

Abstracts

23rd Annual Congress of the Royal College of Surgeons of Thailand, July 1998

GENERAL SURGERY

Experience with Lymphatic Mapping in Breast Cancer by Using Isosulfan Blue Dye

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Background: Sentinel (first tumor-draining) lymph node biopsies directed by the blue dye technique may be as accurate as complete axillary lymph node dissection (ALND) in determining whether breast cancer has metastasized to the lymph nodes, and may have fewer surgical complications because they are less invasive.

Methods: Breast cancer patients scheduled for ALND from February 1997 through January 1998 and without prior axillary surgery, prior radiation therapy, or preoperative chemotherapy were included. Isosulfan Blue dye was injected around the primary tumor or the biopsy cavity just before ALND. We attempted to identify a blue-staining lymphatic tract and follow it to a blue-staining node which would be considered the SLN group. The results of stained node biopsies were compared to those of the ALND.

Results: Stained nodes were identified in 130 of 143 patients (91%), and the results were concordant with ALND in 124 (95%): 28 patients were concordant for positive results and 96 for negative results. SLNs were able to identify in patients with either medial or lateral halves lesions. Average time for sentinel node dissection was 13 minutes (SD=10), and there was no complication.

Conclusions: The 95 per cent diagnostic accuracy, the lack of surgical complications, and the short time needed to perform of the Isosulfan Blue dye SLN biopsy technique are attractive features. However, larger experi-

ence with the technique may be required to evaluate the explicit reliability of this method.

A Randomized Control Study of Arginine, Glutamine, and Omega-3 Fatty Acids Enriched Enteral Diet and Specialized High Stressed Enteral Diet in Immuno-compromised Injured Patients

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Introduction: The severe trauma or burn patients required aggressive resuscitation, operation and metabolic support to reduce morbidity and mortality. Nutrition is one of the most important treatment for these patients; improving body protein and immune function, reducing rate of infection and shortening hospitalization.

Methods: To evaluate the metabolic and immune effects of dietary arginine, glutamine and omega-3 fatty acids (fish oil) supplementation, we performed a prospective study in patients age 15-60 yrs after severe trauma (ISS 15-30) or burn patients (BSA 30-60%) in Siriraj Hospital. They were randomized to receive either Neomune or Traumacal. The nasogastric feeding was started in post-injury day 2 (PID2) with half of concentration at the rate of 30 ml/hr. From PID3 to PID10, the normal concentration was administered at the rate of 80-100 ml/hr depending on optimal caloric requirement. All patients received 5 per cent dextrose in half or full strength saline solution as

clinically indicated. No other oral nutrients apart from study formula were allowed during the study. Blood sample was drawn on PID2, PID6 and PID11 for measurements of CBC, coagulogram, albumin, transferrin, CRP, LFT, BUN, Cr, CD₃, CD₁₉, CD₄, CD₈, C₃, IgG, IgM, and IgA. Nitrogen balance was calculated from UUN. Unpaired Student t-test was applied to compare variables between the two groups.

Results: 36 patients were selected (16 trauma and 20 burn), male = 29, mean age = 29.86 yrs. The patients were divided equally into two groups to receive Neomune or Traumacal. The data were compared and showed significance on total protein on PID11 (Neomune = 6.52 ± 1.29 , Traumacal = 5.59 ± 1.21 , $p=0.03$) and serum triglycerides on PID 11 (Neomune = 128.39 ± 53.45 , Traumacal = 186.25 ± 84.07 , $p=0.02$). The ICU stay was observed shorter in Neomune than in Traumacal group (3.41 and 7.83 days) with no statistical significance. The wean-off respirator day was also shorter in Neomune than in Traumacal group (2.71 and 7.39 days). One patient in each group died.

Conclusions: The feeding of Neomune in critically injured patients was well tolerated as Traumacal and significant improvement was observed in serum protein. Shorten ICU stay and wean-off respirator day may benefit from using the immunonutrient formula.

Effect of Oral Cilostazol on Patency of Microvascular Anastomoses in Rats

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This study was undertaken to evaluate the effect of cilostazol, a reversible platelet aggregation inhibitor on patency of microvascular anastomoses in rats. Right common femoral artery (n=30) were cut in Sprague-Dawley rats. The average diameter of the arteries was 0.77 mm. Microvascular anastomoses were performed using nylon 10-0. The blind protocol called for experimental animals to receive oral doses of cilostazol of 10 mg/kg/day, while control animals received equivalent volume of saline. Patency of anastomoses was assessed on 7th postoperative day.

Whereas 53 per cent (8 of 15) of control anastomoses remained patent, 73 per cent (11 of 15) of anastomoses in cilostazol group were patent at one week. This increase in patency of microvascular anastomoses with delivery of cilostazol was statistically significant ($p<0.05$).

Cilostazol, at experimental dose 10 mg/kg/day, demonstrated a statistically significant increase in patency of microvascular anastomoses. This study supports its use in clinical microvascular surgery.

Touch Imprint Cytology for Sentinel Lymph Node Biopsy in Breast Cancer: A Preliminary Report

A Ratanawichitrasin, L Levy, C Biscotti, JP Crowe

Background: Sentinel lymph node (SLN) biopsy is the concept that takes physiologic tumour draining lymph node for staging with minimal surgery. Touch imprint cytology is a quick and feasible intraoperative evaluation of lymph node metastases. The combination of touch imprint and SLN biopsy may provide a possibility of minimal surgery for a selected group of breast cancer patients.

Methods: We compared touch imprint preparation of SLN to routine paraffin section in a prospective control study, looking for the metastasis-detection ability. SLNs were found in 55 of 60 patients operated during September-December 1997. Touch imprint slides were prepared from serial sections of SLNs, stained with hematoxylin & Eosin (H&E) and blindly interpreted by our cyto-pathologist.

Results: SLN touch imprint results had a 98.2 per cent (54/55) concordant with the paraffin section of SLN, and a 94.5 per cent (52/55) concordant with total axillary lymph nodes status. The sensitivity and specificity of SLN touch imprint for metastasis-detection were 82.4 and 100 per cent. In addition, the positive and negative predictive values were 100 and 92.7 per cent, respectively.

Conclusion: The high diagnostic accuracy of the touch imprint of SLN is justified for organizing a larger intraoperative study to prove its role in breast cancer management.

Tissue Factor Activation and Thrombin Generation: The Evidence of Autocrine Mediators Responsible for Tumour Growth and Invasion

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Thrombin, a key enzyme in blood coagulation, has a potentially mitogenic effect on several cell types. Thrombosis is well known to be a common complication or even an early appearance in patients with cancer especially pancreatic adenocarcinoma, resulting from tumour elaboration of the procoagulant tissue factor (TF) leading to thrombin generation. We have recently demonstrated the expression of protease-activated receptor 1 (PAR1) and protease-activated receptor 3 (PAR3), specific receptors for thrombin in human adenocarcinoma cell lines. To assess the functional consequences of thrombin stimulation in tumour cells, human pancreatic adenocarcinoma cells (MIA PaCa-2) were stimulated with α -thrombin at

various doses or transfected with the full length PAR1 gene. Proliferation and invasive potential of cancer cells were assessed using thymidine incorporation assay and Matrigel assay. Thrombin stimulation and overexpression of HTR gene enhanced both proliferation and invasion by 65 per cent ($p=0.01$) and 73 per cent ($p=0.05$) respectively. Preincubation of cells with α -thrombin was associated with an increase in tPA, uPA, PAI-1 and c-myc gene expression. RNA differential display analysis between cells stimulated with thrombin and control revealed the upregulation of *cyr61*, the proto-oncogene involved in embryogenesis and cellular proliferation. To assess the activation of blood coagulation with a marker of hypercoagulability, tissue factor and thrombin/antithrombin III complex (TAT) were measured in pancreatic cancer patients compared to control. Forty-five patients (28 males : 17 females) with a mean age of 62 years (31-83 years) were compared to 37 control subjects (19 males : 18 females) with mean age of 50 years (23-70 years). Seventeen patients underwent operation (3 pylorus preserving proximal pancreatoduodenectomy and 14 gastric and biliary bypass). A venous blood sample collected in sodium citrate was used to prepare platelet poor plasma for the assay. Both TF and TAT were assessed by ELISA kits. TF had a median of 324.8 pg/ml in cancer patients and 218.5 pg/ml in controls ($p=0.01$). TAT was 10.4 mg/ml (cancer) vs 7.3 mg/ml (control) ($p=0.003$). This study indicates that the hypercoagulable state of pancreatic cancer results from excessive thrombin generation through the extrinsic pathway which is tissue factor dependent. We propose that thrombin and thrombin receptor PAR1 and PAR3 may play a crucial role in tumour cell invasion and gene regulation possibly through c-myc and *cyr 61* oncogenes.

Traumatic Renal Arteriovenous Fistulas After Blunt Injury

S Chuthapisith, S Siltharm, C Chuntrasakul, M Tanaroong, P Sakolsattayothorn, K Danpukdee, P Pisaltoorakij, C Pongnumkul, S Suthipongchai

Case Report: A 23-year-old man was admitted after history of motorcycle accident. 12 hours after injury he developed symptom of left flank pain and followed by gross hematuria. The physical examination revealed blood pressure 120/80 mmHg, pulse rate 80 per min and respiratory rate 16 per min. A hematoma diameter about 3 cm with tenderness was detected on his left flank.

Urinary catheterization showed homogenous bloody urine. Intravenous pyelography demonstrated normal excretory function of both kidneys, but large filling defects suggestive of blood clots were detected at upper calyx of the

left kidney. The patient was stable, no changing in blood pressure and pulse rate.

Conservative treatment was performed. No blood component was required during the treatment. On the fifth day of admission, he developed second episode of gross hematuria, so renal angiography was done and found two arteriovenous fistulas at the upper pole of the left kidney.

Superselective angiography to upper segmental branch of the left renal artery and embolization using tissue adhesive were done successfully. Post embolization, he developed acute pyelonephritis. Treatment with intravenous antibiotics gave a good result. No hypertension was detected when he was discharged.

Discussion: Renal arteriovenous fistulas are uncommon finding. The acquired causes are usually post-traumatic events. Most injuries are from penetrating injury due to renal biopsy. From 1966 to present, only 5 cases of renal arteriovenous fistula after blunt injury were reported.

The best way to diagnose is angiographic studies. This also provides both diagnostic and therapeutic procedures. Preservation of the kidney is the advantage of embolization superior to surgery. Observation of blood pressure is still necessary for early detection of hypertension.

Esophageal Perforation After Blunt Injury

S Pichetsin, S Chuthapisith, S Siltharm, S Setawanna

Case Report: A 33-year-old man with history of blunt neck injury, developed the symptoms of odynophagia and bloody salivation. Physical examinations revealed subcutaneous emphysema at left lateral border of his neck. His chest X-ray was normal, but both AP and lateral neck films showed retropharyngeal air. Neck exploration was done, and found a perforation on the left side of the esophagus. The trachea and other vascular structures appeared normal. Primary repair of the perforated esophageal segment was done. Finally, the patient was discharged with no complication after 8 days of hospitalization.

Discussion: An extremely rare circumstance of esophageal perforation after blunt injury was reported. The most common causes was violent vehicular injury. Cervical esophagus is the most common site of injury. In the treatment aspect, injury less than 16 hours should undergo primary repair and drainage. This patient was a reported case of early diagnosis and successful immediate repair of the perforated esophagus without any complication.

Solitary Rectal Ulcer Syndrome: Two Cases Report

T Akaraviputh, P Watanapa

Owing to its rarity, solitary rectal ulcer syndrome (SRUS) is often misdiagnosed as malignant ulcer or ulcer in association with inflammatory bowel disease. We present two adult females with anorectal symptoms (i.e. pain, tenesmus and bowel habit changes). Both had normal levels of serum carcinoembryonic antigen. Barium enema revealed irregular mucosa with stricture of the lower rectum. A 2.7 cm. in diameter ulcer was found in one patient but not the other. Rectal biopsy under sigmoidoscopy demonstrated non-specific inflammation, without evidence of malignancy. Because of the intractable symptoms and inability to discriminate malignant condition, exploratory laparotomy was performed followed by low anterior resection of the rectum. Histological examination of both specimens showed submucosal rectal fibrosis with a non-specific ulceration in one. These findings were compatible with SRUS. Their symptoms improved dramatically after the resection and they are now five months and one year after surgery. Awareness of this rare anorectal condition is necessary for appropriate management particularly to avoid unnecessary abdomino-perineal resection.

Liver Transplantation in Rajavithi Hospital

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Background: Liver transplantation is a major operation that take long time and high cost to perform. Surgical technique, anesthesia, blood used, post operative care play important role in the outcome of this operation. The aim of this study was to report result of liver transplantation in term of cost, operative time, cold ischemic time, anhepatic phase, and complication in the early period of Liver Transplant Unit Rajavithi Hospital.

Method: From October 1995 to December 1997, 6 liver transplants had been performed with piggyback technique. Age range 1.2-62 years, 1 child, 2 women and 3 men. All of them were in end stage liver disease. No cell saver was used in the last 2 cases. Hepatic artery and bile duct were anastomosed under loupes 2.5 time magnification.

Results: The first case died in intraoperative period. One case died 8 days post operation from acute renal failure, primary nonfunction. One case died 4 day post

operation from acute renal failure, esophageal varices bleeding and sepsis. Three cases were still alive until now but some complications had occurred during follow-up. Acute rejection occurred in all 3 patients. T-tube migration, bile duct stenosis developed 3 months after operation in 62 years old patient and needed reoperation after failed dilatation. Blood components used were analyzed as mean values of FFP 21.8 U, WB 15.8 U, PLT 9.8 U, PRC 8.4 U, Cryo 2 U. Cold ischemic time 9.75 hrs, anhepatic phase 2.50 hrs, operating time 11.75 hrs. Expenses in hospital 230,000 Baht, expenses in follow up 345,000 Baht. Total expenses 575,000 Baht in one year follow-up.

Conclusion: Liver transplantation is a high cost procedure and complication may occur any time during operation and follow-up. Good selection of patients must be obtained before undertaking this operation. However, a lot of blood components were used in the early period. Now we used less blood components than before even without cell saver.

An AIDS Patient with Massive Hematochezia: A Case Report

A Chotirosenirarnit, W Kattipatanapong, N Lerdprasertkul

Lower gastrointestinal hemorrhage is not a common consequence of AIDS. The serious or life-threatening bleeding can occur, but rarely required surgical intervention. The etiology is usually caused by opportunistic disease specifically related to immunodeficiency. We report a case of a 33-year-old HIV infected male patient who had suffered from massive hematochezia. Abdominal operation was performed due to massive continuous hematochezia and unstable vital signs. Operative finding demonstrated the source of bleeding was in distal ileum and segmental ileal resection was performed. Pathological finding demonstrated two transverse ulcers with end of artery and histopathological finding showed mixed infections of cytomegalovirus and *Penicillium mameffii*.

Photometric Quantitative Study of Port Site Contamination: Comparing the Effect of Port Size and Pressure, Experiment in Vitro with Pseudopneumoperitoneum Model

S Kornsuthisophon, S Paorapun, S Jeadsermanant

Background: Port site metastases were reported increasingly in the laparoscopic manipulation of malignancies. The mechanism are poorly understood. A porcine or rat model was frequently used for study. This study was based on the hypotheses that CO₂ pneumoperitoneum was a carrier for tumor cells and used in vitro model for the

reasons of repetition and economy.

Objective: To study port site contamination comparing the effect of port size and pressure in the experimental in vitro model.

Method: The experiment was designed by using a clear plastic bag as a peritoneal cavity and 1 cm thick paper tissue as a subcutaneous layer covered with a plastic sheath as skin. This model was referred to as "pseudopneumoperitoneum". Erythrosine, cherry red food additive color, was used to disperse CO₂ gas.

The first experiment was to study the effect of port size under low pressure (0-1). 2 × 5 mm ports and 2 × 10 mm ports at the corner and 1 × 10 mm port at the center were punctured before placing 1 gram of erythrosine and inflating the closed bag for 10 minutes.

The second experiment was to study the effect of port size under high pressure (12-15) using one port (5 mm versus 10 mm) and following the same steps as the first one.

The samples were cut from the port site and non-port site as a control by 1 × 1 square inch of inner bag and tissue paper separately and packed in a code labeled plastic box. They were extracted with 30 ml distilled water for 1 hour then their supernatants obtained by 3000 rpm 10 min centrifuge were recorded for absorbance by photometry.

Result: From the first experiment, absorbance of all samples of inner bag is higher than of tissue paper, and absorbance of both layers were increased with the size of port. From the second experiment, absorbance of inner bag is equal to tissue paper (5 mm port) versus lower than tissue paper (10 mm port). The absorbance of both layers were increased with the size of port as the first experiment.

Conclusion: Port site may break down the wall and increases contamination that vary on the port size. High pressure causes more contamination in the tissue paper.

Granulomatous Peritonitis from Parasitic Egg: A Case Report

K Jearwattanakonok

An 11 years old boy was admitted at Nakornping Hospital for treatment of abdominal mass occurring after appendectomy and treatment for typhoid lymphadenitis one month ago. Intraabdominal abscess and small miliary nodules on peritoneal surface and omentum similar to tuberculous peritonitis were found at reoperative laparotomy. Diagnosis of granulomatous peritonitis from parasitic egg was made from pathological report of omentum biopsy which found parasitic egg suspected to be *Schistosoma japonicum* in granulomatous tissue re-

action.

Choledochocoele: Role of Endoscopic Unroofing

S Panpimanmas, T Ratanachuek, S Chantawibul

From 1993-1997, 1073 cases of ERCP were performed. We encountered two cases of choledochocoele (Type III Choledochal cyst). One was 77 years-old and another was 61 years-old. Both of them were female and presenting with jaundice, one associated with common bile duct (CBD) stone and cholangitis. We performed endoscopic unroofing of cysts and removed CBD stone by basket in one case. The results were good with jaundice gradually resolved and became symptom-free by 8 months follow-up. It could be concluded that endoscopic surgery is the treatment of choice of symptomatic choledochocoele.

Management of Penetrating Colon Injury

S Kulnaratana, A Ploysangwal, S Sirivannabood

Objective: To compare the outcome of the treatment of colon injury by primary closure and diverting colostomy.

Research Design: Retrospective study

Patient Selection: All patients with colon injury between 1993-1997

Methods: During a five year period (1993-1997), 37 patients with colon injury from blunt and penetrating abdominal trauma were studied. Of these patients, 5 patients were excluded because of the degree of injury were limited to serosal tear. The rest of the patients were divided into two groups; primary closure group and diverting colostomy group. Both groups were comparable in age, vital signs, time from emergency to operating room, site of injury, abdominal trauma index (ATI) and colon injury score. For statistical analysis, we used unpaired t-test for continuous data and chi-square for discrete data (proportion of percentage). Statistical significance is included when p-value < 0.005

Results: From analysis of 32 patients, 17 were in primary closure group and 15 were in diverting colostomy group. Both groups had no statistical difference in all parameters. There was no mortality, separation of colonic wound closure nor intra-abdominal abscess in either group. There were complications in 6 patients (18.75%); 2 from primary closure group and 4 from diverting colostomy group. Twenty nine patients underwent primary incisional wound closure with only one being infected.

Conclusion: All penetrating colon injury can be primarily repaired as well as the surgical wound.

Thoracoscopic Splanchnicectomy in Intractable Abdominal Pain

W Yuthvoravit, N Pathamapaspong

Background: Intractable abdominal pain is a challenging problem for surgeon especially in patients who have had repeated abdominal operations. Currently percutaneous celiac ganglion block is a favorite method but the limitation is a short period of response, tolerance and the availability of specialist. Drs Stone and Chauvin reported a very high success rate of pain relief by transthoracotomy splanchnicectomy in 1990. Recently thoracoscopic approach gained popularity due to its less invasiveness, less pain and giving a clear magnification of the surgical view.

Objective: To assess pain relief of thoracoscopic splanchnicectomy in patient of severe intractable abdominal pain.

Method: We performed two cases of thoracoscopic splanchnicectomy procedure. The first case which was done on both sides was diagnosed chronic pancreatitis with previous distal pancreatectomy. The second case was advanced periampullary carcinoma with previous drainage procedure and celiac ganglion block. Both of them have had suffered from severe abdominal pain, and need opiate drug.

The position of the patient was lateral decubitus with double lumen anesthesia. After collapsed of the lung, a 10 mm trocar with sleeve was inserted into the 6th intercostal space anterior (ICS) axillary line. The sleeve was left in place after removal of the trocar as the camera port. Two additional operating ports size 5 mm, 12 mm were inserted at 6th ICS posterior axillary line and 8th ICS mid axillary line respectively. Identification of greater and lesser splanchnic nerves emerging from the 5th to 12th intercostal nerves was made. Thoracic tube number 28 was placed at 8th ICS port site and the lungs were reexpanded.

Result: We obtained satisfactory pain relief in the second case. After surgery, the first case which was initially done on right chest had no response. One and a half month later the same procedure was done on left chest with complete relief of pain.

Single-Stage Prevention of Wound Infection in Ruptured Appendicitis

S Watanapanyasakul

In the past, postoperative wound infection in ruptured appendicitis was the rule rather than exception. At

present, two-staged management (the wound is packed open) seems to be ideal, but there are still some annoyance and wound infection to encounter with.

Single-staged management of the wound in ruptured appendicitis and late gangrenous appendicitis seems to be very promising in the prevention of wound infection in this study. Thorough NSS irrigation of the wound, trimming (berry picking) of the devitalized or fraying tissue (not necessary in all cases), suitable parenteral antibiotics pre and postoperatively and semi-closed technique of the skin and subcutaneous layers are vital for this simple but meticulous procedure.

Wound management by this procedure in 53 cases of ruptured appendicitis and 12 cases of late gangrenous appendicitis (during January 1986 till April 1998 at Siam Hospital) resulted in only 2 wound infections (=3.1%).

It is likely that this simple but careful method similar to the management of severely contaminated or dirty wound in trauma is at least as effective or even better than open technique (two-staged technique) in the prevention of wound infection in ruptured appendicitis and late gangrenous appendicitis, particularly in patients with thin and moderately thick abdominal wall.

Endorectal Mucosal Advancement Flap for Treatment of Complex Anal Fistula

P Siriwittayakorn, S Saeteng, N Chotirosniramit

The treatment of complex anal fistula is a challenging problem. Fistulotomy in such cases should not be performed because this procedure increases the risk of compromised sphincter function. The use of an endorectal mucosal advancement flap to close the internal opening of fistula, which does not disturb any of the sphincter muscles, might be the answer to this problem.

From 1992 to 1996, 16 endorectal mucosal advancement flap have been used in both private and government hospitals in Chiangmai. Of these, 9 were successful and 7 failed. Among the failure cases, the longest time before symptom recurrence was 8 months. Although the number of cases studied is still too small to be conclusive, the causes of failure seemed to relate to the presence of diffuse internal hemorrhoids, taut anal mucosa, and failure to remove septic tissue in the tract.

Endorectal mucosal advancement flaps should not be used in cases of taut anal mucosa and diffuse internal hemorrhoids. Also, curettage of the tract to remove septic tissue should be performed without exception. A successful cure should be defined in terms of there being no recurring symptoms for a period of more than one year.

Factors Determining the Ability of Sentinel Lymph Node Identification in Breast Cancer, Isosulfan Blue Dye Technique

A Ratanawichitrasin, JP Crowe, L Levy

Introduction: Sentinel lymph node (SLN), the first tumor-draining node, biopsy is being tested worldwide for the role of metastasis detection in breast cancer. The success of identifying SLN varies upon institutes and methods of lymphatic mapping. We systematically examined the Isosulfan Blue dye lymphatic mapping technique, looking for success determining factors.

Methods: SLN biopsies were studied after informed consent in breast cancer patients (n=143) scheduled for axillary lymph node dissection (ALND) between February 1997 and January 1998. Two surgeons, who had no prior SLN biopsy experience, operated separately on each patient. Isosulfan blue dye was injected into the primary tumor site; blue SLN was excised, if identified; then ALND was performed. Proportion of SLN identified was compared to clinical and technical factors such as characteristics of primary tumor, experience of surgeons, method of dye injection, etc.

Results: Blue-stained nodes were identified in 129 patients (90.2%). From univariate analysis, six factors which included concurrent partial mastectomy, case-experience, injection sites, starting dissection > 15 minutes after injection, excision of the injected site before SLN dissection, and no blue lymphatic tract identified during the operation, were associated with a lower chance of success in identifying SLN. After stepwise multivariate logistic regression analysis, more experience of surgeon was the only factor showing a trend of 3.5 times success compared to the first 10 cases (p-value = 0.06).

Conclusion: More experience of the surgeon and proper techniques enhance the ability of the blue dye method SLN biopsy.

Overview: Management of Breast Mass in Thai Women During Economic Downturned Era

C Bunyaratavej

Breast diseases in Thai women are the critical problems due to high prevalence rate of breast cancer. How to make the diagnosis correctly and economically is a special issue to implement for saving cost of health care in this era. We have many methods to detect the mass. Is it necessary to do all the investigations, or how to select them? This presentation will show the detection and investigation of mass in clinical practice and screening. Cost identification

and efficacy of the diagnosis to compare with mammography, ultrasonography will be discussed. Who is the high risk groups that we concerned? Age, familial breast cancer, previous breast diseases, pre-cancerous lesions such as intraductal papilloma, florid papillomatosis, fibrocystic diseases with ductal hyperplasia etc were considered. Fine needle aspiration (FNA) is easy, good and safe to get quick diagnosis for fibrocystic diseases. Frozen section will prove the final diagnosis. The cheapest way is the health education for people to have self breast examination.

Result: Clinical epidemiological retrospective studies of mass of breast (n=842) in 1995 found that mammary dysplasia had risk related to cancer (p=0.05). Age prevalence of fibrocystic diseases and cancer is high in 31-50 years old (presentation by group to show the correlation of ages and prevalence of benign and malignant disease). Site of lesion in the breast had no significance of disease. Benign disease was found in 62.7 per cent (n=528/842) and malignant lesions 33.96 per cent (n=286/842). The prevalence of benign disease and cancer were related with ages (p=0.000001). The information of this data will help us to manage the mass breast more precisely and economically.

Internal Ring Hernia Repair: Chiangrai Experience

P Pongmanjit

Treatment of indirect inguinal hernias by the internal ring repair in the 78 months period since September 1991 to March 1998 were studied consecutively. There were 104 cases, 100 males and 4 females. The range of age was 17 to 86 years old, mean age of 41.2 years. The anesthesia was the local anesthesia. At the first year, the operations were performed as inpatient cases but in the later period, all were treated as outpatient cases. There were only 5 minor complications, all were resolved conservatively. No recurrent hernia was found during the studied period.

Role and Accuracy of Fine Needle Aspiration for Diagnosis of Breast Mass

B Kanchanabat, W Thanapongsathorn,
P Kanchanapitak, A Manomaiaphiboon

Breast mass is common problem. Most are benign but malignancy must always be considered. Excision biopsy gives precise diagnosis but may be unnecessary in some case. This study aims to define role and accuracy of FNA in patient with breast mass.

Objective: To study (1) Accuracy of FNA for histo-

logical diagnosis of solid breast tumor, (2) Compare the diagnostic accuracy between clinical evaluation and FNA for discrimination cystic and solid mass, (3) Role of FNA in diagnosis and management of breast mass.

Population: All patients presented with breast mass during January 1997 to May 1998.

Method: Prospective control study. Physical examination in all case, prior to FNA of mass with tense and well define border. Then performed FNA, if fluid was aspirated and mass disappeared, fluid was sent for cyto-logical examination. Patient was discharged and followed up. If solid mass was encountered or mass was still palpable after aspiration of cystic mass, FNA slide was sent for cytological examination, and excisional biopsy was performed.

Result: Seventy eight masses were encountered in 64 patients, age ranged from 16 to 58 years. Size of masses ranged from 1 x 1 cm, to 7 x 7 cm; 33.3 per cent were cystic, 62.8 per cent were solid mass, 1 solid-cystic mass, 2 abscesses and 1 fat necrosis. Pathological result was obtained in 43 masses, 39.5 per cent fibroadenoma, 25.5 per cent fibrocystic disease, 9.3 per cent fibrosis and 16.2 per cent adenocarcinoma. Sensitivity of FNA for diagnosis of malignant tumor (cytology class 4) was 100 per cent. FNA reported to be inadequate (cytology class X) in 5 cases with 4 pathological correlation as accessory breast tissue, galactocoele, fibrosis and fibrocystic disease. Physical finding of tense well circumscribed mass is unreliable for diagnosis of breast cyst with 48 per cent sensitivity and 83.6 per cent specificity.

Conclusion: 1. FNA cytology has acceptable sensitivity and specificity for diagnosis of benign mass. 2. Physical finding of tense well circumscribed mass is unreliable for diagnosis of breast cyst. 3. FNA could accurately make diagnosis of breast cyst and the cyst could be cure by aspiration.

Transampullary Biopsy for Diagnosis of Bile Duct Stricture

Savit Kositchaiwat, Chomsri Kositchaiwat

Cholangiocarcinoma is one of the most common causes of bile duct strictures in Thailand. Generally the diagnosis is made on the basis of a clinical data including cholangiogram without histologic confirmation. Studies from western countries revealed clinical data and cholangiogram gave false-positive diagnosis in 13-31 per cent. To obtain tissue diagnosis, endoscopic transampullary biopsy were performed in 18 patients with clinically suspected biliary stricture between August 1997 to February 1998. Of the 18 patients underwent transampullary biopsy, 11 patients were positive for malignancy and 5 patients had

histologically confirmed by exploratory laparotomy. Of the 7 patients who had negative biopsy, 6 patients were explored and surgical biopsy revealed malignancy in 3 patients.

Transampullary biopsy could therefore identify malignancy in 78.6 per cent of malignant obstruction. The sensitivity was 63.3 per cent and there was no false positive (specificity 100%). Positive predictive value was 100 per cent, negative value was 40 per cent.

Endoscopic Therapy of Pancreatic Pseudocyst

S Treesaranuwattana

Objective: To report a case of endoscopic transpapillary drainage of pancreatic pseudocyst caused by blunt abdominal trauma.

Materials: A Thai male patient was transferred to St. Mary's Hospital because of recurrent severe abdominal pain for four months after abdominal exploration from blunt abdominal trauma. Second abdominal exploration revealed large inflammatory mass of matted bowel loop and omentum. Conservative treatments and octreotide were given. The patient recovered very well. He was admitted in three and seven weeks later with the same problem. Ultrasonography and computed tomography (CT) showed a pseudocyst of 4 x 6 cm. in size at pancreatic head area. Retrograde cholangio-pancreatography (ERCP) showed disruption of main pancreatic duct with communication to pseudocyst. Transpapillary drainage was performed by placing 5F stent into cystic cavity.

Results: Marked relief of abdominal pain was noted immediately after stenting. Decreasing size of abdominal mass gradually occurred until could not be palpated 5 days later. Stent was left in place for 4 weeks. CT follow up at 12 months showed very small residual cyst. The patient remained free of abdominal pain during 12 months after endoscopic treatment.

Conclusions: Transpapillary stenting created and maintained the tract between main pancreatic duct and pseudocyst allowing the cyst wall to mature and then pseudocyst gradually resolved.

Rectal Cancer Surgery: How to Improve Outcomes

H Nelson

Central to the management of patients with rectal cancer are 2 key goals, that is, to maximize the quantity of life and to preserve as best possible the quality of life. Toward the accomplishment of these two goals, surgical and multimodality therapies cover a wide spectrum of

options from low morbidity approaches such as local excision for small early cancers in frail patients to combined modality therapy including external beam radiation therapy, radical resection, and intraoperative radiation therapy for locally advanced unresectable malignancies. For each case, the approach must be individualised according to patient and tumor-specific factors.

Key factors influencing outcome include the preoperative health and functional status of the patient as well as the tumor location and stage. Local procedures are favored for patients who have poor general health or limited life expectancy and who have small superficial tumors that are in the very distal rectum and show favorable histology. In contrast, patients who are otherwise in good health and have a normal life expectancy can be treated with surgical resection as well as adjuvant therapy as indicated. Patients who present with local advanced lesions that are fixed and considered "unresectable" are best managed with a multimodality approach. To evaluate patients for the best therapeutic strategy, a number of imaging techniques can be employed including the use of computerized tomography of the abdomen and pelvis to determine the extent of local disease and distant spread as well as the use of intrarectal ultrasound to evaluate the depth of tumor penetration and/or the presence of nodal disease. Although these are not necessarily required for treatment of patients with standard curative resection, they are very useful for selecting patients who will do well from either local therapies or from more aggressive therapies. Intrarectal ultrasound is more sensitive for determining depth of muscularis propria penetration than it is for determining node status and in both cases tends to overstage rather than understage tumors.

Local excision or endocavitary radiation therapy can be applied to patients who have a high operative risk and who present with a mobile, less than 3 cm tumor, which has a polypoid configuration and appears to be confined on intrarectal ultrasound and CAT scan. Once the tumor is removed further pathologic data can be used to verify the favorability for local excision. A favorable outcome can be expected if the resection was complete with negative margins and the lesion is superficial in depth, that is T1 or T2. Further, these should demonstrate a favorable histologic grade, that is grade 1 or 2 and have no evidence of venous or lymphatic invasion. Properly applied colostomy-free rates of 77 per cent at 3 years can be accomplished. Reports show favorable 5-year survival rates from 65 to 90 per cent and local recurrence rates from 3 to 27 per cent. In part this reflects the variability in studies including selection criteria. Some have favored the application of external beam radiation therapy to improve results. When T1 and T2 rectal cancers are evaluated, best results can be expected if

favorable histologic and clinical features are confirmed. In the setting of unfavorable histologic features, an abdominoperineal resection is the preferred treatment option.

Curative resection can include anything from an anterior resection to abdominoperineal resection. Past studies have confirmed that the low anterior resection is equivalent as a cancer operation to the abdominoperineal resection. Most recently has been the introduction of the coloanal anastomosis, and most large series confirm that this has acceptable morbidity and mortality rates and oncologic results. As well, the long-term functional results, that is those past 12-months postop, are favorable. Typically, patients prefer this to a need for a permanent stoma.

Most recently, the surgeon as a prognostic variable has been highlighted by a number of studies. Local recurrence rates following rectal cancer surgery range from as low as 3 per cent to as high as 55 per cent. Clearly, these results must relate to some technical factors pertinent to the surgical procedure. A number of technical factors that have been considered but not found to be important are whether or not the sphincter has been preserved, the no-touch technique, the anastomotic technique (staple versus hand-sewn), rectal washout procedures, and perioperative blood transfusion. Those technical factors that have been found to be critical are those that have insured a complete resection of all tumor, both distal bowel clearance as well as radial mesenteric clearance. It is clear that distal clearance of the bowel is important. Although margins of 2 cm are typically accepted as ideal, margins as low as 1 cm have never been shown to be associated with any higher rate of recurrence. For those tumors that are adherent to adjacent structures, the en bloc resection is recommended as the survival rates are highly improved with such procedures. As well, a recent report indicates that inadvertent perforation of the rectum during the course of abdominoperineal resection significantly influences local recurrence rates and survival rates. Recent emphasis has been placed on the use of total mesorectal excision; it is clear that radial margins, including mesorectal margins, are important for good outcomes. What is not fully clarified is the role of surgery in clearance of nodal metastasis. Although it is clear that resecting the mesorectum and local lymphatics is important, the distal clearance, that is a long-named vascular structures, is not supported by studies comparing high versus low ligation or by the extended radical lymphadenectomies.

Finally, those patients presenting with locally advanced "unresectable" lesions, are best served by multimodality approach including a full course of preoperative radiation therapy with 5040 cGy combined with continuous infusion of 5-fluouracil. This should be

followed by an extended radical resection and intraoperative radiation therapy as this has been shown to decrease local recurrent rates from 76 to 20 per cent and improved survival at 3 years at 24 to 50 per cent.

Future studies will need to determine whether the necessity for adjuvant therapy to improve local recurrence and survival rates can be replaced by improvements in surgical technique.

Complications associated with preop and postop radiation therapy are significant. In addition, the functional results for surgery are far superior to those for patients who use surgery plus radiation therapy. The challenge for the future will be to determine whether better results can be accomplished with better surgery to reduce the morbidities from adjuvant therapy.

Efficacy in Bowel Cleansing and Patient Compliance Between PEG and NaP for Colonoscopy

M Khamhang, C Euanorasetr, S Kositchaiwat, Y Kongdan, P Rerkpanakit

Background: Colonoscopy has emerged as the procedure of choice for the detection and treatment of colonic lesion. Bowel preparations for colonoscopy have to be balanced among the demand for adequate cleansing, patient acceptability with minimal side effect and should be administered on an outpatient basis. Now we used 3 liters of PEG for bowel preparation. We found that some patients cannot tolerate a large volume of PEG. We began using NaP to improve patient compliance and efficacy in bowel cleansing.

Objective: This study was undertaken to compare the cleansing ability and patient compliance of PEG and NaP for colonoscopic bowel preparation.

Methods: Forty-three patients undergoing elective ambulatory colonoscopy were prospectively randomized to receive either 3 liters of PEG or two doses, 45ml of NaP as mechanical bowel preparation. A detailed questionnaire was used to assess patient compliance. In this study, only one endoscopist evaluated cleansing ability and blinded to the preparation. Statistical analysis was performed using the chi-square test.

Results: Forty-three patients, age and sex-matched received either PEG or NaP as mechanical bowel preparation for colonoscopy. There were no significant differences in the assessment of trouble drinking, sleep loss, fatigue, abdominal pain, vomiting, anal irritation, weakness, but nausea symptom slightly increases in NaP group. In 4 PEG preparation patients, particulate or solid stool was found in the colon. Endoscopist recorded grade of stool, 90 per cent in NaP group and 69 per cent, in PEG group

showed no retained fluid or stool, clear fluid or clear fluid with minimal stool. For quality of cleansing, endoscopist scored NaP as "excellent" or "good" in 95 per cent, PEG in 69.6 per cent but no statistical significance. The frequency of presence of stool was about 12 times in NaP group and 10 times in PEG group. Eighty-three per cent of the patients who received the NaP preparation stated they would take this same preparation again, vs. only sixty per cent for PEG. Also, NaP was found to be three times less expensive than PEG.

Conclusion: Both NaP and PEG were found to be equally effective and safe colonic cleansing agent. However the oral sodium phosphate was less expensive and gained more patients preference than PEG.

Renal Transplantation at Maharaj Nakorn Chiangmai Hospital 1989-1996

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Renal transplantation is widely accepted as the treatment of choice for the majority of patients with end-stage renal disease requiring renal replacement. From 1989-1996, 106 patients underwent renal transplantation at our hospital. The cause of end stage renal disease mostly due to chronic glomerulonephritis (103), diabetes mellitus (2) and renal stone (1). Most of the donor kidney come from living related (99) and cadaveric donor (7). Patient and graft survival were significant better in living related donor than cadaveric donor. Fifteen patients died due to diseases unrelated to graft rejection after follow-up 1 to 7 years.

Reloading of Multi-Ring Banding Ligator with Hemorrhoidal Rubber Bands: Safety, Effective and Cost-Benefit

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Background: Bleeding esophageal varices is the major cause of morbidity and mortality in portal hypertensive cirrhotic patients. Nowadays, endoscopic treatment is an effective primary method to stop and reduce recurrent bleeding. Esophageal Variceal Ligation (EVL) has proved to be effective and with less complication than sclerotherapy.

Objective: The multiring ligator (MRL) is useful but expensive. So our group try to reload the MRL by hemorrhoidal rubber bands to evaluate the safety, effective and cost-benefit.

Method: From April 1997 to March 1998, 75 bandings in 28 sessions were carried out by using 4 sets of MRLs. (Saeed Six Shooter Multiband Ligator, Wilson-Cook Medical Inc.)

Result: In one year period of this study, 13 patients, 10 men, 1 woman, 1 boy and 1 girl, average age 37.4 years (range 8-85) received 75 ligations in 28 sessions, averaging 2.9 ligations/session (range 1-5). No complication was experienced from the reloading MRLs. Concerning the cost of MRL per session of treatment, we can reduce from 8,000 baht to 1,200 baht.

Conclusion: The use of reloading MRL in esophageal varices is feasible, safe, effective and cost-benefit.

Does Intravesical Pressure Represent Intraabdominal Pressure?

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Background: Abdominal Compartment Syndrome (ACS) often occurs in seriously ill patients undergoing general and traumatic surgery. Causes of ACS include massive bleeding, abdominal packing, ascites, pneumoperitoneum and intestinal edema.

ACS has been shown to cause hemodynamic, renal and pulmonary compromise. When ACS occurs, emergency decompressive celiotomy must be performed. However, such interventions require establishment of a simple and reliable method of measurement of intraabdominal pressure.

The aim of this study was to evaluate whether Intravesical pressure represented Intraabdominal pressure.

Design: Experimental Study

Setting: University-based tertiary care center.

Method: From March 1, 1998, to May 20, 1998 twenty five adult patients undergoing laparoscopic cholecystectomy (under pneumoperitoneum condition) were studied.

The pressure transducer was connected to the irrigation lumen of 3-way urinary catheter in each patient. The Intraabdominal pressure were set to 5, 10, 15, 20 mmHg while intravesical pressure were recorded simultaneously at each intraabdominal pressure level.

Results: The mean Intravesical pressures were 5, 10, 14, 19.5 mmHg when Intraabdominal pressures were set to 5, 10, 15, 20 mmHg respectively.

By analysis using linear regression, there was a significant correlation between intravesical pressure and intraabdominal pressure ($p < 0.001$, $r = 0.97$) as this equa-

tion

$$Y = 0.4817 + 0.9306X$$

(Y = Intravesical pressure; X = Intraabdominal pressure)

Conclusion: From our study, we conclude that the intravesical pressure clearly represented and varied directly to the intraabdominal pressure. This simple method would be beneficial to indirect diagnosis of the patients at risk of Abdominal Compartment Syndrome (ACS).

Prophylactic Antibiotics in Minor Traumatic Wound: Is It Worth?

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Background: Antibiotics in minor traumatic wounds may not be used if the wounds are not severely contaminated and have appropriate management since the chance of infection is usually low.

Objective: To determine the values of antibiotics in minor traumatic wounds.

Methods: The randomized control trial study in 166 patients (123 males) age between 6 and 60 years, included 166 minor traumatic wounds. Most wounds located in the head and extremity regions. Cultures were done before the sutures were placed in all wounds. All the wounds were cleaned and sutured as usual, then divided in to two groups; group A treated with antibiotics for 3 days, group B non-antibiotics. Antibiotics were given in 83 wounds. One hundred wounds were completely followed up, 50 with oral antibiotics treatment (penicillin or cloxacillin). Infection rates between those with and without antibiotic treatment were compared by Chi square test.

Results: Initial cultures showed 91 positive wound culture (54.6%). Staphylococcus coagulase negative was the majority organisms (69.2%). Four wounds were infected though oral antibiotics were given (group A), whereas in the non-antibiotic group (B) 2 wounds were infected. The comparison with Chi-square test showed no statistical significance ($p > 0.05$).

Conclusions: Usage of antibiotics in minor traumatic wound does not reduce wound infection rate. Prophylactic antibiotics in minor traumatic wound should be limited because the incidence of infection is too low to justify the expense and risk of antibiotic administration. Wound debridement and cleansing are more advantageous than antibiotics alone.

Organ Procurement: Enbloc Technique in Chulalongkorn Hospital

S Nivatvongs, B Sirichindakul

In organ procurement for liver or kidney transplantation, there are 3 methods to harvest liver or kidney; conventional technique, rapid flush technique and enbloc technique. Implicit in the conventional technique is the lengthy preliminary dissection of hepatic and renal hilar structures. Its disadvantages are not only the possibilities of warm ischemic injuries due to temporary vascular occlusion or vasospasm during hilar dissections but also improper techniques in hemodynamic unstable donors. The rapid flush techniques is an approach that minimizes dissection before flushing with preservation solution. Advantages of this technique are the bloodless field dissections after in situ core cooling (avoidance of warm ischemic injuries), and the appropriate technique in unstable donor. However it may cause vascular injuries during hilar dissection after perfusion of preservation fluid. Enbloc technique not only gives the advantages the same as rapid flush technique but also reduces the chance of vascular injuries by dissection the hilar vessels on the back table. It also reduces the time in organ procurement that makes the collaboration teams in transplant (cardiac team, liver & kidney) team feel comfortable. In our experience for about 6 months, we have used this technique to harvest liver and kidney and we have modified this technique to simple use for General Surgeon.

Pancreaticobiliary Ductal Anatomy in Thai People and Its Clinical Significance

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Objective: The complex anatomy of pancreaticobiliary duct was studied to demonstrate some basic data in Thai people.

Method: Fresh specimens of the pancreas, CBD, and duodenum were obtained en bloc from autopsies of 103 cadavers. After the length was measured, the pancreas was vertically transected at its body, 1 cm left to superior mesenteric vessels. The cut end of the major pancreatic duct was identified and cannulated with polyethylene tube then methylene blue was injected after 30 ml of air being push to expel the remaining ductal content. The common bile duct was opened and cannulated towards the papilla. Careful dissection was performed to identify the structures of pancreaticobiliary duct.

Results: Of the 103 autopsied specimens, 93 were

from male and 10 from female cadavers. The age ranged from 15 to 76 years (mean of 31.38 ± 12.98 years). The length of the pancreas ranged between 10.9-19 cm. (mean of 15.60 ± 1.80 cm). The relationship between the common bile duct and pancreas could be grouped into 3 types, most commonly was type A: the anterior surface of the common bile duct was totally covered, whereas its posterior surface was partially covered by the pancreatic parenchyma, was found in 87.38 per cent. Using this methylene blue injection technique, the minor papilla could be identified on the duodenal mucosa in only 8.74 per cent. However, by dissection in the pancreatic substance, 57.26 per cent showed that the accessory duct was tracable to the duodenal wall. The anatomy of the Wirsung-Choledochus confluence could be grouped into 5 different types. The incidence of the common channel was 67.96 per cent and its length was from 2 mm to 15 mm, with a mean of 8.2 ± 3.0 mm. The angle whereby the common bile duct joined the Wirsung duct ranged $12^\circ-70^\circ$, with a mean of $38.84^\circ \pm 8.87^\circ$. The Wirsung duct at pancreatic neck was most often located posterior (71.85 %) and superior (53.40 %).

Conclusion: This study demonstrated several important points in the anatomy of the pancreaticobiliary junction and pancreatic ductal system in a Thai population. Some of these data were different from those reported in the literature for other population groups. The findings of this study should serve as milestones for future studies on disease states in this population as well.

Effect of Alkalinized Lidocaine in Reducing Pain Between Injection

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Objective: To compare the pain score between injection of normal lidocaine and alkalinized lidocaine in patients who undergo minor operations.

Design: Double blind, randomized controlled trial.

Setting: Out Patient Department of Surgery, Bhumibol Adulyadej Hospital

Method: The patients who need minor surgery at the OPD of surgery were randomized into two groups after inclusion and exclusion criteria. Group A (control) were infiltrated with 1 % lidocaine with adrenaline as local anesthesia for operation. Group B (study) were infiltrated with 1 % lidocaine with adrenaline and 7.5 % NaHCO_3 (alkalinized lidocaine). The amounts of lidocaine in both groups were 1 ml/1 cm of the size of lesions. Pain between injection in both groups was evaluated by visual analog scale. The means of pain score in both groups were compared as a primary outcome. For statistical analysis, we

used unpaired t-test for continuous data (mean \pm SD) and Chi-square test for discrete data (proportion or percentage). Statistical significant was concluded when p-value < 0.05.

Result: One hundred and ten patients were included in this study, 55 patients in control group and 55 patients in study (we allocated the patients into two groups by blocked randomization). Both groups were not different in general characteristics and mean size of the lesions. Mean of pain score in control group was 3.95 and in study group was 2.36. Both groups are statistically significantly different (p-value < 0.001).

Conclusion: Alkalinized lidocaine can reduce the pain between injection when compare with normal lidocaine.

Effect of Enhanced Enteral Formula with Glutamine, Arginine and Fish Oil in the Peritonitis Rats

B Sungthong, C Pornpattanak, P Puttawibul, S Triratchai

Background: Immune enhanced formula is now one of the modality to improve the efficiency in the treatment of severe stress condition. Glutamine, fish oil (omega-3 fatty acid) and arginine: the nutrient specific enhanced in the available formula were used in this study.

Objective: The nutritional and immunological effects of the enhanced formula were comparatively studied with non enhanced formula in the peritonitis rats.

Design: Prospective randomized controlled trial was designed for this experiment.

Materials and Methods: Twenty Wistar rats weighing about 250 gm were separated into 2 groups. Each rat of both group was fed by hypocaloric and nonprotein diet for 4 days. They were allowed to eat only 5 per cent dextrose water ad libitum. On the 5th day 10 rats (group A) were fed with standard enteral formula (Ensure) 20 ml/day, 1 kilocalory/ml. The other group, 10 rat (group B), were fed immune enhanced formula (Neomune) 1 kilocalory/ml, 20 ml/day. All rats in both groups were inoculated with 10^6 E. coli in the peritoneum by mini-laparotomy. Feeding was continued until the rats were sacrificed for immunologic study on day 10.

Results: Body weight of rats decreased about 10 per cent in both groups at day 4. The data analyzed by unpaired T-test showed significantly different in total protein: in group A total protein = 5.72 ± 0.32 mg%, group B = 6.16 ± 0.32 mg%, $P=0.006$. Globulin was also significantly different, group A = 2.97 ± 0.17 mg%, group B = 3.2 ± 0.28 mg%, $P=0.043$. Serum albumin, WBC and lymphocyte count showed no significant difference.

Conclusion: The increase in total protein and globulin is significantly different in the peritonitis animal model fed with enhanced glutamine, arginine and fish oil.

Immune Therapy of Colorectal Cancer

H Nelson

The goals of immune therapy are to modulate the host immune response such that a tumor-specific and non-toxic responses against tumor cells can produce tumor eradication. A second goal of such therapies is to provide tumor-specific memory or immunity. That tumor cells express antigens capable of eliciting a specific and productive immunity has been known for a number of decades. Over the last few decades a number of tumor antigens have been described including: activated pro-oncogene products; rearranged normal gene products; over expressed normal gene products; and mutated products of tumor suppresser genes, to name a few. Despite the recognition of antigens that can be targeted by the immune system, many tumors continue to grow principally as a result of immune escape. Immune escape mechanisms can include the down regulation of major histo-compatibility class I molecules as well as insufficient co-stimulatory function or tumor heterogeneity. Further, it's possible that the host can develop tolerance to antigens or develop immune suppression as a result of tumor products. As a result, clinical strategies have focused on overcoming these escape mechanisms using biologic response modifiers; adoptive transfer of immune cells; active vaccine strategies; or the use of tumor-specific antibodies. Descriptions of the clinical programs in colorectal cancer specific to each of these strategies are discussed below.

The best example of the use of biologic response modifiers is that of the interleukin-2 (IL-2) trials. Rosenberg and colleagues studied over 652 patients with advanced cancers including 99 of whom had colorectal cancer. The patients were treated with a number of strategies including IL-2 alone or IL-2 plus other immune reagents including other cytokines, antibodies, or adoptively transferred cells. Although objective regressions occurred in 20 to 35 per cent of patients, the complete and partial responses in colorectal cancer were limited to 10 to 17 per cent. The duration of responses were only 2 to 11 months. Treatment-related deaths occurred in 1.5 per cent of patients and a number of common toxicities were described. This approach did not represent a durable or feasible strategy for colorectal cancer. Similarly, adoptive therapy has not gained widespread acceptance.

Vaccination has also been tried using a number of strategies including the use of autologous tumor cells

which have been prepared for vaccines after the tumor is resected from the patient. In a small series of 94 patients reported by Hanna and Hoover, death rates were reduced from 54 per cent in the no vaccine group to 41 per cent in the vaccine group. In view of the small size of this trial, confirmatory studies are required particularly to prove that this benefit is greater than that which is already accomplished with chemotherapy. Another approach is to use antibodies which can be used to target a number of tumor antigens including CEA, Tag-72 and CO17-1A. Antibodies alone can recruit host immune system to eradicate tumors or they can be labeled with such reagents as radioactive substances, toxins, or drugs in order to be effective in a very tumor-specific manner. A great deal has been learned about the distribution of these molecules and their effects by the immunoscintigraphy studies that have been performed for diagnostic purposes. As far as therapeutic studies are concerned, the most exciting work of recent has come from Riethmuller and colleagues in Germany where the study of 17-1A monoclonal antibody showed a positive affect in patients treated in an adjuvant setting. In this trial of 189 patients, all with node-positive disease, the patients treated with 17-1A monoclonal antibody fared significantly better than those treated with observation alone. The toxic effects were very mild and the survival advantage was similar to that which is seen for standard chemotherapy. As a result, there are a number of trials that are underway to confirm the effects of 17-1A in minimal residual disease. There are a number of other phase I and phase II trials examining other monoclonal antibodies as well as conjugated antibodies.

In conclusion, the immune system can be recruited to accomplish successes in colorectal cancer. Despite this, there remain a number of unresolved issues including the optimal doses, the optimal reagents (humanized versus murine), and ideal monitoring of parameters in intermediate markers.

Diagnosis and Management of Cushing's Syndrome due to Bilateral Adrenal Adenomas: A Case Report

T Hutachoke, W Thanapongsathorn, P Hutachoke

Primary adrenal pathology accounts for 10-20 per cent of endogenous Cushing's syndrome which is defined as adenoma, carcinoma or nodular dysplasia. A solitary adrenal adenoma is present in 80-90 per cent of these patients, while bilateral adrenal adenomas is exceeding rare and only 16 patients have been reported in the literature.

We present a case of 35-year-old woman with Cushing's syndrome admitted at Vajira Hospital on February 1998.

24-hour urine cortisol and overnight 1 mg dexamethasone suppression test confirmed the diagnosis. Plasma ACTH and High-dose dexamethasone suppression test determined the adrenal-dependent Cushing's syndrome. CT scan revealed bilateral adrenal adenomas, 3 and 1 cm in size on the right and left side respectively. Adrenal vein sampling was attempted to localize the source of excess cortisol secretion but the result was of no significant difference between both sides. Laparoscopic right adrenalectomy and left tumorectomy were done by transperitoneal approach. The patient recovered well in post-operative period, except for two trocar-site wound infections. Now she has been taking oral prednisolone for corticosteroid replacement until the remaining suppressed gland gains recovery.

Wound Complication after Appendectomy

M Ngermcham, P Sutthiwan

It is generally accepted among pediatric surgeons to do primary wound closure in all patients after appendectomy regardless of appendiceal condition. Many who deal with adult patients prefer to do secondary closure if the appendix show gangrenous or perforation of the wall. This contradiction prompted us to prospectively study all our patients who were diagnosed with acute appendicitis to indicate whether closing the wound primarily will have any adverse effect.

The study period was between July 1997 to April 1998 encompassing 51 patients with the age range of 1-13 years of age. They were divided into, non-complicated and complicated groups with the number of 20 and 31 respectively. The non-complicated group include the patient in whom the physical diagnosis was acute appendicitis but without any evidence of peritonitis and the operative findings revealed only acute inflammation. The rest, complicated group, had either gangrenous or perforated appendiceal wall. Once the diagnosis was made, all of the patients received single dose of antibiotics for prophylaxis. It would be continued into the post operative period only after it was proved to be complicated case. All patients underwent routine regular appendectomy with transverse skin incision and muscle splitting incision. Intraabdominal pus if present, was swabbed until clean without irrigation. However, the wound was judiciously irrigated by jet stream warm normal saline about 200 ml after the peritoneum was already closed. The irrigation was repeated in the subcutaneous layer. The skin was closed primarily by polyglycolic absorbable suture in all cases in either subcuticular or interrupted suture. The result revealed only two cases whose wounds were infected, about 4 per cent, comparable

or less than the practice of closing the wound secondarily. Both of the cases belonged to the complicated group with continuous closure of the skin.

In conclusion, from our findings, the primary closure of wound in non-complicated appendicitis resulted in no cases of wound infection. In complicated appendicitis, primary closure resulted in wound infection rate not higher than other reported with secondary wound closure. It is obvious to see that by primary closure one has the advantage of reducing the number of anesthetic requirement and the suffering of the patient.

We therefore recommend primary wound closure in all cases of appendectomy for acute appendicitis regardless of the appendicial conditions.

Left-Sided Gastroschisis: Two Cases Report in Ratchaburi Hospital

S Thepcharoenirund

Left-sided gastroschisis has been reported very rarely. From August 1987 to April 1998, 73 cases of gastroschisis were treated at Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital. The abdominal wall defect of only 2 cases occurred to the left of the umbilicus. Two cases of left - sided gastroschisis were girl and successfully treated by primary fascial closure. After 7 and 1 year follow-up respectively, no complication has occurred.

Retrorectus Prosthetic Mesh Repair of Complex Giant Ventral Hernias

S Sriussadaporn

Background: Complex giant ventral hernias (myoaponeurotic defects greater than 10 cm in diameter) are difficult to repair. Recurrent rates are high with an autogenous tissue repair or when prosthetic mesh is used as a bridge or "onlay". Recently, a method of repair by inserting a large prosthetic mesh behind the rectus abdominis muscle but anterior to the posterior rectus sheath (retrorectus prosthetic mesh repair) has been introduced. The concept and principles of this repair is quite attractive for general surgeons who have to deal with this problem.

Methods: Surgical techniques of retrorectus prosthetic mesh repair have been described and demonstrated in three patients with large ventral hernias

Results: All patients had an uneventful recovery with no recurrence (follow up 18, 24 and 12 months).

Conclusions: Retrorectus prosthetic mesh repair of complex giant ventral hernias is effective. It's wide accept-

ance is based on 3 theoretical and logical standpoints: tension-free repair, large surface area of mesh for tissue incorporation and posterior patching of the defect thus eliminating troublesome lateral (edge) recurrence.

Neurofibromatosis of Small Intestine in a Case of Von Recklinghausen Syndrome

A Chotirosenirarnit, W Kattipatanapong

Neurofibromatosis of small intestine are very rare and account for fewer than 2 per cent of all intestinal tumors. Clinically apparent von Recklinghausen's disease is present in 15 per cent. We report a case of 41 year-old female who had suffered from chronic crampy abdominal pain for 4 months. She has hyperpigmented skin lesions and skin nodules for ten years. On physical examination, we found multiple dark brown macules (cafe' au lait spots) and multiple cutaneous nodules of various sizes. A 4 cm in diameter of ill-defined abdominal mass can be palpated in her right lower quadrant. Barium study and ultrasonography showed small bowel intussusception. Abdominal exploration and segmental ileal resection were performed for removing intestinal tumors. Histopathological finding is neurofibromatosis of small intestine.

Clinical Manifestations of Eosinophilic Appendicitis: The Outbreak in Cambodian Refugee Patient at Borai Hospital

B Kanchanabat, S Jetsadapatrakul, W Thanapongsathor, P Tawochareon, P Witiyanan, S Aiumsirithavon

Eosinophilic appendicitis characterized by diffuse eosinophilic infiltration of all layers of appendiceal wall or presence of eosinophilic granuloma, has been correlated with *Strongyloides stercoralis*, *Oxyuris vermicularis*, schistosomiasis.

The incidence of RLQ pain in refugee patient referred to Borai Hospital with suspicious of acute appendicitis was unusually increased since February 1998. 142 cases of appendectomy operation was performed, with 76 pathological specimens. Pathological finding of eosinophilic appendicitis was diagnosed in 12 cases

From the review of clinical features of these patients, most are females (9/12) with the symptoms of protracted course of right lower quadrant abdominal pain with the mean of 6.7 days and ranged from 2 to 15 days. Physical examination revealed tenderness of RLQ area without rigidity or guarding, 70 per cent of the patients has body temperature less than 37.5 °C. Symptoms of nausea and vomiting were present in 50 per cent. Laboratory finding

revealed no leucocytosis (means of white blood cell count are 7257 cell per mm³), 75 per cent of patients had elevated proportion of eosinophils (eosinophils more than 5%), means 12 per cent. From pathological finding, most cases have reactive lymphoid hyperplasia (80%). Half of the specimens had fecalith. Enterobius was demonstrated in appendiceal lumen in 3 cases and eosinophilic granuloma

with central necrosis was found in 2 cases which suggested larva migrans tract, however no larva was found.

Conclusion: The etiology may be parasitic in nature. Clinical course of protracted right lower quadrant abdominal pain, abdominal sign of soft tenderness and eosinophilia seem to be different from obstructive appendicitis.