment of Delayed Union or Nonunion of Femur and Tibia with Unreamed Intramedullary Nailing

Chanchit Sangkaew

Problem/Background: The reaming technique is more diffcult than the unreamed technique. With reaming technique the surgeon is exposed to more radiation from the image intesifier.

Objectives: This study evaluated the feasiblity of the unreamed intramedullary nailing and compared the results to those obtained with reamed nailing.

Research design: A prospective study of 28 patients (15 femur, 13 tibia) with delayed or nonunion of the femur and tibia who underwent unreamed intramedullary nailing.

Methods: Adequate follow-up was obtained in 25 patients (13 femur, 12 tibia). Average follow-up was 18.2 months (ranged 3-96 months). The unlocked straight Küntscher nail was used in all patients, except one. In this case a Rush-pin was used to prevent damage to the open physis.

Results: In these cases, 11 of the femur (84.6%) and 12 of the tibia (100%) healed after the first operation. The two patients, whose fractures failed to unite with this treatment had repeat procedures with placement of thicker nails, and all subsequently healed.

Conclusion: The unreamed intramedullary nailing was simple, cost effective, needs no complicated instruments and allows early weight bearing, range of motion of adjacent joints and reliable rates of consolidation.

Salvage Treatment for Sarcoma of The Hand

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Lucksana Pochanugool
Arthi Kruavit
Vorachai Ratanatharathorn
Prawat Nitiyanant

The authors reported the treatment of six cases of sarcoma of the hand. The lesions were located between the digits and the distal end of radius. The age of the patient varied from 13 years to 64 years. They were composed of two males and four females. The time of follow-up ranged from one to five years. Painless mass was the common manifesation in these cases. Incisional biopsy was performed in every case. The histology showed only two cases of low grade malignancy. Excision and adjuvant therapy such as radiotherapy, chemotherapy were given in these cases. The result of the study revealed four cases still alive with useful hand.

In conclusion, the authors was impressed with this approach of the treatment. It might have a role in the management of these unfortunate patients.

Pediatric Surgery

Neonatal Endoscopy: A Retrospective Analysis

Kitirat Ungkanont
Ellen M Friedman

A retrospective review of 62 neonates who underwent endoscopy of the upper airway at the Texas Children's Hospital over an 8-year period was performed. Mean age of the patients on the day of endoscopy was 15 days with a range of 1 to 39 days. Common indications for the upper airway endoscopy were stridor/respiratory distress, apnea/cyanotic episode, feeding difficulty and hoarsness, respectively. Direct laryngoscopy was the most frequent procedure done. Laryngomalacia was the most common abnormal finding, followed by vocal cord paralysis. Pierre Robin Syndrome was the most common syndromic anomaly found associated with upper airway obstructions. It was of particular interest that gastroesophageal reflux was diagnosed in 33.9 per cent of this population. Inflammation of the mucosa over the arytenoid area and posterior commissure was detected by endoscopy in 33.3 per cent of the patients with gastroesophageal reflux. There were 4 cases in which gastroesophageal reflux was the only cause of upper airway problems. Therapeutic procedures during and post-endoscopy were reviewed. In this series endoscopy was more helpful than imaging studies in diagnosing neonatal patients with problems of the upper airway.

Successful Surgical Retrieval of Umbilical Artery Catheter in Descending Aorta: A Case Report

Vichao Kojaranjit

Umbilical artery catheter has been used for intraarterial monitoring lines in infants.

A preterm female baby was born with respiratory distress syndrome. Her birth weight was 1,150 grams. Umbilical artery catheterization was performed on first day of life. Umbilical artery catheter migrated into descending aorta during attempting to perform exchange transfusion. Surgical retrieval of umbilical artery catheter in descending aorta was performed by left thoracotomy and aortotomy. Postoperative course was uneventful.

Anorectal Malformation

Wichate Chatwiriyacharoen

A prospective study of 35 cases of anorectal malformation admitted at Surin Hospital was carried out for 4 years from July 1990 to August 1994. There were 20 boys and 15 girls, the boy to girl ratio was 1.33:1. Average birth weight was 2,368 grams. Seven of these were born at Surin Hospital and the incidence was found to be 1:3,180 live births. Four patients (14.3%) were classified as high type, 32.1 per cent as intermediate type, 42.9 per cent as low type and 10.7 per cent as miscellaneous anomalies. There were 14 associated anomalies. All cases with high and intermediate type; sigmoid colostomy was done in newborn period, posterior saggital anorectoplasty was performed at age 3-4 months; and colostomy was closed at age 6-8 months. In low type anomalies, anoplasty was performed in the newborn period. The clinical evaluation for postoperative continence was satisfactory. The mortality rate was 14.28 per cent; 3 of 5 deaths weighed below 1,500 grams.

Gastrointestinal Perforation in Neonate

Rangsan Niramis
Sukawat Watanatittan

During the 12-year period from 1983-1994, one hundred and three neonates with gastrointestinal perforation were surgically treated at the Department of Surgery of the Children's Hospital, Bangkok. Sixty four were males and 39 were females.

Neonatal necrotizing enterocolitis was the most common cause of neonatal gastrointestinal perforation. Spontaneous rupture of the stomach was found in 15 cases (14.6%), while meconium peritonitis and Hirschsprung's disease were found in 11 cases or 10.7 per cent each.

The most common clinical presentation was abdominal distension. Lethargy, dyspnea and vomiting were noted in 56.3, 51.5 and 35 per cent respectively. About one third of all the patients had erythema of the abdominal wall. Pneumoperitoneum

was seen in only 70 per cent of the cases. In neonatal necrotizing enterocolitis and meconium peritonitis, the perforation was commonly found in the ileum. A colonic perforation occurred more commonly than an ileal perforation in Hirschsprung's disease.

Fifty four patients died postoperatively. The overall mortality rate was 52.4 per cent. Neonatal necrotizing enterocolitis and spontaneous rupture of the stomach had highest mortality rates, 64.4 and 60 per cent respectively, while the mortality rate of meconium peritonitis was only 18.2 per cent.

Biliary Atresia: 10-Year Experience at Chulalongkorn Hospital

Paisarn Vejchapipat
Bidhya Chandrakamol
Soottiporn Chittmittrapap

Biliary atresia is one of the most interesting disease in the field of pediatric surgery of which the treatment of choice is surgery. This retrospective study is to review and evaluate the biliary-atretic patients surgically treated at Chulalongkorn Hosptial.

During January 1985 and December 1994, there were 108 persistent cholestatic jaundice patients undergoing diagnostic laparotomy, 79 patients (73.15%) were diagnosed as biliary atresia intraoperatively. Every patient aged under 1 year at the time of surgical correction. Out of 75 biliary-atretic patients, 49 patients (62.03%) were operated before 2-month of age. Male: female was 40:39 (1: 0.97). There were type I biliary atresia 4 cases (5%) and type III biliary atresia 75 cases (95%). The operations were hepatic portoenterostomy 70 cases (89%), portocholecystostomy 5 cases (6%) and hepatico-jejunostomy 4 cases (5%).

Available postoperative data (56 cases) indicated that ascending cholangitis is the most common post-op complication (46.43%).

The available reports revealed that 45 cases were followed up for at least 3 months [15.63 + 13.68 months (X+SD)].

The patients could be classified postoperatively into 4 groups:

group A : jaundice free 17 cases (38%)
group B : jaundice decreased 9 cases (20%)
group C : jaundice increased 9 cases (20%)
group D : death during follow-up 10 cases (22%)

The analysis was done to identify the relationship between the results of operation and the age of patients at the time of the operations (group A and B defined as the result of the operation is good whereas group C and D is bad). It indicates that the result of the operations performed before the age of 2 months is better than those performed after the age of 2 months ($p<0.05$)

Pediatric Surgery in Ratchaburi Hospital

Somchai Thepcharoennirund

During the seven year and eight month period from August 1987 to April 1995, 3430 pediatric patients were operated upon in the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital. There were 420 neonates and 3010 children. The most common neonatal surgery was anorectal malformations (88 neonates) and the most common pediatric surgery was appendicitis (712 children). The purpose of this study is to present an experience in pediatric surgery at Ratchaburi Hospital and to encourage pediatric surgeons in provincial hospitals. In conclusion, a division of Pediatric Surgical Unit should be established in the Department of Surgery in provincial hospitals. This will improve both the quality and quantity in pediatric surgical patients care.

Contralateral Herniotomy in Childhood Unilateral Indirect Inguinal Hernia: Is it Justified?

Soottiporn Chittmittrapap
Bidhya Chandrakamol
Jirawat Patana-arun

There is still controversy about the contralateral herniotomy in unilateral indirect inguinal hernia (IIH) in children. Some pediatric surgeons performed bilateral herniotomy according to their experience that the incidence of patent processus vaginalis in contralateral side is higher than 50 per cent. In contrast experience, the later operation rate of the contralateral side was as low as 10 per cent in children who underwent unilateral herniotomy. Some surgeons stated that the age under 1 year, left-sided hernia and female sex were the important predisposing factors in developing the contralateral hernia. This study was done to identify the justification of contralateral herniotomy in child-

hood unilateral indirect inguinal hernia.

The study divided into 2 parts. The first part was a retrospective study of the incidence of contralateral IIH following unilateral herniotomy in 200 children operated between 1987-1989. The overall incidence, both sex and all age group, was 19.5 per cent.

The second part, which was a prospective randomized, unmatched trial, was done in 252 children operated between 1990-1993. The patients were divided into 2 groups, group 1 included all boys aged more than 1 year. Only unilateral herniotomy was performed in this group. Group 2 included girls of all age group and boys under 1 year of age. This group was divided into 2 subgroups. The patients in the subgroup 2A were operated unilaterally and the subgroup 2B were operated bilaterally. The follow-up time was at least 12 months. The questionaires were also finally sent by mail and/or telephone cell in December 1994 to state the postoperative condition.

The study revealed that the overall incidence of developing a contralateral hernia after unilateral herniotomy in 169 boys aged more than 1 year (group 1) is 18.3 per cent. If the first operation was on the left, the chance of subsequent right IIH was 24.3 per cent and if the initial operation was on the right, the subsequent contralateral involvement was 16.1 per cent which was not significantly different (Fisher exact test, $p > 0.05$).

There were 62 boys and 21 girls in group 2, 33 boys and 9 girls were in the subgroup 2A in whom unilateral herniotomy were performed. The incidence of subsequent contralateral inguinal hernia was 22.9 per cent in boys under 1 year of age and 18.7 per cent in girl in the subgroup. The incidences were not significantly different from the incidence in boys over 1 year in group 1 and the overall incidence studied between 1987-1989 (Fisher exact test, $p > 0.05$). 29 boys and 12 girls were in the subgroup 2B. These children underwent bilateral herniotomy and revealed 80 per cent incidence of patent processus vaginalis in boys under 1 year of age. Contralateral groin exploration in girls revealed patent processus vaginalis in 70 per cent of the cases.

In conclusion, even though the exploration of contralateral groin in unilateral IIH in boys aged below 1 year and girls revealed high incidence of silent patent processus vaginalis, the incidences of subsequent clinical indirect inguinal hernia on the contralateral side were not significantly different, either age group or sex or side.

Bronchoscopy in Diagnosis of Foreign Body in Airway

Dusit Viravaidya

Objective: 1. In which conditions was the bronchoscopy performed? 2 How much reliability from the following variable, history of foreign body aspiration, abnormal breath sound, abnormal X-ray findings, and pre-bronchoscopic diagnosis of foreign body in airway, tell that there was foreign body in airway?

Research design, Patients selection, and Method: A retrospective study from medical record of pediatric patients whom bronchoscopy were done at pediatric surgical unit, Chulalongkorn Hospital during January 1983 to December 1993. Chi square test with significant level < 0.05 was used to compare the presence of FB in airway which was assigned as dependent variable to various following variables which were assigned as independent, i.e., history of FB aspiration, abnormal breath sound, abnormal X-ray findings, and pre-bronchoscopic diagnosis of FB in airway.

Results and Analysis: During 11 years there were 149 cases of pediatric patient and were scoped 161 times, due to the following conditions, i.e., pre-bronchoscopic diagnosis of FB in airway 68 cases (45.6%), atelectasis 13 cases (8.7%), pneumonia 35 cases (23.5%), airway obstruction 15 cases (10%), mass 7 cases (4.7%), and miscellaneous 11 cases (7.4%). So after bronchoscopy it can be divided into 2 groups, cases with presence of FB in airway which is 56 cases, and absence in 93 cases. Levene's test with $p<0.05$ shows that the variance from these 2 groups are not different. So the group with absence FB is used as control group. Results of chi square analysis are as the followings, ie., history of FB aspiration has $p = 0.00$, abnormal breath sound has $p = 0.03$, and pre-bronchoscopic diagnosis of FB has $p = 0.00$. But chi square's test of abnormal X-ray findings has $p = 0.35$, which is greater than 0.05, so it is not significant. Results of the various diagnostic values are computed. History of FB aspiration has +PV = 74%, -PV=82.5%, sensitivity = 88%, specificity = 66%, abnormal breath sound has +PV = 57.9%, -PV = 70%, sensitivity = 84.6%, specificity = 36.8%, pre-bronchoscopic diagnosis of FB has +PV = 77%, -PV = 93%, sensitivity = 89%, specificity = 84%.

Conclusion: History of FB aspiration, abnormal breath sound, and pre-bronchoscopic diagnosis of FB have significant level in prediction of presence of FB in airway, which also have high diagnostic

test value, except abnormal breath sound which has rather low diagnostic test value. But abnormal X-ray findings do not have significance in prediction of presence of FB in airway.

Reconstructive Surgery

Spiral Computerized Scan Three-Dimension Reconstruction in Head and Neck Diseases

Worapong Vejvechaneyom

Spiral computerized scan three-dimension reconstruction is the new technology in imaging. As there are only limited experiences in the application of this imaging technology for head and neck diseases. This imaging had been used in some difficult diagnostic head and neck disease patients for one year already. It is found that this imaging technique is very useful in diagnosis. It showed not only details of the diseases or anomalies, but also the relationship with other structures. The information gained has proved useful during the operative period. Some interesting cases of the imaging technique in head and neck problemed cases will be presented.

Malignant Tumors of the External Auditory Canal and Middle Ear: A 10-year Experience

Wiwat Prawatmuang
Jaran Kangsanarak
Kiramon Navacharoen
Pichit Sittitrai

External auditory canal and middle ear cancer, a relatively rare disease, often presents in a subtle manner which may delay diagnosis. It should be suspected in any case of persistent otitis media or otitis externa that fails to improve with conventional treatment. Twenty-two patients with malignant tumor of the external auditory canal and middle ear, originally seen from 1985 to 1994, were reviewed retrospectively. Among the 22 patients, there were 14 squamous cell carcinomas, 3 basal cell carcinomas, and one each of undifferentiated carcinoma, rhabdomyosarcoma, osteosarcoma, melanoma and giant cell tumor. At presentation, nine had disease limited to the external auditory canal: eleven extended into middle ear and/or mastoid, or facial paralysis, and two extended beyond the temporal bone. The incidence of lymph node metastasis was 36 per cent. Treatments consisted of radiation, surgery and combination therapy. Two patients with melanoma and rhabdomyosarcoma received adjuvant chemotherapy. Only eight patients had adequate follow-ups. Two were without any evidence of disease after five years. Two were free of symptom after one year of treatment. Three had recurrences and died of disease, and one died of sepsis postoperatively.

Surgical Reconstruction of Anterior Commissure with a Free Buccal Graft

Rak Tananuvat
Yupa Sumitsawan
Thienchai Pattarasakulchai

Selection of treatment for anterior commissure involvement of early laryngeal cancer remains controversial. Both conservative surgery and primary radiation therapy were used with 70-90 per cent local control. Frontolateral hemilaryngectomy is the surgical treatment of choice for these lesions. Surgical intervention is likely to cause web and stenosis due to scar formation. We present a technic of relining the surgical defect using free buccal graft and strap muscles with soft stent.

Sensitivity and Specificity of Fine Needle Aspiration Cytology in the Diagnosis of Mandibular Reconstruction

Rungjai Charoensil
Chalee Kanchanarak
Pichit Sittitrai

From October 1989 to December 1993 we performed 13 cases of mandibular reconstruction. We compared the use of AO reconstruction plate with immediate free vascularized bone graft mandibular reconstruction. Reconstruction plates were used in 4 and immediate free bone grafts were used in 9 pa-

tients. The overall success rate for use of the plate was 2 of 4 (50%). One of the plate failure patients, the plate was removed eight months postoperatively. She was able to wear a dental prosthesis. There were 9 free flaps: 4 scapula, 3 fibula, and 2 radial forearm flaps. Only 4 flaps were successful (success rate was 44%). We found that the use of AO plate with flap was relatively safe, simple, functional, time-saving, cosmetically acceptable and can be used successfully in post-operative irradiated patients.

Carcinoma of the Oral Cavity and Oropharynx: A Review of 280 Case Records of the Carcinoma of Oral Cavity and Oropharynx at Rajvithi Hospital

Phairuch Changprayad
Somsak Wankijcharoen
Varah Vorasubin
Soontorn Antarasena

A retrospective study of 280 cases were conducted to analyse the epidemiology of oral and oropharyngeal carcinoma. Data were collected from the patient records of Rajvithi Hospital during January 1, 1991-December 31, 1993.

The average age of the patients was 61. Even though oral mass and oral ulcer are the most common chief complaint but neck mass is the symptom that motivates the patient to come for treatment faster than other. The most common sites of tumor are anterior tongue and tonsil (62/280 and 47/280). Forty six percent of cases (128/280) presented with palpable neck nodes. Tonsil, base of tongue and floor of mouth are the most common site with palpable neck node. Squamous cell carcinoma is the most common typeof cancer (255/280) especially well differentiated. There were 132 out of 280 cases which can be followed up after treatment, but only 22 cases can attend follow-ups for more than 2 years.

Free Omental Flap for Scalp Reconstruction: A Case Report

Prapon Tangsrikertikul

Large scalp defect is a challenge for reconstruction. Free omental flap was performed in a 7-year-old boy with 30 per cent loss of sclap from trauma. The flap was transferred with the anastomosis of gastroepiploic to superficial temporal vessels. The omental flap was immediately covered with splitted thickness skin graft. It had sufficient blood supply for skin graft to take. The result was satisfactory with no morbidity.

Use of Tissue Adhesives for Skin Closure

Preda Chinda
Kamol Wattanakrai
Juckrich Srisurakrai
Nopadon Veerayangkul

A clinical trial of 130 patients treated with histoacryl on various surgical wounds revealed no significant adverse effects on wound healing or infection over a six-month period. The results of the authors' experience with tissue adhesives used in lacerated wounds in children, HIV+ve patients, cleft lip, scar revision, free skin graft blepharoplasty, and abdominoplasty show that it is the ideal tissue adhesive for surface cutaneous wound closure with regard to safety, reliability, tensile strength and cost effectiveness. Butyl 2-cyanoacrylate (histoacryl) appears to be the ideal material as it induces low tissue reactively and toxicity.

Scalp Extension: A New Method Used in the Treatment of Male Pattern Baldness

Damkerng Pathomvanich

Scalp reduction to correct male pattern baldness in the past resulted in wide scar, stretched back, long duration and disappointment. Tissue expansion caused deformity and not acceptable by majority of patients. This paper will present the simple technique by using Silastic Silicone Sheet as scalp extension.

Scalp extension produced mechanical creeps or progressive elongation of tissue, continued stretching beyond maximum mechanical creep results in breakage of collagen fiber, also causes biological creep (growth of new skin).

Materials & Methods:

Two types of scalp extension currently in use:

1. Frechet Scalp Extender is the pre-made Silastic Silicone Sheet with the hook on both ends.

2. Silastic Silicone Sheet re-enforced with smaller Dacron Sheet at both ends.

After the scalp was undermined and excised in the standard fashion the scalp extender was inserted. The patient was returned in four to six weeks, another scalp reduction was performed and the scalp extender was removed. In very large alopecia this may need two to three extenders.

This technique may apply to use in the other types of scalp defects rather than male pattern baldness.

Summary: Scalp extension reduces the time which usually requires six to eight months to correct the male pattern baldness, to one to three months depending on the size of alopecia and also reduces scar and stretched back.

Trauma

Clinical Trial of Immune Formula* in Immunocompromised Patients : Preliminary Study

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Purpose: To evaluate the nutrition, metabolic and immune effects of dietary arginine, glutamine and omega-3 fatty acids (fish oil) supplementation in immunocompromised patients.

Setting and Participants: We performed prospective study on the effect of immune formula administered to 11 severe trauma patients (average ISS = 24), 10 burn patients (average % TBSA = 48) and 5 cancer patients.

Intervention: Daily calorie and protein administration were based on patient's severity (Stress factor) with the range of 35-50 Kcal/Kg/day and 1.5-2.5 g/Kg/day. Started with half concentration liquid immune formula through nasogastric tube by continuous drip at 30 ml/h and increasing to maximum level within 4 days. The additional energy and protein requirement will be given either by parenteral or oral nutritional support. Various nutritional, metabolic, immunologic and clinical parameters were observed on days 0 (baseline), 3, 7, and 14. Analysis was performed by paired student-t test.

Result: Initial mean serum albumin and transferrin showed mild (trauma) to moderate (burn and cancer) degree of malnutrition. Significant improvement of nutritional parameters was seen at day 7 and 14 in trauma and burn patients. Significant increase of total lymphocyte count (day 7, $p < 0.01$), CD4 + count (day 7, $p < 0.01$), CD8 + count (day 7, $p < .0005$ & day 14, $p < .05$), complement C3 (day 7, $p < .005$ & day 14, $p < .010$), IgG (day 7 and 14, $p < .0005$), IgA (day 7, $p < .0005$ and 14, $p < .05$) in all patients. C-reactive protein decreased significantly on day 7 ($p < .0005$) and day 14 ($p < .005$). 3 cases of burn wound infection, one case of UTI and one case of sepsis were observed. 2 cases of hyperglycemia in burn, 3 cases of hyperbilirubinemia in trauma, 10 cases of elevated LFT (5 trauma/5 burn), and one case of hyponatremia in cancer patients were observed. 2 cases of nausea, 4 cases of vomiting, 5 cases of diarrhea (<3 times/day), 2 cases of abdominal cramp, 1 case of distension were observed.

Conclusion: The feeding of *Immune Formula* was well tolerated and the significant improvement was observed in nutritional and immunologic parameters as other immunoenhancing diet. Further clinical trials of prospective double-blind randomized design are necessary to adress the issue of reduction of infections, MOF score, and length of hospital stay so that the necessity of using immunonutrition in critically ill patients will be clarified.

Nonoperative Management of Combined Hepatic and Splenic Injuries: *A Case Report*

Sopark Manasnayakorn
Suwit Sriussadaporn

A case of combined hepatic and splenic injuries who was successfully treated by nonoperative management is presented. The patient was a 31-year-old male who sustained blunt abdominal trauma from a car accident. Initial physical examination revealed

a conscious patient complaining of upper abdominal discomfort. The blood pressure was 110/70 mmHg, pulse rate 90/min and respiration 18/min. The abdomen was not distended. Mild tenderness was noted at the right upper quadrant. The hematocrit was 40 per cent. Abdominal CT scan revealed a grade III hepatic and grade II splenic injuries with hemoperitoneum in the pelvic cavity. Nonoperative management was performed on the basis of stable hemodynamic status and absence of serious abdominal signs. Management included strict bed rest, NPO, nasogastric suction, closed hemodynamic monitoring, serial hematocrit measurement and frequent physical examination. The clinical course was uneventful. He was allowed to eat on the 4th admission day and was discharged home on the 10th admission day. He was seen one month later in a healthy condition. Serial CT scan on day 7 and 42 after injury revealed resolution of the hepatic and splenic wounds. Nonoperative management of hepatic and splenic injuries is recommended in selected cases.

Successful Transcatheter Embolization of Traumatic Hepatic Artery False Aneurysm: *Case Report*

Boonchoo Sirichindakul
Suvit Sriussadaporn
Somjai Wangsupachart

A case of traumatic hepatic artery false aneurysm is presented. A 45-year-old female patient had gunshot wound of the liver which was treated by suturing of the entrance and exit of the bullet tract 3 months before this admission. She was referred to Chulalongkorn Hospital because of false aneurysm of the right hepatic artery detected by ultrasonography on routine follow up. CT scan of the abdomen revealed a 4x3x3 cm. intrahepatic hematoma in the right lobe of the liver with arterial enhancement. Angiography via the right common femoral artery was performed and a false aneurysm arising from segmental branch of the right hepatic artery was demonstrated. Embolization of the right hepatic artery with Gelfoam was subsequently performed successfully. The patient was well and discharged home 2 days later. Follow up CT scan 1 and 3 months postembolization revealed a near complete resolution of the intrahepatic hematoma with no arterial enhancement. Percutaneous transcatheter embolization is an effective and safe procedure for management of posttraumatic hepatic artery false aneurysm. The procedure is simple and may spare the patients from potentially dangerous major hepatic surgery.

The Introduction of Probability for Survival by Triss Methodology for Assessing the Quality of Trauma Care, Khon Kaen Regional Hospital

Witaya Chadbunchachai

At present, there are a large number of traumatic patients admitted in every hospitals in Thailand. Although we would like to know how effective trauma care each hospital has, but we do not have good indicator to assess them. The only indicator, which is not sensitive that we have is mortality rate.

Khon Kaen Hospital had set up trauma registration system since 1989. We had added injury severity scoring into the system for every admitted traumatic patients since 1 Jan 1994-31 Dec 1994, which combined with other variable in the system (ie. Glassgow coma score, BP, RR, AGE, mechanism of injury). We can calculate probability for survival of each patient using Triss methodology recommended by MTOS, ACS from the value of probability for survival. We can calculate for preventable death rate, effectiveness rate and efficacy rate.

Result of Activity: In 1994, there were 15,367 traumatic patients at ER of Khon Kaen Hospital, 4,704 patients were admitted, 436 patients were dead. Preventable death rate was 6.29 per cent, effectiveness rate was 41.9 per cent and efficacy rate was 59.6 per cent.

From this statistic, we had set up the trauma audit for hospital care improvement project to increase our standard of truama care.

The Effect of Motorcycle Helmet-Use Laws on Facial Fracture

Preecha Siritiongtaworn
Singhaphan Tongsawas

The motorcycle helmet-use laws have been enforced in Bangkok since February 1, 1993. It is clear that the helmets decrease the severity of nonfatal head injuries besides lowering the rate of fatal injuries. However, only few data about the facial fracture especially in Thailand are mentioned.

We studied the facial fracture cases treated in Trauma Unit, Siriraj Hospital one year before and one year after the motorcycle helmet-use legislation. There were 487 cases of facial fracture treated the year before (1 Feb 1992-31 Jan 1993) and 504 cases in the year after (1 Feb 1993-31 Jan 1994). Motorcycle accident was still the most common cause of facial fracture (37.1%) in the later group. We collected the data about the use of helmet in the last 97 patients and found that only 39 cases (40.2%) used helmets. Most of the cases had only one facial fracture. Five patients in the helmeted group and nine patients in the nonhelmeted group had 2 types of fractures. There were some differences in the location of bony fractures. In the helmeted group, there were 1 case (2.3%) of frontal fracture, 10 cases (22.7%) of nasal fracture, 12 cases (27.3%) of zygomatic fracture, 11 cases (25%) of maxillary fracture, and 10 cases (22.7%) of mandibular fractures. In the nonhelmeted group, there were 5 cases (7.4%) of frontal fracture, 10 cases (14.3%) of nasal fracture, 18 cases (26.9%) of zygomatic fracture, 13 cases (19.4%) of maxillary fracture and 21 cases (31.4%) of mandibular fracture.

We conclude that there is no decrease in the number of the facial fracture patients after the legislation of helmet-use laws. There are still more than half of the patients do not wear helmets and many types of helmets currently used in Bangkok do not protect the face.

Obstetric and Gynecology Surgery

Abnormal Uterine Bleeding and Endometrial Biopsy

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S Sonngkarat
S Vijatrasil
S Laivetvithay
S Toongsuwan
T Suwanakote

From June 1st, 1986 to July 21st, 1989, 2000 patients with abnormal uterine bleeding underwent endometrial biopsies and fractional uterine curettage. All specimens were studied for histological diagnoses. There were 22, 9, 4 and 24 cases for adenocarcinoma of the endometrium, adenosquamous cell carcinoma of the endometrium, adenocarcinoma of the cervix and squamous cell carcinoma of the cervix, respectively and also 41 cases of precancerous or atypical hyperplasia of the endometrium. Endometrial biopsy showed a reliable test, comparing to the gold standard or fractional curettage for histological diangosis of malignancy and precancerous lesion of the endometrium. This procedure showed the sensitivity of 1 and specificity of 1. The predictive value of positive biopsy and negative biopsy were 1. Endometrial biopsy was proved to be easier and reliable procedure for the screening test for endometrial cancer and precancerous lesion.

Dose Intensity of Carboplatin in Advanced Epithelial Ovarian Cancer

Sumrit Senapad
Chiyod Teerapagawong
Somchaya Neungton
Veerasak Thaidhanisawan

The evaluation of efficacy and toxicity of combined caroplatin (CBP) in two different doses with fixed dose of cyclophosphamide (CTX) for treatment of advanced ovarian epithelial cancer was performed. The patients were treated by these combination after randomisation every 3 weeks for 8 cycles. Arm A (CBP 300 mg/m^2 + CTX 500 mg/m^2) achieved the over all response rate of 70.0 per cent and clinical complete response rate of 50.0 per cent. Arm B (CBP 400 mg/m^2 + CTX 500 mg/m^2) had over all response and complete response rate of 80.0 and 75.0 per cent respectively (P = 0.1). The pathological complete response showed in both arms 77.77 and 76.92 per cent (P=0.39), with recurrence 28.57 and 20.0 per cent (P = 0.39). The survival rates were constructed by Kaplan and Meier's method, with one year survival rate of 40.0 and 55.0 per cent respectively (P=0.14). The median survival was 25.0 months (95% confidence interval: 10.2-48.2 months) in arm A, and 35.5 months (95% confidence interval: 17.6-52.4 months) in arm B (P=0.29). The haematologic toxicity grade 4 was

noted in few patients of both arms. Nausea and vomiting were minimal after prophylactic amtiemetics. No hepatotoxicity, nephrotoxicity and neurotoxicity were noted.

Combined Ethinyl Estradiol and Cyproterone Acetate Treatment of Acne in Women with and Without PCOS

A Rojanasakul
U Udomsubpayakul
P Timpatanapong
S Chinsomboon

Objective: To determine the effects of combined ethinyl estradiol and cyproterone acetate (EE-CPA) on acne and hormonal profiles in women with and without PCOS.

Materials & Methods: A longitudinal comparative clinical trial of 40 women presenting with acne (20 with PCOS) treated with combined EE 35 µg and CPA 2 mg (Diane-35, Scherring AG, Germany) for 6 consecutive cycles. Clinical and hormonal evaluations were assessed before, during and after treatment. Ten normal menstruating women with reproductive age served as control. Statistical analysis was performed by one-way ANOVA with repeated measure design and t-test using SPSS/PC+ program.

Results: Acne women had younger age than control since many of them were teenager. Serum FSH was significantly low in PCOS group. Free testosterone and DHEAS levels were higher in acne women than in the control group with more elevation observed in PCOS group. Acne lesions (white comedo, black comedo, inflammatory papule, pustule and cyst) were gradually reduced with 80-90 per cent improvement observed after 5 treatment cycles. However, within 4 weeks after stopping treatment four patients in each group experienced recurrence of acne. During the treatment in PCOS group there were about 30 per cent suppression of LH, 50 per cent reduction of free T and 240 per cent increase of SBG. In non-PCOS group about 40 per cent reduction of free T and 140 per cent incarease of SHBG were observed. Serum DHEAS decreased significantly only in PCOS group. The percentage changes of SHBG in PCOS group was significantly higher than in non-PCOS group (238.30 ± 49.69% vs 140.37 ± 13.98%). Shortly after treatment, alteration of the hormonal profiles tended to recur in both groups.

Discussion & Conclusions: Higher levels of ovarian and adrenal androgen in the studied group may relate to the presence of acne. Combined EE-CPA is effective in the treatment of acne in both groups. Clinical improvement corresponded to the changes of androgen and SHBG levels. However, the therapeutic effects of EE-CPA did not last long. Soon after treatment the hormonal patterns tend to return to the pretreatment values with the recurrence of acne. Long term treatment should therefore be advocated unless pregnancy is desired.

Cytobrush Plus Spatula Versus Spatula in Diagnosis of Cervical Histopathology: A Randomized Prospective Study

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V Linasmita
S Wilailak
S Tangtrakul
S Srivannaboon

Objective: To compare the accuracy of smears obtained by the cytobrush plus Ayre spatula with that of the Ayre spatula only in histologic diagnosis of uterine cervix

Patients and Methods: From March 1993 to February 1994, 168 patients who were referred for colposcopic study because of abnormal Pap smear were randomized into two groups. The first group of patients had repeated Papanicoloau smear by cytobrush plus Ayre spatula, the other by Ayre spatula alone during the colposcopic examination. Final histologic diagnoses were confirmed from cervical biopsy, conization or hysterectomy specimens. Comparison of the smears to the histologic diagnosis in term of accuracy, sensitivity, specificity and predictive value were made.

Results: Patients characteristic in both group, 84 patients each, were not significantly different ($P>0.05$) in the mean age, parity, menopausal status and the number of unsatisfactory colposcopic examination. The Papanicoloau smear by cytobrush plus Ayre spatula had more endocervical cells than that of the Ayre spatula alone ($P<0.01$). The accuracy rate of Cytobrush plus Ayre spatula in histologic diagnosis were 76.2 per cent compared to 71.4 per cent of the Ayre spatula alone. The sensitivity, specificity, positive predictive value and negative predictive value of both methods were 74.2 per cent (79.2%), 81.8 per cent (58.1%), 92.0 per cent (76.4%) $P<0.01$, 52.9 per cent (62.1%) respectively.

Conclusion: The accuracy of Papanicoloau

smears by cytobrush plus Ayre spatula were not different from that of the Ayre spatula alone in diagnosis of cervical histopathology. However, smears by cytobrush plus Ayre spatula yielded a better positive predictive value.

Assessment of Tubal Patency by Transvaginal Sonographic Hydrotubation with Color Doppler Flow

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WirachWisawasukmongchol
Kobchitt Limpaphayom
Boonchai Uerpairojkij
Sukhit Phaosawasdi

Objective: To assess the value of transvaginal sonographic hydrotubation (TSH) as a test of tubal patency.

Design: A prospective, blind comparison of the two tests in a group of infertile women.

Setting: Department of Obstetrics and Gynecology, Chulalongkorn University Hospital.

Subjects: Thirty nine women undergoing infertility investigation agreed to participate in this study.

Interventions: Immediately before diagnostic laparoscopy (DL) with chromopertubation, TSH was performed using the SSD 680, 5 MHz vaginal ultrasound probe and between 20-50 ml of saline was injected into the uterine cavity, through an endocervical pediatric Foley catheter.

Main outcome measure: Uterine expansion and decompression, antegrade steady flow of fluid and or color doppler flow in the tube without exhibiting a sactosalpinx type distension and free fluid in the pouch of Dauglas.

Results: There were complete agreements between TSH and DL in 80 per cent of cases, partial agreement in 16.67 per cent and no greement in 3.33 per cent. TSH had diagnostic capability as followings; sensitivity 100 per cent, specificity 84.62 per cent, positive predictive value 50 per cent, negative predictive value 100 per cent, false positive rate 15.38 per cent, but no false negative rate.

Conclusion: TSH is a simple and safe office procedure for assessment of tubal patency. It is a good diagnostic tool for tubal patency. However, it has low positive predictive value and a high false positive rate. Hence, other confirmatory test is needed if tubal occlusion is suspected.

Adolescent Pregnancy with HIV-1 Positive in Ramathibodi Hospital 1991-1995

Surasak Taneepanichskul
Winit Phuapradit
Kamheang Chaturachinda

HIV infection in pregnancy is a major problem in maternal and child health, particularly in adolescent pregnancy. Objectives of this study were to survey the rate of HIV infection in adolescent pregnancy in Ramathibodi Hospital during 1991-1995 and to study the characters and outcome of these adolescent parturients.

Design: Retrospective descriptive study.

Method: Collected and analysed data from medical records, antenatal care records and delivery records of HIV-1 positive adolescent pregnancy.

Results & Analysis

1. HIV-1 infection rate in adolescent pregnancy was 1.03%.
2. Most of them were low socio-economic status.
3. Husband serodisordance was 27.3%.
4. After post-test counseling, 90.9% of them desired to have abortion.
5. And 72.27 per cent of them had contraception after termination of pregnancy.

Intravaginal Misoprostol for Termination of Second-Trimester Pregnancy

Saknan Manotaya

Background: Current standard methods for termination of second-trimester pregnancy includes dilatation and evacuation (D&E), systemically-administered prostaglandins (PG), or hypertonic saline infusion. Each method is associated with certain disadvantage.

Objective: To test the efficacy and adverse effects of misoprostol (PG E1 analogue) administered intravaginally for the termination of second-trimester pregnancy.

Setting: Tertiary care hospital.

Research design: Prospective study.

Patients: 45 pregnant women with gestational age between 16-27 weeks. Indication for termination of pregnancy includes fetal death in utero (13 cases), severe congenital or chromosomal abnormali-

ties (10 cases), other medical indications (22 cases).

Method: One 200-microgram tablet of misoprostol is inserted at the posterior fornix every 12 hours of a maximum of four tablets. No oxytocic drug is used before expulsion of fetus.

Result: Mean gestationed age 21 cases. Overall success rate (expulsion of fetus within 48 hours) is 87 per cent (39 in 45 cases). Adverse effects are rare: pyrexia (2%), nausea (2%). Mean dose of analgesia required (50 mg. meperidine intramuscularly) is 0.7 dose. Curettage of placenta is required in 2 cases (4.4%).

Conclusion: Intravaginal misoprostol is a safe, effective method for termination of second trimester pregnancy.

Combined Local Infiltration with Bupivacaine and General Anesthesia to Reduce Postoperative Pain after Cesarean Section in Bhumibol Adulyadej Hospital

Pattraporn Pootong

Objective: To compare 1) postoperative pain after caesarean section under combined local infiltration with bupivacaine and general anesthesia to under general anesthesia only, 2) amount of morphine used in the first 6 hours and 6 hours later.

Study design: double blinded, randomized controlled trial.

Setting: Bhumibol Adulyadej Hospital.

Subjects: 140 women undergoing primary caesarean section who met the eligibility criteria from January 1, 1994 to September 30, 1994.

Intervention: After general anesthesia was performed, 70 women in the study group were subcutaneously infiltrated with 0.5% bupivacaine along the line of the proposed incision about 1 ml. per 1 cm. length and another 70 women in controlled group were infiltrated with normal saline for injection in the same way.

Main outcome measures: Postoperative pain at 12, 24 and 48 hours were assessed by using visual analoque scale (VAS), morphine usages were recorded.

Results: VAS at 12, 24 and 48 hours in the study group were 43.84, 30.17 and 16.23. In the controlled group, VAS were 55.27, 40.86 and 25.56. Morphine usage in the first 6 hours and 6 hours later in the study group were 11 and 18, in the controlled group were 28 and 16. The VAS and the morphine usage were statistically significant different ($P<0.05$).

Conclusion: Combined local infiltration with bupivacaine and general anesthesia not only significantly reduced postoperative pain after caesarean section but also reduced the amount of morphine usage.

A Comparative Study of Pain After Postpartum Tubal Sterilization Comparing the Use of Falope Ring HP (tm), Filshie Clip and Modified Pomeroy Method

Ronachai Atisook

Objective: To compare the level of pain after postpartum tubal sterilization among patients using Falope ring HP (tm), Filshie clip or Modified Pomeroy method.

Design: Randomised clinical trial (Double blind).

Setting: Department of Obstetrics & Gynecology, Siriraj Hospital, Bangkok.

Participants: Postpartum patients who had spontaneous vaginal delivery at term, requesting tubal sterilization and willing to participate in the study by written informed consent.

Main outcome measures: Patients were randomly assigned to one of the three group. The type of tubal sterilization was not known by the patients, ward staffs and the interviewer. Patients characteristics, obstetric history, self-assessment pain intensity scale, analgesic medication needed by the patient and resumption of activity were measured.

Results: The three groups of study subjects (55 cases/group) were comparable in patient's characteristics and obstetric history. There were no significant differences in level of pain among the three groups before the operation, immediately after the operation, and at 6, 12, 24 and 48 hours respectively after the operation ($P>0.05$). The Filshie clip group had the shortest operative time and had smallest number of patients necessitated analgesia 24 hours or more after the operation with earliest resumption of normal activity.

Conclusion: In selecting a tubal occlusion technique for The National Family Planning Program in Thailand, this study provides evidence that pain does not vary substantially among options of any preferred technique.

Anesthesiology

Postoperative Sore Throat and Hoarseness: A Comparison between Endotracheal Intubation and Laryngeal Mask

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Vorasruang Thongsukh
Jariya Adipat
Orathai Tontisirin

The incidence of postoperative sore throat and hoarseness was evaluated prospectively in 200 patients undergoing general anesthesia for surgical procedures. Patients were randomly assigned to have either a red rubber endotracheal tube (group A) or a laryngeal mask (group B) in place during the operation and were evaluated for the occurrence of postoperative sore throat and hoarseness 24 and 48 hours after surgery.

The incidence of postoperative sore throat and hoarseness 24 hours after surgery was significantly higher in group A than in group B (20%, 11% versus 9%, 1% respectively) ($p<0.05$). In the case of 48 hours after surgery the incidence of postoperative sore throat was significantly higher in group A than in group B (11% versus 2%) ($p<0.05$) while the incidence of hoarseness was higher, but not statistically significant, in group A than in group B (4% versus 1%).

The data from this study indicate that the intraoperative use of a laryngeal mask, compared with the use of a red rubber endotracheal tube, lowers the incidence of postoperative sore throat and hoarseness.

Efficiency of Newer Relaxant and Peripheral Nerve Stimulator on Residual Relaxation

Pradit Somprakit
Oranee Svaftdi-xuto
Jariya Lertakyamanee
Kanitha Kraiprasit

Problem/Background: There were reports of high prevalence of residual relaxation postoperatively (25-40%) which might lead to postoperative morbidity and mortality.

Ojbectives: To compare the cost and effectiveness of using a newer relaxant and using a peripheral nerve stimulator to guide muscle relaxant administration on the reduction of the prevalence of postoperative residual relaxation.

Design: This was an experimental study with a randomized balanced factorial design. The patients and the main outcome assessors were both blinded of the interventions while the case providers were blinded of the types of relaxants used but were not blinded of the use of a peripheral nerve stimulator.

Settings: Tertiary care hospital setting.

Patients/Participants: All eligible patients were scheduled for elective gynecological operation and were healthy or had only mild systemic disease. The patients were divided into 4 groups and there were 45 patients in each group.

Interventions: Group I received long acting muscle relaxant at a fixed time interval, group II received long acting muscle relaxant guided by a peripheral nerve stimulator, group III received intermediate acting relaxant at a fixed time interval and group IV received intermediate acting relaxant guided by a peripheral nerve stimulator. All these interventions were used for the whole length of the operations that were more than one hour duration.

Main outcome measure: The main outcome was the prevalence of residual relaxation measured by accelograph at 30 minutes after operation. The value of T4/T1 of less than or equal to 70 per cent was used as the cutoff point for residual relaxation.

Results: The % T4/T1 ratios in each group were $54.3 \pm 26.0\%$, $61.3 \pm 24.2\%$, $76.4 \pm 20.3\%$ and $88.2 \pm 23.1\%$ respectively and were different statistically ($p<0.001$). There were 26, 24, 12 and 8 cases of residual relaxation resulting in prevalence rates of 57.8, 53.3, 76.7 and 17.8 per cent respectively, which were statistically significant different ($p=0.00007$). The difference was explained by the difference in types of relaxants, but only by whether PNS was used or the interaction between these 2 factors.

Conclusion: This study showed that changing the types of relaxant used could help reducing the prevalence of postoperative residual relaxation, while using the PNS could not. The cost-effectiveness ratio of using an intermediate instead of long acting muscle relaxant equaled 88.59 baht (3.54 Us$)/hr/case reduction.

Outpatient Pediatric Anesthesia in Ramathibodi Hospital

Plernchitt Sirivanasandha
Chomchaba Soranastaporn
Prasatanee Janton
Chomchai Vichitrananda
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The interdepartmental project between Department of Anesthesiology and Department of Surgery, Ramathibodi Hospital have provided Pediatric Outpatient Anesthesia service since October 1993. The objectives are to collect the baseline data and evaluate the anesthetic care in order to extend the service in other fields. The prospective data collection of 457 pediatric patients was done and analyzed. Most of the operations performed were inguino-genital. Anesthetic techniques were GA - mask, GA - endotracheal tube and IV - ketamine. Postoperative pain was managed by using opioid analgesics or regional anesthesia. Minor anesthetic complications were found in 22 patients (4.8%), 7 of them (1.5%) were admitted for both anesthetic and surgical indications. The outcome was well - accepted by the parents, the surgeons, the anesthetists and nursing staffs. In conclusion, our outpatient pediatric anesthetic care was achieved with satisfactory results.

Maternal and Neonatal Effects of Single-Dose Epidural Anesthesia with Lidocaine and Morphine for Cesarean Delivery

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Objective: To study the maternal and neonatal effects of the signgledose epidural anesthesia with lidocaine and morphine for cesarean delivery.

Design: Cross-sectional descriptive study.

Patients: Sixty healthy consenting parturients with uncomplicated singleton pregnancy who underwent elective cesarean section.

Methods: The single-dose epidural anesthesia was conducted with the standard loss-of-resistance technique at L3,4 interspace. Two per cent lidocaine with epinephrine 1:200,000 plus morphine 4 mg were used as epidural anesthetic agents.

Results: Four of 60 patients had inadequate level of epidural anesthesia and received general endotracheal anesthesia. Among those who had successful epidural anesthesia, 13 patients (23.2%) needed supplementation during the operation. The incidencs of transient hypotension, bradycardia and shivering were 28.6, 3.6 and 5.4 per cent respectively. Postoperative effective analgesia lasted for 24 hours. Only mild side effects of epidural morphine were found in the mother (mild pruritus 45% and nausea/vomiting 35%). Neither respiratory depression nor acidosis were observed in the neonates at the time of delivery. Fifty-seven neonates had normal neurobehavioral assessment at 2 and 24 hours. The other three neonates with poor assessment developed transient tachypnea of the newborn and mild respiratory distress unrelated to anesthesia. Serum morphine levels in the mothers and neonates within and after 24 minutes postinjection were not statistically different in these two periods and between mothers and neonates (M1/M2 (mean ± SD) = 15.29 ± 4.84/13.70 ± 4.24 ng.ml, N1/N2 = 9.85 ± 2.13/10.23 ± 2.61 ng/ml; $P > 0.05$).

Conclusions: This technique provides satisfactory postoperative analgesia with acceptable side effects in the mother. It is safe and has no adverse effect on the normal term infant.

Postoperative Nausea Vomiting (PONV): Influence of Bowel Manipulation During Intraabdominal Surgery

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High incidences of postoperative nausea and vomiting (PONV) in intraabdominal surgery were recognized. The mechanism of PONV was thought to be from 5 hydroxy tryptamine 3 (5 HT3) released by enterochromaffin cells of gastrointestinal tract mucosa, triggering vagus ending to send impulse stimulating at vomiting center in medulla. According to this hypothesis, incidence and intensity of PONV should vary to the degree of bowel manipulation during surgery. Thus 5 HT3 receptor antagonist should serve as specific management for PONV in intraabdominal surgery. This drug is rather expensive for Thai patients, cost and benefit should be taken into serious consideration.

The effects of different degree of bowel ma-

nipulation during surgery on incidence and intensity of PONV were studies in 130 patients undergoing for intraabdominal surgery at Ramathibodi Hospital. The degrees of bowel manipulation were allocated into 3 grades (minimum, moderate and maximum) also intensity of PONV (mild, moderate and severe).

The other risk factors which may increase incidence of PONV include age, sex, premedication, narcotic supplement, duration of surgery, and type of surgical procedure. Those patients subsequently experienced PONV were managed by psychological approach and rescued by metoclopramide.

The incidence of PONV in this study is 29.29 per cent. The different degree of bowel manipulation does not change incidence and intensity of PONV significantly by chi-square test. The tendency to develop PONV is highly significant in female patient. Routine management of PONV by psychological approach, and rescued using metoclopramide is successful for all affected cases.

In conclusion, this study does not confirm hypothesis of "bowel manipulation during intraabdominal surgery may release 5HT3 to stimulate vomiting center via vagus nerve." Thus specific treatment of PONV in intraabdominal surgery by 5 HT3 receptor antagonist is probably not necessary.