

## Abstracts

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## GENERAL SURGERY

### Accuracy in Diagnosis of Acute Appendicitis by Comparing Serum C-reactive Protein Measurements, Alvarado Score and Clinical Impression of Surgeons

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**Objective:** The aim of this study was to compare the accuracy of a surgeon's clinical diagnosis of acute appendicitis with Alvarado's predictive model and C-reactive protein (CRP) measurements.

**Methods:** Two hundred and thirty-one adult patients between 14-75 years of age admitted to the hospital with suspected appendicitis from August 1999 to November 2001 were prospectively studied. Serum CRP measurement and score were performed before operation but were not taken into account for the decision of laparotomy to compare with the surgeon's clinical diagnosis.

**Result:** Two hundred and thirty-one patients entered the study. Based on the surgeon's clinical diagnosis, 193 patients underwent surgery, and 38 patients were observed. In 193 appendectomy patients, CRP was performed on 182 patients. Histopathologic findings from acute appendicitis, confirming the surgeon's clinical impression in 178 patients (92.2%) and false (normal appendix) in 15 patients (7.8%) Median serum CRP value was 10.3 (range 3-89.5) mg/L in patients with normal appendix, 13.75 (range 3-221.8) mg/L in patients with nonperforated appendicitis and mean CRP value 89.65 (range 3-213.3) mg/L in patients with perforated or gangrene appendicitis. The sensitivity, specificity and accuracy of serum CRP measurement were calculated as 61.9, 42.9 and 60.4 per cent respectively. The diagnosis based on Alvarado score in 193 patients had a sensitivity of 79.8 per cent, specificity 53.3 per cent and

accuracy of 77.72 per cent.

**Conclusion:** The clinical assessment in diagnosing appendicitis by the experienced surgeon remains reliable and superior. Alvarado score and serum CRP measurement should be reserved for the nonexperienced surgeon, and a high Alvarado score and serum CRP should not be ignored.

### H-Graft Portacaval Shunt for Variceal Bleeding

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**Introduction:** Despite high success rate of endoscopic treatment for variceal bleeding in the past decade, surgery still has its role in selected cases; namely the patients who bled from gastric varices when sclerotherapy fails to stop the bleeding. H-Graft Portacaval Shunt with 8 or 10 mm. PTFE ring supported graft as described by Safeh et al is the latest shunt procedure that can partially reduce portal venous pressure to stop variceal bleeding while maintaining prograde flow to the liver, thus preventing postoperative encephalopathy.

**Objective:** To evaluate the effectiveness of H-Graft Portacaval Shunt in the treatment of variceal bleeding, its effectiveness in reducing the portal pressure, postoperative encephalopathy and shunt patency.

**Patients and Methods:** During August 1995 to January 2002, H-Graft Portacaval Shunt with 8 mm PTFE ring supported graft was performed in 8 patients with massive variceal bleeding using the method described by Safeh. Five of the 8 patients continued to bleed after sclerotherapy

while other 3 had bleeding gastric varices. Pre and post shunt portal pressure were measured to evaluate the effectiveness of portal pressure reduction. Postoperative shunt patency was demonstrated radiologically and annually in some cases. Esophagogastroduodenoscopy was performed early in postoperative period and annually to evaluate the change of varices.

**Results:** The operation successfully stops variceal bleeding in all cases. Postoperative portal venous pressure was reduced to 63.57 per cent of preshunt pressure with good prograde flow to the liver in all patients. Annual follow-up with esophagogastroduodenoscopy revealed flattening of the varices. Encephalopathy occurred in only one patient at 30 months after the operation but recovered with conservative treatment. Shunt thrombosis detected in one case but successfully treated with thrombectomy. No recurrent bleeding occurs during the 3 years of follow-up.

**Conclusion:** H-Graft Portacaval Shunt with 8 mm TPFE ring supported graft was performed successfully in 8 consecutive patients with minimal morbidity. The operation can effectively reduce portal pressure thus preventing variceal bleeding while maintaining prograde flow to the liver. Incidence of postoperative encephalopathy is low but can be effectively managed. Shunt patency rate is high.

#### Duodenal Dieulafoy's Lesion

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**Objective:** Dieulafoy's lesion consists of a large tortuous submucosal artery associated with small mucosal defect. It causes massive intermittent gastrointestinal bleeding and may be life threatening if it is unrecognised. Stomach is the most common location, about 31 cases of Duodenal Dieulafoy's lesion have been reported since 1988. We herein report another 3 cases.

**Cases and Methods:** Three male patients of 66, 45 and 46 years old presented with melena and hematemesis. Upper endoscopy within 6, 48 and 8 hrs after the onset showed active arterial spurting, pigmented protuberance of non-bleeding visible vessel and red adherent clot at duodenal bulb. The first two cases were successfully treated with endoscopic epinephrine injection followed by heater probe. The third case underwent operation for suture ligation immediately after failure of endoscopy. Initial application of heater probe precipitated torrential bleeding which obscured visualization and precluded therapeutic endoscopy.

**Result:** No procedure related morbidity and mortality were detected and no recurrent episode of bleeding during

follow up period of 21, 24 and 26 months.

**Conclusion:** Duodenal Dieulafoy's lesion is one of the rare causes of gastrointestinal bleeding. Therapeutic endoscopy is the treatment of choice with acceptable safety and effectiveness. Surgery is indicated when endoscopic treatment fails, inaccessible or unavailable.

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#### A Comparison of Botulinum Toxin Injection and Lateral Internal Sphincterotomy for the Treatment of Chronic Anal Fissure.

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**Background:** Chronic anal fissure is a tear in the lower half of the anal canal that is maintained by spasm of internal anal sphincter. There has been an emerging trend to treat chronic anal fissure by pharmacologic means including botulinum toxin injection. The aim of this study was to compare the efficacy and complication of botulinum toxin injection with lateral internal sphincterotomy in the management of chronic anal fissure.

**Material and Methods:** A prospective study was conducted on a consecutive series of 40 patients with chronic anal fissure. They were equally divided into two groups, botulinum toxin injection group (BTX) and lateral internal sphincterotomy group (LIS).

Twenty patients in BTX group were treated with 80 units of botulinum toxin injection (Dysport) into the internal anal sphincter while the LIS group was treated with lateral internal sphincterotomy as a standard treatment. Success was defined as healing of the fissure and symptomatic improvement. Incontinence was evaluated by history taking and manometric study.

**Results:** Three patients in both groups were lost from the follow-up schedule. Thirteen patients in BTX group (76%) and all patients in LIS group (100%) had healed fissure.

Four patients who were not responded to botulinum toxin injection were treated with lateral internal sphincterotomy and symptomatic improvement was achieved in all patients. Mean time to free of pain for BTX was 44.3 days while LIS was 12.6 days.

Continence status was evaluated by the ability to control flatus and stool including manometric study. Neither serious complication nor incontinence was found in all patients.

**Conclusion:** Injection of botulinum toxin into internal anal sphincter is an effective treatment for chronic anal fissure that provides acceptable results. However lateral

internal sphincterotomy is the standard treatment with the best outcome.

### Evaluation of Rectal Prolapse Repair in King Chulalongkorn Memorial Hospital: 10-years Experience

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**Purpose:** The aim of this study was to analyse rectal prolapse patients operated in King Chulalongkorn Memorial Hospital. Patient characteristic and operative procedures were our main focus.

**Methods:** Between February 1992 - October 2001, 26 patients with visible rectal prolapse underwent transperineal and transabdominal repairs. Mean age was 52 years. Pre and intra-operative data were collected and analysed.

**Results:** Ten patients (38.5%) were repaired by Altemeier's procedure, three patients (11.5%) by Delorme's procedure, five patients (19.25%) by low anterior resection. Mean operative times were 186.5, 120 and 174 minutes respectively with minimal morbidity and no mortality.

**Conclusions:** Most of rectal prolapses occur in mid-old aged patients. Recently transperineal repair is cited in many studies due to low morbidity and mortality. Altemeier's procedure is the operation with most impressive outcome, and now is considered to be our first choice operation for rectal prolapse.

### Very Small Non-Lethal Dose of Lipopolysaccharide Aggravates Acute Lung Injury and Gut Hyper Permeability

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Sepsis and multiple organ dysfunction are common after long-standing common bile duct (CBD) obstruction. To elucidate the mechanism of how sepsis is induced in the rat model of CBD division.

**Objectives:** This study was designed to investigate the effects of second-hit, which was sub-lethal dose of lipopolysaccharide (LPS) on pulmonary neutrophil accumulation and mucosal barrier function in CBD-divided rats.

**Methods:** Forty-two male rats were divided into 6 groups. Three groups underwent CBD division (CBDD) and the remaining were sham operations. All rats were fed with regular diet for 4 weeks. One day prior to experiment, all groups were designed to receive either LPS (1.25 or 0.25 mg/kg) or equal volume of saline via subcutaneous route.

Mucosal-to-serosal clearance (Cms) of FITC-dextran (M.W. = 4 kDa) was evaluated using an everted gut sac technique. At the end of 1 hour-experiment, while blood cells (Wbc) were counted from broncho-alveolar lavage (BAL) fluid.

**Results:** As shown in Table.

Group (each = 7 rats)	C <sub>MS</sub> (nL/min/cm <sup>2</sup> )	Wbc in BAL fluid (cells/mL)	Survival rate (%) after injection
Sham + saline	6.67 ± 0.34	3469.11 ± 760.22	100
Sham + LPS (1.25 mg/kg)	8.60 ± 0.08	4857.14 ± 508.43	100
Sham + LPS (0.25 mg/kg)	6.45 ± 0.56	3571.43 ± 480.93	100
CBDD + saline	7.29 ± 0.44	3857.14 ± 670.06	100
CBDD + LPS (1.25 mg/kg)	All were dead	All were dead	0
CBDD + LPS (0.25 mg/kg)	14.63 ± 1.34*	15166.67 ± 1962.29*	100

**Conclusions:** Our results support that 1) CBDD alone as well as LPS alone does not induce gut hyper permeability and lung injury, 2) sub-lethal dose (1.25 mg/kg) of LPS definitely increases death rate in CBDD rats, and 3) very small dose (0.25 mg/kg) of LPS significantly enhances gut hyperpermeability and lung injury in CBDD rats, compared to other 5 groups (\*p<0.001).

### Expression of a Tumor-Associated-Antigen RCAS1 in Colorectal Cancer

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Although tumor cells have distinct tumor antigen that will be recognized and eliminated by host immune system, some types of tumors can escape the immune system by expression their protein namely RCAS1 (Receptor-binding-cancer antigen expressed on SiSo cells). This protein can induce apoptosis or inhibit growth of the tumor-activated immune cells expressing RCAS1 receptor, including T cells and natural killer cells.

Colorectal cancer is one of the most common cancer in Thailand. Although there are many kinds of adjuvant therapy for this disease, it still does not work appropriately. To find a mechanism of tumor cell escaping the immune system is very important for searching a new therapeutic method for curing these patients.

This study is aimed to elucidate the expression of RCAS1 in human colorectal cancer in order to clarify its role in their proliferative regulation and invasiveness.

**Method:** Specimens of colorectal cancer were investigated by immunohistochemical staining for detection of RCAS1 expression and compared the expression of this protein with other tumor prognostic marker (K167, p53). The amount of lymphocyte infiltrating the tumor between RCAS1 positive and negative specimen were identified and

the apoptosis phenomenon of these hymphocytes were investigated.

**Results and Conclusion:** RCAS1 immunoreactivity was associated with depth of tumor invasion, lymph node metastases and stage of tumor. In addition, the differentiation of tumor cells was also well correlated with the expression of this protein. RCAS1 expression may be used as a new prognostic factor or in the field of immunotherapy for treatment of patients suffering with this disease.

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#### Conservative Regimen for Chronic Critical Limb Ischemia

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**Objective:** The objective of this study was to determine the effectiveness of treatment of chronic critical limb ischemia by conservative regimen.

**Methods:** Data for patients who underwent conservative regimen at a single institution from January 1997 to December 2001 were entered into a registry. Conservative regimen was consisting of cilostazole (Pletaal) 200 mg/day, vegetable diet, completed stop smoking and progressive walking training.

**Results:** A total of 53 patients (59 limbs) with chronic critical limb ischemia were treated with conservative regimen. The conservative regimen failed in 19 limbs (32.2%). In failure limbs, infrainguinal bypass was performed in 8 limbs, aortoiliac endarterectomy was performed in one limb and 6 had primary amputation. Others four limbs had conservative management until death because of very poor cardiac function. Postoperatively, 2 grafts had thrombosis and led to amputation.

**Conclusions:** These early results revealed limb saving of 67.8 per cent. This conservative regimen may be appropriately performed in selected chronic critical limb ischemia, especially who presented in clinical severe claudication, rest pain unhealed ulcer. Cilostazol administration may have positive role in gangrenous limb.

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#### The Change of Strength of Polyethylene After Repeated Sterilization by Autoclaving

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**Objective:** To evaluate the strength of polyethylene, medical grade, after repeated sterilization by autoclaving.

**Materials and Methods:** Twenty-two medical grade polyethylenes pieces which have been crafted into 1.5 cm.

in diameter cylinder with 1.5 cm in length were used for the study. At the center of each cylinder a 0.5 cm. tunnel was made. Eleven polyethylene pieces were randomly chosen and underwent repeated autoclaving for 10 times and used as the studied group. The other 11 polyethylene pieces were used as the control. Each polyethylene were subject to a single compressive load until failure by Shimatzu AGB 2000 universal testing machine at the speed of 2 mm/min. The loads which produced deformation of the polyethylene at 1.0, 2.0 and 2.5 mm. were recorded and compared between the groups. Unpaired - Student - T - test was used for the analysis.

**Results:** The polyethylene with repeated autoclaving, have significantly decreasing strength comparing to the control at every level of deformation. At the 1 mm. deformation, the average strength of the control group was  $552.81 \pm 80.35$  N while the average strength of the repeated autoclaving group was  $400.29 \pm 33.38$  N. Similar pattern was found at 2.0 and 2.5 mm deformation with  $807.91 \pm 76.10$  /  $632.36 \pm 45.13$  N and  $912.4 \pm 75.37$  N /  $726.52 \pm 45.13$  N respectively.

**Conclusion:** Repeated autoclaving can decrease the strength of polyethylene surgical tools and these instruments should be re-evaluated after repeated usage to prevent intra-operative problems.

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#### Detection of *Helicobacter bilis* in Bile from Thai Patients with Adenocarcinoma of Biliary Tract by PCR and DNA Sequencing

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**Objectives:** In the Northern part of Thailand, we have high incidence of the biliary tract carcinoma. Almost all of them are in advanced stage. Some data support an association of bile resistant bacteria, named *Helicobacter bilis* which may play a causative role in the development of biliary tract carcinoma. Previous study had shown the animal infected with this bacteria developed malignant liver tumor. This study was designed to search for *Helicobacter bilis* in bile that may play as causative role for malignancy diseases of biliary tract.

**Patients and Methods:** From July to December 1999, bile samples were collected from 40 Thai patients with benign diseases and malignancy diseases of biliary tract who underwent surgical and radiological intervention in the Faculty of Medicine, Chiang Mai University. We used sterile technique to collect samples immediately after definite procedures were performed for treatment and we also limited the criteria from previous antibiotic usage.

Among those, 26 cases were of benign diseases and 14 cases were of malignancy diseases. Diagnostic evaluation, surgical procedures, and pathologic examination were performed. The specific part of DNA sequence of *Helicobacter bilis* were identified by PCR analysis and DNA sequencing in some positive cases.

**Results:** We found positive results by PCR analysis and DNA sequencing in 79 per cent (11/14) of malignancy cases and also found positive results in 38 per cent (10/26) of benign cases. The positive rate of infection between malignancy and benign groups was statistically significant difference ( $p<0.05$ ). *Helicobacter bilis* positive increased the risk of malignant biliary tract diseases statistically compared with negative *Helicobacter bilis* in the malignant biliary tract diseases as an odds ratio of 2.04 (95% CI 1.17-3.57). The specific part of DNA sequence of *Helicobacter bilis* can be distinguished from *Helicobacter pylori*.

**Conclusion:** This study is the first data that report evidence of specific species of *Helicobacter* bacteria found in human biliary tract carcinoma of Thai patients. Besides the parasitic infection, this bile resistant bacteria may promote the occurrence of biliary tract cancer as a risk factor in high incidence area.

#### “Routine” Pathological Examination of the Gallbladder is A Futile Exercise

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**Background and Objective:** The authors, like most surgeons, routinely send gallbladders from all cholecystectomies for histological examination. In this paper, an attempt is made to determine whether this practice has any benefit.

**Patients and Methods:** The computerized records of the pathological department at Maharaj Nakorn Chiang Mai Hospital were used to categorize all gallbladders submitted for histopathological examination after cholecystectomy between January 1996-December 1999. When a diagnosis of carcinoma of the gallbladder was made, the records were examined to determine whether this was suspected before the histological diagnosis was known.

**Results:** A total of 1,358 gallbladder were examined. There were 434 with acute inflammation and 924 with chronic inflammation. There were 23 with gallbladder carcinoma, preoperative imaging was suggestive of carcinoma in 14 patients, another 9 patients were diagnosed carcinoma of gallbladder by histopathological examination only. (Intraoperative findings was not suggestive for

carcinoma).

**Discussion:** These finding suggest that routine histological examination of all gallbladders, regardless of operative findings are very essential to provide any additional information and benefits to all patients after cholecystectomies.

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#### Living Related Donor Liver Transplantation, The Choice for Children with End Stage Liver Disease: Two Case Reports from Ramathibodi Hospital

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**Objectives:** To present the establishment of living related donor liver transplantation program and report the outcomes of two consecutive successful transplantations performed in children with end stage liver disease.

**Materials and Methods:** Cadaveric liver was not always available for the patient with end stage liver disease, so living related donor liver transplantation was considered as second choice. The living related donor liver transplantation program was established under Ramathibodi foundation support. The transplantation team composed of Pediatric surgeon, General surgeon, Anesthesiologist, Pediatric gastroenterologist, Pediatric hematologist, Psychiatrist, Pathologist, Radiologist, and Nurses. The appropriated recipients and donors were selected and approved by the transplantation committee. The program implementation was initially supported from Kyoto University by provide training.

The first living related donor liver transplantation was performed by cooperation of the surgeons from Ramathibodi Hospital, Jurashiki Central Hospital and Kumamoto University Hospital. The recipient was a two years old girl and the donor was a 32 years old mother. The patient had biliary atresia disease the did not respond to Kasai's operation. They had identical blood group A.

The second case was performed by Ramathibodi Hospital team. The recipient was a 13 months old girl, and the donor was a 25 years old father. They had identical blood group O. The parents were carefully evaluated both in physical and mental status before they were accepted to be donors. Volume and vascular anatomy of the liver graft were evaluated by CT angiography. Liver and other visceral anatomy of the recipients were evaluated by ultrasound. The left lateral liver segment was harvested from the donor and implanted into the recipient. Hepatic artery

reconstruction was performed under microscopy. FK 506 and steroid were the immunosuppressive agents given to the recipients. Doppler ultrasonography was used to evaluate patency of the vascular reconstruction after transplantation.

**Results:** Both donors had no complications, and were discharged from the hospital and returned to normal life 1 1/2 month and 2 weeks after operation. The recipients had good liver function and free from jaundice. The mother's liver graft was 180 grams father's liver graft was 350 grams.

The first recipient had good liver function after liver graft implantation. She had three episodes of acute rejection salvaged with steroid pulse therapy during one year follow-up. There was stricture at choledochojejunostomy site and intra-hepatic bile duct dilatation detected 8 months after surgery. Second operation was planned to correct the stricture site. The second recipient had hepatic artery thrombosis detected by doppler ultrasound and confirmed by CT angiogram 24 hours after surgery. The father's saphenous vein was used as a vascular conduit connecting the hepatic artery of the graft to the recipient infra renal aorta. The liver graft had good function after second operation and the patient recovered uneventfully. There was one episode of acute rejection 2 weeks after surgery which was responsive well to pulse steroid therapy.

**Conclusion:** The living liver donor is a choice for liver transplantation in the situation of lacking of cadaveric donor. The liver graft from healthy donors had good function. The surgery was safe for the donors and yielded good results in recipients.

#### **Sentinel Node in Breast Cancer: Maharaj Nakorn Chiang Mai Experiences (Preliminary Report)**

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**Aims of the Study:** To investigate the sensitivity and negative predictive value of sentinel node biopsy in breast cancer in Chiang Mai University.

**Materials and Methods:** Seventeen patients with invasive breast cancer who were scheduled for modified radical mastectomy or breast conservative surgery were asked to participate and gave their informed consent. A subcutaneous injection of 40-50 MBq of Tc-99-nanocolloid was given the day before operation or on the morning of the same day. A lymphoscintigraphy was performed to localized the sentinel node. Before starting the operation, 1 milliliter of Patent Blue Dye® was injected subcutaneously

just above the tumor. A handheld gamma probe was used to localize a hot spot in axilla, indicating the position of the sentinel node.

After general anaesthesia, an incision was made in the lower part of the axilla in the area where the sentinel node was found with the probe and blue coloured lymphatics were sought for. If a blue node was found the probe was used to confirm that it also contained the isotope. And if the blue node could not be found, the probe was used to identify the hot spot. Identified sentinel nodes were sent separately to the pathologist. Thereafter the tumor was removed by partial mastectomy or total mastectomy followed by a dissection of the nodes in level I-II in the axilla.

**Results:** Sentinel nodes were identified in all patients. 8 cases were positive for metastasis. In 3 cases the sentinel node were the only positive node. Among the 9 cases of negative sentinel nodes, one was found to have metastasis in other lymph nodes in the axilla. This gives a sensitivity of 83.3 per cent and a negative predictive value of 11 per cent.

**Conclusion:** The results of this study confirm the results of others. Probably the sensitivity and negative predictive value will improve as we gain more experience and have more patients.

#### **Results of Transposed Brachial Basilic Arteriovenous Fistula Creation for Long Term Hemodialysis in Patients with End Stage Renal Failure**

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**Objective:** To evaluate results of transposed basilic vein to brachial artery arteriovenous fistula (TBAVF) creation for long term hemodialysis in patients with end stage renal failure.

**Methods:** A retrospective review was conduct of 25 end stage renal patients who had undergone TBAVF construction by the author at Ramathibodi Hospital between March 2001 and February 2002. Fistula maturation, usage, complication and cumulative patency rate were evaluated at postoperative visit and by telephone interview with patients and personnel of dialysis centers. All patients were followed until the fistulas fail to function, death or loss to follow-up.

**Results:** Of the 25 patients, there were 13 men (52%) and 12 women (48%). Their ages ranged from 21 to 73 years (mean, 56 years). Thirteen patients (52%) had diabetes mellitus and 2 patients (8%) had connective tissue disease with very small size forearm vessels. Basilic veins were selected for creation of fistulas in these patients because they had no other usable superficial vein.

Superficial veins at the upper extremities of these patients were either too small and sclerosed or had been used in construction of previous access procedures. TBBAVF were performed as a primary access procedure in 6 patients (24%) and as secondary access procedure in 19 patients (76%). Two patients (8%) had undergone TBBAVF as the fifth access procedure after failure of four previous access procedures. There was no operative mortality. There were two postoperative complications, mild steal syndrome in one patient and arm edema in another patient. One patient with mature TBBAVF died from sepsis before using the fistula. Twenty four TBBAVF were matured and can be used for hemodialysis. One fistula failed after 5 months. Cumulative primary patency rate of TBBAVF was 83 per cent at 9 months.

**Conclusion:** With transposition, basilic vein is a good conduit for construction of autogenous arteriovenous fistula in patient who has no other usable superficial vein for conventional fistula creation. TBBAVF can be performed at minimal morbidity and good patency rate, and should be considered before placing prosthetic arteriovenous bridge graft.

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#### Gastropulmonary Fistula Following Splenectomy for Splenic Abscesses: A Case Report

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Fistula between stomach and pleural cavity is a rare complication that may occur as a consequence of various thoraco-abdominal surgeries or septic conditions. We report a case of gastropulmonary fistula in a twelve-year-old child who presented with intractable empyema thoracis after a splenectomy.

The patient was referred to Songklanagarind Hospital with a persistent left empyema thoracis of one-month duration. This child presented to the previous hospital with fever and dyspnea developing four months after a splenectomy for pyogenic splenic abscesses. An exploratory thoracotomy had been attempted but failed due to severe adhesion. Postoperatively about one liter of purulent discharge was draining via a thoracostomy tube each day.

At Songklanagarind Hospital, a thoracostomy tube was re-inserted, but failed to expand the left lung. A left thoracotomy found loculated pus surrounded by fibrinous adhesion at the lower thoracic region. A fingertip-sized hole was suspected at the posterior diaphragmatic recess. Decortication was done followed by placing an intercostal drainage tube in the thoracic cavity and a small vacuum

drain in the diaphragmatic defect. Biliary content was observed from the vacuum drain at the third post-operative day. An upper gastrointestinal contrast study showed a connection between the gastric fundus and the pleural cavity. A microbiological study of the thoracic discharge reported *Staphylococcus aureus*, *Klebsiella pneumoniae* and yeast cells. A laparotomy was done for division of the fistula and repair of the stomach and diaphragm. The empyema content decreased as the fever declined after the operation. Unfortunately, the air leakage and left lung collapse remained unsolved. A left thoracoplasty was then performed. Ten days after the last procedure, the child was discharged home. He was doing well and showed satisfactory lung expansion at six months follow-up.

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#### Abdominotransanal Coloanal Anastomosis in King Chulalongkorn Memorial Hospital

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**Background:** Low anterior resection with coloanal anastomosis prevents a definitive stoma in patients with distal rectal cancer, in patients with rectovaginal fistula and in patients with radiation proctitis. However, imperative stool urge, stool fragmentation, prolonged stooling sessions, and minor problems of incontinence are frequently observed in the postoperative situation and negatively affect quality of life, inadequate margin of resection, recurrence and distant metastasis.

**Methods:** In a retrospective study a concept offering every patients with rectal cancer, and other diseases that were operated as coloanal anastomosis technique in KCMH in January 1999 to December 2001. Then the information is collected and shown as age, sex, diagnosis, site of lesion, chemotherapy, radiotherapy, bowel preparation operation, and complication about anterior resection syndrome, free margin and distant metastasis.

**Results:** Twenty-six patients were collected. Fourteen patients are male. Most common is CA lower rectum with preoperation chemotherapy. And the NaP is the most common bowel preparation techniques. Most common complications are stricture (23%) and anterior resection syndrome (23%). Two patients were found to have positive margin. Two patients with tumor at resection line had distant metastasis and one patient developed local recurrence.

**Conclusions:** Patients with abdominotransanal coloanal anastomosis seem to have good outcome include recurrence, distant metastasis and complications. Patients with a coloplasty, J-pouch anastomosis or straight techniques

seem to have similar functional outcome but it's possible from the less of number of the patients. However, the coloplasty may provide an alternative method to the colonic J-pouch for a neorectal reservoir construction when reach or a narrow pelvis prohibits its formation. Technically it also may be easier to construct.

### Combined Endoscopic and Laparoscopic Management of Mirizzi Syndrome

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**Background/Objectives:** Mirizzi syndrome is a rare complication of long standing gallstone that impacted in Hartmen's pouch or gallbladder neck or cystic duct and cause obstructive jaundice by compressing on the common hepatic duct or common bile duct. The aim of this study was to evaluate the usefulness of combined endoscopic and

laparoscopic management and its outcome in the patient with Mirizzi syndrome.

**Methods:** A 42 year-old female presenting with gallstones and obstructive jaundice. ERCP showed external compression of common hepatic duct (Mirizzi type 1) and a 12 cm. stent was placed. Laparoscopic cholecystectomy was performed one day later using endoloop on the cystic duct stump because of difficult and short cystic duct.

**Results:** There was no operative mortality and morbidity but developed transient jaundice after removal of the stent 2 weeks after laparoscopic cholecystectomy. At there months follow-up, the patient was still healthy and symptom free.

**Conclusions:** Combined endoscopic and laparoscopic management of Mirizzi syndrome is feasible and safe, especially to avoid bile duct injury. Experienced endoscopist and laparoscopic surgeon is recommended in this difficult condition.

## PLASTIC RECONSTRUCTIVE SURGERY

### A New Method for Sensated Clitoris and Labia Minora Reconstruction in Male-to-Female Sex-Reassignment Surgery

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**Objectives:** To describe and present a new method and the results of sensated clitoris and labia minora reconstruction by using glans penis with prepuce neurovascular islands flaps in one stage male-to-female sex reassignment surgery.

**Patients and Methods:** From September 2000 to January 2002, 100 male patients underwent sex reassignment surgery at our hospital. The glans penis and prepuce with the dorsal neurovascular pedicle has been used for clitoris and labia minora reconstruction in one stage sex-reassignment surgery.

**Results:** All neoclitoris and labia minora survived with good preservation of light touch and sexual sensation. Partially necrosis of neo-clitoris and labia minora occurred in 12 (12%) of patients. The cosmetic results are excellent.

**Conclusion:** This new method has proven to be a very reliable technique that leads to satisfying cosmetic and functional results of clitoris and labia minora reconstruction in one stage male to female sex-reassignment surgery.

### “Nasoendoscopy”

#### What We'd Learn is More Than What We'd Seen!

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The purpose of this study is to discuss the clinical use of nasoendoscopy examination of the velopharyngeal closure in patients with nasal speech, and to describe preliminary experience with this technique. Three difference patients with hypernasal speech (patients with cleft palate, hearing loss and mental retardation) were studied for velopharyngeal incompetence (VPI) through assessment of the dynamics of velopharyngeal closure by nasoendooscopy. An Olympus nasoendoscopy model ENF P3 was used and the Siriraj Speech Stimuli was used as standard speech sample. After an explanation and informed consent, 10 per cent of xylocaine was sprayed into a nostril for topical anaesthesia. The first author performed the nasoendoscopy, meanwhile the co-author stimulated the speech sample. The same procedure and condition were conducted to each subject in an operating room. By observing during speech production, excursion of the soft palate and pharyngeal wall, asymmetry, leakage, adequate of closure, patterns of closure, or lack of closure were studied. Descriptive analysis was used. The results indicated

that intelligible speech production depends on a normal velopharyngeal closure mechanism. Abnormal coupling of the oral and nasal cavities of these patients is characterized by hypernasality, nasal emission, imprecise speech production, decrease speech intensity and short phrases. These typical signs of VPI could be due to either structural defect (cleft palate) or physiological dysfunction (hearing loss) as well as mental status (retardation). Nasoendoscopy provides a direct approach to visualizing the velopharyngeal closure. This technique helps clinicians to distinguish between those patients with nasal speech who appear to have the physiological potential for satisfactory velopharyngeal closure from those who do not. This distinction is clinically important because of the marked difference in treatment. Furthermore, in patients considered for a pharyngeal flap operation, pre-operative evaluation of the closure is vital.

In conclusion, hypernasal speech alone is not the signs of VPI. Thus, a diagnosis is suggested to be made by a crano-maxillo-facial team after complete evaluation. Nasoendoscopy has been valuable in distinguishing different groups of patients as well as planning of treatment.

#### Unilateral Cleft Lip: Integrated Concepts and Sequence in the Primary Repair

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**Purpose:** The technique for unilateral lip repair has been standardized and accepted internationally. To be successful in getting the best results of the repair, a standard protocol with interdisciplinary management is required. The objectives of this study are to present the integrated concept and the sequence in primary repair of unilateral cleft lip and cleft lip-nose deformity.

**Methods:** The author presents the successful results of incomplete and complete unilateral cleft lip and cleft-lip nose repair. Primary cleft lip repair was performed at the appropriate timing according to the protocol of Khon Kaen University's Cleft Center. The principles of the repair are: primary cleft lip nose repair, adequate rotation advancement technique with back cut at the columella base and no lateral incision at the alar base, differential muscle repair, nasal floor closure and vermillion reconstruction. Firstly, incision of rotation advancement is adequately performed with back cut at the alar base and preservation of triangular flap at the lower part of the lip in a severe case or secondarily. Muscle is then dissected. Bilateral alar rim incisions are performed with adequate dissection, repositioning and transfixing of the alar cartilage.

In complete clefts, nasal floor closure is performed with muscoal flap or inferior turbinate flap. The differential muscle repair is subsequently performed. The C-flap at the columella base is used for columella lengthening. The advancement flap is sutured to the rotation gap and excess tissue excised to create the suture line in the nasal floor. The triangular vermillion flap is formed for final closure.

**Results:** The early results of an incomplete unilateral cleft lip and a complete unilateral cleft lip, using these concepts and sequence were very satisfactory in terms of functional and esthetic aspects.

**Conclusion:** The proper cleft protocol and interdisciplinary management are important for cleft care. The integration of technique and the use of proper sequence in primary cleft lip and cleft lip nose repair are important for achievement of very satisfactory results.

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#### Continuous Bupivacaine Moistened Dressing, A New Method for Pain Relief on Skin Graft Donor Sites

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**Background:** Pain from the split-thickness skin graft donor site has been a great trouble for the patients especially during the first five postoperative days. Many types of dressings have been used for the split skin graft donor site especially in the last twenty years period but it could not provide the effective pain relief for prolong period. This study tries to demonstrate the effectiveness of continuous bupivacaine moistened dressing for pain relief at the skin graft donor site.

**Study Design:** Double blind randomized control trial study

**Statistic:** Repeated measurement (ANOVA) and Paired T-test

**Patients and Methods:** After approvals by the ethics committee of faculty of Medicine, Siriraj Hospital, Mahidol University, the study started from December 2000 to December 2001. Forty patients underwent harvested split-thickness skin graft for reconstruction in plastic surgical ward with the age of over 20 years old and no history of local anesthetic drug allergy. The patients were randomly divided into two groups. Group A received bupivacaine moistened dressing and 0.5% bupivacaine 6 ml/100 square centimeter injected via catheter every 12 hours with aseptic technique. Group B was a control group, had saline moistened dressing and saline 6 ml/100 square centimeters injected via catheter every 12 hours also.

**Results:** There was no significant difference between two groups in ages, sex, distribution of disease and donor

site area. The donor site group was 295 square centimeter and group B was 225 square centimeter. Measurement of the means of pain relief scores in both groups on each day of the first five days showed that pain relief scores of all 5 days postoperative period compare each day was significant difference between two groups. First to forth day pain relief scores showed P value less than 0.001. Fifth day scores showed P value less than 0.05. Continuous bupivacaine moisten dressing on skin graft donor site can be done safety and achieve satisfactory post operative analgesia.

#### Hand-Made Pressure Specifying Sensory Device (PSSD) for Diagnosis of Carpal Tunnel Syndrome

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**Objective:** The purpose of this study was to develop a simple quantitative sensory testing instrument for diagnosis of CTS and find the normal value for this instrument that can differentiate CTS patients from normal subjects.

**Materials and Methods:** Hand-made Pressure Specifying Sensory Device (PSSD) is composed of two prongs with hemispherical end, 3mm interprong distance that can be adjusted to deliver the pressure at index finger pulp which the perception expressed in grams. Two groups of 75 subjects were studied. Group I consisted of 50 volunteers (age range between 24-52 years, 15 men and 35 women) who were studied for normal value of the instrument. All were screened so that no one had a medical history of peripheral neurological impairment or any clinical manifestation of CTS. Group II consisted of 25 patients (age range between 30-69 years, 7 men and 18 women) who presented with symptoms of CTS. All patients were studied with electrodiagnosis and tested with hand-Made PSSD for static two point discrimination (s2PD) in gram.

**Results:** In Group I the values of s2PD were < 1 gm in 48 patients and 1.5 gm in 2 patients. For combined data analysis, the agreements of the results between s2PD and electrodiagnosis were 93.3% ( $\kappa = 0.85$ ) for both cut off at 1.5 and 1.0 gm. In data analysis for each hand, on the right hand with cut off at 1.5 gm, the agreement was 96 per cent ( $\kappa = 0.90$ ) with sensitivity 91.3 per cent and specificity 98.1 per cent; with cut off at 1.0 gm the agreement was 96 per cent ( $\kappa = 0.91$ ) with sensitivity 100 per cent and specificity 94.2 per cent. On the left hand with cut off at 1.5 gm, the agreement was 97.3 per cent ( $\kappa = 0.94$ ) with sensitivity 95.7 per cent and specificity 98.1 per cent; with cut off 1.0 gm the agreement was 96 per cent ( $\kappa = 0.91$ ) with sensitivity 100 per cent and specificity 94.2 per cent.

**Conclusion:** According to excellent agreement ( $\kappa > 0.75\%$ ) of the data between s2PD received from Hand-Made PSSD and electrodiagnosis, we concluded that this instrument is valid for diagnosis of CTS. We recommended to use the value at 1.0 gm for general practice as screening test for CTS (sensitivity 100%) and the value at 1.5 gm for hand surgeon as definite diagnosis for CTS (specificity 98.1%).

#### Median and Oblique Facial Clefts : A Report of 20 Cases From Khon Kaen University, Thailand

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**Purpose:** Complex craniofacial clefts are rare but pose challenges and problems for treatment planning and reconstruction. The objective of this study is to summarize our experience for treating these anomalies in Srinagarind Hospital, Khon Kaen University, Thailand.

**Methods:** This is a retrospective study of 20 consecutive patients who presented with craniofacial clefts and were treated at one tertiary center between 1993-2001. The variety of cleft classification, radiologic imaging, orthodontic aspects, surgical technique and the results were reviewed. There were 6 males and 14 females with an age range from 1 to 39 years at the time of the last follow-up. Eight patients were classified as median facial clefts (Tessier Nos. 0/14, 1/13 and 2/12) and 12 patients as oblique facial clefts (Tessier Nos. 3/11, 4/10 and 5/9). CT scans were performed in 8 patients for evaluation and planning of the surgical treatment. A comprehensive interdisciplinary team management process was implemented as an important part of the treatment of these patients. The surgical principle is comprehensive evaluation of all affected tissues, followed by surgery with the use of multiple Z-plasties, with interdigititation, transposition and rotation cheek flaps, and tissue expansion in severe cases. Eye lid, lacrimal system, nasal and palatal reconstructions were also employed. Bone grafting was performed at the appropriate timing as well as appropriate dental care.

**Results:** Three patients with median facial cleft and severe associated anomalies died without surgical treatment. Seventeen patients received soft tissue repair with one case of tissue expansion and 5 patients receiving bone grafting. Satisfactory results in terms of cosmetic appearance and functional aspects were achieved in all patients. Additional reconstruction is planned for 5 patients.

**Conclusion:** Our experience and findings suggested that these craniofacial clefts should be managed by comprehensive team management with specific and

systematic planning for the provision of care. Standard method of data collection should be followed for registration, and long-term care and outcome evaluation of these rare anomalies.

### Trans-Distal Carpal Row Replantation Without Bone Shortening

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In conventional method of replantation, bone shortening is the critical step to ensure approximation of vascular anastomosis. This procedure was performed to avoid tension and to avoid using vein graft. In the condition of amputation that pass through distal carpal row, bone shortening procedure may produce many problems, example of scar, bone gap, delayed bone union, delayed rehabilitation and can be followed by poor hand function especially at the thumb carpometacarpal joint.

By using basic concept of normal anatomical reduction, the bone and vascular gap can be minimized. Then the result will be improved without bone shortening or vascular grafting. However, due to the multiple fragments of carpal bones and/or osteochondral cap, it may be too difficult to get a good reduction for all of them.

In this paper, we report two patients that were sharply amputated accidentally through the distal carpal row of their dominant hand. Both hands were replanted by using simple technique of reduction and stabilization in Lerdsin Hospital (1999-2001). The detail will be described in the presentation. Postoperation, both of the replanted hand achieved acceptable alignment of bone from radiologic data. The first case was lost to follow-up during rehabilitation program. The hand function of the second case is satisfied in both motor and sensory results during the 15 months follow-up period.

**Conclusion:** This simplified technique is the alternative choice for distal carpal row replantation, which has

less anatomic change, and acceptable function of hand can be expected.

### Estimated Caloric Requirement in Burn Patient Using Siriraj Method

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Extensive burn injury is the most severe injury in human being. Metabolism and also energy requirement are much higher than usual patients. We adapted our own formula to calculate the optimal energy requirement for a group of major burn patients.

**Objective:** To compare our own calculated caloric requirement with standard indirect calorimetry and the other formulas in severely burned patients.

**Material and Methods:** During July 2001 and March 2002, fifteen patients who suffered burned injury for greater than 30 per cent total body surface area (TBA) in Burn Unit, Siriraj Hospital, were included in the study. Estimated caloric requirement was calculated and compared with the indirect calorimetry measurement. The estimated caloric requirement depends on sex, body weight and severity of burn. Indirect calorimetry was done in all patients once during the peak of hypermetabolic phase will represent the most accurate measurement and compared with our own calculated caloric requirement using T-test.

**Results:** There were 15 patients, 11 males and 4 females with mean age = 29.4 year (range 17-38) and mean area of burn was 44 per cent (range 31-66%). Comparing our caloric requirement calculated with our method and indirect calorimetry, there was no statistic difference.

**Conclusion:** Our own method to calculate calories requirement is an easy method and will prevent over feeding syndrome. Comparing with indirect calorimetry, it shows no different. However, the number of case is still limited.

## NEUROSURGERY

### Factors Influencing Health Status of Cargivers of Postoperative Neurosurgical Patients

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Becoming caregivers affect individuals' lives and health. Especially when people have to adapt to the role of

caregivers of severely ill patients, such as neurosurgical patients. This research was a descriptive study, based on transition theory, aiming to analyze the factors influencing the health status of caregivers of postoperative neurosurgical patients.

The participants were 110 primary caregivers taking care of postoperative neurosurgical patients at home, at

least 3 weeks after hospital discharge. Data collection was conducted at the Neurosurgical Out-Patient Department, Bhumibol Adulyadej Hospital, from January to February of 2002, using the Demographic Questionnaire, The Extended Glasgow Outcome Scale, The Short Sense of Competence Questionnaire, Personal Resource Questionnaire 85 Part 2, The Denyes & Filday Dependant-Care Agency Instrument, The Appraisal of Caregiving Scale, and Laffrey Health Conception Scale. To analyze the data, descriptive statistics, Pearson's product Moment Correlation, and Stepwise Multiple Regression were employed.

The majority of caregivers were females (80%) whose ages ranged from 41 to 60 years (Mean = 47.23, SD = 18.08). More than half of the caregivers were married (73.6%), and 29.1 per cent of them were housewives or housekeepers. Nearly half of the participants had sufficient income with saving money (47.3%), while 32.7 per cent of them had sufficient income without saving money and 20 per cent of them had insufficient income with debts. The most common relationship of caregiver to the patient was that of spouse (42.7%), and most caregivers had secondary caregivers to help them take care of their patients (72.7%). About thirty-six per cents of primary caregivers had some disease or illness before becoming caregivers, while 62.7 per cent developed physical symptoms, diseases or illness during caregiving.

The results indicated that capability of caregiver and social support had a positive relationship to the health status of caregivers ( $p < 0.001$ ), but stress and sense of competence had a negative relationship to the health status of caregivers ( $p < 0.001$  and 0.05). The stepwise multiple regression analysis showed that capability of caregiver, together with stress, could explain the variation of health status of postoperative neurosurgical patients by 27.7 per cent.

Nurses and other health care providers should encourage promoting health status of caregivers by establishing a training program that focuses on the capability of caregivers and knowledge and skills training in regard to caregiving, providing a stress reduction program, and supplementing the supportive resources in caregiving to reduce the burden of caregivers, which will lead caregivers to better health.

#### Non-Shaved Ventriculoperitoneal Shunt

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**Objective:** To determine whether non-shaved patients underwent ventriculoperitoneal shunt operations would

significantly increase shunt infection rate as compare to conventional shaved patients.

**Method:** Clinical trials of non-shaved scalp preparation were performed in ventriculoperitoneal shunt procedures at Songklanagarind Hospital from January 1994 to December 1997. Exclusion criterias were poor scalp condition and immuno-compromised host. Patients were followed at least 3 months after shunting. The statistical analyses are univariate, multivariate and logistic regression model.

**Results:** One hundred patients were selected for study. Twenty-eight cases were in non-shaved group. Thirty-seven out of 100 cases were less than 1 year of age and congenital hydrocephalus was the most common disease. Shunt infection rate in non-shaved and shaved group was 7 and 9.7 per cent respectively.

**Conclusion:** The infection rate in non-shaved patients appeared to be lower than shaved patients. Further study to include more patients is needed to clarify the different rate of infection between non-shaved and shaved ventriculoperitoneal shunt operations.

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#### Comparative Study of Tensile Strength Between Methylmethacrylate and Human Skull

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**Objective:** To study tensile strength of methymethacrylate which usually be used as cranioplasty material compare with normal human skull.

**Materials and Methods:** Normal skull was taken from ten patients who had craniectomy at Siriraj Hospital during July 2001-March 2002. Skull flap was cut into a piece of 3 x 3 cm square. Methylmethacrylic plate was also made at the same size in multiple different thickness including 2.2 mm, 2.42 mm, 3.4 mm, 4.06 mm, 4.48 mm, 5.6 mm, 6.04 mm, 6.56 mm, 7.46 mm and 8.0 mm. Tensile strength was measured by mechanical devices in both non-destructive and destructive techniques. Non-destructive technique was carried out by using Ultrasonic pulse velocity measurement (Pundit®). Destructive technique was performed by using Concrete compression test (Auto Test 3000®). Data were analysed statistically by Mann-Whitney test and Wilcoxon signed ranks test with SPSS 10.0® Software.

**Results:** Skull flaps were obtained from 7 male and 3 female patients with average age of 48.5 years (23-60 year). Tensile strength of methymethacrylate plate is significantly stronger than human skull ( $p < 0.001$ , Mann-Whitney test). Tensile strength of methylmethacrylic plate is significantly increase as the thickness of plate increase ( $p < 0.005$ ,

Wilcoxon signed ranks test).

**Conclusion:** Cranioplasty using methymethacrylic plate is strong enough to replace normal skull in repairing of skull defect. It is not necessary to make methymethacrylic plate to the same thickness as normal skull, since even at the thickness of 2.2 mm it is still stronger than normal skull. However, this study did not measure elasticity of methymethacrylic plate which may be the advantage of normal skull over acrylic plate.

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#### Characteristic of Suprasellar Germ Cell Tumor in CT Scan and MRI Scan: Is There Any Typical Feature?

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**Objective:** To study CT scan and MRI scan of intracranial suprasellar tumor to find characters which may show only in suprasellar germ cell tumor and may help in differential diagnosis from other tumor in the same region.

**Materials and Methods:** CT scan and MRI scan of 13 patients who had suprasellar tumor and were admitted to Siriraj Hospital from 1999-2002 were re-examined by a neuroradiologist without knowing of previous diagnosis. All patients did not have previous craniotomy and had normal size sellar turcica. Data was compared and analysed.

**Results:** There were 8 male and 5 female patients who were diagnosed as germinoma in 5 cases, endodermal sinus tumor 1 case, astrocytoma 4 cases, craniopharyngioma 2 cases and pituitary tumor 1 case. Average age of patients was 19.6 year (3-57 year). Suprasellar germ cell tumor showed as a solid mass with homogenous enhancement in CT scan and hyperintensity in T2-weighted with heterogeneous enhancement in MRI scan. The sensitivity of using CT scan or MRI scan in diagnosis of suprasellar germ cell tumor is 50 per cent (3 in 6 cases) with 85.7 per cent specificity (6 in 7 cases).

**Conclusion:** Although CT scan and MRI scan are useful in diagnosis of suprasellar germ cell tumor, the sensitivity is only 50 per cent. To achieve a better diagnosis, clinical information together with other laboratory results should be considered.

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#### What is the Risk Factors of Shunt Infections in Phramongkutkla Army Hospital

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All cerebrospinal fluid (CSF) shunt operations

performed at the Phramongkutkao Army Hospital from 1995 to 2000 were reviewed retrospectively. We identified 209 shunt procedures in 185 patients. There were 19 episodes of shunt infection for an incidence of 9.1 per cent per procedure and 8.6 per cent per patient. Statistically significant associations were found between shunt infections and the following: (I) the age of patients less than 1-year ( $P=0.002$ ) (ii) the reimplantation of shunt ( $P=0.021$ ), In contrast, the following factors had no significant influence on risk of shunt infection : 1) Identify of surgeon, 2) Number of personal in surgical team, 3) Type of procedure (Lumboperitoneal, LP or Ventriculoperitoneal, VP shunt), 4) After a period of external ventricular drainage or tracheostomy, and 5) Etiology of hydrocephalus.

Shunt infection is still a major complication. The infection rate has not declined in recent decades. Otherwise, factor under the control of the surgeon seem to influence shunt survival to a lesser degree than factor intrinsic to the patient. In our study intrinsic factor from younger age have influenced on shunt survival more than other factors.

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#### Risk Factors and Predictors of Poor Outcomes in Moderate Size Supratentorial Spontaneous Intracerebral Hemorrhage

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**Objective:** To study risk factors and predictors associated with moderate size supratentorial spontaneous intracerebral hemorrhage (SSICH).

**Methods:** A cross-sectional study was conducted among patients admitted in Phramonkutkao Hospital by the diagnosis of a moderate size SSICH during 4 years period of January 1, 1998 and December 31, 2001. Medical records were reviewed and potential factors associated with SSICH were identified. Poor clinical outcome was defined using Glasgow Outcome Scale Score of I, II and III.

**Results:** We retrospectively reviewed in 412 patients who were diagnosed to have SSICH. We found that 248 patients were considered to have a moderate size SSICH. The characteristics of the patients were; mean age 62.3 yrs, 132 (53.2%) men, 116 (46.8%) women, 140 (56.5%) with diagnosis of hypertension, 104 (41.9%) with diagnosis of diabetes mellitus. The poor outcome was found among 64 (25.8%) patients. The factors associated with the poor outcome were; histories of CVA or CVD ( $p=0.044$ ), alcohol consumption ( $p = 0.049$ ), systolic BP  $> 200$  torr on 2nd hospital day ( $p=0.0002$ ) and irregular shape hematoma ( $p = 0.0002$ ).

**Conclusion:** Factors associated with a poor outcome

in SSICH were history of CVA or CVD, alcohol consumption, systolic BP > 200 torr on 2nd hospital day and irregular shape hematoma.

#### **Tumor Free margin in Meningiomas : Surgical Significance of Dural and Skull Biopsy. Preliminary Report in 6 Cases**

*T Klungsang*

**Objective:** 1. To examine tumor infiltration in dura mater and skull at 5 mm and 10 mm from tumor margin seen with bare eyes. 2. To find distance of dura mater and skull adjacent to tumor which 'looked normal' that should be removed after tumor removal to achieve 'complete surgical removal' of tumor.

**Materials and Methods:** Six patients who were diagnosed to have an intracranial meningioma from CT scan or MRI scan were selected. Tissue samples were biopsied from 7 areas including tumor mass, area which showed as 'dural tail' in CT scan or MRI scan, dura at distance of 5 and 10 mm from tumor margin and in case of hyperostosis or skull change beneath tumor, bone at distance of 5 and 10 mm from tumor margin also taken for pathological examination.

**Results:** Tissue samples from tumor mass and area of 'dural tail' were positive for tumor cells. There were no tumor cells present in dura mater and bone at distance of 5 and 10 mm except in one case which tumor cells were found in dura mater at the distance of 5 mm from the tumor margin.

**Conclusion:** Meningiomas extend as far as the area of grossly shown to be a margin of tumor and they do not infiltrate in dura mater or skull beyond the edge of tumor. To achieve 'complete surgical removal' of tumor, surgeon should resect tumor to the edge of tumor without the need for removal of dura mater or skull which 'look normal' beyond that point.

#### **The Predicting Factors of the Outcome of the Spinal Cord Compression from Extradural Metastases After Surgery**

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**Background:** Spinal cord compression from extradural metastases is the most common central nervous system complication of cancer. If untreated, metastatic extradural compression inexorably progresses, causing

paralysis, sensory loss and sphincter incontinence. Early diagnosis and prompt treatment will have a major impact on the quality of life. The treatments are operation and radiotherapy, alone or in combination. It is possible to increase the success rate and decrease the surgical morbidity and mortality by improving the selection of surgical candidates.

**Objective:** To identify the predicting factors of the outcome of spinal cord compression from extradural metastases after surgery.

**Setting:** Neurosurgery Unit, Department of Surgery, Faculty of Medicine, Chulalongkorn University.

**Design:** Retrospective observational descriptive study.

**Materials:** Forty one metastatic extradural spinal cord compression patients operated in King Chulalongkorn Memorial Hospital from January 1993 to December 2000.

**Methods:** Review and collect data from OPD cards, clinical records, films and interview patient or family by telephone.

**Result:** A total of 14 patients underwent operation for metastatic extradural spinal cord compression. There were 22 male and 19 female patients. The average age is 53.3 years. The most common cause in male is lung cancer and in female is breast cancer. The compression at the thoracic level is 65.85 per cent. Twenty eight patients (68.3 per cent), the initial symptom of metastatic extradural spinal cord compression is progressive pain. The patients presenting with progressive pain as an initial symptom have the good outcome significantly higher than the patients not presenting with progressive pain. ( $p<0.05$ ) The patients with motor grade 0, I, II, III, IV, V, the good outcome are 16.7, 42.9, 60, 87.5, 100, 100 per cent respectively. Overall the good outcome is 58.5 per cent. The motor grade is significantly related to the outcome. ( $p<0.001$ ) The proprioceptive impairment is found in 51.2 per cent. The patients with intact proprioception have the good outcome significantly higher than the patients with impaired proprioception. ( $p<0.001$ ) The anal sphincter tone was found normally in 51.2 per cent. The patients with normal anal sphincter tone have the good outcome significantly higher than the patients with decreased tone. ( $p<0.001$ )

**Conclusion:** The predicting factor of the outcome of the spinal cord compression from extradural metastases after surgery is the neurological status at the time of treatment. In this study, it is found that both proprioception and anal sphincter tone are able to predict the outcome.