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BREAST SURGERY

COMPARATIVE STUDY OF CYTOLOGICAL ANALYSIS VERSUS FROZEN SECTION FOR DETECTION OF SENTINEL LYMPH NODE METASTASES IN BREAST CANCER

Wichitra Asanprakit[1], Phibul Punyarit[2], Sukchai Satthaporn[1], Wichai Vassanasiri[1], Surapong Supaporn[1]

[1]Department of Surgery, Phramongkutklao Hospital and College of Medicine, Bangkok, Thailand, [2]Army institute of Pathology, Phramongkutklao Hospital and College of Medicine, Bangkok, Thailand

Background: Sentinel lymph node biopsy has become the standard procedure for axillary lymph node evaluation in breast cancer patients. Frozen section is the common technique that often used for intraoperative examination of sentinel lymph node but it has some disadvantages. Cytology is another analysis technique that has been evaluated during operation for several types of cancer and it has advantage over frozen section.

Objectives: Aims of this study were to compare usefulness of frozen section and cytological analysis for diagnosis of sentinel lymph node metastases of breast cancer.

Materials and Methods: During January 2007 to December 2007, 84 breast cancer patients underwent sentinel lymph node biopsy by blue dye technique alone. After dissection and removal of lymph nodes, cytological analysis, frozen section and permanent section of sentinel lymph nodes were performed.

Results: A total of 166 sentinel lymph nodes were harvested and sent for cytological analysis, frozen section and permanent section. 32 lymph nodes were positive by permanent section. The sensitivity, specificity and accuracy of cytological analysis were 93.75%, 100% and 98.79% respectively that equal to frozen section method.

Conclusion: Cytological analysis is a useful method and at least as accurate as frozen section for evaluating sentinel lymph node metastasis in breast cancer patients.

A COMPARATIVE STUDY BETWEEN COMPRESSIBLE BRASSIERE AND CONVENTIONAL PRESSURE DRESSING FOR SEROMA PREVENTION AFTER MASTECTOMY IN BREAST CANCER

Wisit Kasertsermwiriya, Suphakarn Techapongsatorn, Anan Manomaiphiboon, Pong Karnchanasuthiruk, Sathis Srimunthayamatr

General Surgery Unit, Department of Surgery, BMA Medical College and Vajira Hospital, Bangkok, Thailand

Background: Seroma is a common complication after mastectomy in breast cancer. Its incidence is about 30-53%. Various techniques to prevent seroma such as fibrin glue, sclerosing agents, dissection instruments, shoulder exercise did not show the advantage. From previous studies, conventional pressure dressing could not maintain the pressure at surgical wound. Then, newly developed compressible brassiere was selected for comparative study after pressure and acceptable testing.

Materials and Methods: A total of 56 patients with stage I-III breast cancer who underwent modified radical mastectomy in Vajira Hospital were randomly allocated into 2 groups. Compressible brassiere and conventional pressure dressing after surgery were applied to 27 and 29 patients. The surgeons did not know the type of dressing until finished the operation. The demographic data, total volume of drainage, drainage period and occurrence of the seroma were recorded and compared between two groups.

Results: The drainage volume in compressible brassiere group and conventional group were not different statistically (774.3 ml and 725.5 ml, p = 0.73). The drainage period between two group were not different too (11.1 days and 9.3 days, p = 0.19). Seroma occurred in 6/27 and 4/29 cases (p = 0.49). Skin complications from adhesive dressing especially excoriation or bleb formation occurred in only conventional group (8/29).

Conclusion: The incidence of seroma after mastectomy in breast cancer were not different statistically significant between compressible brassiere and conventional pressure dressing. However, surrounding skin complications from adhesive dressing were not found in compressible brassiere.

KNOWLEDGE, ATTITUDE AND BEHAVIOR OF THAI WOMEN TOWARD BREAST CANCER SCREENING

Suphakarn Techapongsatorn[1], Cherdchai Kittipovanon[2]

[1]General Surgery Unit, Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital, Bangkok, Thailand, [2]General Surgery unit, Somdej Prayupraraj Kranuan Khon Kaen Hospital, Khon Kaen, Thailand

Objective: To study the knowledge, attitude and behavior of Thai women toward breast cancer screening

Materials and Methods: A total of 200 women attending OPD or visiting surgical ward at BMA Medical College and Vajira hospital and Somdej Prayupraraj Kranuan Khon Kaen during August 2007-December 2007 were enrolled. Self administer questionnaires about knowledge, attitude and behavior toward breast cancer screening were distributed to the subjects. Percentage of knowledge, attitude and behavior toward breast cancer screening were analyzed.

Results: The good knowledge toward breast cancer screening such as self breast examination was 70% and examination by medical personnel was 75%. The good attitude toward breast cancer screening such as self breast examination was 93%, examination by medical personnel was 70%, and mammography was 70%. The barrier of breast cancer screening was the male physician who performed breast physical examination and cost of mammography. The behavior toward breast cancer screening was limited, self breast examination was 70%, examination by medical personnel and performed mammography was only 30%

Conclusion: The good knowledge and attitude toward breast cancer screening by medical personnel was 70 % and 93 % respectively. But the behavior toward breast cancer screening was only 30%.

QUALITY OF LIFE IN BREAST CANCER PATIENTS

Suphakan Techapongsatorn, Supada Techapongsatorn, Wisit Kasetsermviriya, Satit Srimantayamas, Anan Manomaipiboon

General Surgery Unit, Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital, Bangkok, Thailand

Objective: To study quality of life in breast cancer patient stage 1-3 and factors that effect the quality of life in vajira hospital.

Materials and Methods: One hundred and five stage 1-3 breast cancer patients who follow up at the Outpatient Department of Vajira Hospital between December 2004 - November 2005. The patients answered the WHOQOL-BREF (Thai version) and the Quality of Life score was calculated to find the mean of score and standard deviation. The socioeconomic status and treatment factors were analyzed effect to the quality of life.

Results: The mean quality of life is 87.8286 (medium quality of life) and the standard deviation is 8.58. The income and education factors were statistical significant effect to the quality of life score ($p < 0.05$).

Conclusion: The mean quality of life in breast cancer patient stage 1-3 was in medium range. Income and education had effect on the quality of life in breast cancer patients.

QUALITY OF LIFE IN BREAST CANCER SURGERY: COMPARATIVE STUDY OF MASTECTOMY, MASTECTOMY WITH IMMEDIATE BREAST RECONSTRUCTION AND BREAST CONSERVING SURGERY

Satit Srimontayamas, Adune Ratanawichitrasin, Kris Bhothisuwan, Supakorn Rojananin, Poramaporn Prasarttong-Osoth, Pradit Rushatamukayanunt, Waraporn Imruthaichareonchok, Visnu Lohsiriwat, Suebwong Juthapisit, Pornchai O-charoenrat

Division of Head-Neck and Breast Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Breast conserving surgery (BCS) and mastectomy with immediate breast reconstruction (MIBR) are the treatment of breast cancer with advantages in terms of cosmetic outcome. The procedures do not affect survival outcome and local recurrence, but may improve quality of life (QoL). Previous studies failed to demonstrate a better QoL in women who undergone BCS and MIBR, compared with women who undergone mastectomy (MT). Therefore we aimed to study QoL amongst women who underwent mastectomy, BCS and mastectomy with IBR.

Material and Methods: Two hundred and sixty five

Thai women who had breast cancer surgery at Siriraj Hospital were included in the study. These included 113 women who had mastectomy (MT group), 109 women who had breast conserving surgery (BCS group) and 43 women who had mastectomy with transverse rectus abdominis muscle flap (TRAM group). Functional Assessment for Cancer Therapy-G and B (FACT-G and FACT-B) questionnaires were used to assess QoL. ANOVA test was used for statistic analysis.

Results: There was no difference in age, occupation, graduate, marital and menopausal status of patient amongst the three groups. However, women in the BCS group presented at earlier stage than the MT and TRAM group. Axillary lymph node dissection (ALND) was more frequently performed in MRM and TRAM group. Women in the MT and TRAM groups received adjuvant chemotherapy more than women in the BCS group. All three groups had same follow up period. Based on the FACT-G and FACT-B score, there was no significant difference in overall QoL amongst three studied groups (p=0.056 for FACT-G and p=0.275 for FACT-B, ANOVA test.). However, the difference was demonstrated in the emotional well-being subsection (p=0.09) that the women in TRAM group had better emotional well-being comparing the women in BCS and MT groups.

Conclusion: Women who underwent mastectomy with IBR had no significant difference in FACT-G and FACT-B score, however the women in the TRAM group had better QoL comparing the women in the BCS and MT groups in terms of emotional well-being.

COLORECTAL AND ANAL SURGERY

"PILONIDAL SINUS" A PROCEDURAL DILEMMA FOR THE SURGICAL TRAINEES

Sholeh Boodhun, Mohammad W Ashrafi, James Roberts-Thomson, Derek Brockwell

Mersey Community Hospital, Tasmania, Australia.

Background: The term pilonidal comes from the Latin words for hair "pilus" and nest "nidus". Pilonidal sinus arises in the hair follicles in the buttock cleft at the bottom of the backbone. It is more common in males than females and its age of presentation is between 16-20. Surgery is the definitive treatment. The procedures include: incision and drainage, wide excision and open wound, wide excision and primary closure, wide excision and marsupialisation and wide excision with flap reconstructions (includes Limberg flap, adipo-fasciocutaneous flap and Karydakis flap).

Objective: To identify the best possible surgical treatment for pilonidal sinus.

Materials and Methods: This is a retrospective analysis of surgical treatments of 130 cases of pilonidal sinus in a rural hospital, Tasmania in the last 2 years. The hospital has 2 full time general surgical consultants and regular visiting (locum) consultants.

Results: As a surgical trainee, it was observed that the type of surgical treatment offered was consultant dependent. Medline search could not prove the report of recurrence and complication of one particular procedure better than the rest. All the surgical treatments were observed to have similar outcomes.

Conclusion: The ideal therapy in pilonidal sinus is one with simple surgery and short hospitalization, which inflicts minimal pain and discomfort to patient, requiring minimal wound care and has rapid return to normal activity. No surgical treatment provided met all these goals. The endeavour towards the best outcome still remains a balance between patients and surgeons expectation. Available literature is a huge source helping surgeons in decision -making.

ASGE GUIDELINE FOR COLONOSCOPY: USEFUL OR USELESS IN TERTIARY CARE HOSPITAL

Kumphol Prugsaudomchai[1], Siripong Sirikurnpibon[1], Burin Awapittaya[1], Paiboon Jiwapaisarnpong[1], Jumpol Singharannusorn[2], Jerasak Wannaprasert[2], Thawee Ratanachu-ek[2], Sukij Panpimanmas[2]

[1]Division of Colorectal Surgery, [2]Division of Endoscopic and Laparoscopic Surgery, Department of General Surgery, Rajvithi Hospital. Bangkok, Thailand

Background: ASGE Guideline is accepted worldwide for screening of early colorectal cancer. But there is a question regarding the appropriateness of ASGE Guideline in area with low incidence of colorectal cancer.

Objective: To determine the appropriateness of using ASEG Guideline for screening colorectal cancer in a tertiary care center in Thailand.

Materials and Methods: Retrospective review of data in the Surgical Endoscopy Unit during January 1, 2007-December 31, 2008 was performed. One thousand seven hundred and twenty six persons were indicated for

colonoscopy. Patients were divided into 2 groups. In the first group ASGE guideline was used whereas other guideline was used in the second group. The detection rate of colorectal cancer and other abnormal lesions (colorectal polyps) was compared between two groups. Statistical significance was determined by the independent-sample T-test and Chi-square test. Colorectal cancer detection rate was determined by Odd ratio, sensitivity and specificity in each guideline.

Results: No significant difference in ASGE Guideline and other indication (chi-square p = 1.154) [0.934-1.425]. Patients who underwent colonoscopy for unexplained diarrhea, positive occult blood, surveillance after colon cancer resection, abnormal barium enema, hematochezia, patient preference, rule out primary in colon due to metastasis in these indications is significant to related abnormal finding more than general population (odds ratio > 1.5). Hematochezia is the most sensitivity indication among other indications, but this indication is not specific (sensitivity = 62.39%, specificity = 58.80%). Family history of HNPCC or FAP and abnormal BE had low sensitivity for detection of colorectal cancer (sensitivity = 0.85%, sensitivity = 26.06%) but these indications were more specific (specificity = 98.22 %, specificity = 93.22 %). Rectum is the most common detected site (46.9%), sigmoid colon is the second (25.2%) and cecum is the third.

Conclusion: ASGE Guideline is not appropriated for detect early colorectal cancer by colonoscopy but it appropriated in high risk group in tertiary care.

OUTCOMES OF HEPATIC RESECTION FOR COLORECTAL LIVER METASTASIS IN KING CHULALONGKORN MEMORIAL HOSPITAL EXPERIENCE

Thatsakorn K, Sirichindakul B, Nonthasoot B, Suphapol J, Nivatvongs S

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

Background: Resection of colorectal liver metastasis (CRLM) in selected patients has evolved as the standard care during the past 2 decades. The aim of this study was to determine about survival and analyze the prognostic factors associated with long-term outcomes after hepatic resection for colorectal liver metastasis.

Materials and Methods: Between January 2000 and December 2007, patients who underwent curative hepatic resection of colorectal liver metastasis in King Chulalongkorn Memorial Hospital were enrolled into the study, retrospectively. Data were collected from medical records, operative note and personal contact for survival. Survival was evaluated by the Kaplan-Meier method. Univariate and multivariate analysis were used to evaluate survival prognostic predictors.

Results: During the study, there were 96 consecutive patients. Median overall survival was 33 months. Median overall disease-free survival was 14 months. The 5-year survival rate was about 35%. Their hospital mortality rate was only 1.03%. Liver resection margin > 1 mm was the only significant prognostic factors after hepatic resection. The multivariate analysis revealed the same results.

Conclusion: Liver resection is the gold standard treatment of liver metastasis from colorectal cancer with a good result with low mortality in King Chulalongkorn Memorial Hospital. From our data, margin is the only significant factor that affected the survival. To have negative margin, surgical expertise is mandatory.

PROGNOSTIC FACTORS ASSOCIATED WITH SURGICAL OUTCOMES OF LOWER RECTAL CANCER

Thanes Khowsudhi, Shavin Bhatiya, Jirawat Pattana-arun

Colorectal Division, Department of Surgery, Chulalongkorn University, Bangkok, Thailand

Background and Aims: There are multiple prognostic factors associated with recurrence of rectal cancer after oncologic resection. The aim of this study was to identify potential prognostic factors in patients with non-metastatic lower rectal cancer.

Materials and Methods: Retrospective review of 90 patients who underwent curative resection of non-metastatic lower rectal cancer by conventional opened surgery with TME technique. The patients were operated in KCMH between 2004 and 2007, and had a minimum follow-up period of 2 years.

Results: There were 90 patients who had lower rectal cancer and underwent curative resection by opened TME technique. The mean follow-up period was 55.3 ± 13.0 months. The overall recurrence rate was 31.1% (28 patients had a local or systemic recurrence. The local recurrence rate, with or without systemic metastases was 11.1% (10 patients). The mean time to local and systemic recurrence was 20.6 ± 8.4 months and 17.2 ± 8.7 months respectively. In patients with lower rectal cancer, the pathologic stage, pathologic T stage, pathologic N stage and tumor differentiation were adverse risk factors for patient outcome (p = 0.001, 0.002, <0.001 and 0.01 respectively). In this review; lower recurrence rate was found in patients who were not received preoperative chemoradiation. However, the statistic difference was not significant (p = 0.436)

Conclusion: The pathological stage, pathologic T

stage, pathologic N stage and tumor differentiation are poor prognostic factors for patient outcome and adverse risk factors for disease recurrence in lower rectal cancers. Therefore, meticulous follow-up should provide for the patients who have these adverse risk factors

PNEUMATIC-ASSISTED LITHOTOMY STIRRUPS

Arun Rojanasakul

Colorectal Division, Department of Surgery, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background: The perineolithotomy is a standard position for many colorectal procedures. The commercially stirrups for facilitating this position is expensive.

Objective: To design and develop an economical pneumatic-assisted lithotomy stirrup (PAL stirrup).

Materials and Methods: A PAL stirrups was designed. The function of this stirrup was based on the use of double shock absorber tubes with internal locking mechanism, which was different from others. The stirrups were tested and developed until the qualities met the surgeons' satisfaction.

Results: PAL stirrup had two outstanding features: 1. Lithotomy range - the stirrups could be set between +90° to -30° vertically; 2. Abduction range - the stirrups could be set between +25° to -10° adduction.

Conclusion: A newly designed PAL stirrup is developed. The stirrup has competitive features at affordable cost.

THE TECHNIQUE TO ACHIEVE COMPLETE WIDE EXCISION FOR RECURRENT PERIANAL PAGET'S DISEASE WITH FLAP COVERAGE

Sathon Thamumnuaysuk, Jirawat PattanaArun

Division of Colorectal Surgery, Department of Surgery, King Chulalongkorn Memorial Hospital, Chulalongkorn University, Bangkok, Thailand

Background: Perianal Paget's disease is a rare condition. The treatment of choice is wide excision and reconstruction with flap coverage. To achieve complete dissection is difficult in some extensive diseases that involve the dentate line or above, which 1-centimeter proximal margin must not be compromised.

Objective: To demonstrate the stepwise technique for complete dissection the extensive recurrence perianal Paget's disease that extends to the area above the dentate line, follows with flap coverage

Materials and Methods: This patient was diagnosed as the Paget's disease last year. He underwent circumferential wide excision with flap coverage. One year later, the recurrent Paget's was found. On the examination, the upper border involved to the dentate line. He underwent en-bloc extensive dissection of the perianal area upward to the mucosa about 1-centimeter above the dentate line. After that bilateral VY flap coverage was performed.

Results: Pathologic report showed free all resected margin. No peri-operative complication was detected, and at 2 weeks follow up, minor wound dehiscence was found but no flap loss or sepsis. At 6 weeks, the wound was completely healed without stricture, and he had normal continence.

Conclusion: This is a technique for dissection of perianal area that can obtain a specimen in continuity up to mucosa of the distal rectum. This may be useful for extensive dissection of the perianal Paget's disease and other perianal lesions.

FACTORS INFLUENCING THE DEVELOPMENT OF FISTULA IN ANO FOLLOWING DRAINAGE OF PERIANAL ABSCESS

Hariruk Yodying, Varut Lohsiriwat, Darin Lohsiriwat

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

Background: There are a limited number of studies determining factors which could predict the development of fistula in ano following surgical drainage of anorectal abscess. The aim of this study was to evaluate the incidence of fistula in ano following drainage of perianal abscess and to determine factors influencing the development of this subsequent fistula in ano.

Materials and Methods: Patients with first-time perianal abscess who underwent incision & drainage at Department of Surgery, Faculty of Medicine Siriraj Hospital from January 2005 to June 2008 were reviewed. Incidence and risk factors for subsequent fistula formation were analyzed.

Results: Sixty four patients were reviewed (50 males, 14 females). An average age of the patients was 44 years (range 19-82). The average follow-up period was 30 months. Twenty patients (31%) developed fistula in ano following the drainage of perianal abscess. All fistulas were diagnosed within 6 months after the operation. Univariate analysis showed that patients younger than 40 years and non-diabetic patients tended to have a higher risk for developing the fistula (OR 2.95, 95%CI 0.98-8.45; p = 0.062 and OR 4.2, 95%CI 0.85-20.83; p = 0.071, respectively) although they did not reach statistic significance. However, patients

received perioperative antibiotics were 4.5 times less likely to develop subsequent fistula in both univariate and multivariate analysis (OR 4.5, 95%CI 1.44-14.13; p = 0.01). Meanwhile, gender, ASA classification, smoking, alcohol consumption, fever, leukocytosis, location of the abscess were not predictive of the fistula formation.

Conclusion: The incidence of fistula in ano following drainage of perianal abscess was 31%. Patients younger than 40 years and non-diabetic patients appeared to have a higher risk for developing the fistula but did not reach statistic significance. Patients received perioperative antibiotics had a significantly decreased rate of subsequent fistula development.

ENDOCRINE SURGERY

THE ERA OF TREATING MEDICAL DISEASES SURGICALLY - OBESITY, AND THEN, DIABETES

Muffazal Lakdawala

Clinic of Weight Management, L.H Hiranandani Hospital, Powai, India

The first-line strategy for weight loss and its maintenance is a combination of supervised diet, exercise and behavior modification. Anti-obesity drugs may be used in adult patients at medical risk from obesity (BMI 30 or greater), or overweight patients with established comorbidities. However not all obese patients respond to drug therapy. Short term treatment with these drugs is ineffective. Drugs like orlistat, sibutramine and especially rimonabandt have many reported side effects when used in the long term. The story of surgery for obesity started in the 1950s when a few investigators in various parts of the world started performing the jejunoileal bypasses for treating morbid obesity. Kremen and Linner were the first to publish their findings in a peer reviewed journal at that time. In the last six decades bariatric surgery has progressed to become an advanced superspeciality. Adjustable gastric banding, roux en y gastric bypass and biliopancreatic diversion are the most common procedures being done today. Sleeve gastrectomy is the latest addition to the spectrum of bariatric surgery which is fast gaining popularity. The advent of Laparoscopy has made these surgeries much safer and the morbidity related to surgery in the obese has decreased manifold. Surgery leads to 60 to 85% excess weight loss depending upon the procedure performed. Long term studies indicate that the weight loss is maintained over more than 15 years. Bariatric surgery also leads to resolution of many co morbidities.

It was way back in 1923, Murry N. Friedman had reported amelioration of diabetes mellitus following subtotal gastrectomy. This paper went unnoticed until 1995 when Sir Walter Porries demonstrated resolution of type 2 diabetes in obese diabetics in his paper titled "who would have thought it? An operation proves to be the most successful therapy for adult onset diabetes." Over a period of time, bariatric surgery has proved to be the best treatment for obese diabetics. With best medical management we can only hope to achieve diabetes "control". Surgery is the only method by which diabetes can be "resolved" with no further requirement of medications. Diabetes resolves within days of surgery thus questioning the theory of weight loss and decreased insulin resistance post surgery. It may have something to do with rerouting of the gut anatomy or the GI hormones may play a role. Various theories have been postulated but the exact mechanism is still unclear and it is a topic of major research. The contention is whether the same results can be simulated in diabetics who are not obese. Whether metabolic procedures like ileal transposition and duodenojejunal bypass will stand the test of time is yet to be seen. Trials are going on in various parts of the world. Asia has the biggest diabetic load and stands to benefit the maximum from any positive outcomes. There is immense hope riding on this concept as any positive results would prove to be a boon to the millions of diabetics who can then hope of a pill or insulin free life.

Surgery for non-obese metabolic Syndrome: The Future at the Horizon

Type II diabetes has evolved as a serious health challenge all over the world. It is estimated that by 2025 there will be 333 million diabetics in the world with the highest numbers among Asians. Type II diabetes is just a part of the whole cluster of disorders that lead to cardiovascular risk factors. The other factors being obesity, hypertension and dyslipidemia otherwise known as the "Metabolic syndrome" or the 'Syndrome X'. Although prevalence of obesity as defined by the World Health Organization (WHO) is relatively low in Asia compared to western countries, metabolic syndrome is growing into a significant public health problem. The Asian population is predisposed to these risk factors at lower BMIs than their western counterparts. It has been shown that Asian Indians have a higher adiposity for a given level of obesity and it is

more central when compared to other populations. Surgery is a proven cure in morbidly obese with metabolic syndrome. Whether it will work in patients with metabolic syndrome who are not obese is yet to be seen. Over the years various investigators have dropped the BMI levels to see if they can extend the benefits of surgery to people who may not fall into the category of morbidly obese but suffer from metabolic syndrome. This has been a topic of discussion and debates at various forums all over the world. In the last couple of years three landmark summits have been held: Rome Diabetes Surgery Summit (DSS) in 2007, World Diabetes Summit at New York in 2008 and the First Asian Consensus Meeting for Metabolic Surgery (ACMOMS) at Trivandrum in 2008. Roux en y gastric bypass (RYGB) is now a documented treatment modality for type II diabetics above a BMI of 30. Along with RYGB various other procedures like ileal transposition and duodeno jejunal bypasses are being done for patients with BMI less than 30 under experimental protocol. A lot of research is headed towards this cause. Any positive outcome will have a great impact on Asia as it has the maximum number people who are suffering from metabolic syndrome but do not classify as clinically obese. What the future beholds we do not know yet, but as of today it is all about heading in what we feel is the right direction.

The Surgical Armamentarium for Treating Metabolic Syndrome

Bariatric surgery has now been incorporated into the broader realm of "surgery for metabolic diseases". All bariatric procedures have a favourable impact on comorbidities. The extent of benefit varies with the type of procedure. Changing the anatomy of gut and gut hormones like ghrelin have a major role to play. There are various other factors that may influence the outcome. Body fat percentage, genetic make up, geographic and environmental factors and ethnicity are a few of them. As for example, a restrictive procedure like gastric banding has shown excellent results in the Australian continent whereas in India it has almost failed. Biliopancreatic diversions are more commonly performed in Europe and have shown the best resolution of comorbidities amongst all Bariatric/ Metabolic procedures. It is difficult to maintain the nutritional demands post this surgery and hence it is not a preferred choice in Asia. Roux en Y gastric bypass has shown the best results in the Asian population. Sleeve gastrectomy has also shown very encouraging effects on the comorbidities in the early reports. It is difficult to elucidate why a procedure works in one geographic region and not in the other. The mechanisms by which surgery works are still unknown. Surgery does work is the bottom line.

LAPAROSCOPIC BILATERAL ADRENALECTOMY

Poschong Suesat

Bhumibol Adulyadej Hospital, Directorate of Medical Service, Royal Thai Air Force, Bangkok, Thailand

Background: The most common cause of Cushing's syndrome is pharmacologic glucocorticoid use for the treatment of inflammatory disorders. Endogenous Cushing's syndrome is rare, with 5 to 10 individuals affected per million. Of these, the majority of affected individuals (75%) will have Cushing's disease, that is, glucocorticoid excess caused by an ACTH-hypersecreting pituitary adenoma. The remainder will be split between primary adrenal Cushing's syndrome (15%) and ectopic ACTH syndrome (<10%), the latter of which most commonly arises from either neuroendocrine tumors or bronchogenic malignancies in the thorax. Adrenalectomy is more than 90% effective in the treatment of primary adrenal Cushing's syndrome. Failures may result from local and occasionally distant tumor recurrence in the case of malignant disease. Bilateral adrenalectomy is indicated in patients with Cushing's disease secondary to macroadenoma or hypophysial hyperplasia in which medical treatment and transsphenoid surgery have failed. Also, it is the first choice for bilateral benign tumors, metastatic neoplasia and ectopic ACTH syndrome due to occult or disseminated tumors. Because the open approach carries substantial morbidity, laparoscopic approach has become the preferred surgical procedure to manage those adrenal disorders.

Objective: To report a patient with endogenous Cushing's syndrome who was successful managed by laparoscopic bilateral adrenalectomy.

Materials and Methods: A 29 year-old male underwent laparoscopic bilateral adrenalectomy for persistent Cushing's disease after transsphenoidal pituitary tumor resection and unresponsive to medical management. This procedure was performed sequentially in full lateral decubitus, with patient repositioning between the sides.

Results: Operative time was 305 minutes, including repositioning. There were no intra-operative and postoperative complications. The patient resumed a regular diet on the first postoperative day. Inpatient postoperative hospital length of stay was 7 days, mainly for steroid-replacement and medical management. Final pathologic diagnoses were adrenocortical hyperplasia of both glands. The patient noted a quick improvement in Cushing's syndrome symptoms and signs. He was maintained on low doses of steroid-replacement without incident for over 1 year.

Conclusion: Laparoscopic bilateral adrenalectomy for Cushing's disease refractory to medical management can

be performed with low morbidity. Symptoms and signs of hypercortisolism rapidly improve postoperatively.

AN UNUSUAL PRESENTATION OF THYROGLOSSAL DUCT CYST ASSOCIATED WITH PAPILLARY CARCINOMA: A CASE REPORT

Chuathong A[1], Ouawathanamongkol S[1], Maipang T[1], Chongchitnant N[2]

[1]Surgical Oncology Unit, Wattanosoth Hospital, Bangkok, Thailand

[2]Pathology Unit, Bangkok General Hospital, Bangkok, Thailand

Background: Thyroglossal duct cyst (TDCs) is the most common form of congenital malformations in the neck. TDCs present characteristically as a midline cervical mass at the level of thyrohyoid membrane. Approximately 25% are located within 2 cm. of midline. Carcinomas arising in TDCs constitute a very uncommon clinicopathological entity (about 1% of TDCs). Papillary thyroid carcinoma is the most common cancer of the thyroid gland (about 90% of cases) and represents also the most frequently encountered carcinoma in TDCs. We presented a case of an unusual location of TDCs (supraclavicular region) associated with papillary carcinoma.

Subject: A 35-year-old woman visited with the complaint of an 8-cm cystic lump on her right supraclavicular region for 2 months. Physical examination revealed an 8.0 × 6.0 cm. cystic mass at the right supraclavicular region. The patient underwent neck exploration for removal of the mass. At the time of operation, two cystic masses were found at the right mid jugular region (3 cm. in diameter) and right supraclavicular region (8.6×5.0 cm. in diameter). Histopathological examination showed cystic spaces lined with simple columnar epithelium cells and foci of thyroid tissue which presented at the outer aspect of the cyst wall. A small papillary carcinoma is present in this area. Ultrasonographic evaluation on the patient's thyroid gland was performed and revealed 1 cm. in diameter nodule at the superior pole of the right lobe. Unsatisfactory result performed by ultrasound-guided core needle biopsy led the surgeon to perform right lobectomy of the thyroid gland. Papillary carcinoma was found by intra-operative frozen section, thus the total thyroid was removed.

Conclusion: Coincidence with metastasized papillary carcinoma of thyroid gland which may be found up to 14% of TDC case. Malignancy may arise from thyroid tissue presented in the wall of TDC, or metastasize from thyroid carcinoma, although it may be difficult to determine whether it is the primary tumor or the metastasis. Careful evaluation of thyroid gland is essential for complete removal of possible residual malignancy.

NEW APPROACH TO THYROID SURGERY VIA A LATERAL INCISION

Prakasit Chirappapha, Thongchai Sukarayothin, Kampol Ratchaworapong, Chairat Supsamutchai, Youwanush Kongdan

Breast and Endocrine Surgery Unit, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Various techniques for minimally invasive thyroid surgery, including endoscopic and video-assisted procedures, have now been increasingly reported. We reviewed our experience with thyroid surgery using a lateral mini-incision approach, a similar technique for minimally invasive thyroid lobectomy and assessed its safety and feasibility.

Methods: The last 7 consecutive thyroid surgeries using the lateral mini-incision approach, were performed between July 2008 and June 2009. Exclusion criteria for this procedure included: previous neck irradiation or surgery, malignancy on fine needle aspiration and nodule size > 3 cm. The results of the lateral approach were compared with the patients underwent endoscopic thyroid lobectomy prior to use of this approach.

Results: Among them, mean nodule size was 2.8 cm. All recurrent laryngeal nerves were identified. One case was converted because malignancy was diagnosed on frozen section examination. There were no operative complications, and all patients were discharged on the first postoperative day.

Conclusion: The lateral mini-incision approach is safe and feasible alternative to endoscopic and video-assisted procedures in appropriately selected cases. It offers a valuable option for minimally invasive thyroid surgery with low complication.

SENTINEL LYMPH NODE BIOPSY IN THYROID CANCER

Prakasit Chirappapha, Thongchai Sukarayothin, Kampol Ratchaworapong, Chairat Supsamutchai, Youwanush Kongdan

Breast and Endocrine Surgery unit, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: The role of sentinel node biopsy (SNB) in thyroid cancer is not yet clearly established. The prognostic value of lymph node metastases in papillary thyroid carcinoma (PTC) is still controversial. Aims of this study were: (a) to investigate the efficacy of radiocolloid and blue dye mapping of thyroid lymphatic drainage;

(b) to evaluate the effectiveness of SNB procedure on postoperative clinical staging.

Materials and Methods: The SNB was performed in five PTC patients. The blue dye method (dye only method) was used in 2 cases, and radioisotope and blue dye method (combined method) in 3 cases. Two cases underwent radiocolloid lymphoscintigraphy before surgery. Three cases underwent blue dye alone. At the time of operation, 0.1-0.2 ml of isosulfan blue dye was injected intratumorally using an insulin syringe. The thyroid gland was not mobilized before dye injection to preserve lymphatic drainage around thyroid gland. Within seconds, the blue dye was seen along the thyroid gland toward the sentinel lymph node. Once identified, all blue-stained nodes were removed with extreme caution, and then submitted for frozen section analysis.

Results: The sentinel nodes were identified in 2 cases. Lymphatic mapping was unsuccessful in 2 cases due to shining effect of the signal. Two patients with sentinel node metastasis in lateral neck underwent additional modified radical neck dissection.

Conclusion: This is the first report of SNB for thyroid cancer. Our preliminary findings indicate that SNB can detect nonpalpable nodal metastasis with the same principle as breast cancer. The clinical significance of this technique in thyroid cancer remains to be determined.

HEPATOBILIARY AND PANCREATIC SURGERY

CARCINOMA OF THE GALL BLADDER: ETIOLOGY AND CLINICAL FEATURES

Dhananjaya Sharma

Department of Surgery, Government NSCB Medical College and Allied Hospitals, Jabalpur, India

Gallbladder cancer is usually associated with gallstone disease, late diagnosis, unsatisfactory treatment, and poor prognosis with <5% 5-year survival. The highest incidence rate of gallbladder cancer is found among populations of the Andean area, North American Indians, and Mexican Americans. Gallbladder cancer is up to three times higher among women than men in all populations. The main associated risk factors identified so far include cholelithiasis (risk of gallbladder cancer is approximately 4-5 times higher in patients with gallstones than in patients without gallstones, especially untreated chronic symptomatic gallstones, where the onset of gallstone disease occurs in the first few decades), obesity, consumption of diets high in fats and calories, reproductive factors, chronic infections of the gallbladder, smoking, alcohol consumption and environmental exposure to specific chemicals. The decline in incidence in the western countries has been attributed to rates of cholecystectomies in these countries. Identifying high-risk groups and offering preventive measures like prophylactic cholecystectomy for asymptomatic gallstones may be justified for the control of gallbladder cancer in high-risk areas, and may lower incidence. In patients with cholelithiasis the risk of developing malignancy seems to correlate with stone size and number. Polyps that are >1 cm, single, sessile, and echopenic, anomalous junction of pancreaticobiliary ducts (AJPBD), especially without choledochal cyst, porcelain gallbladder, chronic bacterial infections of the gallbladder, and typhoid carrier state are other factors associated with high risk of developing cancer of Gall bladder.

Indian Scenario: The incidence of gall bladder cancer is very high in Northern and Central India. It is twice more common in women and is the leading cancer among digestive cancers in women in the northern Indian cities. There are many hypotheses to explain this geographical predisposition; including adulterated mustard cooking oil, infected bile and increased concentration of secondary bile acids. Incidence seems to be increasing, perhaps due to improved diagnosis. The knowledge of etiology of cancer is a prerequisite essential to a better understanding of the etiology of the disease and the development of prevention strategies. Studies are needed to identify important modifiable risk factors and to develop strategies to increase the use of screening-procedures among the high-risk patients.

HOW TO MAKE WHIPPLE PROCEDURE SAFE

Xiu Dian Rong

Department of General Surgery, Peking University Third Hospital, Beijing 100191, China

Pancreaticoduodenectomy remains one of the most sophisticated procedures in the field of general surgery. Though the mortality dropped dramatically as the improvement of nutrition, drugs and many other supportive measures, the complications after Whipple procedure still is a big challenge even in high volume institutes. How to make the procedure safe remains the topic which is frequently discussed. In the presentation, the most common

morbidities will be discussed and some experiences from Peking University Third Hospital will be shared with the audiences. Among the complications that frequently occur in pancreaticoduodenectomy, hemorrhage during and immediately after operation is the first one should be mentioned. Also, the abnormality of coagulation function for the pancreatic patients with or without obstructive jaundice will be discussed. Pancreatic leakage or fistula is unique in pancreatic surgery and often contributed to the other negative consequences. Several technical modifications aimed to reduce its incidence have been reported continuously from the day of Whipple to quite recently, however, its occurrence rate in most publications are more than 10% and is the most common reason for prolonged hospital stay and rising complications. Delayed gastric emptying is not so severe and often related to pancreatic leakage and abdominal abscess, eliminating the leakage and infection will effectively prevent its occurrence.

Operations for uncommon pancreatic tumors.

Perhaps the variety of pancreatic neoplasm is the most complicated one among all the solid organs in human. Ductal pancreatic carcinoma is the most common cancer of the pancreatic and has been discussed extensively. As the use of ultrasound in routine health examination become more and more popular, many asymptomatic or minimally symptomatic pancreatic lesions have been documented. Among them, serous cystadenoma is considered benign and should be closely followed-up for those smaller than 3 cm in diameter. Mucinous cystic adenomas are the most frequently encountered cystic neoplasm of the pancreas and surgical excision is indicated because its potential of cancerization. Solid pseudopapillary neoplasms are rare lesions, constituting less than 1% of all pancreatic neoplasms. Complete resection of local disease is equivalent to cure. Functional and nonfunctional pancreatic endocrine neoplasms can be benign or malignant based on size, mitotic rate, and vascular invasion. The most typical characteristics of malignant pancreatic endocrine neoplasms is their liver metastasis tendency. Combined resection poses the potential of cure. Schwannoma and calcified myofibroblastoma also may occur in pancreas. As the preoperative concrete diagnosis is very difficult to get even with the modern imaging techniques, surgical resection which can be performed with either laparoscopic or conventional open approaches is recommended for most of the patients. If the tumor is located at the body and tail of the pancreas, laparoscopic resection provides patient less pain and quick recovery. For some small lesions, laparoscopic enucleation also is the better choice. For those tumors in the head or uncinate process of the pancreas, pancreaticoduodenectomy is frequently adopted. Here, we have fulfilled three cases of local resection with the cut surface anastomosed with a Roux-en-Yjejunal limb. Beger's procedure may be the suitable one for the tumor located at the neck of the pancreas.

RISK FACTORS FOR GALLSTONE DISEASE IN THAI POPULATION

Sukij Panpimanmas

Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

Background: Gallstone disease (GSD) is a major public health problem that could be caused by various factors in different people's background.

Materials and Methods: A case-control study of 407 subjects including GSD 207 cases and 200 controls without GSD were confirmed by ultrasound. Study subjects completed a questionnaire and underwent a physical examination and ultrasound. Risk factors explored consisted of age, sex, BMI, use of oral contraceptives, diabetes mellitus (DM), cirrhosis, thalassemia, dyspepsia, family history of gallstone disease, smoking, alcohol consumption, and dietary history.

Results: Three factors associated with gallstone were BMI, fat level on food and smoking. As compared with subjects having BMI equal to or below 24.9 kg/ m^2, subjects having BMI 25 kg/m^2 or above had a multivariate relative risk of 4.1 (95% CI, 2.5-6.7). People consuming meat with moderate and high fat composition had positive relative risk of 2.5 and 2.9 (95% CI, 1.5-5.6 and 1.5-4.2) compared with those consuming meat with low fat composition, respectively. Also, the multivariate relative risk for former smokers as compared with non-smoker was 2.4 (95% CI, 1.1-5.2).

Conclusion: Factors associated with gallstone disease were high BMI, food with high fat composition and smoking.

COMPLETE CAUDATE LOBECTOMY: ISOLATED CAUDATE LOBECTOMY METHOD

Siroj Kanjanapanjapol, Prakasit Chirappapha, Thongchai Sukarayothin, Kampol Ratchaworapong

Division of Hepatobiliary and Pancreatic, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: The treatment of primary tumor in the caudate lobe of liver often presents a technical challenge. It is difficult to perform because of its unique anatomical location and adjacency to the major hepatic vessels. There are three ways to approach and resect the caudate lobe of liver: an isolated caudate lobectomy, a combined resection

of liver overlying the caudate lobe, and a transhepatic anterior approach by splitting parenchyma of the liver. The aim of this study was to demonstrate operative technique and result by DVD presentation.

Materials and Methods: We reported a patient with neoplasm originating in the caudate lobe who underwent a complete caudate lobectomy via isolated caudate lobectomy approach.

Results: Caudate lobectomy underwent successfully without complication. Intra-operative bleeding was minimal. Neither Pringle maneuver nor blood transfusion was required. The patient was discharged in post-operative day 7. Histopathology revealed focal nodular hyperplasia with free margins.

Conclusion: Caudate lobectomy by an isolated caudate lobectomy method can improve operative effect and increase the resection probability for solitary tumor in the caudate lobe.

EXTENDED RIGHT HEPATOPANCREATODUODENECTOMY FOR DIFFUSE EXTRAHEPATIC CHOLANGIOCARCINOMA

Anon Chotirosniramit

Department of Surgery, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

Background: Hepatopancreatoduodenectomy is the most extensive curative operation for advance biliary tract cancer such as diffuse cholangiocarcinoma or locally advance gallbladder cancer. Morbidity and mortality rate were still high in most reports. The aim of this study was to demonstrate this procedure by DVD presentation.

Materials and Methods: From May 2001 to April 2009, 333 patients with hepatobiliary tract malignancy underwent hepatectomy. Of these, 5 hepatopancreatoduodenectomies were performed. In the case demonstration, a 72 year-old man presented with jaundice and epigastric pain for one month. CT scan revealed a lobulated arterial enhancing intraluminal mass with extension along hepatic duct confluence to distal common bile duct.

Results: Pre-operative percutaneous transhepatic biliary drainage was performed. Extended right hepatopancreatoduodenectomy was performed successfully with post-operative minor surgical site infection. The operative time, intra-operative blood loss, transfused blood and post-operative hospital stay was 1020 min, 2400 ml, 3 units and 21 days respectively. Histopathology revealed well differentiated intraductal papillary adenocarcinoma without stromal invasion or lymph node metastasis. All surgical margins were free of malignancy. The patient still survives without recurrence in one year.

Conclusion: To obtain free surgical margins in locally advance biliary tract cancer, hepatopancreatoduodenectomy may be required for curative intent. With the progress and experience in hepatobiliary-pancreatic surgery, this extensive procedure can be performed safely in selected patients.

COMBINED LIVER RESECTION WITH RADIOFREQUENCY ABLATION IN METASTATIC NEUROENDOCRINE TUMOR OF CERVIX

Rojratsirikul C, Thanapongsathorn W

Department of Surgery, Faculty of Medicine, Princess Mahachakri Sirindhorn Medical center, Srinakharinwirot University, Nakorn Nayok, Thailand

Background: The incidence of cervical cancer was 18.6%. Only 3 in 363 cases were reported having neuroendocrine cell type. Because these tumors are aggressive behavior, so early diagnosis and intensive treatment should be done. In case of liver metastases from neuroendocrine tumors, hepatic surgery has been reported that it can improve survival in these patients.

Objective: We presented a case of 50 years old woman who was diagnosed of neuroendocrine cervical carcinoma with liver metastases that underwent combine treatment of surgery with radiofrequency ablation (RF). The patient presented with vaginal bleeding about 4 months ago. Pelvic examination was performed, followed by cervical tissue biopsy. The pathological report showed moderately differentiated neuroendocrine carcinoma (atypical carcinoid tumor, mucicarmine strain negative). Further investigation, MRI showed a localized cervical mass and a single nodule (2.2 cm) at segment 3 of liver. After complete investigation and treatment planning was concluded, neoadjuvant chemoradiation was done. Reevaluation by MRI revealed partial respond at cervix and non respond at liver metastasis site (increase size of nodule at segment 3 with new nodule at segment 4, 7).

Methods: We performed exploratory laparotomy with enucleate at segment 3 and resection of segment 4. In addition, RF (StarBurst XL®, length 15 cm, 14 gauze/ 6.4 Fr) under ultrasound guide was done (15 min for 3 consecutive times). Conization at cervical mass was also performed in the same operative setting.

Results: The operation was successful without serious immediate complication. Operative time was 3 hours. Estimate blood loss was 500 ml. The specimens were sent to pathologic report and the official pathological report showed metastatic neuroendocrine carcinoma at segment

3 (free margin) and segment 4 (metastatic cells closed to the resected margin) of the liver. The primary site of cervix showed not free margin. The patient had only wound infection in post-operative period. Eight weeks after surgery, we followed up treatment respond by MRI. We found no residual tumor in left lobe and small residual tumor in right side of ablated area in segment 7.

Conclusion: Neuroendocrine cell type is a rare cell type of cervical cancer. We presented patient who was diagnosed of nueroendocrine cervical cancer with liver metastases in our institute. Combined surgery and RF was used for treating the patient and the result of this combine modality was satisfied without any serious morbidity.

DETECTION OF SERUM MMP-7 AND MMP-9 IN CHOLANGIOCARCINOMA PATIENTS: EVALUATION OF DIAGNOSTIC ACCURACY

Kawin Leelawat[1,2], Sompong Sakchinabut[1], Siriluck Narong[1], Jerasak Wannaprasert[1,2]

[1]Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

[2]Department of Surgery, College of Medicine, Rangsit University, Bangkok, Thailand

Background: Cholangiocarcinoma is an aggressive tumor with a tendency for local invasion and distant metastases. Timely diagnosis is very important because surgical resection (R0) remains the only hope for a cure. However, at present, there is no available tumor marker that can differentiate cholangiocarcinoma from benign bile duct disease. Previous studies have demonstrated that matrix metalloproteinase (MMP)-7 and MMP-9 are frequently expressed in cholangiocarcinoma specimens.

Materials and Methods: This study was designed to determine whether the serum levels of MMP-7 and MMP-9 could discriminate cholangiocarcinoma patients from benign biliary tract disease patients in comparison to carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA19-9). We measured the level of CEA, CA19-9, MMP-7 and MMP-9 in the serum of 44 cholangiocarcinoma and 36 benign biliary tract diseases patients.

Results: Among the serum levels of CEA, CA19-9, MMP-7 and MMP-9, only the serum MMP-7 level was significantly higher in the patients with cholangiocarcinoma (8.9 ± 3.43 ng/ml) compared to benign biliary tract disease patients (5.9 ± 3.03 ng/ml) ($p<0.001$). An receiver operating characteristic (ROC) curve analysis revealed that the detection of the serum MMP-7 level was reasonably accurate in differentiating cholangiocarcinoma from benign biliary tract disease patients (area under curve = 0.73; 95% CI = 0.614-0.848). While the areas under the curve of the ROC curves for CEA, CA19-9 and MMP-9 were 0.63 (95% CI = 0.501-0.760), 0.63 (95% CI = 0.491-0.761) and 0.59 (95% CI = 0.455-0.722), respectively.

Conclusion: Serum MMP-7 appears to be a valuable diagnostic marker in the discrimination of cholangiocarcinoma from benign biliary tract disease. Further prospective studies for serum MMP-7 measurement should be carried out to further investigate the potential of this molecule as a biomarker of cholangiocarcinoma.

MINIMAL INVASIVE SURGERY

CURRENT STATUS OF GASTRIC CANCER TREATMENT IN KOREA: LAPAROSCOPIC SURGERY FOR GASTRIC CANCER

Yang Han-Kwang

Department of Surgery and Cancer Research Institute, Seoul National University College of Medicine, Seoul, Korea

In this lecture, I will present general principles of gastric cancer treatment; LN dissection as well as current ongoing clinical studies; such as adjuvant chemotherapy (CLASSIC trial), palliative gastrectomy (REGATTA trial). I will also present our experience in minimally invasive surgery; laparoscopic assisted gastrectomy and robot assisted gastrectomy. I will present a few our translational researches on gastric cancer. Laparoscopic surgery has now been regarded as one of the minimally invasive treatments for early gastric cancer (EGC). It is based on the numerous retrospective data demonstrating the comparable findings of short term outcome and the number of retrieved lymph nodes between open and laparoscopic approaches. Today, laparoscopic surgery for EGC is widely performed in Korea and Japan where the gastric cancer is prevalent. According to the Korean Laparoscopic Gastrointestinal Surgery Study Group (KLSSG) survey, over 3,000 laparoscopic gastric operations have been performed in 2007. Currently, there are several factors promoting wider expansion of laparoscopic surgery for gastric cancer. The most important factor is the gradual increase of EGC. The classic indication of laparoscopic gastrectomy for gastric cancer in Korea is, alike in Japan, EGC regardless of LN metastasis.6 The

second factor is the technical and instrumental developments of laparoscopic surgery. Many laparoscopic surgeons in Korea and Japan are familiar with laparoscopic D1+β lymph node dissection, and some of them do perform laparoscopic D2 lymph node dissection. The third factor is the distribution of laparoscopic techniques to the general surgeons. Korean Laparoscopic Gastrointestinal Surgery Study Group, launched in year 2005, has made its role for the education and the distribution of laparoscopic surgical techniques. Biannual scientific conference, animal laboratory, demonstration of live surgery, international tele-conference, and annual nationwide survey of laparoscopic surgery will be apparently helpful for the beginners to initiate the laparoscopic gastric surgery.

One of the recent hot issues in laparoscopic gastric cancer surgery will be whether we can extend the indication of this surgery to advanced gastric cancer or not. Theoretically, laparoscopic complete D2 lymph node for gastric cancer seems to be possible. In fact, some experts for laparoscopic gastric surgery in Korea and Japan also extended their indications of laparoscopic gastric cancer surgery to cT2 lesion. However, long term survival data comparing open vs. laparoscopic surgery for EGC is still not enough to accept this surgery as a standard treatment, as shown in the field of colon cancer. Furthermore, clinical data focused on advanced cancers are rarely been reported until now. In my opinion, laparoscopic surgery for advanced gastric cancer should be performed only by experienced laparoscopic surgeons. Laparoscopic surgery became a new horizon for the management of gastric cancer. However, more evidences are required to be accepted as standard surgery for gastric cancer. In Korea, multicenter prospective randomized trial comparing open vs. laparoscopic distal gastrectomy for less than cT2a gastric cancer is ongoing. According to the interim analysis of KLASS trial including 179 LADG and 163 ODG patients, there was no significant difference between two groups in terms of age, gender, and comorbidity. This study will provide a valuable evidence for the oncological safety of laparoscopic surgery for gastric cancer.

The presence of intraperitoneal cancer cells is an important prognostic factor, which may occur via opened vessels or lymphatics during surgical manipulation. By studying cancer cells from cancer specimen, lumen and intraperitoneum during radical gastric cancer surgery, we intended to provide evidence to formulate oncological principles of radical cancer surgery. Three pairs of washing samples were obtained from 40 gastric cancer patients who received curative radical gastrectomy at Seoul National University Hospital from November 2007 to September 2008: 1) intra-gastric luminal samples each after laparotomy (L0) and just before gastrectomy (L1), 2) intraperitoneal samples after laparotomy (P0) and before closure (P1), and 3) samples of stomach specimen with closed clips (S0) and opened clips (S1). Half of each sample underwent Real-Time PCR for mRNA of CEA. The other halves were sent to pathologist for cytology. We also sampled primary cancer tissues and normal tissues. Cytology showed free cancer cells in 14 L0 and 17 L1, which suggested the free cancer cells in intact stomach were increased by surgical maneuver. Analyzed 12 CEA-positive samples showed: 1) the rate of intraperitoneal m RNA level in P1 was higher than P0 as increasing of TNM stages (Stage 1: 50%, Stage 2: 0%, Stage 3: 0%, Stage 4: 100%). 2) In specimen, S1 was more increased in 70% (7/10) than S0 as increasing of CEA amplification. These results suggested that during radical surgery for gastric cancer, 1) prevent spillage of gastric contents 2) careful sealing of lymphovascular pedicles to minimize potential cancer cell spillage especially in advanced gastric cancer.

PERIOPERATIVE OUTCOMES OF HAND-ASSISTED LAPAROSCOPIC SURGERY COMPARE WITH TOTAL LAPAROSCOPIC SURGERY FOR RECTAL CANCER

Shavin Bhatiya, Thanes Khowsudhi, Jirawat Pattana-arun
Colorectal Division, Department of Surgery, Chulalongkorn University, Bangkok, Thailand

Background: Minimal invasive surgery both Total Lap and Hand-Assisted are widely use in management of colorectal cancer with better result and outcome than conventional surgery in many parameters (pain, hospital stay, etc). There were many literatures that compared conventional with Hand-Assisted Laparoscopic Surgery (HALS) or Total Laparoscopic Surgery (LAP) for colorectal cancer but only few data that compared HALS with LAP. This study aimed to compare peri-operative outcomes of both types of minimal invasive surgery in rectal cancer.

Materials and Methods: From the retrospective review of the prospective data collection, 80 patients with rectal cancer were operated by LAP resection (n = 40) and HALS (n = 40). Patient data and peri-operative outcomes were analyzed and compared in both groups.

Results: Patients' demographic data were not different in both groups. HALS group had shorter operative time (249.2 vs 340.5 minutes; p = 0.000), less blood loss (152.0 vs 407.5 cc; p = 0.019) and shorter hospital stay (7.75 vs 13.35 days; p = 0.010). No difference in tumor size (38.85 vs 38.58 mm; p = 0.939) and day of bowel movement (2.05 vs 2.10 days; p = 0.909).

Conclusion: HALS showed significantly shorter

operative time, less blood loss and shorter hospital stay compared with LAP for rectal cancer.

LAPAROSCOPIC ABDOMINO-PERINEAL RESECTION (APR) FOR LOW RECTUM CANCER: IS IT POSSIBLE?

Siripong Sirikurnpiboon, Paiboon Jivapaisarnpong, Burin Awapittaya

Department of Surgery, Rajvithi Hospital, Bangkok, Thailand

Background: Since the first laparoscopic colectomy was performed in 1991, its adoption has become widespread. Laparoscopic resection for rectal carcinoma gained much less acceptance due to technical complexity and oncologic outcome.

Objective: To demonstrate the step of laparoscopic AP resection for rectal carcinoma by principle of TME.

Materials and Methods: A Thai female, 68 years, complaint of hematochezia and fecal incontinence for 3 months. Digital rectal examination palpated mass on right lateral of anal canal at dentate line. The mass was 4 cm, involved half circumference and fixed to anal canal. The staging of rectal carcinoma was T3 N0M0 by endorectal ultrasound and CT scan of abdomen. The patient was placed in the lithotomy with Trendelenberg position (20-degree head-down tilt). The 4 canulas with 12 mm. port were positioned at below umbilicus, right lower quadrant and right paraumbilicus in midclavicular line and the last on in suprapubic area. The 5 mm. canula was positioned at left lower quadrant in midclavicular line. The procedure was performed in step by dissection of IMA first then dissection of sigmoid colon, dissection of rectum by principle of TME technique, dissection of anus and finally end colostomy was performed.

Results: The operative time was 4 hours. There was no immediate complication. She had bowel movement in the 3rd postoperative day and discharged in the 5th postoperative day.

Conclusion: Laparoscopic AP resection for rectal carcinoma is possible to perform in selected cases.

COMBINATION OF ANTEGRADE AND RETROGRADE LAPAROSCOPIC CHOLECYSTECTOMY: A SAFE SURGICAL TECHNIQUE FOR BEGINNER

Siripong Chewatanakornkul

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

Background: The conventional laparoscopic cholecystectomy (LC) involves the dissection of the gallbladder from the neck upward after performing the dissection of the cystic artery and cystic duct. In the obese patients, short cystic duct patients or in the presence of acute or chronic inflammation of the gallbladder, dissection of the Calot's triangle can be complicated. In these cases, extensive pulling the gallbladder fundus upward may lead to misidentification of the anatomy at the Calot's triangle and, therefore, cause damage to the common bile duct (CBD). In order to limit CBD injuries we performed a combination of antegrade and retrograde dissection. This procedure guarantees an easier recognition of the cystic duct and CBD junction and avoids CBD injuries.

Objective: The aim of this video demonstration was to demonstrate and highlights the advantages of this surgical technique, especially in short cystic duct patients.

Methods: The video demonstrated main surgical steps in this technique. The crucial step of this technique was liver retraction. After establishing a free peritoneal rim at the gallbladder fundus and grasping it, the gallbladder was dissected dome down like a regular open cholecystectomy. The last step was identifying cystic duct and CBD junction before divided. The author would like to share technical aspects that are easily to be reproducible by a beginner.

Conclusion: The video explains surgical approach, steps and technical tips of this method in a summarized topic.

LAPARO-ENDOSCOPIC SINGLE SITE (LESS) SURGICAL CHOLECYSTECOMY AND NEPHRECTOMY IN A PORCINE MODEL

Sompol Permpongkosol, Yada Tingthanatikul, Ronnarat Suvikapakornkul

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

Background: Laparo-endoscopic single site (LESS) is a novel technique for performing laparoscopic surgery through a single umbilical incision that may offer all of the benefits of standard laparoscopy with reduced post-operative pain, decreased morbidity and improved cosmesis. The goal of our study is to determine if transgastric cholecystectomy and transvaginal nephrectomy is feasible in a porcine model

Materials and Methods: We performed in a female pig with a weight 50 Kg. The pig was slept underwent general anesthesia in supine and flank position respectively. At the first, peritoneum was accessed through a gastrotomy incision using a gastroscope. Flexible tip wire was used to dissect the gall bladder. For LESS nephrectomy, the R-Port access laparoscopic system, a single port multichannel

canula with laparoscopic instrumentations, was used by inserting transvagina. We monitored our operation by a regular laparoscopy by adding a trocar at umbilicus. A gall bladder was extracted with gastroscope and right kidney was extracted transvaginally.

Results: LESS-cholycystectomy and nephrectomy was successfully in the porcine model. Visualized was not obscured by bleeding. No operative complications were encountered and there was no need for additional open procedure. The animal was sacrificed at the completion of the procedure. We demonstrated our technique for performing this complex, discussed what lessons we have learned, and updated our early results.

Conclusions: We demonstrated the feasibility and technique of LESS- cholycystectomy and nephrectomy in the living porcine model using currently available equipment. It has the potential of a less morbid approach with scarless surgery. Further development of instrument is warranted.

INITIAL OUTCOME OF LAPAROSCOPIC NISSEN FUNDOPLICATION: A PROSPECTIVE STUDY

Chadin Tharavej, Poochong Timratana, Suthep Udomsaweangsab, Supa-at Pungpapong, Patpong Navicharern

Chula Minimally Invasive Center, Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Recently, the incidence of gastro-esophageal reflux disease (GERD) in Thailand has been increasing. Proton pump inhibitors have been an initial standard treatment of this disease and anti-reflux surgery is reserved for those who fail medical therapy. Because of adverse outcomes of surgical treatment such as dysphagia, the anti-reflux surgery has yet gained in popularity. A lot of factors can contribute to the poor outcome of surgery. However, the appropriate patient selection and surgical technique can minimize the incidence of these unpleasant outcomes. The aim of this study was to report our initial outcome of GERD patients who underwent laparoscopic Nissen fundoplication.

Materials and Methods: Fifteen patients who underwent laparoscopic Nissen fundoplication were included in the study. All patients had been prospectively interviewed for grading the severity of GERD symptoms using a standardized questionnaire before and after operation. All patients had preoperative upper GI endoscopy, esophageal manometry and 24 hr pH monitoring. Diagnosis of GERD was made by either positive 24-hr pH test (total % time of esophageal acid exposure > 4.2) or positive endoscopic evidence of reflux. Patients who had poor distal esophageal contraction (distal esophageal amplitude < 30 mmHg) were excluded from the study. Laparoscopic Nissen fundoplication was done in the standardized fashion including 1) hiatal dissection and esophageal mobilization, 2) fundic mobilization, 3) hiatal closure, 4) creation of floppy fundoplication (2-cm wrap). Medical records of all patients were reviewed.

Results: Of 15 patients, 12 were positive for pH study. All patients underwent laparoscopic Nissen fundoplication but 2 were converted to open surgery. There were 2 intra-operative complications (1 small bowel and 1 diaphragmatic injury). Postoperative was uneventful in all patients. Median hospital stay was 3 days. All patients were prospectively interviewed for GERD symptom at the mean duration of 18.5 months postoperatively. Post-operative symptom score of heartburn ($p = 0.004$), regurgitation ($p = 0.0004$), abdominal pain ($p = 0.0001$) and belching ($p = 0.003$) were significantly improved comparing to those of preoperative symptom. On the other hand there was no difference in dysphagia symptom score ($p = 0.13$). Median %time of distal esophageal acid exposure was 10.1 preoperatively and 0.4 in the post-operative period ($p = 0.006$). All 12 out of 12 patients with positive pH test and one out of 3 patients with negative pH study were satisfied with the result of the operation (87%). All patients never took PPIs after surgery.

Conclusions: Laparoscopic Nissen fundoplication provides an excellent initial outcome in reflux patients who have positive 24 hr pH test. Patients with typical symptoms, positive 24 hr pH study and well standardized surgical technique all together contribute a good outcome after laparoscopic Nissen fundoplication.

15-YEAR DELAYED PRESENTATION OF RIGHT DIAPHRAGMATIC HERNIA WITH HEPATOTHORAX: A CASE REPORT OF THORACOSCOPIC MESH REPAIR

Thanapongsathorn W, Viriyaroj V

Department of Surgery, Faculty of Medicine, HRH Princess Maha Chakri Sirinthorn Medical Center, Srinakharinwirot University, Nakorn Nayok, Thailand

Background: Delayed hepatothorax after blunt diaphragmatic rupture of right side is a rare condition. The incidence of right blunt diaphragmatic hernia is 11-36% of all diaphragmatic hernia. Minimally invasive surgery with mesh repair is an optional surgical treatment.

Objectives: We presented a case report of delayed right blunt diaphragmatic hernia that underwent thoracoscopic repair with mesh graft. A 48-year-old Thai

female presented with 4-month progressive dyspnea. She had history of motorcycle accident on right chest 15 years ago and was treated by right intercostal drainage without any other operation. Physical exam found decreased right breath sound, no adventitious sound, no cardiac murmur, no fever. Chest film showed marked elevation of right diaphragm up to level T6 with right lung atelectasis. Chest CT scan showed large right diaphragmatic hernia with liver, gall bladder, hepatic flexure of colon and small bowel herniated into right chest.

Materials & Methods: The patient was operated under one lung intubation general anesthesia, 60 degree left lateral decubitus with thorax tilt up 20 degree to drop liver into abdominal cavity. Four trocars with gasless technique were inseted. After lysis adhesion and reduction of liver and abdominal contents back to abdominal cavity, approximated 1 cm remnant of right diaphragmatic edge was identified. To make a new right diaphragm, a 15 × 15 cm Ultrapro prolene mesh was fixed around the edge of diaphragm by horizontal interrupt mattress with silk 2/0 suture. Unfortunately, one lung intubation failed to collapse right lung, we had to do mini-thoracotomy to pack lung and retract liver during mesh fixation.

Results: The operation was successfully done in 4 hours. One intercostal drainage was placed on right side. Immediate complication was aspirated pneumonia on left lung, but this was completely recovered within 1 week. She was discharged without dyspnea and at 6-month follow up, the patient had no late complication.

Conclusion: Thoracoscopic mesh repair in delayed hepatothorax due to blunt ruptured of right diaphragm is an alternative surgical treatment.

A RANDOMIZED CONTROL TRIAL OF LEVOBUPIVACAINE, BUPIVACAINE VERSUS PLACEBO EXTRAPERITONEAL INFUSION IN TOTALLY EXTRAPERITONEAL LAPAROSCOPIC INGUINAL HERNIOPLASTY

Somboon Subwongcharoen[1], Vachira Udompornmongkol[2]

[1]Department of Surgery, [2]Department of Anesthesiology, Rajavithi Hospital, Rangsit University, Bangkok, Thailand

Background: Totally extraperitoneal (TEP) laparoscopic inguinal hernioplasty procedure is significantly less painful than open repair, but it is not completely painless. The aim of this study was to compare the effect of extraperitoneal infusion of 0.25% levobupivacaine, 0.25% bupivacaine, and placebo in patients undergoing TEP procedure in terms of pain reduction.

Materials and Methods: Twenty patients were included in each Group for TEP procedure. Group A received 40 mL of 0.9% normal saline, group B received 40 mL of 0.25% Bupivacaine, and group C received 40mL of 0.25% levobupivacaine Infused into the extraperitoneal space before closing. Postoperative pain was assessed at 4, 8, 12, 24, 36, and 48 h postoperatively. Analgesic requirement, complications, and overall satisfaction were also recorded.

Results: The demographic and surgical characteristics of the patients did not differ significantly among groups. There were no statistical differences among groups in postoperative pain scores, total IV-PCA morphine requirement, complications, and overall satisfaction.

Conclusion: Extraperitoneal infusion 40mL of 0.25% bupivacaine or 0.25% levobupivacaine following TEP procedure did not show any benefit over placebo in terms of pain reduction.

COMPARISON OF EARLY AND LATE EXPERIENCE FOR LAPAROSCOPIC LOW RECTAL CANCER RESECTION: EVALUATING OF THE LEARNING CURVE AND SURVIVAL ANALYSIS

Pornthep Prathanvanich, Jirawat Pattana-arun, Chucheep Sahakitrungruang, Puttarat Atithansakul, Arun Rojanasakul

Chula Minimally Invasive Center, Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Indications of laparoscopic rectal resection continually increase worldwide, but technical difficulties have been encountered in laparoscopic rectal resection. A longer follow up period is required to evaluate the long-term efficacy of the procedure and its impact on survival. The aim of this study was to compare perioperative and long-term outcomes for early and late experience group from one surgeon experience.

Materials and Methods: Database of all 69 laparoscopic resections for low rectal cancer (less than 7 cm. from anal verge) performed by one self-trained colorectal surgeon between June 2004 to Jan 2007 was reviewed. Two consecutive groups were analyzed: easy experience = case 1 to 35 (35), late experience = case 36 and higher (34). Pearson's chi-square, fisher's exact test and ANOVA were used to compare differences in demographics and peri-operative parameters. Survival analysis was analyzed by the Kaplan-Meier method and the log rank tests.

Results: There were no significant differences between two groups with respect to age, sex, BMI, comorbidity, staging or distance of anastomotic line from anal verge. Mean operative time (368 vs 296, p = 0.000) and mean blood loss (477 vs 163, p = 0.010) declined significantly

with late experience. There was no difference in the rate of anastomotic leakage (5 vs 2, p = 0.396) between two groups. However, there were three conversions in early experience group because of technical difficulty (3 vs 0, p = 0.23). The same results were shown after dividing all 69 patients for 3 consecutive groups: A (1-23), B (23-46), C (46-69). Group C showed significantly shorter operative times than group A (p = 0.000) and group B (p = 0.001) respectively. Recurrence was noted in two patients (local, port site) for early experience group (2 vs 0, p = 0.368) and also no different significantly for distant metastases (6 vs 1, p = 0.263). There were difference significantly in two-year DFS rates (88% vs 100%, p = 0.042) and overall 2-year survival was 91% vs 100% (p = 0.081).

Conclusions: Perioperative and long-term outcomes after laparoscopic resection of low rectal cancer were better after 35-46 procedures in this study, base on a decline in operating time, blood loss and recurrence rate.

HYBRID NOTES CHOLECYSTECTOMY IN A PORCINE MODEL: RAMATHIBODI'S EXPERIENCE

Ronnarat Suvikapakornkul, Sompol Permpongkosol, Yada Tingthanatikul, Onchuma Puanfoong, Chaowalit Thinakornrasamee

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

Background: Natural Orifice Transluminal Endoscopic Surgery (NOTES) is a novel surgical concept which approach the peritoneal cavity through the natural opening i.e. transgastic, transvagina, transvesicle. The feasibility of peroral transgastric approach for cholecystectomy, liver biopsy and peritoneoscopy has been demonstrated in many animal studies.

Objective: To evaluate the feasibility of the transgastric cholecystectomy in a porcine model.

Materials and Methods: Transgastric cholecystectomy was performed in a 50-kg female domestic pig. The animal was under general anesthesia with an endotrachial intubation and was put in the supine position. The 12-mm port was introduced at the umbilicus which was for observing theéthe telescope (Endoeye transgastric procedure. Without gastric lavage, the single-channel end-view gastroduodenoscope (GIF Q: Olympus, Tokyo, Japan) was passed through the mouth up to the stomach. The puncture site was on the anterior stomach wall, which was identified anatomically relative to the rugal folds, endoscopic transillumination, and external finger compression. The peritoneal insufflation was developed via the umbilical port with the pressure-controlled unit. The stomach wall was punctured with an electrosurgical needle knife (Cook Endoscopy, Winston-Salem, NC). The guide wire was passed through the needle knife then the needle knife was removed and the sphincterotome (Microvasive Endoscopy, Boston Scientific Corp.) was passed over the guide wire. The transmural fistula was extended with the sphincterotome to a size approximately 2 cm. The scope was inserted and was moved around for peritoneosopy then it was bended to retroflex position to identify the gall bladder. The 5-mm port was introduced at the right upper quadrant for retract the gall bladder. Because we could not identified the cystic duct (Its size is usually very small in the young pig), we simply cut the neck of the gall bladder and completely dissected the gall bladder from the liver with the electrosurgical needle knife that was passed through the scope and was controlled by the endoscope movement. The gall bladder was grasped with an endoscopic grasper forceps and was taken out together with the endoscope. The gall bladder was removed through the fistula, stomach, esophagus and then passed the mouth. The endoscope was re-introduced to close the perforation site with the endoclips (Olympus, Tokyo, Japan). The animal was sacrificed at the completion of the procedure.

Results: Transgastric cholecystectomy was successfully in the porcine model. Visualization was not obscured by bleeding. No operative complications were encountered and there was no need for convert to open procedure. The difficulties of the procedure were: 1) to control the endoscope for dissecting the gall bladder while it was in the retroflex position, 2) to securely close the stomach fistula by the endoclips and 3) to minimize the peritoneal contamination.

Conclusion: Our early result demonstrated that transgastric cholecystectomy was technically feasible in the porcine model. Although the procedure was performed successfully, there were some technical difficulties and it needed the future development of instruments and animal studies to find out the best technique.

INITIALOUTCOME OF LAPAROSCOPIC NISSEN FUNDOPLICATION: A PROSPECTIVE STUDY

Chadin Tharavej, Poochong Timratana, Patpong Navicharern, Suthep Udomsawaengsup, Suppa-ut Pungpapong

Chula Minimally Invasive Surgery Center, Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Recently, the incidence of gastroesophageal reflux disease (GERD) in Thailand has been increasing. Proton pump inhibitors have been an initial

standard treatment of this disease and anti-reflux surgery is reserved for those who fail medical therapy. Because of adverse outcomes of surgical treatment such as dysphagia, the anti-reflux surgery has yet gained in popularity. A lot of factors can contribute to the poor outcome of surgery. However, the appropriate patient selection and surgical technique can minimize the incidence of these unpleasant outcomes.

Objectives: The aim of this study was to report our initial outcome of GERD patients who underwent laparoscopic Nissen fundoplication.

Materials and Methods: Fifteen patients who underwent laparoscopic Nissen fundoplication were included in the study. All patients had been prospectively interviewed for grading the severity of GERD symptoms using a standardized questionnaire before and after operation. All patients had preoperative upper GI endoscopy, esophageal manometry and 24 hr pH monitoring. Diagnosis of GERD was made by either positive 24 hr pH test (total % time of esophageal acid exposure > 4.2) or positive endoscopic evidence of reflux. Patients who had poor distal esophageal contraction (distal esophageal amplitude < 30 mmHg) were excluded from the study. Laparoscopic Nissen fundoplication was done in the standardized fashion including 1) hiatal dissection and esophageal mobilization, 2) fundic mobilization, 3) hiatal closure, 4) creation of floppy fundoplication (2-cm wrap). Medical records of all patients were reviewed.

Results: Of 15 patients, 12 were positive for pH study. All patients underwent laparoscopic Nissen fundoplication but 2 were converted to open surgery. There were 2 intra-operative complications (1 small bowel and 1 diaphragmatic injury). Postoperative was uneventful in all patients. Median hospital stay was 3 days. All patients were prospectively interviewed for GERD symptom at the mean duration of 18.5 months postoperatively. Postoperative symptom score of heartburn ($p = 0.004$), regurgitation ($p = 0.0004$), abdominal pain ($p = 0.0001$) and belching ($p = 0.003$) were significantly improved comparing to those of preoperative symptom. On the other hand there was no difference in dysphagia symptom score ($p = 0.13$). Median % time of distal esophageal acid exposure was 10.1 preoperatively and 0.4 in the postoperative period ($p = 0.006$). All 12 out of 12 patients with positive pH test and one out of 3 patients with negative pH study were satisfied with the result of the operation (87%). All patients never took PPIs after surgery.

Conclusion: Laparoscopic Nissen fundoplication provides an excellent initial outcome in reflux patients who have positive 24 hr pH test. Patients with typical symptoms, positive 24-hr pH study and well standardized surgical technique all together contribute a good outcome after laparoscopic Nissen fundoplication.

E-NOTES CHOLECYSTECTOMY: RAMATHIBODI'S EXPERIENCE

Ronnarat Suvikapakornkul

Breast and Endocrine Surgery unit, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Embryonic Natural Orifice Translumenal Endoscopic Surgery (E-NOTES) is a novel technique for performing laparoscopic surgery through a single umbilical incision that may offer all of the benefits of standard laparoscopy with possibly decreased post-operative pain, the reduced number of incisions and improved cosmetic. E-NOTES cholecystectomy is more interesting among the procedures, which are now on changed to the scarless surgery concept.

Objective: To evaluate the feasibility of the E-NOTES cholecystectomy in Ramathibodi Hospital.

Materials and Methods: The operations were performed in 5 patients with symptomatic gallstones at Ramathibodi Hospital as elective surgery in December 2008- January 2009. After induction of the general anesthesia, the 2-cm incision was done just below the umbilicus. The abdominal wall was opened in layer. Each side of already cut rectus sheath was transfixed with sutures. The port (Advanced Surgical Concept, Wicklow, Ireland) was introduced through the peritoneal cavity using the introducer. The transparent plastic sheath was pulled up until the distal ring and the external part hold the abdominal wall like a sandwich. After air leakage tested, the port was fixed with the blue ring. The 5-mm diameter and 0-degree telescope was used. Because the instruments were aligned in almost the parallel direction, the working with triangulation was loss. At least one curved instrument was used to maintain the triangulation. Flexible laparoscopic curved dissector, scissors and hook (Autonomy Laparo-Angle, Cambridge Endo, MA, USA) were used for dissection. The laparoscopic straight grasper was used for holding the Hartman's pouch and body of the gall bladder. The operation was undertaken similar to the multi-ports cholecystectomy that worked with two instruments. The 5 mm diameter-clip was used for closing the cystic duct and artery. The gall bladder was taken through the port.

Results: The procedures were successfully performed in all 5 patients without conversion to open cholecystectomy. In one case, the addition 5-mm port was placed at the subcostal area to stop oozing blood at the gall bladder bed because it was difficult to approach through the single port.

The mean operative time was 140 min. There were minimal blood loss, no immediate complications and no complications after 3 months follow-up. The difficulties of the procedure were high fat tissue content in the peritoneal cavity, the chopstick effect, loss of dissecting power by using the flexible instruments, and air leakage at the port site.

Conclusions: E-NOTES cholecystectomy is feasible in the selected patient which is not too obesity and has not too inflamed gall bladder. The operative time is still longer than the standard laparoscopic cholecystectomy because it has been in the learning period.

SIMPLE NEW TECHNIQUE TWO-INCISION VS THREE-INCISION LAPAROSCOPIC CHOLECYSTECTOMY : A PROSPECTIVE COHORT STUDY

Pornthep Prathanvanich, Patpong Navicharern, Chadin Tharavej, Suthep Udomsawaengsup, Suppa-ut Pungpapong

Chula Minimally Invasive Center, Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Laparoscopic cholecystectomy (LC) has clearly become the procedure of choice for routine gallbladder removal. The advantages of this approach include decreased scarring, decreased incisional pain, shorter hospitalization and faster functional recovery. In recent years, many investigators have attempted to further improve on the established technique of LC. Generally, the goal has been to minimize the invasiveness of this procedure by reducing the port number and size. Two and Three-incision LC has been reported to be safe and feasible in various clinical trials that compare with standard Four-port LC. But no study compare between each groups. This study reported a prospective study that compared the clinical outcomes of the simple new technique Two -incision versus Three -incision LC.

Materials and Methods: One hundred consecutive patients who underwent elective LC between May 2007 - Dec 2008 by single experienced specialist laparoscopic surgeon (who performed more than 100 conventional LC and at least 20 Two-incision LC prior the study) were included in this study. Postoperative pain at port sites was assessed on the 24 hr and 48 hr after surgery, using a 10-cm unscaled visual analog scale (VAS). Other outcome measures included analgesic and narcotic requirement, length of the operation, postoperative stay.

Results: Of 100 LCs performed at participating unit during the study period and were separated to each of the procedures equally. The groups were well matched for demographic data. Patients in the Two-incision group had less pain at postoperative 48 hr significantly (0.34 vs 0.72, p = 0.009) but not significantly at 24 hr (1.7 vs 2.2, p = 0.130), and less required narcotic requirement (11.00 vs 29.20 mg, p = 0.005). Operative time (29.49 vs 29.19 min , p = 0.869), postoperative stay (1.73 vs 1.87 days, p = 0.115), time to return to normal activity(24 vs 23.7 hr, p = 0.66) were similar between two groups.

Conclusion: The new technique Two-incision LC resulted in less individual port-site pain and less require in narcotic and similar clinical outcomes but fewer surgical scars compared to Three-incision LC. Thus, it can be recommended as a safe alternative procedure in elective LC.

SURGICAL INFECTION

NEW STRATEGY TO MINIMIZE POST OPERATIVE SURGICAL SITE INFECTION

Daniel K. Lee

UCSD Thornton Hospital, La Jolla, USA

Post surgical infections are a major cause of wound dehiscence and post-operative complications. Lower extremity infections, especially in diabetics and compromised patients, can lead to amputation. Surgical site assessment is normally performed by evaluation of clinical signs, incision status, fixation presence, healing status, wound quality and quality of dressing. Clinical signs of infection are normally defined by uncharacteristic erythema, edema, drainage, pain, and wound dehiscence. Pain is normally assessed using a 4-point scale as follows: none, mild, moderate, severe or via visual analog scales. The status of sutures/staples in an incision is normally assessed whether sutures/staples are intact, pulling apart or removed. Internal or external fixation can affect incision/wounds in their healing process. A surgical site is normally assessed as healing with evidence of complete wound closure without dehiscence or drainage in the absence of sutures, staples or skin closure strips. Wound quality is normally assessed as appearance of surgical site including inflammation, edema, and scarring. Dressing applied to the surgical site can affect healing potential.

Silver has been extensively documented in the literature as an antimicrobial agent. It is generally known

that the risk of post operative infection is decreased versus using the standard of care, oil-based dressings, and non antimicrobial dressing. Acticoat is a dressing impregnated with nanocrystalline silver, which is known to decrease bacterial burden in wounds. Nanocrystalline silver is an approved product for the treatment of open wounds and burns. This silver-coating product consists of nanocrystalline silver embedded in a synthetic mesh. The silver is in non-ionic configuration, designed to be activated to Ag+ when in contact with water. It is made of five layers: two layers of an absorbent, rayon/polyester inner core between three layers of silver-coated polyethylene mesh. The sustained release of broad-spectrum ionic silver actively protects the dressing from bacterial contamination while the inner core maintains a moist environment for optimal wound healing. The antimicrobial barrier remains effective for at least 7 days as shown in vitro studies and in clinical practice.

These dressings have been used intra and post operatively on incision sites, graft sites and around fixation sites without documented or significant adverse effects. Compared to standard of care petrolatum impregnated mesh dressing, there is a decreased rate on the incidence of post-operative infection rates when used on sutured incision sites. It has also shown to increase the quality of healing at surgical incision sites when using nanocrystalline silver dressing versus standard dressing care intra-operatively and during the post-operative period.

BEYOND THE SOURCE: EMPIRIC TREATMENT FOR COMPLICATED INTRA-ABDOMINAL INFECTIONS (CIAI)

Joseph S. Solomkin

Division of Trauma/Critical Care, Department of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio, USA

There are two important issues that define the agents to be used: (1) whether the infection is community-acquired or occurring following intra-abdominal operation, and (2) the severity of the infection. For community-acquired infections, facultative and aerobic, gram negative bacteria commonly isolated are Enterobacteriaciae, particularly *E. coli, Klebsiella* and Enterobacter. Among anaerobic bacteria, the most common isolates are Bacteroides species. With post-operative infection, the organisms seen are similar to those seen in other nosocomial infections, and anaerobes are rarely encountered. Antibiotic therapy for such infections should be guided by knowledge of the nosocomial flora seen at the particular hospital, and its antimicrobial susceptibilities. There is an increased incidence of *Pseudomonas aeruginosa*, Acinetobacter, and other resistant gram-negatives, enterococci, and Candida. There is good evidence that not providing empiric therapy active against the subsequently identified pathogens is associated with significant increases in mortality and failure rates. Antibiotics used for empiric treatment of community-acquired intra-abdominal infections should be active against enteric gram-negative aerobic and facultative bacilli and enteric gram-positive streptococci. Coverage for obligate anaerobic bacilli should be provided for distal small bowel, appendiceal and colon-derived infections, and for more proximal gastrointestinal perforations in the presence of obstruction or paralytic ileus. The occurrence of organisms in the community with resistance to commonly prescribed agents is becoming a reality. If resistance for a given antibiotic is greater than 10-20% for a common intra-abdominal pathogen in the community, use of that agent should be avoided. Because of widespread resistance of E. coli to ampicillin/sulbactam, that antibiotic is no longer recommended for routine empiric therapy of complicated intra-abdominal infections. The empiric use of antimicrobial regimens with a broad spectrum activity against Gram negative organisms including: meropenem; imipenem/cilastatin; doripenem; piperacillin/tazobactam; ciprofloxacin or levofloxacin, either in combination with metronidazole; ceftazidime or cefepime plus meor tronidazole is recommended for patients with high severity community-acquired intra-abdominal infections, as defined by APACHE II scores >15 or other variables as will be presented. Recommended empiric regimens for patients with healthcare-associated intra-abdominal infections include meropenem, imipenem/cilastatin, doripenem, piperacillin/tazobactam, cefepime plus metronidazole. Empiric antibiotic therapy for hospital-acquired intra-abdominal infections should be guided by knowledge of the flora seen at the particular hospital and their antimicrobial susceptibilities. In general, this will necessitate use of multi-drug regimens with expanded spectra of activity against Gram negative aerobic and facultative bacilli, which may include aminoglycosides or colistin.

IDSA and SIS, UK-HPA and Asia Treatment Guidelines for IAI

Guidelines have been published by various groups interested in the problem of antimicrobial therapy for intra-abdominal infection. This approach is helpful in defining patients requiring therapy and limiting the therapy given to patients with intra-abdominal infections. The IDSA guidelines divide patients with community acquired infections into moderate and high severity groups, and define patients with nosocomial (health-care associated) infections requiring expanded treatment with multi-drug regimens.

THE CHALLENGE OF MANAGING THE CRITICALLY ILL SURGICAL PATIENT

Joseph S. Solomkin

Division of Trauma/Critical Care, Department of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio, USA

Intraabdominal infections are commonly encountered in general surgical practice, and are important problems in intensive care settings. There have been important advances in supportive care, diagnostic imaging, anti-infective therapy, and interventional techniques, advances that have lessened both mortality and post-surgical infection rates. An appropriate source control procedure to drain infected foci, control ongoing peritoneal soilage by diversion or resection, and restore anatomic and physiological function to the extent feasible is recommended for nearly all patients with intra-abdominal infection. Patients with diffuse peritonitis should undergo an emergency operative procedure as soon as possible. Percutaneous drainage of abscesses and other well-localized fluid collections is preferable to operative drainage.

Antibiotics and percutaneous drainage: delaying or avoiding open operation

There has been a major change in approaches to the most difficult source control problems, particularly infected necrotizing pancreatitis and recurrent (post-operative) peritonitis. A combination of percutaneous drainage and antibiotic therapy is now used to delay or even avoid a major operation on patients who are critically ill with multi-system organ failure. A case will be presented illustrating this approach.

Antimicrobial therapy

In patients undergoing a source control procedure, antimicrobial therapy provides for surgical wound prophylaxis and treatment of pathogens potentially disseminated during the procedure, in addition to providing ongoing therapy for the infection. Antimicrobial therapy is, therefore, also considered as wound prophylaxis for all patients undergoing intervention. The rules for prophylaxis in elective surgical procedures include use of agents likely effective against the contaminating organisms, and administration within one hour of operation Antibiotics

IDSA and SIS, UK-HPA and Asia Treatment Guidelines for IAI

SIS/IDSA Guidelines for 2009 have been approved, and complement earlier works by various groups interested in the problems of intra-abdominal infection. Guidelines, particularly tailored to the local hospital, is helpful in defining patients requiring therapy and limiting the therapy given to patients with intra-abdominal infections. These will be reviewed.

Role of carbapenems in intra-abdominal infections

Because of the high incidence of β-lactamase-producing gram-negatives in some areas, carbapenems have become important in the initial empiric management of more severe intra-abdominal infections. These have been studied in intra-abdominal infections and are highly effective.

FATAL VIBRIO PARAHEMOLYTICUS NECROTIZING FASCIITIS: REPORT OF TWO CASES AND REVIEW OF THE LITERATURE

Charnvate Satthaputh[1], Pornthep Srimanothip[1], Somjet Sae Jen[2]

[1]Department of Surgery, Lerdsin General Hospital

[2]Department of Medical Service, Ministry of Public Health, Bangkok, Thailand

Background: Necrotizing fasciitis is a rapidly progressive necrotizing infection of the skin, subcutaneous tissue, fascia and muscle with high mortality. Most cases occur following dermal trauma, but there are some cases which no identifiable portal of entry is found. Bacteriologically, it can be caused by single or multiple bacterial species. Fulminant necrotizing fasciitis from Vibrio parahemolyticus is rarely found and reported as the bacteria itself is more commonly associated with gastroenteritis, and never been reported before in Thailand.

Results: We report 2 cases of Vibrio parahemolyticus necrotizing fasciitis, which despite aggressive resuscitation, initial emergency debridement, and fasciotomy, both cases eventually needed amputation. Unfortunately, both had died from uncontrollable sepsis.

Conclusion: What we have learned from both cases is that, however controversial the decision of early amputation can be, it may be the only way to save lives of the patients with Vibrio parahemolyticus necrotizing fasciitis.

COMPARISON OF SURGICAL WOUND INFECTION IN PREOPERATIVE SKIN PREPARATION TECHNIQUES BETWEEN 4% CHLOHEXIDINE AND POVIDONE IODINE: A PROSPECTIVE RANDOMIZED CONTROL TRIAL

Veeraya Paocharoen[1], Chatchai Mingmalailuk[1], Anucha Apisarnthanarak[2]

[1]Department of Surgery, [2]Infectious Unit, Department of Medicine, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

Background: Antiseptic scrub and paint can reduce bacterial colonization and postoperative wound infection. Two forms of antiseptic; povidone iodine and chlorhexidine

are commonly use in the operating theatre.

Objectives: To study the efficacy of the reduction of bacterial colonization and surgical wound infection among these antiseptic.

Materials and Methods: Five hundred surgical patients were divided into 2 groups randomly. Group I used povidone iodine whereas group II used chlorhexidine. Bacterial colonization and postoperative wound infection were examined after skin preparation. Demographic data was analyzed by student's t test; the culture result and surgical wound infection were analyzed by Mantel-Haenszel method for relative risk and 95% CI.

Results: There was a significant reduction of bacterial colonization and wound infection after skin preparation in group II compared with group I.

Conclusion: Colonization of bacterial and post-operative surgical wound infection are significantly reduced in chlorhexidine group. Chlorhexidine antiseptic should be the first consideration for preoperative skin preparation.

EFFICACY OF ANTIMICROBIAL COATING SUTURE COATED POLYGLACTIN 910 WITH TRICOSAN (VICRYL PLUS) COMPARED WITH POLYGLACTIN 910 (VICRYL) IN REDUCED SURGICAL SITE INFECTION OF APPENDICITIS: DOUBLE BLIND RANDOMIZED CONTROL TRIAL, PRELIMINARY SAFETY REPORT

Chatchai Mingmalairak, Pookate Ungbhakorn, Veeraya Paocharoen

Department of Surgery, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

Objective: To evaluate the efficacy and safety of new antibacterial suture (Vicryl Plus) compared with a traditional braided suture (Vicryl) in clinical study. Primary goal was to study effectiveness on reduced surgical site infection in appendectomy operation. Our secondary goal was to analyze safety and physical properties of Vicryl plus.

Materials and Methods: This was a prospective, randomized, controlled, double blind, comparative, single-center study. After appendectomy was done, the patients were randomized in two groups: Vicryl Plus and Vicryl to selected suture for suturing the abdominal sheath. The surgical site infection was evaluated for 30 days, 6 month and 1 year. The surgeons and attending doctor were blinded to type of suture. This is the primary report of first 100 patients.

Results: There was no difference in demographic and preoperative clinical both groups. Although no statistically difference in surgical site infections of Vicryl and Vicryl Plus (8 and 10%, p = 0.05) was found, one case of deep surgical site infection was detected in Vicryl group. No complications and no difference in related suture materials were detected.

Conclusion: Coated polyglactin 910 with tricosan (Vicryl Plus) was safe and satisfying in surgical practice. Surgical site infection of appendectomy seemed too difficult comparable between coated polyglactin 910 with tricosan (Vicryl Plus) and traditional polyglactin 910 (Vicryl) group. Complete study was required for final conclusion.

A PROSPECTIVE, RANDOMIZED TRAIL OF TWO DIFFERENT SKIN PREPARATIONS (SCRUB-AND-PAINT-AND PAINT ONLY) ON POSTOPERATIVE WOUND INFECTION IN PATIENT WITH ACUTE APPENDICITIS: A PRELIMINARY RESULT

Neeracha Sirichai, Varut Lohsiriwat, Attaporn Trakarnsanga, Darin Lohsiriwat

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

Objective: To compare the effect of two different skin preparations (scrubbing with chlorhexidine scrub then followed by painting with 2% chlorhexidine solution vs only painting with 2% chlorhexidine solution) on postoperative wound infection in patient undergoing appendectomy for acute appendicitis.

Methods: A prospective, randomized study was performed on patients with provisional diagnosis of appendicitis who underwent open appendectomy at Siriraj hospital between March 2008 and March 2009. Patients were randomly divided into two groups for different skin preparations (scrub-and-paint and paint-only). Primary end-point was wound infection at 30 days after the operation.

Results: This study included 74 patients; group 1 (scrub-and-paint) 39 patients and group 2 (paint only) 35 patients. An average age of the patients was 35 years (range 16-81) and 49% were male. There was no significant difference in patients' characteristics (ASA classification, operative time and wound classification) between the two groups. There was also no difference in the wound infection rate between both groups (group 1 = 0% vs group 2 = 2.9%, P = 0.47). Nor did the length of hospital stay (group 1 = 2.64 days vs group 2 = 2.57 days, P = 0.77).

Conclusion: According to the present study, there was no significant difference in wound infection rate following appendectomy for appendicitis between preparation the surgical site with antiseptic scrub-and-paint technique and antiseptic painting alone.

TRANSPLANTATION SURGERY

INFLUENCE OF SYSTEMIC HISTIDINE-TRYPTOPHANE-KETOGLUTARATE (HTK) PRECONDITIONING OF DONORS IN RAT LIVER TRANSPLANTATION

Veeravorn Ariyakhagorn[1], Volker Schmitz[2], Peter Olschewski[2], Peter Neuhaus[2], Gero Puhl[2]

[1]Department of Surgery, Chiangmai University, Chiangmai Thailand

[2]Charité Campus Virchow, Department of General Visceral and Transplantation Surgery, Berlin, Germany

Background: HTK was originally introduced as a cardioplegic solution for protection in the mild hypothermic range, and was later adapted to cold preservation of organs. In our study we investigated a protocol foreseeing the intravenous systemic preconditioning of the donor by using the well-established HTK preservation solution in a model of rat liver transplantation.

Materials and Methods: Wistar rats were obtained for liver transplantation. Rats were divided into six groups. In the study groups (1-3), donors were preconditioned with systemic intravenous infusion of warm HTK. First group: livers were stored in HTK solution at 4°C for 6 hours (cold ischemia) and reflushed with cold saline prior to implantation. Second group: systemic warm HTK preconditioning livers were explanted and were stored in HTK solution for an hour at room temperature (21°C). Donor grafts were flushed with normal temperature saline prior to implantation. Third Group: this group was similar to the second group, but without flushing before reperfusion. Fourth Group (6 hrs cold ischemia), fifth group (1 hr warm ischemia with flushing) and sixth group (1 hr warm ischemia without flushing) served as control groups using systemic saline infusion as HTK used in donors of groups 1 to 3. In each group, recipients were sacrificed after 4 hours, 2 and 5 days following transplantation to obtain liver function parameters (bilirubin, ASAT, ALAT, and LDH), serum isoprostane level and histology. For each time point in each group a total of 6 liver transplantations were performed.

Results: In cold ischemic groups, ASAT ($p < 0.001$), ALAT ($p < 0.001$) and LDH ($p < 0.001$) were lower in HTK preconditioning group at 4 hours after transplantation compared to the control group. In warm ischemic flushing groups, ASAT, ALAT and LDH were lower in HTK preconditioning group at 4 hrs after transplantation compared to the control group. In warm ischemic non-flushing groups, ASAT, ALAT and LDH were higher in HTK preconditioning group at 4 hrs after transplantation compared to the control group. All HTK preconditioning groups (cold and warm ischemia) have higher serum isoprostanes than controls at all time points (not significant).

Conclusion: Preconditioning of the donor rat with HTK has a beneficial influence on the negative effects of ischemia/reperfusion injury. Reduction of histological damage and enzyme release were seen in the cold ischemia group during early period after transplantation without any adverse reaction on hemodynamic to either the donor or the recipient animals, and also without any effects on short-term survival (5 days).

FAVORABLE OUTCOME OF LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA AT KING CHULALONGKORN MEMORIAL HOSPITAL

Matnangkoon L, Nonthasoot B, Sirichindakul B, Suphapol J, Nivatvongs S

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

Background: Nowadays liver transplantation has been accepted as the best treatment for early hepatocellular carcinoma (HCC) with inadequate liver reserve. The favorable outcome can be expected for the tumor within Milan criteria with 75 percent four-year survival rate. In our institution, the policy for this kind of treatment was followed these criteria strictly. We reported herein the outcome.

Materials and Methods: We retrospectively analyzed 19 patients with early HCC within the Milan criteria who underwent liver transplantation over 6-year period (from January 2003 to December 2008) at King Chulalongkorn Memorial Hospital.

Results: There were 12 males and 7 females. The mean age was 53 years (36-64 years). The most common underlying liver disease was hepatitis B viral infection (HBV) (42%). Fifty two percent of patients were Child-Pugh class A, 26% were class B and 21% were class C. The mean model for end-stage liver disease (MELD) score was 15. Eighteen out of 19 patients were within the Milan criteria preoperatively. Thirteen out of 19 patients were within the Milan criteria postoperatively. The treatments on waiting list were transarterial oily chemoembolization (TOCE) in 15 patients (79%) and radiofrequency ablation (RFA) in 2 patients (11%). The mean waiting time was 176 days. The median follow-up was 31 months. Overall 1-, 3- and 5-year survival rates were 95%, 80% and 70%, respectively. One-, 3- and 5-year disease-free survival rates were 76%, 67% and 67%, respectively.

Conclusion: Our data suggested that liver transplantation is an acceptable treatment for the early HCC patients with inadequate liver reserve. Strict adherence to preoperative Milan criteria is important to achieve favorable outcomes.

STARTING A NEW PROGRAM OF LIVING DONOR LIVER TRANSPLANTATION-A CHALLENGE FOR THE CHIANGMAI UNIVERSITY

Ariyakhagorn V, Junrungsee S, Sandhu T
Department of Surgery, Faculty of Medicine, Chiangmai University, Chiangmai, Thailand

Background: The first pediatric living donor liver transplantation (LDLT) was performed in 1989 by Raia in Brazil. Most academic centers started with the deceased donor program, and only once they were familiar with this procedure then the living donor program will be started.

Materials and Methods: A well trained organ transplantation team therefore recently started a liver transplantation (LTx) program at the Chiangmai University with the parents as living donors for a 3-year old (6 kg) and a 6-year old (11 kg) child.

Results: The indications for LTx were biliary atresia. PELD scores were 34 and 36 respectively. After completion of preoperative blood tests, volumetry CT scans were measured for segment 2 and 3, with graft body weight ratios of 2.5% and 1.9% respectively. Average cold and warm ischemic times were very short with 13 and 25 min respectively, because HTK preservation solution was used and it was therefore not necessary to flush before reperfusion due to a low potassium concentration. Hepatic a. and hepaticojejunostomy anastomoses were performed under microsurgical techniques. Total operative times were 14 hours and 12 hours. Interestingly, the first child developed splenic artery steal syndrome and had increased AST and ALT levels six days after surgery. The CT scan showed a significant enlargement of the spleen and perfect vascular flows to the liver. The liver biopsy revealed no rejection. Angiography was proved and splenic artery coil embolization was performed. After a few days the spleen had decreased in size and the LTF had improved. The second child developed continuous lower GI bleeding at day 14 postoperatively. A scan located the site of bleeding at the RLQ area, and a selective angiography confirmed the bleeding at the iliocolic artery. Due to a tiny small arterial tributary, catheterization could unfortunately not be selected. Colonoscopy revealed an unidentified cause of bleeding from the ileum. Re-exploration and intra-operative enteroscopy confirmed the bleeding at the distal ileum and also revealed a biloma. We then performed a right half colectomy and a revised hepaticojejunostomy with external stents. Two weeks later the cholangiography had shown no leakage of the bile duct anastomoses. Major problems after LTx were however lung complications, which unfortunately increased our cost of treatment. In some centers immuno-globulin is routinely administered to those patients, which certainly improved the immunological aspect after LTx.

Conclusion: LTx is a multi-disciplinary procedure. The team players have to work well together in order to achieve a successful LDLT program without previous experience in deceased LTx.

RECENT OUTCOMES OF ORTHOTOPIC LIVER TRANSPLANTATION AT KING CHULALONGKORN MEMORIAL HOSPITAL

Limpavitayaporn P, Nonthasoot B, Sirichindakul B, Suphapol J, Nivatvongs S
Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Liver transplantation has been accepted as a therapeutic option for patients with end-stage liver disease since 1983, with continual improvements in patient survival as a result of advances in immunosuppression and medical management, technical achievements, and improvements in procurement and preservation. The first liver transplantation in Thailand was performed at King Chulalongkorn Memorial Hospital by Sriwattanawongsa, et al in 1987. This treatment has been performed until now. The recent outcomes were reported here in.

Materials and Methods: We retrospectively analyzed the data of liver transplantation patients between January 2003 and April 2009.

Results: There were 61 patients and 62 liver transplantation procedures. The mean age was 47.6 years (3-69 years), which were 41 male (67.2%) and 20 female (32.8%). Most of indications for liver transplantation was hepatitis C related cirrhosis (34%). The type of liver grafts were whole cadaveric liver 55 (88.7%), reduced size liver graft 5 (8.1%), and lateral segment liver graft from living donor 2 (3.2%). The average waiting time was 188 days. Most of patients who underwent liver transplantation had Model for End-Stage Liver Disease (MELD) score and Pediatric End-Stage Liver Disease (PELD) score more than 15 (75.8%) (range 8.03-39.9). The major complications were bile duct stenosis (22.6%), acute rejection (21.0%), and acute renal failure (19.4%). one patients had primary graft nonfunction (1.6%) who resulted in death. The

cumulative 1, 3 and 5 years survival rate were 85.9%, 77.4%, and 72.9% respectively.

Conclusion: Liver transplantation is now considered a safe and standardized procedure which are a treatment of choice in end-stage liver disease with a good result and acceptable morbidity rates at King Chulalongkorn Memorial Hospital.

TRAUMA, BURN, CRITICAL CARE

EARLY INVOLVEMNET OF SURGICAL TEAM IN MANAGING MINOR INJURIES IN RURAL HOSPITALS: AN EASY WAY TO REDUCE WAITING TIME IN DEPARTMENT OF EMERGENCY MEDICINE

Mohammad W. ASHRAFI, Ritesh Gupta, Sholeh Boodhun, Alison Ellis, James Roberts-Thomson

Mersey Community Hospital, Tasmania, Australia

Objectives: 1. To point out that in the area of chronic shortage of trained manpower in DEM, where existing surgical team may play a very big role. Despite many minor traumas are looked after by GPs continuously rural hospitals' DEM turnover of such patients nearly 40%. 2. To emphasize that appropriately triaged ED patients and early involvement of surgical teams reduce the congestion in DEM and patient waiting time.

Materials and Methods: From January 2005 to Dec 2008 in a rural hospital a protocol has been set where round the clock any minor trauma are being discharged home after management in DEM should be consulted to the surgical registrar on call. With anticipation of difficult cases soon after triage surgical team would be informed earlier. Trauma needing hospitalisation was excluded from the list. After the analysis at the end of four years we found 10% of total DEM turnover is minor trauma with average annual total of 7000.

Results: Waiting time was minimum in DEM. Follow ups in most cases been by GPs. And few needed follow up in surgical clinics bypassing revisit in DEM. Revision of wounds were satisfactory in most of the cases.

Conclusion: In rural hospital surgical team has a wider role. Smaller procedures or repairs done in DEM may be a learning ground for starters. It is a low risk but high yield way of team work in smaller hospitals. Better patient satisfactions have been noticed always. It is a cost effective way of trauma care

FLUID CHOICE FOR RESUSCITATION

Frank Bepperling

Fresenius Kabi Deutschland GmbH. Kabi Innovation Centre, Germany

Emerging evidence shows that choice, timing, and amount of fluid therapy may affect outcome. European guidelines recommend both crystalloids or colloids for the initial treatment of resuscitation of trauma patients. Typically normal saline (0.9% NaCl), Ringer's lactate or Ringers's acetate solutions are used as crystalloids. Within the group of colloids, the artificial colloids gelatin, dextran or hydroxyethyl starch (HES) have been used in the past. Hydroxyethyl starches are now available in very different preparations. Based on results from clinical pharmacology and clinical trials, there is a clear preference for 6% HES 130/0.4 (tetrastarch, third generation HES), which is approved in more than 70 countries including the US. Tetrastarch has the highest maximum dose for any HES product of up to 50 mL/kg. The natural colloid human albumin is usually not used for fluid resuscitation of trauma patients.

The stabilisation of macrocirculation can be done with all fluids as shown in a recent animal study. However, effects on microcirculation as demonstrated by increases in vascular leakage and acute inflammation are better attenuated by hydroxyethyl starch treatment as compared to gelatin, dextran or crystalloids. Clinical trials confirm the attenuation of inflammatory reactions in trauma or sepsis patients after infusion of HES compared to gelatin. In order to demonstrate the clinical relevance of improved microcirculation and attenuation of inflammatory reactions, further clinical trials comparing crystalloids with colloids are currently ongoing or planned. Among the artificial colloids, HES 130/0.4 is dominating the research interest.

THE EFFECTS OF CLOSED ICU MODEL ON GENERAL SURGICAL INTENSIVE CARE UNIT

Kaweesak Chittawatanarat, Thiti Pamorsinlapathum

Department of Surgery, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

Background: A closed model of ICU care is associated with improved outcomes and less resource utilization in mixed medical and surgical ICUs as well as traumatic ICUs. However; most of our country ICUs use open model especially in surgical ICUs. In self sufficient economy, closed model ICU might be effective utilization of resources

and improve outcomes.

Objectives: The aims of this study were to compare the effects of closed and opened model on ICU mortality and length of ICU stay.

Materials and Methods: We conducted a retrospective study to compare two periods of time which used open model (July 2002 to June 2004; 1038 patients) and closed model (July 2004 to June 2006; 1231 patients) on single general surgical intensive care unit in a university hospital. The closed model was defined as an ICU service led and managed by an intensivist. The open model was an ICU service which critically ill surgical patients were managed by host surgeons individually.

Results: Two thousand two hundred sixty nine patients were included in this study (Open vs Close; 1038 vs 1231). The overall ICU mortality rate was decreased statistical significantly in closed model (27.4% vs 23.4%; p = 0.03). This effect was obvious in patients who were admitted to ICU more than 48 hours (22.7% vs 13.9%; p <0.01). After adjusting for differences in baseline characteristics, the risk of death in closed ICU model also less than opened model statistical significantly [RR = 0.85 (0.74-0.98); p = 0.02). The effect was explicit in patients who admitted to ICU more than 48 hours [RR = 0.60 (0.47-0.76); p <0.01]. However; risk of death in non-traumatic patients and elderly patients more than 65 years old had only trend toward to lower in closed model [RR = 0.81 (0.64-1.01); p = 0.06 and RR = 0.81 (0.64-1.01); p = 0.07 respectively]. In addition; closed model ICU also decreased length of ICU stay (5.4 ± 7.1 vs 4.6 ± 6.1 days; p <0.01) and adjusted length of ICU stay was also lower about 0.80 day [-0.80 day (-1.34 to -0.25); p <0.01] in closed model with statistical significant when compare to open model.

Conclusions: The closed model led and managed by an intensivist was associated with reduction in overall ICU mortality and greatest effect in patients who were admitted more than 48 hours. Furthermore, this model also decreased ICU length of stay and might be an effectiveness method in self sufficient economic era.

NUTRITIONAL ASSESSMENT FOR SURGICAL PATIENTS BY BHUMIBOL NUTRITIONAL SCREENING TOOL AND SUBJECTIVE GLOBAL ASSESSMENT TEST

Rungsima Thiengthiantham, Kamonrut Pibul, Suphakarn Techapongsatorn, Vibul Trakulhoon

Department of Surgery, Ratchaburi Hospital, Ratchaburi, Thailand

Objective: To compare Bhumibol nutritional screening tool to SGA in surgical patients.

Study design: Diagnostic test

Subjects: Two hundred patients admitted in the general surgical and colorectal unit.

Methods: Evaluating the nutritional status with the Bhumibol nutritional screening tool and SGA, recording in term of score, age, sex, disease and operative type. Main outcome measures: sensitivity, specificity, positive predictive value, negative predictive value and 95% confidence interval.

Results: Bhumibol nutritional screening score at cutoff ≥4 points had a sensitivity and specificity of 78.65% (95% CI, 72.97-84.33%) and 86.49% (95% CI, 81.75-91.22%) respectively, positive predictive value and negative predictive value of 82.35% (95% CI, 77.07-87.64%) and 83.48% (95% CI, 78.33-88.63%) respectively.

Conclusion: Bhumibol nutritional screening tool is a simple and effective screening tool for identifying malnutrition in surgical patients.

CROSSMATCH OF TRAUMA PATIENTS: IDENTIFYING THOSE WHO DO NOT NEED IT

Tawatchai Treeratanawikran[1], Burapat Sangthong[1], Komet Thongkhao[1], Somrit Mahatanobon[1], Surasak Sangkhathat[1], Rassamee Sangthong[2], Tawat Chanchayanon[3], Charuporn Promwong[4]

[1]Department of Surgery, [2]Epidemiology Unit, [3]Department of Anesthesiology, [4]Department of Pathology, Songklanagarind Hospital , Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Preparing an adequate amount of blood is essential for taking care of trauma patients. Cross-matched blood is usually reserved for 48 hours for patients with transfusion potential. Though safe and reasonable, such practice eliminates blood products from the pool and increases other patients at risk from insufficient transfusion supply, especially in the situation when blood resources are constraints. Selective cross-matching based on clinical characteristics that can determine transfusion requirement might reduce the excessive blood reservation.

Objectives: 1) To examine a situation of cross-matching and red blood cell transfusion among multi-system trauma patients. 2) To identify initial clinical parameters assessed at emergency room that could determine odds of blood transfusion.

Materials and Methods: A retrospective study was conducted from January 2007 to December 2007. All adult trauma patients were identified from Blood Bank Registry that recorded all cross-matched patients. Data on demography, hemodynamic parameters, high-risk injury parameters, injury severity score (ISS), transfusion requirement, and survival outcomes were obtained. High-

risk injury was defined as torso trauma with external evidence of injury or survivor from a fatal motor vehicle crash. Determinants of blood transfusion were identified from multivariate analysis.

Results: A total of 1,983 units of blood were cross-matched for 382 patients, with 781 units were actually transfused (40%), giving a cross-match/transfusion ratio of 2.5:1. Factors determining likelihood of transfusion were 1) admission hematocrit (Hct) <30% (OR = 13.01, p <0.01), 2) Glasgow Coma Scale (GCS) Score <13 (OR = 5.48, p <0.01), 3) high risk injury (OR 4.78, p <0.01), 4) admission hypotension (OR 4.73, p<0.01), and 5) admission heart rate (HR) >120 beat/minute (OR = 3.30, p <0.01). The percentages of transfusion increased as the number of risk factors increased. Ten patients (12%) of those without transfusion risk factors required blood transfusion.

Conclusion: The study identified factors determining red blood cell transfusion likelihood in trauma patients. Data suggested that patients with no risk factors were less likely to be benefit from blood reservation.

UPPER GASTROINTESTINAL SURGERY

RISK FACTORS FOR COMPLICATIONS AFTER ESOPHAGEAL CANCER RESECTION

Niti Tawaranurak, Somkiat Suppaweerawong

Department of Surgery, Songklanagarind Hospital, Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Carcinoma of esophagus is one of the common malignancies worldwide. The prognostic is not good due to the patients come with late stage of disease. Esophageal cancer is more common in older patients with often coexisting diseases. Surgery has remained the main stay of treatment for patients with potentially respectable esophageal cancer. Due to the curative surgery so that the esophagectomy is the major surgery and it may cause of the post operative complications that effect to the quality of life. he serious complication of esophagectomy are anastomotic leakage and pneumonia. The aim of this study was to evaluate the risk factors that correlated with complications for predict and prepare the patients when decision for surgery.

Objective: Complications are common occur after an esophagectomy for the cancer treatment. The serious complications are anastomotic leakage and pneumonia. This study interest the factors such as age, sex, grade of tumor, cell type, stage, surgery method, BMI, estimate blood loss, operative time, albumin, Hb, Hct, creatinine clearance, ICU stay, respiratory support so that the study determine the correlation between the factors and complications and serious complications.

Materials and Methods: A retrospective analysis from the data of 233 patients who were diagnosed with esophageal cancer and who underwent esophagectomy between 1 January 1997 to 31 December 2006. Preoperative characteristics and operative informations include post operative care informations were analyzed for a correlation between patient risk factor and complications include the pneumonia and anastomotic leakage.

Results: Completed data was available for 233 patients. The number of the patient who have complications are 126 (54%). The patients whose are performed operative time >5 hr. significant correlated with post operative pneumonia (P = 0.002) and the patient whose loss of the blood volume >1500 mL. significant correlated with post operative anastomotic leakage (P = 0.017). and then prolong ICU stay and prolong respiratory support were associated with a higher incidence of pneumonia (P≤0.001). There was no significant correlation between age, sex, grade of tumor, cell type, stage, surgery method, BMI, albumin, Hb, Hct, creatinine clearance with the complications.

Conclusion: Operative time is a significant risk factor for pneumonia resulting from esophageal cancer resection especially in cases of prolonged intubation and ICU stays. Intraoperative bleeding is a significant risk factor for post esophageal cancer resection anastomotic leakage.

PROGNOTIC FACTOR OF SURVIVAL AFTER ESOPHAGECTOMY FOR ESOPHAGEAL CANCER PATIENTS IN SONGKLANAGARIND HOSPITAL IN 1997 - 2006

Rusnee Hajisamoh, Somkiat Sunpaweravong

Department of Surgery, Songklanagarind Hospital, Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Esophageal cancer is one of common cancers in the southern part of Thailand. Unfortunately, the result of treatment is quite poor even after surgery. To

select patient for surgery should be important to predict outcome.

Objective: To evaluate prognotic factors of survival after esophagectomy for esophageal cancer patients in Songklanagarind hospital in 1997-2006.

Materials and Methods: Retrospective study of 233 esophagectomy patients in Songklanagarind hospital during 1st January 1997 to 31st December 2006. Patients and clinical characteristics were assessed to predict survival after esophagectomy such as age, BMI, albumin, creatinine clearance, functional status, pulmonary function test, tumor location, cell types, staging as TNM classification, margin of tumor, method of treatments, method of surgery, estimated blood loss, operative time, ICU stayed, post operative complications and metastasis or recurrence status. The data was analyzed survival under statistically analysis by STATA version 7.0.

Results: There were males 78.98 %, Buddhists 92.7%, tumor at mid esophagus 49.35 %, squamous cell carcinoma 93.5 %, stage III 44.6 %, means age 62.07 years, means BMI 18.9. Analysis of 1 year survival showed religion, odynophagia, surgical site infection and staging were statistic significant (P <0.05) by univariate analysis. While religion, staging, age, odynophagia, surgical site and arrhythmia complications were strong prognostic factors.

Conclusion: Estimation of survival prognosis in esophagectomy for esophageal cancer patients required multiple factors of religion, staging, symptom of odynophagia and post operative complication.

CHRONIC CONCEALED PERFORATED DUEDENAL ULCERS: SURGICAL FINDINGS, OUTCOMES AND RELATING FACTORS

Songsak Kornsuthisopon[1], Sureeporn Sunsaneevittayakul[2], Kunsinee Pittayasiri[2]

[1]Department of Surgery, [2]Department of GI Medicine, Chao Phya Hospital, Bangkok, Thailand

Background: In advanced endoscopic era, the surgery for duodenal ulceration was limited for specific complications of the ulcer such as perforation, uncontrolled hemorrhage etc. There were special types of large duodenal ulcers that adhered to other adjacent organs and shown perforation during dissection.

Objectives: To report the surgical findings of these special forms of large duodenal ulcers and proposed hypothesis of these changes and also looked for related factors.

Materials & Methods: In Chao Phya Hospital, all GI hemorrhage patients were in hands of outstanding GI medicine doctors. The first case of chronic concealed perforated DU manifested with active bleeding at first part duodenum was found in July 2007. Then 5 cases manifested with pale fainting, bloody vomiting, melena stool were found respectively until February 2009. All 6 cases were analyzed for relating factors and proposed the hypothesis of these findings.

Results: These special features were found in old patients during 61-90 years, average 76.8 years, female:male = 5:1. On admission, hematocrit was 10-17% (average 13.5%), abnormal RBC morphology were found in all, DM were found in 4, hypoglycemia were found in 1. Despite severe blood loss and replaced 3-6 units of PRC (average 4.3 units), normal coagulopathy were found in all. The days consulted for surgery were varied from day 1 to day 4. The endoscopic findings were 1 large DU in 5 cases and 2 large DU in 1 case. All had diameter larger than 1 cm. Their base and margin were different from usual ulcers. The surgical findings were found thickening fibrotic adhesion of the ulcers to adjacent organs such as gall bladder, pancreas. There were no sign of peritonitis and only localized adhesion. Duodenectomy at the perforated area and gastroduodenostomy plus truncal vagotomy and cholecystectomy (if there were adhesion to gall bladder) were performed without post-operative complications. There was 1 death (90 years old).

Conclusion: The hypothesis of these changes was the process of eroding duodenal ulceration into muscular layers that caused localized adhesion to adjacent organs until fibrotic changes. Then the loss of their serosal wall was found perforation without peritonitis. These were not usual duodenal ulcers that many medications such as somatostatin, transamine, omeprazole could not stop bleeding from eroding adhesive artery. Urgent surgery was the life-saving procedure.

NINE-YEAR FOLLOW-UP OF GASTROINTESTINAL STROMAL TUMOR AT KING CHULALONGKORN MEMORIAL HOSPITAL: PROGNOSTIC FACTORS FOR PREDICTING RECURRENCES AND SURVIVAL ANALYSIS

Pornthep Prathanvanich, Bunthoon Nonthasoot, Voranuch Thanakit, Naruemon Wisedopas

Department of Surgery, Faculty of Medicine, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background: After Hirota, et al discovered CD 117 in 1998, the majority of diagnosis of gastrointestinal mesenchymal tumors were changed to Gastrointestinal Stromal Tumors (GISTs). This alteration led to the

revolution of diagnosis and treatment of GISTs. This report studied the effect of this great change in the aspect of true incidence and prognostic factors of GISTs at King Chulalongkorn Memorial Hospital (KCMH) before 2005, because of CD117 testing as available in KCMH after 2005.

Materials and Methods: The authors reviewed the database of mesenchymal tumors of gastrointestinal tract at KCMH between the year 2000-2004 and follow-up to 2009. During this period 54 patients were collected and the immunohistochemistry was studied, including CD 117. The clinical, pathological, immunohistochemical characteristics were analyzed related to cumulative disease-free survival and survival and multivariate analysis.

Results: After the CD 117 staining was done, the incidence of GISTs increased from 12/54 (22%) to 35/54 (65%) in 4 years. The factors that significantly associated with high tumor recurrence and poor survival were tumor size ≥10 cm ($p < 0.0001$), mitotic count >10/50 HPF ($p = 0.0002$), Ki67 index >10 % ($p < 0.001$), p53 >50 % ($p = 0.002$), and incomplete resection ($p < 0.0001$). Overall median DFS was 77 months, and estimated one-year, three-year, five-year, seven-year, and Nine-year DFS rates were 86, 63, 46, 40, and 14 percent respectively. Overall 5-year survival was 60%.

Conclusion: The breakthrough discovery of CD 117 in GISTs has the great effect on diagnosis of GISTs at KCMH. The previous diagnosis of the majority of other mesenchymal tumors of gastrointestinal tract is changed to GISTs. These findings also alter the way of treatment and follow up in our patients.

ACCURACY OF THE CLO TEST IN THE CLINICAL PRACTICE IN THAILAND

Siribumrungwong B, Thongyu A, Sakolaya D, Tomtitshong P
Department of Surgery, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

Background: Camplyobacter-like organism (CLO) test had been used for the clinical practice for several years. This tissue-based urease test is still popular for *H. Pylori* detection. Interpretation was done by detection of the pH-color change in the agar by the urease enzyme-substrate reaction.

Objective: CLO test had been used in Thailand for a period of time as the standard test. But few studies reported the accuracy of this test compared to the others standard test. This study showed the effectiveness of this test for *H. Pylori* detection in Thailand.

Materials and Methods: One hundred forty-one patients examined by gastroscope were enrolled to the study. Gastric biopsies were taken from greater curvature of the antrum close to the pyloric ring and tested with the CLO test.

Results: Forty-eight patients were positive (P) results while eighty-three patients shown negative result (N). Few were intermediate results that were excluded from the statistical analysis. The time after manufacturing of the test varied from 1 to 42 weeks. Using the histology (modified toluidine blue staining, MTBs) as the standard, sensitivity, specificity, PPV, NPV, of the CLO test were 64.8%, 96.7%, 95.8%, and 69.9% respectively. If we concerned about eradication status, we can separate into two groups of pre- and post-eradication. Sensitivity, specificity, PPV, NPV of the CLO test in the pre-eradication group were 71.4%, 100%, 100%, and 64% respectively. Sensitivity, specificity, PPV, NPV of the post-eradication group were 10%, 100%, 100%, and 74.3% respectively.

Conclusion: Compared to another standard test, CLO test is not much accurate as previous thought. The use of this method as the standard test had to be re-evaluated for the Thai clinical practice. Especially after the *H. Pylori* eradication, CLO test could not be used as the follow-up test.

EFFECTIVELY RE-USABLE CAMPLYOBACTER-LIKE ORGANISM (CLO®) TEST

Assanee Tongyoo, Boonying Siribumrungwong, Dutsadee Sakolaya, Prakitpun Tomtitchong
Department of Surgery, Faculty of Medicine, Thammasat University, Pathum Thani, Thailand

Background: Camplyobacter-like organism (CLO®) test (Delta-West Ltd., Perth, Australia), tissue-based urease, had been used for *Helicobactor pylori* detection since 1987. This test is still widely used until now. Interpretation is done by the detection of color change in the agar using phenol red as a pH indicator. It had previously been shown that CLO® test might be re-usable.

Objectives: This study aimed to detect the accuracy of the reused CLO® test compared with the new (first time used) CLO® test served as a standard. This might reduce the cost of the diagnostic procedure if endoscopist can use the reused one with accuracy.

Materials and Methods: The procedure consisted of two gastric biopsies taken from the greater curvature of the antrum closed to the pyloric ring from 61 patients during gastroscopic examination. Each of the specimen was tested by the new CLO® test and by the previously negative used CLOé test (only one time used). The age of the new test was

4 to 40 weeks whereas that of the reused test was 8 to 49 weeks. The interval period after the first negative interpretation and of the second time use varied from 1 to 22 weeks. After the first use, the reused CLO® test was stored in 4 °C.

Results: While using the new CLOé test served as the standard, the sensitivity, specificity, positive and negative predictive value of the reused CLO® test were 100%, 97.4%, 95.8% and 100% respectively. The new CLO® test showed the positive result in 23 patients whereas the reused test revealed the positive result in 24 patients. Moreover, the same negative result found in 37 patients from both of the new and the reused test. We found that, for the positive result, an effectively re-usable CLO® test given 4.35% error compared with the result from the new test.

	Reused CLO® test		
	positive	negative	total
New CLO® test			
positive	23	0	23
negative	1	37	38
Total	24	37	61

Conclusions: This study showed that the reused CLO® test should be repeated and given the same result as the new test.

ENDOSCOPIC FINDING IN CORROSIVE INGESTION

Suphakan Techapongsatorn, Anan Manomaipiboon, Pong Kanjanasuthirak, Satit Srimantayamas

General Surgery Unit, Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital, Bangkok, Thailand

Background: To study the endoscopic finding within 48 hours after corrosive agent ingestion.

Subjects: Materials and Methods: Hospital records and endoscopic findings were reviewed in one hundred and seventy-one patients who ingested corrosive agents from January 2001 to December 2005 at the Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital. The data were collected and analyzed. Endoscopic findings were classified into 4 groups: no injury, 1st degree injury, 2nd degree injury and 3rd degree injury. The sites of injuries were divided into proximal esophagus, distal esophagus, proximal stomach (cardia, fundus and body), distal stomach (antrum and pylorus) and duodenum.

Results: Demographic data showed that 124 patients (72.5%) were female and the average age was 26.25 years. Intentional ingestion was the cause in 166 patients (97.1%). Hydrochloric acid in hard surface cleaner especially toilet and bowl cleaners was the most common corrosive agent in 126 patients (73.7%). The prevalence of injury in upper esophagus, lower esophagus, proximal stomach, distal stomach and duodenum were 35.0%, 69.4%, 64.9%, 33.1% and 17.2% consecutively.

Conclusion: These findings were different from the developed countries. In those countries, the most common corrosive agents was sodium or potassium hydroxide that was strong base in drain or pipe cleaner. Furthermore, lower esophagus especially esophagogastric junction and proximal stomach were the most susceptible sites of injury. Then, the management and teaching should be conversely from the developed countries as mentioned in many textbooks and journals.

INFLAMMATORY PSEUDOTUMOR OF THE RETROPERITONEUM: A CASE REPORT

Noppawat Samankatiwat, Montian Marutkarakul, Sommai Jariyasomboon

Department of Surgery, Ratchaburi Hospital, Ratchaburi, Thailand

Background: Inflammatory pseudotumor is a rare condition of unknown cause occurring at various sites, mostly in the lung and the orbit. However, it has been reported to occur in nearly every site in the body. We reported a case of this condition involving the retroperitoneal area.

Case Report: A 29-year-old woman, who had a past history of diabetes mellitus, presented with a large pelvic mass extended to the left gluteal area for 2 years. The computed tomography (CT) scan of the abdomen showed a well defined inhomogeneous enhancing mass about 29×16×13 cm in pelvic cavity, lateral rectal and left gluteal fat area. The patient was operated in lithotomy position. The tumor was surgically removed under general anesthesia by simultaneous abdominal and perineal approach. Pathological finding revealed an inflammatory pseudotumor. Operation time was 4 hours 30 minutes. Estimated blood loss was about 500 ml. There was no intraoperative complication. Postoperative abdominal wound infection was found and treated conservatively with antibiotics. The length of hospital stay was 29 days. There was no tumor recurrence during period of 15-month follow-up.

Conclusion: Inflammatory pseudotumor of the retroperitoneum is a rare neoplasm. The patient with this condition was successfully treated by complete surgical resection.

VASCULAR SURGERY

UTILITY OF SURGICAL FENESTRATION IN THE MANAGEMENT OF AORTIC DISSECTION

Bauer E. Sumpio

Vascular Surgery, Yale-New Haven Hospital, Connecticut, USA

Type B acute aortic dissection is not uncommonly encountered by cardiovascular surgeons. However, the optimal treatment of patients, particularly those with visceral and renal vessel involvement, is not well-standardized. This is, in part, to the high morbidity and mortality that continues to plague aortic replacement surgery. For this reason, other techniques have been investigated. Open surgical aortic fenestration is a quick and safe alternative to traditional operative strategies and has shown to have both short-term and long-term effectiveness. Percutaneous balloon fenestration, although a more recent technique, appears to offer the same advantages as open fenestration with the added benefits of minimally invasive surgery. We believe that these fenestration techniques can be safe and effective alternatives to medical management and aortic replacement surgery in properly selected patients.

EVIDENCE-BASED MANAGEMENT OF VARICOSE VEINS

Bauer E. Sumpio

Vascular Surgery, Yale-New Haven Hospital, Connecticut, USA

A number of epidemiological studies from both Europe and North America have shown the prevalence rate of varicose veins within the general population to be approximately 2 per cent. Women seem to be affected more than men. When treating varicose veins, the clinical objectives should be satisfactory cosmesis, relief of symptoms and prevention of complications and recurrence. Treatments should be discussed on an individual basis and may be non-surgical or surgical. Simple reassurance may be all that is required for some patients. For others, application of fitted, elasticated, graduated compression stockings may provide enough relief to avoid surgical or other intervention. Injection sclerotherapy aims to obliterate varicose veins by placing an irritant solution directly within the vein lumen, causing a local chemical reaction, promoting thrombosis. A variety of surgical approaches are utilized but the most acceptable surgical procedure is near-flush ligation and division of the saphenofemoral junction, ligation of all the tributaries and stripping of the LSV to just below the knee. The procedure is completed with ligation (or avulsion) of incompetent perforating veins and avulsion of varicosities via stab incisions. Recently, there has been a big surge in the use of endovenous laser or radiofrequency ablation therapy as a minimally invasive treatment of varicose veins. There is, however, only scant evidence pertaining to effectiveness and cost-effectiveness of the various treatment strategies.

VEIN GRAFT AND DELAYED EMBOLISATION FOR THE MANAGEMENT OF POPLITEAL ARTERY ANEURYSM

Mohammad W. Ashrafi, PM Lamont, RC de los Santos, S Vure, S Boodhun, Ritesh Gupta

Mersey Community Hospital, Tasmania, Australia

Objective: To present an alternative method for surgical management of symptomatic popliteal artery aneurysm. This is particularly applicable to very long aneurysms. It is a very good method to avoid recurre nt aneurysm formation.

Methodology: In 2005 a 73 year old man presented with embolism to the right foot from a popliteal Artery Aneurysm. He had a proximal and distal ligation coupled with vein by-pass for a left popliteal Artery Aneurysm in 2000. Further surgery, by posterior approach with over sewing for recurrent aneurysm was undertaken in 2003. This right PAA extended from one cm below the bifurcation of the common femoral artery to the knee joint line. In view of the excessive length of the aneurysm, in order to avoid the recurrence of aneurysm and ischemia for extensive ligation a vein bypass graft was carried out and ligation of the aneurysm distally. But no ligation was carried out proximally. Three months later the patient had embolization of the feeding arteries under local anesthesia, in a controlled manner in theatre observing the circulation of the leg. After three years of follow up there is no recurrence.

Results: The patient experienced a very good result. This management is now the authors preferred manner of treatment. This procedure is a unique example of managing PAA with very encouraging outcome.

Conclusion: An alternative method for management of Popliteal Artery Aneurysm is offered. It reduces the initial operating time and it reduces the extent of surgery. It also reduces the chance of recurrence with minimal complications. Modern surgical management of A-V malformation follows same principles.

MECHANICAL COMPLICATIONS IN PERCUTANEOUS CENTRAL VENOUS LINE INSERTION: DOES EXPERIENCE MATTER?

Ajarawadee Panmanee, Surasak Sangkhathat, Komet Thongkhao
Department of Surgery, Songklanagarind Hospital, Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Subclavian venous catheterization is simple and easy to learn how to do because steps to place catheter is not complicate. There are no absolute contraindications; the procedure could be performed when indications are justified. Many literatures revealed range of severity from minor to fatal complications, the experience of the operator was considered to be a definite risk factor for complications and failures. In Songklanagarind hospital, PSVCs were performed by physicians with varied levels of experience, in many areas of patient care but problems and quality of care have not been identified.

Objectives: 1) To report incidence of mechanical complications resulting from subclavian venous catheterization in Department of Surgery, Prince of Songkla University. 2) To determine risk factors associated the failure of catheter insertion and mechanical complications of subclavian venous catheterization.

Material and Methods: A retrospective analysis of percutaneous central venous line puncture in Songklanagarind hospital from April 2008 to March 2009 was conducted. The patients were identified from a Central Venous Line Registry that prospectively collected data of all CVL in the institute. Patient demographics, recorded indication, number of needle passes, identification of physician performing the procedure were recorded. All first chest roentgenogram after catheter placement and procedure records were reviewed.

Results: A total of 213 CVL punctures were analyzed. The majority (62%) of PSVCs in our institute was inserted by the 1st and 2nd year residents. Complications occurred in 37 patients (18.7%), of which most common was misplacement of the catheter tip. The probability of complications was significantly associated with a number of needle passes. Patients who were punctured more than 2 attempts significantly had more complications rate (50%) than those who were successfully done in the first 1-2 trials (15.8% complications, p-value 0.001). There was a tendency of reduction in complications and the chance to have success puncture in early attempts in more senior residents. The peak performance was at the third year when experience volume was maximized. No complications occurred in cases who were operated by staff surgeons.

Conclusion: Experience of an operator was associated with success in PSVC. The data suggested that cases of PSVC with complication risks should be performed by senior surgeons and caution should be practiced when the first 2 punctures failed.

ARTERIOARTERIAL PROSTHETIC LOOP (AAPL): SURGICAL TECHNIQUE AND ONE YEAR RESULT FROM FIRST CASE OF THAILAND

Thawatchai Tullavardhana, Witoon Oinggitphaiboon, Prinya Akranurakkul
Department of Surgery, Faculty of Medicine, Srinakarinwirot University, Nakorn Nayok, Thailand

Background: The authors reported surgical technique to perform arterioarterial prosthetic loop (AAPL) which was a new procedure in vascular access for hemodialysis by using PTFE graft to reconstruct an axillary artery-axillary artery chest loop. We performed this procedure in the patient who had failure form multiple previous vascular accesses for hemodialysis procedure and all central venous of both upper and lower extremities were occluded. One year of follow-up result was reported.

Results: After 1 year of follow up period finding that AAPL can give a sufficient hemodialysis flow rate of 300 mL/min and Kt/V of 1.6 without other postoperative complication.

Conclusion: The AAPL is an unusual hemodialysis access procedure but there is alternative option in patient who cannot create a more conventional vascular access. This procedure can give adequate hemodialysis and safe for the patient.

MANAGEMENT OF THE INFECTED AORTOILIAC ANEURYSMS

Kamhol Laohapensang[1], Robert B Rutherford[2], Supapong Aworn[1]
[1]Division of Vascular and Endovascular Surgery, Department of Surgery, Chiang Mai University Hospital, Chiang Mai, Thailand
[2]Department of Surgery, University of Colorado Health Science Center, Denver, CO, USA

Background: We have reviewed our ruptured and non-ruptured infected aortoiliac aneurysms to study the clinical presentation, management and eventual outcome of patients managed with in situ prostheses, axillo-femoral prostheses grafts and endovascular reconstruction.

Materials and Methods: A retrospective chart review of 16 cases treated at a single institution. From January 2007 to March 2008, a total of 93 patients with aortoiliac aneurysms underwent surgical repair at our institution. Among these, 16 patients (17.2 %) were shown to be

infected aneurysms of the infrarenal (n = 6), juxtarenal (2), and pararenal aorta (1); the others were 5 common, 1 external, and 1 internal iliac arteries. Fourteen patients were male and 2 were female with the mean age of 66 years (range, 45-79). In all cases, the diagnosis was confirmed by abdominal computed tomography and empirical parenteral antibiotics were administered at least 1 week. At the time of an operation, all are saccular and 6 of the 16 aneurysms (37.5%) were ruptured (4 contained, 2 free ruptured). Thirteen patients had surgical debridement with in situ graft interposition and omental wrapping, 2 underwent aneurysm exclusion and extra-anatomic (axillo-femoral) bypass, and 1 underwent endovascular exclusion. The antibiotics were continued in the postoperative period for 4-6 weeks.

Results: Chronic renal disease was present in 37.5 %(6/16), with diabetes mellitus present in 31.2% (5/16). The most common pathogen were Salmonella species (n = 6) and *E. coli* (5). Thirty-seven percent (6/16) of the patients presented late, with a 37.5% (6/16) incidence of ruptured that needed early or emergency surgery with less than 1 week of preoperative antibiotics. Disease-specific mortality was 31.25% (5/16).

Conclusions: Mortality rate of the ruptured cases is still high (31.25%), because patients present late in the course of disease. *Salmonella* and *E. coli* are the most common pathogens. Early diagnosis followed by surgical intervention with proper antibiotic coverage provides the best results. An in situ graft interposition and omental wrapping is a safe option for revascularization of mycotic aneurysms of the iliac arteries and infrarenal aorta. An extra-anatomic bypass should be preserved for cases with a frank collection of pus.

WOUND CARE

MY EXPERIENCES IN VACUUM THERAPY FOR VARIOUS KINDS OF WOUNDS

Bauer E. Sumpio

Vascular Surgery, Yale-New Haven Hospital, Connecticut, USA

Negative Pressure Wound Therapy (NPWT) is wound therapy that was cleared for marketing by the U.S. Food and Drug Administration in 1995. It is indicated for use in the treatment of chronic, acute, subacute, traumatic, pressure and diabetic ulcers, partial-thickness burns, flaps, and grafts. The NPWT system is compromised of a reticulated open cell polyurethane (V.A.C.® GranuFoam™) or polyvinyl alcohol foam (V.A.C.® WhiteFoam), a pressure-sensing pad (SensaT.R.A.C.™), evacuation tubing, a collection canister, and a software-controlled therapy unit responsible for generating negative pressure. NPWT unique mechanisms of action provide a closed, moist wound environment while at the same time removes fluids and infectious materials and reduces edema. The reticulated open cell foam in conjunction with the negative pressure produces macro and microstrains that draws the wound edges together and cause deformational changes at the cellular level, which results in the production of positive growth factors necessary for wound healing. This activity promotes tissue perfusion and healthy granulation tissue formation that help prepare the wound bed for closure. Numerous studies, including randomized controlled trials have been published regarding the effective use of NPWT for acute wounds and chronic wounds such as pressure ulcers and diabetic foot ulcers.

'NON-COMPLIANCE, NOT AMOUNTING TO BE CALLED DEPRESSION', IN LONG-TERM DIABETICS AND DIABETIC LIMB LOSSES

Rhona de los Santos, MW Ashrafi, Gibson Pawape, PM Lamont

Launceston General Hospital & Mersey Community Hospital, Tasmania, Australia

Background: Diabetic patients over time develop dysthymia when they feel hopeless about control of their illness. Often they are overwhelmed by thoughts of long-term complications like retinopathy, neuropathy that they give up hope that they could combat its complications. When they become dysthymic, they either have poor appetite or they are overeating and this leads to poor control of their blood sugar. Some have low energy level and would not initiate or succeed to exercise daily. Their sleeping patterns are disturbed, either they have insomnia or hypersomnia and sticking to their medication regimen would be difficult. When they are depressed most of the day and with difficulty making decision they do not present to their GP or do home monitoring of their blood glucose levels. Thus it is important to reassure patients in their early stage of their illness that they can combat their illness by careful control of diet and exercise and maintaining treatment compliance.

Diabetic educators should be involved during their early stage of their illness before complications set in and should be trained to pick up dysthymic signs and symptoms for prompt referral for early psychological and psychiatric intervention. Chronic diabetics at some point gives up their vigilance in the sugar control. Many of them end up with intractable diabetic feet with limb losses incurring health budget, enormous morbidity and mortality. Self neglect is very obvious in many who have controlled diabetes for years. In many part of world overuse of sugar and fine carbohydrates is a part of cultural transformation and type II diabetes incidence is increasing.

Materials and Methods: Three hundred patients who presented with diabetic feet been interviewed and noticed that few weeks or months prior to their start of symptoms a major change in the treatment mechanism happens which lead to catastrophic complications of diabetes. They do not qualify according to DSM IV classification to be called MDE. But can be called dysthymia. Surgical unit in an Australian Hospital was involved in these interviews.

Results: Primary health carers and diabetic educators should take preemptive measures to identify the dysthymics and help them stick to the routine treatment. Prevention is the best method of treatment of complications of diabetes.

Conclusion: Diabetic feet are preventable. Early psychiatric assessment is helpful. Preventive steps are cost effective. Diabetic educators are very few in contrast to their need.

NEGATIVE PRESSURE WOUND THERAPY: PAST, PRESENT AND FUTURE

Gerit Mulder

Wound Treatment and Research Center, UCSD Medical Center - Hillcrest, San Diego, USA

Negative Pressure Therapy has been used extensively for the treatment of wounds for over 20 years. Wound etiologies have included pressure, venous, traumatic, burn, post-surgical and many other wounds. Currently, there are various devices available for the treatment of wounds, all of which are based on creating negative pressure in the wound bed. Numerous claims have been made about the efficacy and advantage of each of these devices, yet no acceptable Level I evidence is available on any product and no comparative study between two different devices has ever been performed. The current supporting publications are all Level II and III. An extensive review of all literature published worldwide over the last two decades does suggest negative pressure therapy is of clinical benefit in expediting granulation and promoting wound closure, yet no device has yet demonstrated effectiveness in attaining 100% closure, suggesting the therapy is most beneficial as part of a staged treatment plan rather than being used as a single comprehensive approach. This presentation will present a review of all data published worldwide on negative pressure therapy, review the conclusions reached by the studies, and discuss appropriate applications and indications for negative pressure therapy to wounds of an acute, chronic and surgical etiology.

EFFECT OF WF10 ON HEALING OF DIABETIC FOOT ULCER: A DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED CLINICAL TRIAL

Narongchai Yingsakmongkol[1], Paiboon Maraprygsavan[2], Phongthon Sukosit[2]

[1]Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Nakorn Nayok, Thailand

[2]Surgery Department, Royal Thai Police General Hospital, Bangkok, Thailand

Background: The diabetic foot ulcer (DFU) remains a challenge in clinical medicine. Despite countless clinical trials to test drugs for healing of DFU or to reduce risk factors for limb amputation and despite innovative treatment modalities available today, little progress has been made and the number of amputations, including toes to mid-thigh, is still on the rise. Neuropathy, Ischemia, and Infection/ Inflammation together form a complex wound situation. Therefore, a solid knowledge of DFU pathophysiology may lead to discovery of causal treatment concepts in the management of DFU and might be mandatory for quality of life improvement. Here, WF10, a chlorite based drug which induces natural defense mechanism to enhance elimination of pathogens, terminates inflammatory tissue damage in the course of inflammation, and improves oxygen saturation in tissues, has been studied.

Objective: To evaluate the effects of WF10 on healing of DFU.

Materials and Methods: Double-blind, randomized, placebo-controlled clinical trial conducted in two hospitals. Forty (40) patients with DFU have been enrolled based on definitive inclusion criteria. The patients received infusion of WF10 or placebo (NSS) 0.5 ml/kg bodyweight in 500 mL of NSS for 5 consecutive days every 3 weeks for 3 cycles. All patients received standard medical and surgical care. Wound Severity Score (WSS), ranging from 0-20 depend on wound size, depth, infection/inflammation, amount of necrotic tissue, and granulation tissue, were weekly assessed for 9 weeks. All data were statistical analyzed by ANCOVA test.

Results: At baseline, WSS in both groups were non-significant different (13.65 ± 2.81, n = 20, and 12.85 ± 3.19, n = 20), as well as infection/inflammation score (2.60 ± 0.75 and 2.45 ± 0.68) and necrotic tissue score (2.60 ± 0.94 and 2.45 ± 0.68). After treatment, WF10 revealed significant improvement of WSS (1.76 ± 1.85), compared to placebo (4.41 ± 5.33, p<0.05). Importantly, also significant improvement in infection/inflammation score (0.00+0.00 and 0.76 ± 1.14, p <0.01), as well as in necrotic tissue score (0.00 ± 0.00 and 0.76 ± 0.90, p <0.01) and granulation tissue score (0.11 ± 0.33 and 0.82 ± 1.18, p <0.05) has been recorded.

Conclusion: In addition to standard of care, WF10 significantly enhances DFU healing by rapidly decrease of inflammation/infection and necrotic tissue, occurred from enhancement of phagocytic activity, leading to promote tissue regeneration and then significantly increase of granulation tissue

A NOVEL ROBOTIC MONOFILAMENT TEST FOR DIABETIC NEUROPATHY

Chumpon Wilasrusmee, Jackrit Suthakorn, Claire Guerineau, Yuttana Itsarachaiyot, Vera Sa-Ing, Wirawat Sirisopha, Napaphat Proprom, Panuwat Lertsithichai, Plubplung Tangsakuntong, Chantana Vipanngern

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

Introduction: The early identification of neuropathic abnormalities is crucial as it offers diabetic patients an important chance to prevent further complications of their foot. The use of Semmes-Weinstein (SW) monofilament test is recommended as a screening method for diabetic neuropathy. Although it is useful, simple, reproducible and inexpensive, the examination must be performed by physician or medical staff on whom it incurs the loss of time and labor to patients. The inter-examiner variations can reduce the accuracy of the test result. In this study, we developed the prototype of "Monofilament Robotic Inspector" that can be used as a standard machine for screening of diabetic neuropathy.

Materials and Methods: The development was divided into three parts: Software computer, Control box, and Monofilament Robotic Inspector. The examination was conducted in a sitting position. Patients gave a response by pushing a button on çAnswer boxé. If the answer was incorrect two or more times out of three examinations per site, it was considered as positive. A total of 71 subjects who provided their informed consent participated in this study. Examiner conducted Semmes-Weinstein test (by hand and by robotic inspector), Vibration perception threshold (VPT), and the Toronto test prior to knowing the information of patients lower-extremities neuropathy symptoms. Unpaired t-test or Wilcoxon ranksum test was used to test for differences between independent groups in terms of continuous outcomes, while the chi-square test was used for categorical outcomes. Agreement between the various diabetic neuropathy tests was measured using the kappa statistic. Statistical significance was defined as a p-value of ≤0.05.

Results: The SW test and VPT were more valid tests for neuropathy than the Toronto test. The robotic test was in excellent agreement with the two former tests and seemed to indicate that the robotic test was valid. Another indirect evidence for the validity of the robotic test was the finding that diabetic patients with foot ulcers had a higher prevalence of neuropathy, according to the test. In contrast, the manual SW test indicated that neuropathy was more prevalent in diabetics without foot ulcers. This might indicate that the robotic test had a tendency to have more validity that the SW test.

Conclusion: The result of this study demonstrated that "Robotic Monofilament Inspector" could be used as a simple screening machine. The validity of the novel test should be comparable to the manual SW monofilament test, perhaps more so. This prototype may be developed further for routine clinical use.

A RANDOMIZED CONTROLLED TRIAL COMPARING 2-OCTYLCYANOACRYLATE WITH ABSORBABLE SUBCUTICULAR SUTURE FOR SURGICAL INCISION WOUNDS CLOSURE AND COST-EFFECTIVENESS ANALYSIS

Suphakan Techapongsatorn

General Surgery Unit, Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital, Bangkok, Thailand

Background: To compare the effectiveness of 2-octylcyanoacrylate and absorbable subcuticular suture for surgical incision wound closure.

Materials and Methods: Randomized controlled trial and economic analysis in minor operative room and outpatient surgical clinic at the Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital. Eighty eight patients scheduled for surgical removal of benign skin or subcutaneous lesion were computed randomly assigned into two groups: 2-octylcyanoacrylate for wound closure (N = 44) and absorbable subcuticular suture for wound closure (N = 44). The wound score was used for evaluation in 7th day postoperative by independent professional observers. The

cost-effectiveness analysis was also performed alongside with trial.

Results: The 2-octylcyanoacrylate group had wound closure evaluation score, wound approximation (9.93 ± 0.34 VS 8.98 ± 2.35, p = 0.002, 95% CI 0.22-1.68), wound inflammation (9.86 ± 0.35 VS 8.33 ± 2.47, p <0.001, 95% CI 0.76-2.29), wound epithelization (9.83 ± 0.44 VS 8.76 ± 2.48, p = 0.018, 95% CI 0.30-1.84), wound closure time (104.09 ± 14.40 VS 227.33 ± 39.16, p <0.001, 95% CI 111.30-136.43) better than absorbable subcuticular suture with statistically significant. The 2-octylcyanoacrylate had better cost-effectiveness analysis than absorbable subcuticular suture.

Conclusion: The 2-octylcyanoacrylate is effective for surgical incision wound closure compared with absorbable subcuticular suture.

CASE REPORTS OF THE USE OF NANOCRYSTALLINE SILVER DRESSING IN ORTHOPAEDIC WOUNDS

Pornthep Srimanothip, Wasana Palrungsri, Chanphen Phahong

Out-Patient Department, Lerdsin Hospital, Department of Medical Services, Ministry of Public Health, Bangkok, Thailand

Background: The authors reported the use of nanocrystalline silver antimicrobial dressing (ACTICOAT, Smith and Nephew, London, UK) in chronic wounds to prevent localized skin necrosis due to infection, thereby preparing wound bed for skin grafting as a secondary procedure. Three patients were successfully treated with ACTICOAT. The benefit found in our report of dressing itself with three day application led to less frequent dressing change, better patient compliance and reduction of nursing overloads.

Objective: The intention was to assess the effect of silver on reducing bacterial loading at the wound site whereby promoting wound healing.

Materials and Methods: Prior to use Acticoat was moistened with sterile water, not saline. If necessary, the dressing may be trimmed to the appropriate size and shape of the wound, covered with a secondary dressing and held in place with surgical tape or a bandage as appropriate. Dressing was changed every 3 days.

Results:

Patient 1: Female aged 59 year old patient with diabetic and lymphoma and was admitted on 3 November 2008 to treat diabetic foot ulcer with sepsis and underwent BKA in three day later. Dressing used was wet dressing after surgery and then started ACTICOAT on 27 November 2008 till the wound healed on day 179th.

Patient 2: Male aged 45.1 year old patient with left leg necrotizing fasciitis. After fasciotomy, patient had systemic antibiotic administration, treated wounds with Betadine gauze BID and did wounds debridement at every 2-3 days. A week later the wound was applied 1% silver sulfadiazine together with wound debridement. Started using ACTICOAT on 6 June 2008 with wound appearance of yellow slough 50% and granulation 40%, had clinical sign of infection with moderate swelling and redness, surrounding skin with less maceration and mild exudate and bone exposure on medial malleolus. Patient had dressing change every 3-4 days till day 52nd and then having skin grafting.

Patient 3: Male aged 71 year old with cerebral infraction with cellulitis on dorsal left foot and was previously treated with fucidic acid and 1% silver sulfadiazine and finally changed to treat with nano crystalline silver till wound completely healed within 42 days.

Conclusion: All of three patients were successfully treated with Acticoat. In two patients, wounds were improved in size and completely healed without skin grafting and one patient had healthy wound bed for later with skin grafting.

A COMPARATIVE STUDY MEASURING SURFACE PRESSURE AMONG VARIATION OF ADHESIVE DRESSING METHODS

Suphakan Techapongsatorn, Anan Manomaipiboon, Cherdchai Kittipovanon

General Surgery unit, Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital, Bangkok, Thailand

Background: To compare the surface pressure of various adhesive dressing.

Materials and Methods: Five types of adhesive dressing, including 1) adhesive dressing with microfix® 2) adhesive dressing with transpore® 3) adhesive dressing with fixumull® 4) adhesive dressing with OCL elastic bandage BPC® 5) adhesive dressing with pressure bra, were applied to the body models. Pressure was measured at 0, 1, 6, 24 hours. The experiment was repeated for 6 times. Data were analyzed by using ANCOVA and repeated measure analysis.

Results: The pressure of wound dressing with fixumull®, OCL elastic bandage BPC® and pressure bra were significantly different from microfix and transpore. Adhesive dressing from pressure bra was most sustainable during the first 24 hours.

Conclusion: Each kind of adhesive dressing produced different pressure. The adhesive dressings with Fixumull®, OCL elastic bandage BPC® and pressure bra result in higher pressure than others.

SURGICAL EDUCATION

ETHICS OF SURGICAL INNOVATION

Wattana Mahattanakul, Anthony Eyers

Australian School of Advanced Medicine, MacQuarie University, Sydney, Australia

Background: Rapid advances in technology in recent years have introduced new concepts and enabled the development of new surgical procedures. Without innovation, there would be no progress in surgery. However, not all new surgical techniques become successful and some may cause harm to patients. Although regulatory frameworks have been in place for clinical research since the Declaration of Helsinki, similar oversight for surgical innovation is a much more recent development, which remains in flux. Currently, there is a lack of clarity as to what constitutes a ùgenuineû innovation as it enters clinical use for the very first time. This can be due in part to a lack of awareness among healthcare professionals, and in part to the semantics of the term çinnovationé. Without protection and regulation, the interests of patients subjected to surgical innovation may be downgraded or overlooked. Surgical innovation poses many ethical challenges for surgeons, including informed consent, uncertainties in outcome and risks, the existence of a learning curve, issues of bias and whose responsibility it is to proved governance for surgical innovation. Trust, honesty and shared decisions with patients together with respect for justice and patient's autonomy are most important. The complete elimination of risk from new surgical techniques is probably not possible. However, with careful planning and monitoring of new procedures during their first clinical applications, the risks can be minimized.

Objective: This paper focuses on the very early introduction of innovations into clinical practice; at a time before they become acceptable for general use, and at the stage before sufficient data exists about the procedure.

Methods: First we will look at some of the historical aspects that surround surgical innovation. Next we will discuss what is meant by an innovation and how it differs from research. Then we will consider some specific ethical aspects of surgical innovation; the process of informed consent, learning curves, monitoring outcomes and adverse effects, and the role of regulatory bodies.

Conclusion: A team approach with rigorous planning from the outset to the end is vital for us to avoid injustice for our patients. Surgical innovation must respect the fundamental rules of ethics; a respect for autonomy, beneficence, justice, transparency and honesty. We suggest the formation of surgical innovation oversight committees at a local level, forming part of a wider coordinated network with other professional bodies and organizations within the institution and externally.

WHAT'S IN RCST SURGICAL PROGRESS: 20 YEARS-RETROSPECTIVE REVIEW

Thanapongsathorn W[1], Wora-Urai N[2]

[1]HRH Princess Maha Chakri Sirinthorn Medical Center, Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Nakorn Nayok, Thailand

[2]Royal College of Surgeons of Thailand, Bangkok, Thailand

Background: The RCST (Royal College of Surgeons of Thailand) Surgical Progress was first published in 1989. Since then, 20 years have passed and 38 volumes have been published to date.

Objectives: To analyze topics and author names published in 38 volumes and develop digital database for easy searching of the contents.

Methods: By using excel software programme, data including all topics were collected and classified into basic science and clinical surgical science. Author names were divided into Thai and overseas indicating institute, specialty and total number of topics written by each author.

Results: The total number of topics was 964, with 211 in basic surgical science (including Anatomy, Physiology, Pharmacology, Anesthesia, Ethic and Health Law) and 753 in clinical surgical science. The top 3 organ systems written about were colorectal and anus (188 topics), hepatobiliary and pancreas (173 topics) and esophagus-stomach and small bowel (128 topics). The total number of authors was 413, with 397 Thais and 16 overseas. There were 296 surgeons (255 were general surgeons) and 117 non-surgeons. The top 3 specialties of non-surgeon authors were medicine (49 authors), radiology (32 authors) and anesthesiology (15 authors). The top 3 highest numbers of topics written by the same author were 28, 18 and 17 respectively. The top 3 volumes with highest number of topics were Volume # 7 (50 topics), Volume # 20 (38 topics) and Volume # 9 (33 topics).

Conclusion: For 20 years the RCST Surgical Progress has shown great success in academic role of the Royal College of Surgeons of Thailand. It has provided opportunities for many RSCT members to contribute their knowledge and experience to Thai surgeons and the society. To celebrate the 20th Year Anniversary, it is proposed that

the RCST Surgical Progress publish a special issue of best selected topics to reflect past surgical academic development of Thai surgery.

THE IMPACT OF NEW TECHNOLOGY ERA ON THE SURGICAL TRAINING IN DEVELOPMENT COUNTRIES

Dhananjaya Sharma

Department of Surgery, Government NSCB Medical College and Allied Hospitals, Jabalpur, India

As the conference theme is "Surgery and Technology in Self-Sufficient Economy", the topic "Impact of New Technology Era on Surgical Training in Developing Countries" is very relevant for all the surgeons working in developing countries. It assumes even more importance as the economic down turn has affected the finances of even non-profit making government run hospital. Expansive technology remains out of reach of most surgeons working in sub-optimal conditions in developing countries and the training must ensure that trainees go out with the right attitude of "being able to work against oddsé. Hence out training program must strike the right balance between hungry brain of the trainee Vs commercial exploitation by manufacturers, spending large sum of money for the few privileged Vs small sum of money for the large majority, and the dilemma of the advanced dazzling new scientific literatures and the adequate principles of good practice. Cost effectiveness of new technologies must be proved before they are accepted for our use. Author offers 20 proposals (illustrated by examples) on Surgical Training in Development Countries, which can help the surgeons in developing countries to solve this dilemma.

PATIENT SAFETY IN SURGERY - STRATEGIES FOR DEVELOPING COUNTRIES

Armando C. Crisostomo

Philippine General Hospital, Taft Avenue, Manila, Philippine

Whether the traditional operating room (OR), the ambulatory surgery center, the interventional suite, or the physician's office, the surgical setting is one of the most potentially hazardous of all the clinical environments. Infection, hemorrhage, and wrong patient/surgery/site are among the most serious potential complications. Potential hazards also include a variety of energy sources (eg, electrical, thermal, laser, radiological), chemicals (eg, medications, antiseptics, cements, intravascular dyes, irrigating solutions), biologicals (eg, bloodborne pathogens, drug resistant organisms), equipment and devices (eg, powered instruments and equipment, defibrillators, tourniquets, electrosurgical units, positioning devices), and the multiple supplies and instruments that comprise the surgical armamentarium. In addition to these technical sources of potential risk, there are human factors (eg, communication patterns, institutional culture, staffing patterns) that are increasingly recognized as a vital component in the creation of a safe, team-based OR environment. Communication between and among team members is one of the most critical according to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A breakdown in communication was the most common reason cited by JCAHO for contributing to wrong site surgery.

Surgical error results from multiple factors. Latent conditions created by flawed systems or processes can combine with active failures by caregivers in the clinical setting to produce accidents and errors. Error reduction requires the commitment of all members of the surgical team. In addition to correcting the contributing factors identified above, individual and institutional strategies that will be discussed can also effectively reduce errors in the surgical setting. One of the most effective team strategies is to create and nurture a culture of safety. Such a culture is founded on a sense of trust among team members and a feeling of safety when the need for change or improvement must be addressed. Establishing a culture of safety and trust is a process of changing a culture from one of blaming individuals for errors to one in which errors are treated not as personal failures but as opportunities to improve the system and prevent harm. Success in the creation of a safety culture depends on the commitment of all team members to report, address, and correct system failures.

In response to the notable rise in surgical procedures and interventions as a significant modality of treatment, the WHO thru the World Alliance for Patient Safety has identified "Safe Surgery Saves Lives" as the theme for the Global Safety Challenge beginning 2007. One of the key elements of the safety program is the implementation of the WHO Safe Surgery checklist that has been developed and eventually pilot-tested in 8 hospitals worldwide, including the Philippine General Hospital. Data from the pilot test has provided convincing evidence of significant reduction in mortality and morbidity across all settings regardless on setting and income. The Philippines thru the leadership of the Philippine College of Surgeons has embarked on a national program to promote patient safety in surgery anchored on the implementation of the safe surgery checklist and other relevant programs that may serve as a model for developing nations in the ASEAN region.

ECVAC: SMOKE EVACUATING ELECTROCAUTERY DEVICE

Wanchai Manakijsirisuthi
Sawanpracharak Hospital, Nakhonsawan, Thailand

Background: Personnels in operating rooms have been exposed to surgical smoke for many years, unaware that it may cause health problems. The smoke not only obscures the vision but it also releases harmful contaminants, both biological and chemical. With unpleasant odor, these chemicals can cause headaches, irritation of the eyes, nose and throat, as well as potential long term effects. In the smoke, the small particles ranged from 0.5 to 5.0 microns can penetrate into the deepest region of the lung and cause lung damage. Standard surgical mask cannot protect the wearer from exposure to surgical smoke. Effective mask must conform to the face and has a tight, secure fit. Using a suction handle along with the cautery head can reduce the smoke but not adequate. Research has shown that the smoke needs to be evacuated within one inch of its source-if any greater, only 50% will be evacuated. To solve the smoke problem, an ECVAC was designed, developed and invented.

Material and Methods: ECVAC was a smoke evacuating electrocautery device, which combined suction unit and cautery unit together. It was designed on the concept that smoke should be evacuated as fast as possible before it dispersed into the air. ECVAC was composed of one disposable 10 ml syringe, two drips of iv set, one 18 Fr Number NG tube and one damaged disposable electrocautery pen. To create an ECVAC, a damaged electrocautery pen was shattered and the electric wire was removed and reused as a new cautery unit. Two drips of iv set were cut off, one drip was punctured at the other side to make suction holes and fix the cautery head. The other drip was also punctured to outlet the electric wire and NG tube. The cautery unit and the suction unit were then connected with 10 ml syringe. When working, the smoke originating from cautery head quickly sucked away by the NG tube before it disseminated into the air.

Results: ECVAC effectively sucked the plume during the procedure. The device reduced the smell of burning tissue and made a clearer vision of the operative field.

Conclusion: ECVAC is an invention, a new product that creates from many waste products, a health protecting device for the surgeon and team and an example of surgery and technology in the self-sufficient economy.

CARDIOVASCULAR & THORACIC DISEASES

BLUNT CHEST TRAUMA WITH RUPTURE TRAUMATIC VENTRICULAR SEPTAL DEFECT

Kwanjai Thotsiri, Supreecha Tanamai, Surapot Sangchoti, Peenutchanee Chartiburus, Pirapat Mokarapong, Rakfan Sawadpanich, Attapoom Susupaus, Wittawat Pibul
Department of Cardiovascular Thoracic Surgery and Department of Cardiology, Rajavithi Hospital, Bangkok, Thailand

This is a case report of blunt chest trauma in an eighteen year old Thai man. He presented with intracerebral hemorrhage and was unconscious on arrival. Emergency craniotomy with clot removal was done at nearby hospital in his district. There was no report on abnormal murmur while he was admitted. Symptoms of cardiac failure presented a week later after being discharged. Progressive dysnea, orthopnea, pitting edema and ascites with pansystolic murmur at left lower parasternal border were presented to us 3 months after the incident. Echocardiogram and MRI showed muscular type VSD mostly a traumatic rupture. He presented symptom more than 3 months after injury and its successful surgical management is presented. It was a rare case when we reveal literature of many case reports.

ENDOVASCULAR REPAIR OF TRAUMATIC AORTIC DISRUPTION: SIRIRAJ EXPERIENCE

Worawong Slisatkorn, Wanchai Wongkornrat, Somchai Sriyoschati, Pansak Laksanabunsong
Cardiothoracic Surgery Division, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Traumatic aortic disruption accounts for 80-90% prehospital mortality. Open surgical repair is the standard treatment with operative mortality range from 15-30% with paraplegia rate up to 19%. Endovascular repair of thoracic aortic disruption avoids heparinization, thoracotomy, aortic cross clamping and extracorporeal circulation. It is associated with 0-14.3% mortality.

Objectives: To study outcomes of endovascular repair in traumatic aortic disruption patients at Siriraj Hospital.

Materials & Methods: From December 2005 to May 2009, 12 traumatic aortic injury patients were operated with endovascular repair technique. Perioperative data were recorded and analyzed. Postoperative CTA was scheduled for surveillance.

Results: There were 10 males. Mean age was 37.8 years (19-68). All patients had associated injuries. Ten

patients needed left subclavian artery coverage without bypass procedure. No postoperative mortality was observed, no spinal cord ischemia and no left arm ischemia was detected. Postoperative CTA showed no endoleak or migration of stent grafts up to 3 years follow.

Conclusion: Endovascular stent grafting demonstrated impressive immediate and midterm outcomes in management of traumatic aortic disruption without major morbidity. Long term results are necessary to monitor.

CARDIAC MYXOMA TUMOR IN RAJAVITHI HOSPITAL

Nopporn Tomongkol, Supreecha Tanamai, Surapot Sangchoti, Peenutchanee Chartiburus, Pirapat Mokarapong, Rakfan Sawadpanich, Attapoom Susupaus, Wittawat Pibul

Department of Cardiovascular Thoracic Surgery and Department of Cardiology, Rajavithi Hospital, Bangkok, Thailand

Background: Primary cardiac tumors are rare but have the potential to cause significant morbidity if not treated. This study reviewed chart cardiac myxoma patients for treatment concepts, potential evolution related to cardiac myxoma to the light of our initial experience and morbidity and mortality

Materials and Methods: The study was reviewed retrospectively. In a period of 7 years from January 2002 to December 2009, 13 patients were operated who were diagnosed with cardiac myxoma. Nine patients (76.9%) were female and 8 were (47.1%) male. Mean operational age was 56.2 ± 14.4 years (range 30 years to 73 years). Twelve myxomas were located in the left atrium (LA) (92.3%) and one in the right atrium (RA) (7.7%). Echocardiography was performed in all patients. Three patients were detected as normal valve (23%), two as mitral regurgitation (15.4%), four as tricuspid regurgitation (30.8%), four as mitral regurgitation and tricuspid regurgitation (30.8%) preoperatively. Preoperative functional capacities of patients were classified according to NYHA and 5 patients were in class II, 5 - in class III, and 2 - in class IV. None of the patients had any familial history of myxoma. Preoperative electrocardiographic examination (ECG) detected atrial fibrillation (AF) in 3 patients (23.1%). 4 patients were presented history of ischemic stroke (30.8%), 2 patients were presented history of pulmonary embolism (15.4%). 0 % early and late postoperative mortality.

Conclusion: Cardiac myxomas form a very small percentage of the cardiac cases. A high index of suspicion is essential for diagnosis. Echocardiography is the ideal diagnostic tool as also for follow-up. Immediate surgical treatment is indicated in all patients. Cardiac myxomas can be excised with a low rate of operative risk, and morbidity.

GOOD SURGICAL PLANNING AND OUTCOME IN VASCULAR RING BY CTA

Wanchai Wongkornrat, Worawong Slisatkorn, Teeravit Phanchaipetch, Somchai Sriyoschati

Cardiothoracic Surgery Division, Department of Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: In the past, the diagnosis of vascular ring by multiple tests such as chest x-ray, barium esophagogram, bronchoscopy, 2D echo, Cardiac Catheterization and CT can not give precise anatomy. Recently both CTA and MRI have the ability to give accurate that lead to good surgical planning and good outcome.

Objectives: To demonstrate the accuracy of the preoperative anatomic diagnosis of the vascular ring for planning of surgical correction by CTA.

Materials & Methods: There were two cases of vascular ring, the first one was four months old girl with respiratory stridor since birth. She had repeated attack of pneumonia and need ventilator when she was four month old. With difficulty in extubation, bronchoscope revealed external pulsatile compression of the trachea the CTA was performed and revealed double aortic arch. Then the small left aortic arch and ligamentum arteriosum was divided through the left thoracotomy. The second case was 2 years old girl with history of recurrent pneumonia since 6 months old. She was suspected of tracheal stenosis and CTA revealed right aortic arch and Kommerel's diverticulum at origin of the left ductus arteriosus. The Kommerel's divesticulum was resected through the right thoracotomy

Results: Both cases recovered uneventfully. The first patient could extubated forty seven days post surgery

Conclusion: CTA can give accurate anatomic diagnosis of vascular ring which lead to good surgical planning and optimum outcome.

MANAGEMENT OF JEHOVAH'S WITNESS UNDERGOING CARDIAC SURGERY

Schwannuch Ruangsee, Suchart Chaiyaroj, Somchai Viangtherawat, Boontiva Purintarabhiban

Division of Cardiothoracic Surgery and Division of Anesthesiology, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Excessive bleeding, with the resulting need for allogenic transfusion is a common event in cardiac surgery involving cardiopulmonary bypass. Blood-sparing surgical technique and peri-operative management allows

complex surgery in Jehovah's witnesses. This report describes the management of a patient with severe MR, AF who is Jehovah's witness in Ramathibodi Hospital.

Materials and Methods: Jehovah's witness patients refuse preoperative donated autologous transfusion. However, acute normovolumic hemodilution is accepted if the continuity of the blood with the patients is maintained until re-infusion. After induction of anesthesia and before systemic heparinization, blood was drawn by gravity through a large bore catheter (Jelco NO 16) placed into the median cubital vein and collected into a sterile bag containing citrate phosphate dextrose calculated on basis of the amount of autologous whole blood to withdraw. The amount of AWB was calculated to achieve a hematocrit of 21% at the start of CPB. The autologous whole blood (AWB) obtained was kept in operating theater and gently agitated at room temperature. Continuity between AWB and patient was guaranteed by circuit tubing. AWB re-infusion was started at the end of surgery and completed during the first postoperative hour in operating theater. We used CPB circuit consists of a roller-pump CAPIOX SX 18F oxygenator. Priming volumn 1660 ml (Acetar 500 ml, Voluven 1000 ml, 20% mannitol 100 ml, 8.4% NaHCO3, Heparin 50 mg). Extra-corporeal circulation was performed with moderate hypothermia (32 degree celcius). During surgery, the surgeon used meticulous hemostasis, limiting the use of laparotomy swabs and gauzes, and we used a cell-saver system to collect blood from surgical field. After Protamine reversal of heparin, blood shed from surgical field was collected in a cardiotomy, and blood remaining in CPB circuit was washed and concentrated in a cell salvage circuit and re-infused through a circuit which guarantees the continuity of the system. In the postoperative period, the patient received iron (300 mg) and folic acid (5 mg) per oral daily and IV form of Tranexamic acid 1 g. The patient gave written informed consent for all procedures described. He refused all of allogenic blood component even when it can be lifesaving.

Results: A 50 years old, 58 kg male Jehovah's witness had a symptom of dyspnea on exertion for 5 years. The EKG showed AF rate 85/min. CAG revealed no significant stenosis of coronary artery. Echocardiogram showed severe MR type 2(A1A2/P1P2 prolapse). Laboratory analysis revealed a hemoglobin of 13.5 g/dl and a hematocrit of 40%. Therapy with oral iron and folic acid was started. The cardiologist tried to conservative treatment but he had a symptom of progressive dyspnea with clinical CHF then he was referred to our center for elective surgery. Laboratory data 1 day before surgery were as follows: Hb 14.1 g/dl, Hct 42.6%, Plt 322,000, INR 1.62. After induction of anesthesia. 959 ml of AWB were withdrawn. During cardiopulmonary bypass. the heart was markedly enlarged, bulky and fatty. All chamber were enlarged. There was severe MR type 2 (A1A2/P1P2 elongated chords. The valve had myxomatous appearance. It was elected to repair the valve with 2 neo-chords (5/0 Gore-tex suture) to P1-P2*1, A1-A2*1. And 32 mm. Cosgrove annuloplasty ring was placed. The valve looked competent. Modified Maze was performed using RFA. Left atrial appendage was resected and closed using stapler device. Ganglion plexus testing and mapping was performed both Right and left sides. Conduction block was also tested for entrance and exit block. Total CPB time was 162 min and aortic cross clamp time was 118 min. Postoperative blood loss was 1352 ml and 950 ml of washed blood was re-infused. Intra-operative TEE showed no regurgitation and no SAM. At the end of the procedure, He had BP 100/70 mmHg. AF rhythm at a rate of 80-90/min, Hct 22% CVP 12-15 mmHg. He was transferred to intensive care unit in a stable postoperative condition. Hct before dischared was 19% (2 weeks after postoperative day) and 37% at 2 month after postoperative day at follow up clinic.

Discussion: This is the first description of management of Jehovah's witness for cardiac surgery at our center. The importance of using a blood-sparing protocol to reduce the need for allogenic transfusion has been highlighted. In this patient, the combination of post-operative blood conservation, hemostatic, re-infusion of shed blood, and meticulous surgical technique resulted in safe avoidance of allogenic transfusion. In the future, we can improve quality care in Jehovah's witness patients who undergo cardiac surgery such as the development of miniaturization of the CPB circuit, resulting in reduced hemodilution as a resulting of the priming, will allow the maximal volumn of intraoperative autologous blood donation. At Ramathibodi, the mini-circuit will available and ready to use next year. About Erythropoietin (EPO), it has been used preoperatively to increase Hct and reduces transfusion. In this patient, he was refered to our center 1 week before surgery. So EPO treatment was ineffective. The cost-effectiveness of EPO has been criticized. This case shows that close adherence to a well-defined perioperative strategy permits successful treatment of Jehovah's witness requiring cardiac surgery.

Conclusion: This report describes the management of patient with severe mitral valve regurgitation and AF undergoing mitral valve surgery with Maze operation. In this Jehovah's witness, strict application of blood sparing protocol permitted safe avoidance of allogenic blood component transfusion. The protocol involved intraoperative acute normovolumic hemodilution, intraoperative use of a cell-saver system, postoperative administration of iron and

folic acid, and a meticulous surgical technique to avoid perioperative bleeding.

COMPARISON EFFECTS OF LOW VERSUS HIGH DOSE ASPIRIN ON PLATELET AGGREGABILITY AFTER OFF-PUMP CORONARY BYPASS SURGERY

Narongrit Kantathut, Panuwat Lertsithichai, Suchart Chaiyaroj
Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Bangkok, Thailand

Background: Aspirin has been widely used to prevent graft occlusion after coronary bypass grafting. But various doses have been used among each institute and there is no evidence proved that each dose has more or less effects. Our trial was designed to compare effects on platelet aggregation of low and high doses of aspirin administrated for post-operative off-pump coronary arterial bypass (OPCAB) patients.

Materials and Methods: Elective OPCAB patients that stopped all antiplatelets at least seven days before surgery and had no other bleeding tendency were randomized in two groups. Aspirin 60 mg and 300 mg were administrated to the patients in each group after OPCAB. Adenosine diphosphate (ADP) and collagen-induced platelet aggregation were monitored before OPCAB, 6 weeks and 6 months after OPCAB.

Results: Forty patients were included in our study. Twenty patients were in Aspirin 60 mg group and 20 patients were in Aspirin 300 mg group. Most of base line characteristics were similar in two groups. ADP- induced platelet aggregations were not significantly different before OPCAB (53.22% vs. 58.13% for Aspirin 300 mg, p = 0.3), 6 weeks (47.93% vs. 49.39%, p = 0.72) and 6 months (34.07% vs. 36.63%, p = 0.6) after OPCAB. Collagen-induced platelet aggregations were also not significantly different before OPCAB (79.02% vs. 81.71% for Aspirin 300 mg, p = 0.67), 6 weeks (65.28% vs. 55.82%, p = 0.09) and 6 months (42.65% vs. 43.27%, p = 0.93) after OPCAB.

Conclusion: The study demonstrated that there was no difference in ex-vivo platelet aggregation between low dose and high dose Aspirin administrated to post-operative OPCAB patients.

SIMPLE AND EASY SURGICAL TECHNIQUE FOR MANAGEMENT OF PRIMARY SPONTANEOUS PNEUMOTHORAX WITH CONTINUOUS AIR LEAK

Thawatchai Tullavardhana, Prinya Ankranurakkul, Witoon Oinggitphaiboon
Department of Surgery, Faculty of Medicine, Srinakarinwirot University, Nakorn Nayok, Thailand

Background: The most common cause of primary spontaneous pneumothorax is ruptured lung bleb which is located at apical lung. Most of the patients can improve this condition by insertion of intercostal chest drainage. But in patients who have continuous air leak surgical management by open thoracotomy is an option. Now the role of minimal invasive surgery is an alternative.

Methods: We presented a simple and easy surgical technique to manage this condition by video assisted thoracoscopic surgery (VATS) with blebectomy using an endo GIA stapler device. We performed mechanical pleurodesis in a case of 17-year-old male who presented with spontaneous pneumothorax and still had continuous air leak after fourteen days of conservative treatment.

Conclusion: This procedure can be performed safely and intercostal chest tube incision can be used for trocar site insertion without peri-operative complication. The patient can get benefit from this procedure such as short hospital stay and return to normal activity quickly. The result of treatment is not different from open thoracotomy technique.

NEUROSURGERY

SURGICAL MICROSCOPE INTEGRATED INTRA-OPERATIVE NEAR INFRARED INDOCYANINE GREEN ANGIOGRAPHY DURING CEREBRAL ANGURYSM SURGERY IN POLICE GENERAL HOSPITAL

Soponnarush Singhajaru
Neurosurgery Department, Police General Hospital, Bangkok, Thailand

Background: The cerebral aneurysm incidence is more than 5% of adult population. The further weaken arterial wall particularly of bifurcation leads to aneurysmal dilatation until breaking. When intracerebral aneurysm is ruptured and blood leaks to subarachnoid space which is called subarachnoid hemorrhage (SAH), the patient's symptoms is worst headache of life, vomiting, loss of consciousness, rigid neck. The diagnostic work-up of a patient presenting with the classic SAH include CT scan, cerebral angiography. The surgical treatment of cerebral aneurysm is to occlude the lesion and maintain blood flow

in parent, branching and perforating vessels.

Objective: The new technique of surgical microscope integrated intra-operative near infrared indocyanine green angiography (ICG) provide real time information of parent. Branching, perforating arteries. Veins, aneurysm (pre and post clip occlusion) in operating field.

Materials and Methods: The technique was performed 10 aneurysms surgery in police general hospital. ICG technique has been integrated into operating microscope. A microscope attached near infrared light source illuminated operating field. The ICG is injected intravenously into the patient. The patency of main, branching. Perforating artery, before and after clip occlusion aneurysm are shown by ICG angiography directly to microscope.

Results: Surgical microscope integrated ICG angiography provided important information for neurosurgeon, most of which led to clip correction and preserved perforating or branching artery.

Conclusion: Surgical microscope integrated ICG angiography provides real time information about artery, veins and aneurysm. This technique is useful during aneurysm surgery and decrease complication from occlusion of branching or perforating artery, also early detected incomplete clip occlusion aneurysm.

SURGERY FOR UNRUPTURED MIDDLE CEREBRAL ARTERY ANEURYSM

Wattana Mahattanakul, Andrew Davidson, Michael Morgan
Australian School of Advanced Medicine, MacQuarie University, Sydney, Australia

Background: The optimal management strategy for unruptured intracranial aneurysms remains controversial. Whilst uncertainty remains as to the true natural history, and the contribution made by advances in skills and technology, there remains a place for understanding the risks of individual proceduralists performing aneurysm repairs.

Objectives: To report an outcome of unruptured middle cerebral artery (MCA) aneurysm repairs, to investigate factors influencing surgical outcomes and to identify a group of patients who can safely undergo middle cerebral artery aneurysm repair with minimal surgical risks.

Methods: Prospectively collected database between October 1989 and January 2008 of the senior author was examined retrospectively for outcomes. Demographic, anatomical and surgical data were analyzed. Univariate and multivariate logistic regression analyses were used to identify predictors of surgical outcome.

Results: Three hundred and nine unruptured MCA aneurysms in 242 patients underwent surgical clipping in a total of 259 operations. Overall surgical mortality and morbidity were 1.1% and 5%, respectively. Multivariate analysis revealed that patient's age and size of the aneurysm were the only two independent factors for surgical outcomes. There were no deaths or surgical downgrades in patients under the age of 55 or in patients with aneurysms less than 5mm.

Conclusion: Our results identified a group of patients with minimal risks from unruptured MCA surgery. This finding is used as a benchmark for the standard in our reflective practice and quality assurance, and for comparisons with other treatment modalities.

THE MODEL FOR NEUROSURGICAL OPERATIVE SKILL TRAINING

Supakij Sanguandekul
Division of Neurosurgery, Department of Surgery, Phramongkutkloa Hospital, Bangkok,Thailand

Background: Many models were created for anatomical (central nervous system) demonstration and imported from foreign country with high price. Some models were used for skill training instead of cadaver and animal such as rat model for vascular anastomosis, teeth model for dental skill operation etc. This was the first time in our institute to create model for neurosurgical operative skill training (ventriculostomy, exploratory burr hole, craniectomy). In Thailand, no model had been previously created for neurosurgical skill training. To improve quality of neurosurgical residency training and to decrease iatrogenic complications, the model has been used to train neurosurgical resident before operates on the patient. Even simple operation as ventriculostomy can produce serious complications (increased morbidity & mortality), so iatrogenic complications (errors from inexperienced surgeons and operative skill) should be prevented. The concept is to create model that is simple, useful for real practice, easy & ready to use, save (low cost), recycle, initiation & innovation (not copy another model), instead of cadaver and animal.

Objective: To create neurosurgical operative skill training model and to evaluate the outcome of skill training.

Materials and Methods: Pilot study of the outcome of neurosurgical skill training operated on model for 7 residents at the Phramongkutkloa Hospital, have been done on January 2006-2008. The outcome was evaluated by questionnaire, percentage of iatrogenic complication before and after skill training (ventriculostomy). The post

training questionnaires have been used to evaluate resident's attitude and quality of skill training by Linkert's numeric summating scale (1 to 5: the least to most satisfied accept). The iatrogenic complications from ventricular puncture (ventriculostomy) such as missed location (missed entry point and target), intracerebral hemorrhage were reviewed from patient's chart: 80 hydrocephalic patients who were operated ventriculostomy in the Phramongkutkloa Hospital between January 2006 - April 2007, 40 cases before skill training (January 2006 - August 2006) and 40 cases after skill training (September 2006 - April 2007), to compare percentage of complication before and after skill training. The purpose of model was to demonstrate intracranial anatomy, pathological lesion and related structure for preoperative planning, and to improve neurosurgical skill by operate: ventricular puncture (ventriculostomy), exploratory burr hole, craniectomy remove blood clot. The model has been created in 3 parts. 1) Extracranial part: framework of head and neck was made from recycle: donated used hair cutting model, molded rubber, silicone. 2) Intracranial part: skull was made from cadaveric skull, foam, plastic, dura was made from rubber, brain parenchyma was made from sponge, gelatin, silicone, pararubber, ventricular structure was made in 2 forms: cavity (by carving foam) and solid (molded color crayon), vessel was made from rubber tube. 3) Pathological lesion: blood clot was made from color gel, color water, tumor was made from crayon, silicone. All parts have been integrated together for specific neurosurgical operation and can be changed for different pathologic lesion. In the initiation phase of model creation the ventricular puncture had been performed by neurosurgical resident and the outcome evaluation was performed, then another model for exploratory burr hole, craniectomy have been developed for skill training. When neurosurgical resident performed ventricular puncture on the ventriculostomy model, they could check entry point, target and their accuracy & error immediately by open the skull and revealed the direction of ventricular puncture and target point. Another model for exploratory burr hole and craniectomy to remove blood clot have been developed and the outcome evaluation only attitude, quality. The iatrogenic complication had not been evaluated because there was no iatrogenic complication from this operation.

Results: 1) Attitude & quality of skill training: all neurosurgical residents were satisfied and preferred to use model for skill training instead of cadaver & animal (Linkert's summating scale = 4). They learned an error from their operation as self assessment of their performance and understand anatomical landmark and operative technique before operated on real human to avoid the iatrogenic complication. From the questionnaire, the residents were given important suggestion to develop another model for another operative skill training (continue development of model from venticulostomy to exploratory burr hole, craniotomy, craniectomy removed blood clot. 2) Iatrogenic complication from ventricular puncture (ventriculostomy) in hydrocephalic patients was reduced from5%before skill training to 0% after skill training. 3) The cost of model is cheaper than the foreign country imported model 20 times (500 bahts /10000-20000 bahts) and the clinical value is increased by the decrease of the iatrogenic complication which increased the cost of prolong hospital stay for treatment and patient's sue.

Conclusion: It seems simple but highly effective to correct the iatrogenic complications (5% to 0%) by increasing experience and skill training with model before operating on real human. The model has been created and developed continuously not only for demonstration (show) but its real value is to improve operative skill for neurosurgeon and to strengthen quality of neurosurgical residency training. The difference and outstanding of this model is initiative innovation (not copy another model), real practice, low cost, simple, recycle, easy and ready to use.

ORTHOPEDIC SURGERY

"RELEASE OF CARPAL TUNNEL SYNDROME" AND HOW WE DO IT - THREE YEARS' EXPERIENCE IN RURAL HOSPITAL

Mohammad W Ashrafi, Sholeh W Boodhun, Masood U Rahman, James Roberts-Thomson

Mersey Community Hospital, Tasmania, Australia

Objective: To point out that our complication rate is lower than the available literature report.

Methodology: In this study three surgeons' personal audit on Carpal Tunnel Release surgery have been counted over a period of three years. Reason of this selection criterion is all the three surgeons do the procedure in a similar technique: open and release the ratinaculum under direct vision. All cases have been done as day case surgery. Follow up at two weeks and three months done in surgical clinic and a six month check at GP clinic.

Results: Two hundred and twenty one wrists on 179

patients have been operated with complication as follows: recurrence nil, Ulnar nerve injury 2, wound infection 3, delayed start of work 4, painful scar 4. The complication rate never had been above 6%. Available literature shows in most series the complication rate between 15-20%. Long term follow up is necessary. A bloodless field makes easy to identify the structures and reduces operation time. Expose, see cut and feel with finger tip to complete the split are the mainstay of our procedure. Wool with crepe, elevation with encouraged finger exercise is very important for quick functional recovery.

Conclusion: Direct linear incision is our favourite. Most cases need small incision, but can be extended both directions when needed. We like a single layer interrupted sutures.

THE THAI CERVICAL CAGE: D-CAGE

Prakit Tienboon

Orthopedic Department, Chulalongkorn Hospital, Bangkok, Thailand

Background: Anterior cervical spine fusion with bone graft is a common surgical technique. It instrumentation is now accepted to be a standard conventional method. There are two common implants using, plate and cage. For the simple case of fusion, cage technique is claimed to have more advantage. Since my 75 cases of anterior cervical imported cage fusion was presented in the year 1994. I found a very good result of the technique but the implant itself was very expensive and harmful to the surrounding soft tissue. My first model cage had been invented since 1996 with was patented (US 5,916,267) and had been developed to get the gold safety, cheaper price, but high efficiency and surgeon fascinated.

Objective: To present a brand new invention of the first Thai cervical cage (D-cage) with long interval of development and its results.

Materials and Methods: Until now, there have been four models of the cage. The latest D- shape cage (the fourth generation) that corresponded to cervical disc shape and space was manufactured. This cage was developed after my research on molding the cadaver cervical disc (from C3 to C7) with liquid resin. Shape of the cage was made by this resin model and became like D shape implant. There were many sizes of cage up to the cervical level and patient spine size. This cage required additional bone graft for good bone integration.

Results: Because the technique is so simple, safe and fast, there are many surgeons (orthopedists and neurosurgeons) from many hospitals over the country using this cage. By me, after over 5 years of using, the total numbers were over 85 patients with 190 cages (whole country 205 patients, 330 cages). The fastest surgical time for single level of fusion was 20 minutes and shortest admission time was 1 night hospital stay. The only one common problem was intravertebral cage sinking. This problem can be prevented by improving a good surgical technique and a good patient selection.

Conclusion: The invention and development of first Thai cervical cage (D-cage) for Thai spine surgeon was presented. The cages have been distributed and used by surgeons over the country. The long time using of this implant revealed it good results.

PEDIATRIC SURGERY

RESULTS OF THE TREATMENT OF CYSTIC HYGROMA WITH INTRALESIONAL BLEOMYCIN INJECTION : AN EXPERIENCE IN 70 PEDIATRIC PATIENTS

Rangsan Niramis, Sukawat Watanatittan, Tongkao Rattanasuwan

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

Background: Cystic hygroma is a malformation of lymphatic system. Surgical excision is the treatment of choice and sclerosing agent injection into the cysts is an alternative one.

Objectives: The aim of this study was to review results of the treatment of cystic hygroma with intralesional bleomycin injection in a 16 - year period at Queen Sirikit National Institute of Child Health.

Materials and Methods: Medical records of the patients with cystic hygroma treated by intralesional bleomycin injection between 1992 to 2007 were collected. Bleomycin dosage of 0.3-0.6 mg/kg was injected into the cysts and repeated injections were performed at an interval of 2-6 weeks. Clinical outcomes were reviewed and analyzed.

Results: Seventy patients, 42 males and 28 females with age between one month to 14 years old, were treated with intralesional bleomycin injections. An excellent response (complete clinical resolution) was obtained in 33 cases (47.1 %). A good response (partial reduction >50 % of the mass) was achieved in 25 cases (35.8 %). A poor

result (no clinical response or mass reduction <50 %) was noted in 12 cases (17.1 %) Adverse reactions including fever, local swelling, redress and pain at the site of injections were found in 30 patients (42.9 %). These reactions persisted only a few days.

Conclusion: Injection of bleomycin is useful for treatment of cystic hygroma. It should be used in the patients with large cystic masses and extensive invasion in order to reduce risk of vital organ injuries.

LAPAROSCOPIC ASSISTED ORCHIDOPEXY SPARING INGUINAL INCISION FOR ABDOMINAL LYING TESTIS: A TECHNICAL REPORT

Surasak Sangkhathat, Piyawan Chiengkrivate, Sakda Patrapinyokul

Pediatric Surgery Unit, Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Background/Purposes: Diagnostic laparoscopy is a standard surgical procedure for impalpable testis. In this report, we present our experience of extending laparoscopic role from diagnosis to a right positioning of the affected testis.

Surgical techniques: Laparoscopy began with 5-mm subumbilical camera port. After an identification of the testis, another 2 5- or 3-mm instrument ports were introduced. The testicular vessels were dissected under endoscopic vision. In cases with too short testicular vessels, high clipping (Fowler-Stephen's) was done in the same surgical setting. A small incision was created on the ipsilateral scrotum. Through this incision, a long clamp was passed through the inguinal canal to bring the testis down from the abdomen and transfixed to the Dartos plane of scrotal sac.

Results: During the study period, diagnostic laparoscopy was performed for 7 cases of impalpable testis. Excluding 2 cases with testicular agenesis, 5 underwent LAO. Median age of the patients was 21 months (12 months - 14 years). Median body mass index was 16.4 kg/m^2 (9.8-19.5 kg/m^2). All but one patient with congenital cardiac disease were in ASA class I. Operative time ranged from 75-130 minutes with an average value at 110 minutes. Estimated blood loss, as appeared in anesthetic record, ranged from 2-10 ml. Median post-operative maximum visual pain score was 2.4 (0-6). Median parenteral narcotic requirement was 7 doses (0-12 doses). Median post-operative stay was 1 day (1-2 days). One case had a complication of ipsilateral scrotal swelling which resolved spontaneously in a few days. All patients had satisfied cosmetic outcome.

Conclusion: LAO without inguinal incision in pediatric patients provides superior vision for testicular artery dissection and saves an open inguinal dissection.

MANAGEMENT OF PEDIATRIC RUPTURED APPENDICITIS IN HAND OF THAI PEDIATRIC SURGEON

Narkjure P, Kietpansodsai S

Faculty of Medicine, Thammasart University, Pathumthani, Thailand

Background: Acute appendicitis is the most common emergency abdominal operation in children (17%). In the case of uncomplicated appendicitis, management is well aware. But in ruptured appendicitis, management is still individual such as suture or delay in skin closure, drain placement, type and duration of antibiotics. This study aimed at considering the actual management of pediatric ruptured appendicitis among Thai pediatric surgeons in order to establish guideline for the proper management.

Materials and Methods: Conducting a survey with a total number of 95 pediatric surgeons who are listed as member of The Association of Pediatric Surgeons of Thailand as of the year 2007.

Results: Sixty seven pediatric surgeons returned their questionnaires. From the result of the survey, most surgeons shared the same view on these following managements: investigation (CBC, urinalysis), pre-operative antibiotics (gentamicin, metronidazole), Lanz incision, intra-abdominal pus culture, penrose drain placement. The controversial issues were appendiceal stump management, duration of intravenous antibiotics, type and duration of oral antibiotics.

Conclusion: The collecting data showed only the management of rupture appendicitis not evaluation of result or complication of management. The survey should also focus on the results and complications in order to enhance the benefits of the survey.

LONG-TERM OUTCOMES OF OMPHALOCELE: AN ANALYSIS OF 124 PATIENTS

Rangrong Sriworarak, Arada Suthiwongsing, Tongkao Rattanasuwan, Rangsan Niramis

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

Background: Omphalocele is defined as anterior midline defect of the abdominal wall through which various viscera herniated into an avascular sac. The mortality rate is not decreasing because of high incidence of severe associated abnormalities.

Objectives: The aim of this study was to review long-

term outcomes of omphalocele in the recent 10-year period.

Materials and Methods: Medical records of patients with omphalocele ,who treated at Queen Sirikit National Institute of Child health during 1998-2007 ,were analyzed. Patients with exstrophy of cloaca or bladder were included in this study.

Results: One hundred and twenty four neonates (male:female = 1:1) were available for study. The incidence of omphalocele in neonates born at Rajavithi Hospital was 1: 2,800 live-births. Abdominal wall defects ranged from 3-8 cm in diameter. Associated anomalies were noted in 68 cases (54%) with congenital heart diseases, chromosomal abnormalities and exstrophy of bladder or cloaca in 33 (26%), 11 (8.8%) and 6 (4.8%), respectively. Six cases with severe anomalies (4.8%) died before definite treatment. Topical application of povidone-iodine solution was used in 22 cases and the mortality rate was 80%. Fifty seven cases underwent primary fascial closure of abdominal wall defect and 15 cases (26%) died. Among 33 remaining cases, staged closure or silo-reduction technique was applied and 12 (36%) died. The overall mortality rate was 41% (51/124).

Conclusion: The important factor which influences the mortality of omphalocele is severe associated anomalies. The survival rate might be improved if these anomalies could be corrected.

THE MORTALITY OF CONGENITAL DIAPHRAGMATIC HERNIA IS ASSOCIATED WITH LOW APGAR SCORE AND THE NEED OF HIGH FREQUENCY OSCILLATING VENTILATION

Kanoknak N, Rajatapiti P, Vejchapipat P, Chittmittrapap S, Viravaidya D, Reukviboonsri S

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

Background: Congenital diaphragmatic hernia (CDH) remains a significant cause of perinatal death and morbidity despite current therapeutic advances.

Objective: To determine characteristics of CDH and to identify factors associated with the mortality in CDH patients.

Materials and Methods: A retrospective study of CDH patients, between Jan 1999 and Dec 2008, was performed. Information regarding prenatal diagnosis, birth weight, gestational age, APGAR scores, associated anomalies, sides of CDH, surgical approach, post-operative complications, and mortality were reviewed and analyzed. Factors affecting the mortality in CDH were investigated.

Results: Thirty-four CDH patients were identified. Thirty two of 34 CDH patients (94%) provided adequate data for the study. Abnormal prenatal ultrasound was detected in 12 patients (39%). Cesarean-section as the mode of delivery was carried out in 18 patients (60%), all due to obstetric indications. The majority of patients reached term pregnancy (81%) and had normal birth weight (78%). Low APGAR scores (< or = 7) at 1st and 5th min were observed in 52% and 18% respectively. Twenty-two patients (69%) expressed signs of respiratory distress within 24 hrs after birth. Forty-four percent (14/32) had other associated anomalies. Left posterolateral CDH accounted for 78% (25/32) of cases. The majority of patients (72%, 23/32) could be stabilized and underwent CDH repair whereas the others (28%, 9/32) died before the surgical correction. The mortality of CDH patients who needed high frequency oscillating ventilation (HFOV) support was 79% (11/14). Overall survival for CDH was 62.5% (20/32). However, the survival for CDH patients whose conditions allowed surgical repair was 87% (20/23). Low APGAR scores and the use of HFOV were significantly associated with the mortality whereas the status of gestational age, other anomalies and the side of CDH were not associated with the mortality. All CDH patients with low APGAR scores at 5th min deceased.

Conclusion: The overall survival of born CDH babies is 62.5% at our institution. Low APGAR scores and the need of HFOV support could be used as a prognostic marker in CDH.

FACTORS RELATED TO NECROTIZING ENTEROCOLITIS AFTER GASTROSCHISIS REPAIR

Arada Suttiwongsing, Rangrong Sriworarak, Veera Buranakitjaroen, Rangsan Niramis

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

Background/Objectives: Necrotizing enterocolitis (NEC) after repair of gastroschisis, has been documented to be responsible for morbidity and occasional mortality in infants. Previous studies found that its cause might be multifactorial. The aim of this study was to review the experience in management of neonates with gastroschisis and to identify risk factors of NEC after gastroschisis repair.

Materials and Methods: A retrospective case analysis was performed on neonates with gastroschisis treated in the Department of Surgery at Queen Sirikit National Institute of Child Health between 1997 and 2007. Information data including relevant demographics, peri-operative data, nursing records and intravenous and enteral feeding charts were reviewed. Data were analyzed by Chi-

square test. Statistical significant difference was considered at the level of p-value less than 0.05.

Results: Forty hundred and sixty six neonates with gastroschisis were admitted and treated by definite operation in our institute during the study period. Forty cases died and 11 of these had evidence of NEC (27.5%). Of the total 466 patients, 44 cases (9.4%) developed NEC after gastroschisis repair. The mean of birth weight was significant different between NEC and non-NEC group (2016 g vs 2234 g, p = 0.001). Neonates in NEC group underwent additional operation due to associated anomalies or complications more than the non-NEC group with statistical significance (9/44 vs 7/422, p <0.05). Regarding sepsis complication, the NEC group had also more common than the non-NEC neonates (11/44 vs 31/422, p = 0.003). There was no difference in associated abnormalities between both groups (3/44 vs 26/422; p = 0.7). Surprisingly, this study found that neonates in non-NEC group initiated enteral feeding earlier than NEC group significantly (15.3 vs 18; p = 0.007).

Conclusion: Clinical information from the present study revealed that patients with very low birth weight, underlying compromised bowel, undergoing additional operation and having serious sepsis complication were the important factors in developing NEC after gastroschisis. Management by delay in initiating enteral feeding is unable to prevent NEC after gastroschisis repair.

HOW TO MANAGE FOREIGN BODIES IN THE ALIMENTARY TRACT

Patmika Jiaravuthsan, Rangsan Niramis, Suranetr Cheevaprapanunt

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

Background: Foreign body ingestion is a common problem in children. The management includes conservative treatment, endoscopic and surgical removal.

Objective: The aim of this study was to review the clinical presentation, management and outcome of the patients with foreign body ingestion in the recent 10-year period.

Materials and Methods: A retrospective study of the patients with foreign bodies in the alimentary tract, who were treated during the period of 1999 to 2008, was performed. Demographic data, clinical presentations, radiological findings and management procedure with outcome were reviewed.

Results: Our hundred and seventy one patients (89 males and 82 females) were noted to have foreign bodies in the alimentary tract. Age of the patients ranged from 4 months to 15 years. Ninety cases (52.6%) were younger than 3 years old and 56 cases (32.7%) were classified between 3-6 years of age. Only 73 of the total 171 cases (42.6%) had a history of presenting symptoms. Vomiting, salivation, dysphagia and coughing were noted in 38 cases (52%), 12 cases (16.4%), 10 cases (13.6%) and 9 cases (12.3%), respectively. Blunt foreign bodies were found in 130 patients (76%) and metallic coin was the most common objects in this group. The rate of disc batteries was increased significantly in the last 5 years of this study. Thirty nine patients had sharp foreign bodies lodged in the alimentary tract and metallic wire was the most common one. Location of the foreign bodies was proven by radiologic and endoscopic findings at the esophagus, stomach and intestine in 106, 34 and 25 cases, respectively. Esophagoscopic removal was success in 99 of 106 cases (93.3%) while foreign bodies in the remaining 5 cases (5%) were passed into the stomach during this procedure. Gastroscopy was performed in 20 cases with sharp foreign bodies and disc batteries and the success rate was 100%. Foreign bodies in the stomach and the intestine were conservatively treated in the most cases. These could be spontaneously passed through out the rectum at an interval of 1-3 days. Three patients underwent operative removal of the foreign bodies because of abdominal pain and prolonged retention of the foreign bodies. No patients died in this study period.

Conclusion: All of the patients with foreign bodies in the esophagus should be treated by esophagoscopic removal in order to prevent the complication. Sharp objects and disc battery in the stomach might be retrieved by gastroscopic removal also. The objects that passed into the small bowel and large bowel were almost treated conservatively with satisfactory outcomes.

ALKALINE LEAKAGE FROM BUTTON BATTERY RETAIN IN STOMACH: AN IN VITRO STUDY

Nattavit Hantanyapong, Mongkol Laohapensang, Monawat Ngerncham

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: The incidence of button battery ingestion in childhood is increasing with technological developments. If the battery is located in the esophagus, urgent extraction is recommended. The proper management after battery has passed through gastroesophageal junction into stomach is still controversial. Some investigators favor removal by endoscopy, others favor wait-and-see strategy. The authors therefore conducted an experi-

mental study to determine safety time after ingestion button battery into stomach.

Objective: To determine the timing of alkaline leakage from button battery in gastric acid.

Materials and Methods: Four groups of home use button batteries in Thailand, each group contains 10 pieces of batteries from various manufactures ,were immersed in hydrochloric acid (pH 1.5) at 37°C and pH after 2, 4, 6, 8, 10, 24 and 48 hours were determined.

Results: All of button batteries have significant leakage proved by the changing of pH from 1.50 to 3.38 within 2 hours and increasing by time up to 24 hours.

Conclusion: Because of significant leakage occurs as early as 2 hours in all kinds of button batteries, so we suggest removal of all batteries that remain in stomach, and remove only the battery that is fixed in the other part of GI tract more than 24 hours proven by radiography.

THE COMPARATIVE STUDY OF THE CLINICAL COURSE OF THE PEDIATRIC PATIENTS WITH ACUTE APPENDICITIS WITH AND WITHOUT FECALITH

Jiraporn Khorana, Mongkol Laohapensang, Monawat Ngerncham

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Acute appendicitis is the most common surgical emergency in pediatric surgery. The cause of appendicitis is from the mechanical obstruction; fecalith or lymphoid hyperplasia. The standard treatment is appendectomy. Recently, the conservative treatment has been proposed for the treatment of acute appendicitis. This management has been considered in the selected patients who have no fecalith.

Objective: This study aimed to identify the incidence, the clinical course of the patient with and without fecalith to consider the risk and benefit of this treatment.

Materials and Methods: A retrospective chart review study was conducted between January 2005 and December 2008, including the patients younger than 15 years old who underwent appendectomy for acute appendicitis at Siriraj hospital. Onset and duration of symptoms were noted along with radiologic, operative, and pathologic findings. The operative and pathologic findings of fecalith were noted.

Results: There were 260 patients enrolled to the study. Fecalith was present in 39% of patients (n = 102/260). No statistical difference between signs and symptoms of the patient with fecalith and without fecalith except fever that is significantly more common in the patient with fecalith (P = 0.03). Fecalith was found 15% of the patients who underwent plain abdominal X-ray (n = 15/102). The appendix was perforated in 56% of patients with fecalith (n = 55/102) vs 17% in patients without fecalith (n = 26/158) (P <0.001). According to the type of appendicitis, fecalith significantly found in the gangrenous and rupture type (P <0.001).

Conclusion: There was no statistical difference between clinical course in acute appendicitis pediatric patients with and without fecalith except fever. The perforated type of appendicitis was significantly associated with the fecalith. So, the conservative treatment should be done in the selected cases that the patients do not have fever and special investigation can exclude existence of fecalith.

THE BENEFIT OF LOW RECTAL ENEMA IN CHILDREN WITH UNCERTAIN CAUSE OF ACUTE ABDOMINAL PAIN

Nutnicha Suksamanapun, Mongkol Laohapensang, Monawat Ngerncham

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Acute abdominal pain is a common problem in children. Some problems, such as acute appendicitis, need emergency operation where as the others are self -limited. Constipation is one of the latter groups that can have clinical presentation mimic to acute appendicitis. This leads to misdiagnosis and unnecessary appendectomy. The low rectal enema is one choice of treatment of constipation. Low rectal enema has fast effect to relief abdominal pain and can distinguish the patient with constipation from others.

Objective: The aims of this report were to determine benefit and risk of low rectal enema in children with uncertain cause of abdominal pain.

Materials and Methods: A retrospective cross-sectional study was conducted of children 2-15 years old who admitted because uncertain cause of acute abdominal pain in the Division of Pediatric Surgery, Siriraj Hospital since January 2001- October 2008. The patients who have sign of obvious peritonitis and previous abdominal surgery were excluded. Data collected include low rectal enema, evidence of fecal impaction, appendectomy, pathological report of appendix, length of stay.

Results: There were 403 patients included in this report. The final diagnosis were fecal impaction (43%) followed by appendicitis (37.3%) and the others (19.7%). The overall ruptured and negative appendectomy rates

were 23.6% and 8.8%, respectively. Three hundred and twenty-two (79.9%) patients were received low rectal enema. Two hundred and four patients recovered. Among those 118 (36.6%) who underwent appendectomy, ruptured appendicitis were found in 29 (24.5%) and negative appendectomy in 9 (7.6%). These figures were comparable to those who did not receive the enema.

Interestingly, among 73 patients who were referred with previous diagnosis of appendicitis, 51 (69.9%) improved after low rectal enema. There was no early complication such as rectal perforation after low rectal enema.

Conclusion: Low rectal enema is a useful and safe option to avert unnecessary operation in children with uncertain cause of acute abdominal pain. No evidence of increased risk of perforation.

PLASTIC & RECONSTRUCTIVE SURGERY

COMPARISON OF BIONANOCELLULOSE AND CALCIUM ALGINATE ON SPLIT-THICKNESS SKIN GRAFT DONOR SITES

Jakrin Bunchongkit, Apirag Chuangsuwanich

Division of Plastic and Reconstructive Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Treatment of the split-thickness skin graft donor sites has been an issue of discussion over the years, and there is no standard therapeutic method to manage these sites. The treatment methods involve a variety of techniques and dressing materials, and all of them aim at fast spontaneous re-epithelization of the donor sites, easy and comfortable dressing change, low risk of contamination and reduced risk of scar development. In our department, the calcium alginate (sorbsand-plus) dressing applied to the donor sites has become a favorable dressing material. The bionanocellulose dressing has been used in many types of wound care with favorable outcome and its coat is not expensive. There is a limited number of studies in which bionanocellulose is considered as a dressing for donor sites. The goal of our study was to compare calcium alginate with bionanocellulose in treatment of split-thickness skin graft donor sites, with regard to healing time, pain after dressing was applied, level of infection development and scar type after re-epithelization.

Materials and Methods: We studied the patients who were harvested STSG and all split-thickness skin graft donor sites were half-and-half randomized into two groups, Calcium Alginate group and Bionanocellulose group. All the donor sites were anteromedial thigh. The STSG were harvested with Zimmer dermatome blade 10/1000 inch thickness. The data were compared on postoperative pain, rate of infection, dressing change, time of complete reepithelization and esthetic result after complete healing.

Results: The sixteen patients with split-thickness skin graft donor sites were recorded in this study. The mean donor site surface area was 50.44 ± 15.98 cm^2 in both groups. The complete reepithelization day was 15.0 days in both groups (p = 1). The average pain score in Bionanocellulose group and Calcium Alginate group on the first day were 1.50 ± 0.52 and 2.75 ± 1.0 (p <0.001), second day were 1.06 ± 0.25 and 2.31 ± 0.87 (p <0.001), third day were 1.0 and 1.69 ± 0.48 (p <0.001), fourth day were 1.0 and 1.19 ± 0.41 (p = 0.25) and fifth day were 1.0 and 1.0 (p = 1). The average the Vancouver Scar Scale in Calcium Alginate group and Bionanocellulose group were 1.94 ± 0.58 and 2.56 ± 0.81 (p = 0.002). No dressing change or infection on donor in both groups.

Conclusion: Bionanocellulose dressing can reduce split-thickness skin graft donor site pain better than Calcium Alginate on first , second and third day but not difference on fourth and fifth day .There is no difference in the donor site reepithelization, dressing change and infection in both groups. The aesthetic result is better in the Calcium Alginate group than Bionanocellulose group.

A PROSPECTIVE, RANDOMIZED, COMPARATIVE STUDY OF ZINC HYALURONATE AND HYDROGEL IN THE TREATMENT OF DIABETIC FOOT ULCERS.

Virapun Bunmas, Apirug Chuangsuwanich, Jupaporn Rangwanpoom, Nareumon Thong-inn

Division of Plastic and Reconstructive Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: The prevalence of diabetes mellitus is growing at epidemic proportions in Thailand and worldwide. Foot ulcer is one major complication that frequently results in extensive morbidity, hospitalization and mortality. The multidisciplinary team approach and appropriate foot ulcer management including selection of an appropriate wound dressing products can lead to successful management and reductions in diabetic limb

amputation and mortality rate.

Materials and Methods: A prospective, randomized control trial was carried out on 55 diabetic ulcer patients (31 patients in zinc hyaluronate and 24 patients in hydrocolloid gel). Demographic data, wound size and wound photography were recorded at beginning of the study and every 1 weeks thereafter until 8 weeks.

Results: The zinc hyaluronate group demonstrated its efficacy in wound size reduction (cm^2) than conventional treatment group (4.63 ± 7.606 cm^2 vs 1.86 ± 3.12 cm^2, p = 0.031) and different in healing time was significant important of both group (6.68 ± 3.90 weeks in zinc hyaluronate group vs 10.75 ± 8.70 weeks in conventional group, p = 0.009). The wound healing rate at finished study were 92.60 ± 19.80% of Zinc hyaluronate group and 78.59 ± 34.23 % of hydrogel group (p = 0.177).

Conclusion: Zinc hyaluronate improves wound healing better than hydrogel in the treatment of diabetic foot ulcer.

ANATOMY OF SKIN PERFORATORS OF LOWER LEG IN THAI POPULATIONS

Darin Moungthai, Kachin Wattanawoung, Pornjun Saitongdee, Panuwat Lertsittichai

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

Backgrounds: There are many types of chronic wounds at lower legs, which may result from trauma, tumors, vascular problems and uncontrolled medical diseases such as diabetic. Lines of treatment are correction the causes of disease, adequate debridement and wound coverage. Local flap is one choice of tissue coverage at lower leg. The advantage of local flap coverage includes easily procedure, good aesthetic result and less donor site morbidity. But local flap also has limitations such as size and arc of rotation of the flap. In the basic of tissue transfer we know that if the local flap has feeding vessels (perforator vessels), it is more reliable that means we can harvest larger and longer of the flap. So we attempted to identify perforator vessels at lower leg to improve local flap design by cadaver dissection.

Subject and Methods: Twenty four informed soft and hard cadavers from Division of Anatomy, Faculty of Basic Science, Mahidol University were dissected from July 2008 to February 2009. The dissection was done by mid vertical skin incision above popliteal fossa then dissected to popliteal fossa then identified popliteal artery. Perforators were dissected by methylene blue stain into perforator vessels. Sharp dissection was done to identify skin perforator vessels and continue dissected until origins of vessels. Anatomic position, size and arch of rotation of each perforator were analyzed.

Results: There were 20 fixed cadavers and 4 soft cadavers in our study: male:female = 12:12, right side:left side = 11:13. The mean length of lower leg was 36.5 ± 4 cms. Mean number of perforator of posterior tibial artery in male:female = 7.9 ± 2.3:7.8 ± 2.2, mean number of perforator of anterior tibial artery in male:female = 10.3 ± 3.3:9.9 ± 3.7, and mean number of perforator of peroneal artery in male:female = 9.3 ± 2.6:8 ± 2.3. There was an effect of the length of leg on the number of perforators of anterior tibial artery in all perforator studies (p <0.001) but no significant in diameter larger that 0.5mm group (p = 0.223). There were significant effect in statistic analysis of the length of leg on the size of perforators (p <0.001), if further increase in length of the leg. There was no significant effect of gender or side of the leg on the number or size of perforator vessels. The distribution of perforators of posterior tibial artery was more common in 20-30 cms from intermalleolar line (37%), 0-10 cm from intermalleolar line (31%) and -5-0 cms medial to mid axial line (94%). The distribution of perforators of anterior tibial artery were more common in 15-30 cms from intermalleolar line (47%) and 2.5-7.5 cms lateral to mid axial line (78%). The distribution of perforators of peroneal artery were more common in 5-25 cms from intermalleolar line (68%) and 2.5-7.5 lateral to mid axial line (99%).

Conclusion: The distribution of posterior tibial artery was more common at 0-10 and 20-30 cms from intermalleolar line and -5 -0 medial to mid axial line in both male and female. The distribution of anterior tibial artery was more common at the level 15-30 cms from malleolar line and 2.5 -7.5 lateral to mid axial line in both male and femal. The distribution of peroneal artery was common at 5-25 cms from intermalleolar line and 0-5 cms lateral to mid axial line in both male and female.

COMPARISON INFECTION RATE AND WOUND HEALING RATE BETWEEN ANTIBIOTIC IRRIGATION AND NSS IRRIGATION IN VACUUM DRESSING

Darin Moungthai, Vichai Srimuninnimit

Plastic and Reconstructive Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Backgrounds: In general, we know that Vacuum-Assisted Closure (VAC) is a useful device for chronic wound dressing, especially in well-prepared wound bed with adequately debrided until no sign of infection. The advantages of VAC are to relieve wound edema, to remove

exudates and transudate from the wound and to improve oxygenation to the cell. So VAC can remove bacterial and deleterious enzyme that inhibits wound healing and also stimulates mecanotransductive pathway which stimulates wound healing. In the previous data, it showed that VAC would shrink 10% to 15% of wound bed per week. But if healthy granulation tissue and neo-epithelization were slow to appear, infection of wound bed should be ruled out. And we know that "infection" is the major cause that inhibits wound healing process and the disadvantage of vacuum-assistant device is sometimes increased infection rate so our study tried to reduce infection rate and to improve wound healing by adding antibiotic irrigation during vacuum dressing.

Objective: To compare infection rate between vacuum dressing plus NSS irrigation and vacuum dressing plus antibiotic irrigation and to compare healing rate between these two groups.

Materials and Methods: Thirty patients who had both acute and chronic wounds received adequate debridement and dressing until well granulated wound bed and were then divided into two groups, 15 patients received VAC plus NSS irrigation whereas 15 patients received VAC plus antibiotic irrigation. Before starting the protocol, the wound was biopsied and sent for tissue culture, then vacuum dressing was applied .VAC was changed every three days or either contaminated wound was seen. Re-biopsy tissue for tissue culture at day 6th, 12th and day 21st, after applied vacuum dressing. VAC was applied for three weeks then stop operation. The wound size was measurement at the same time of tissue culture. The size and tissue culture result were analysis by Fisher's exact, Wilcox rank-sum (Mann-Whitney) test.

Results: There were 15 patients who had received VAC plus NSS irrigation and 15 patients who had received VAC plus ATB irrigation. There were no significant different demographic data between these two groups either age, sex, cause of the disease, preoperative serum albumin and underlying disease. No immediate complications after antibiotic irrigation in ATB irrigation group include drug allergy, renal toxicity and liver insufficiency. The most cause of chronic wound is DM. The results of study show that, ATB irrigation in VAC dressing did not decrease infection rate compare with NSS irrigation in VAC ($p = 0.23$) and there was no significant different healing rate between these two groups ($p = 0.406$).

Conclusion: ATB irrigation in VAC tended to decrease infection rate but no statistically significant, may be from short time of irrigation or inadequate coverage of any type of bacterial infections. Neither ATB nor NSS irrigation in VAC performs different results in wound healing rate.

PREVENTION OF PERITENDINOUS ADHESIONS IN PRIMARY FLEXOR TENDON ZONE II REPAIR WITH SEPRAFILM®

Paisit Bunsiripaiboon[1], Thiti Chaovanalikit[1], Rungtip Chokpraisin[2], Malai Chansuk[2], Chalermrat Na Chiengmai[2]

[1]Division of Plastic Surgery, Department of Surgery, [2]Department of Physical Medicine and Rehabilitation, Lerdsin Hospital, Bangkok, Thailand

Background: Peritendinous adhesion is the most important complication of flexor tendon zone II injury. Several experimental reports have claimed that exogenously administered sodium hyaluronate helps prevent the formation of such adhesion. Seprafilm® bioresorbable translucent membrane (Genzyme Corporation, Cambridge, MA, USA.) contains sodium hyaluronate and carboxymethyl cellulose which has been shown to be effective in decreasing peritendinous adhesions following flexor tendon repair in animal models. The aim of this study was to determine the effect of Seprafilm® in prevention of peritendinous adhesion in primary flexor tendon zone II repair.

Materials and Methods: Two groups of patients with complete rupture of FDS, FDP or both tendons at zone II in any one digit of 2nd to 5th digit, caused by the cutting mechanism, without neurovascular injuries and fractures were compared. Fifteen patients in each group underwent primary repair of flexor tendon at zone II with the modified Kessler technique and the Seprafilm® was wrapped around the repaired tendon in the study group. In the control group, no external material was applied to the field. Both groups followed the modified Duran rehabilitation protocol and were measured the active and passive range of motion at MCP, PIP and DIP joints during the duration of 5th and 8th week after surgery.

Results: There were 11 men and 4 women in each group. The average age was 28.7 in the study group and 30.3 in the control group. In each group, there were 4 FDS, 7 FDP and 4 combined FDS & FDP tendons injuries. The active range of motion (AROM) was statistically significant better result ($p < 0.001$) in the study group at MCP joint (mean flexion degrees = 55.5 vs 37.7 in the control group at 5th week and 80.4 vs 62.3 at 8th week). The total active motion (TAM) was statistically significant better result ($p < 0.001$) in the study group (mean degrees = 146.8 vs 109.7 in the control group at 5th week and 206.8 vs 170.3 at 8th week). The passive range of motion (PROM) was statistically significant better result ($p < 0.001$) in the study group at MCP joint (mean = 87.7 vs 76.3 degrees at 8th week), PIP joint (77.0 vs 53.3 degrees at 5th week and 91.0 vs 79.0 degrees at 8th week) and DIP joint (66.3 vs 54.3 degrees at

5th week and 78.3 vs 69.0 degrees at 8th week). The total passive motion (TPM) was statistically significant better result ($p<0.001$) in the study group (mean degrees = 212.7 vs 161.7 at 5th week and 257.0 vs 224.3 at 8th week).

Conclusion: The sodium hyaluronate membrane acting as a physicochemical barrier can prevent restrictive adhesions in primary flexor tendon zone II repair during the duration of 5th and 8th week after surgery.

ANTHROPOMETERIC STUDY OF THE NORMAL EXTERNAL EAR IN ADULT THAI PEOPLE; AGE AND SEX- RELATED DIFFERENCE

Songyos Chantajitr, Kachin Wattanawong, Phanuwat Lerdsittichai

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

Background: Knowing the normal size and dimensions of the ear pinna is important to plastic surgeons for planning of ear reconstruction. The aims of the surface measurements in practice were (1) to determine the nature and degree of a visible deformity with intent to prepare proper treatment and to obtain basis for postoperative evaluation of results; (2) to help in the detection of minor defects of the ear not detected at routine visual examination; (3) to assist in classification of the defects from a surgical point of view, based on the extent of the true tissue loss and the degree of shape disfigurement. Few studies on this aspect have been undertaken in various populations. At this moment, few studies on auricular dimensions have been reported from Thailand. Hence, the current study attempted to provide anthropometric data on normal adult people.

Materials and Methods: A cross-sectional study was undertaken in Ramathibodi hospital, Bangkok, Thailand. Both ears of the 250 subjects were measured. The 131 women and 119 men, ranged from 16 to 89 years of age were categorized in seven age groups. Ear dimensions were measured including length and width of the auricle, length and width of the lobule, and length and width of the concha, length of auricular protrusion at the superaurate and tragal levels, and inclination of the auricle was measured. The facial dimensions which related to the auricle including length of lateral palpebral commissure to helical root, length of lateral palpebral commissure to lobular insertion, and facial height were also measured.

Results: It was found that men had significantly larger than women in the mean length and width of the auricle, length and width of the concha, length and width of the lobule, auricular inclination angle, protrusion at the superaurate level and tragal level ($p<0.001$). The older age groups had significantly longer than the young in the mean length and width of the auricle, length and width of the lobule, and length of the concha ($p<0.001$). However, the width of the concha was absent the same. Moreover, the mean length and width of the auricle and the lobule were significantly longer in higher weight and BMI groups, but were not in higher height groups. The right and left side were not found significantly different in all dimensions of the ear measurement.

Conclusions: The human ears increase in size throughout life in both cartilaginous and soft tissue part. In the same age, all ear dimensions are significantly larger in men than in women. The weight and BMI have positive correlations with ear dimensions.

THE CLINICAL AND COST EFFECTIVENESS OF EXTERNALLY APPLIED NEGATIVE PRESSURE

Parichart Ritchim, Phanuwat Lerdsittichai, Vichai Srimuninnimit

Division of Plastic and Maxillofacial Surgery, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Negative pressure wound therapy (NPWT) is a topical treatment using vacuum pressure applied directly to the wound bed to promote healing in acute and chronic wounds. The topical gauze negative pressure wound therapy consists of a gauze dressing, a drainage tube inserted into the dressing, an occlusive transparent film sealing the wound and the drainage tube then connect to a vacuum source, which supplies the negative pressure. The purpose of this study was to compare clinical and cost effectiveness of gauze applied negative pressure wound therapy with polyurethane sponge negative pressure therapy.

Methods: Treatment efficacy was assessed by qualitative appearance of the wound conditions (color, size and fibrinous slough of granulation tissue) and by wound surface area measurements. Tissue cultures were performed to quantify the bacterial load. Complications encountered during therapy and postoperatively were recorded.

Results: In both groups there was a tendency to reduce the size of the wound surface area (33% in topical negative pressure wound therapy and 23.3% in polyurethane sponge negative pressure wound therapy) but the result was not different between groups significantly ($P = 0.097$). Time involvement and costs of dressing equipments were lower for the topical gauze negative pressure therapy.

Conclusion: With topical gauze negative pressure

therapy, wound healing is at least as reduced wound surface area as with conventional polyurethane sponge dressings. But the total costs of gauze dressing closure are cheaper when comparable to those of conventional sponge dressings, and the advantage is its comfort for patients and wound care staff.

MEDICAL RAPID PROTOTYPING FOR CRANIO-FACIAL RECONSTRUCTION AT MAHARAJ NAKORN CHIANG MAI HOSPITAL: THE PRELIMINARY RESULT

Angkana Tanvatanagul[1], Krit Khwanngern[1], Somboon Chaisrisawadisuk[1], Apichai Angspatt[2], Kriskrai Sitthiseripratip[3], Wimon Sirimaharaj[1], Opart Pinchai[1], Puttan Wongtreeratanachai[1]

[1]Division of Plastic and Reconstructive Surgery, Department of Surgery, Faculty of Medicine, Chiangmai University, Chiangmai, Thailand, [2]Division of Plastic and Reconstructive Surgery, Department Of Surgery Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [3]National Metal and Materials Technology Center, National Science and Technology Development Agency, Bangkok, Thailand

Background: Today, rapid prototyping technique has been developed in craniofacial reconstruction. Maharaj Nakorn Chiangmai Hospital has used this technique since 2006. This study aimed to evaluate the results of rapid prototyping technique in craniofacial reconstruction in Maharaj Nakorn Chiangmai Hospital.

Materials and Methods: All patients with bony craniofacial defects who underwent reconstruction by rapid prototyping technique by plastic surgeons team at Maharaj Nakorn Chiangmai Hospital between January 2006 and December 2008 are included. All demographic data, Gillespie score, Glasgow outcome score, esthetic outcome score, patient and operator satisfaction and quality of life were statistically analyzed.

Results: Thirty patients with craniofacial defect underwent bony reconstruction by rapid prototyping technique. Seventeen patients had craniofacial defect secondary to trauma (trauma group) and 6 patients had craniofacial tumor requiring tumor resection with immediate reconstruction (tumor group). In trauma group, the patients were categorized into 3 subgroups: simple craniofacial (N = 12), complex craniofacial (N = 2) and complex facial subgroups (N = 3). In tumor group, the patients were classified into 2 subgroups: simple cranial (N = 2) and complex craniofacial tumor (N = 4). For esthetic evaluation, Gilliespie score, esthetic outcome score and Glasgow outcome score were 3.9/4, 4.62/5 and 4.87/5, respectively. Overall satisfaction was 7.76 out of 10. Three patients (13.04%) had complication, one (4.34%) had acute complication and the others (8.70%) had late complication.

Conclusion: The rapid prototyping technique is a good method for craniofacial reconstruction, demonstrating the excellent result in esthetic outcome and also presenting improvement in the general quality of life and the confidence for working of the patients. In addition, there was no statistically significant difference in cost effectiveness analysis when compared with the conventional technique.

COMPARING THE EFFECT OF CARNITINE BETWEEN ORAL AND INJECTION FORM ON SKIN FLAP SURVIVAL

Paveena Lawanlakkana, Chaichoompol Suwantemee, Anont Pitiseree

Division of Plastic and Reconstructive Surgery, Department of Surgery, Phramongkutklao Hospital, Bangkok, Thailand

Background: Carnitine is an endogenous cofactor having a regulatory action on the energy flow from different oxidative sources. Carnitine has been used for ischemic conditions such as coronary heart diseases, peripheral vascular diseases with satisfactory results. So ischemic skin flaps should obtain benefit from carnitine.

Objective: To determine the effect of carnitine on skin flap survival in rat model.

Materials and Methods: Twenty one Sprague-Dawley rats were divided into 3 groups; each group had 7 rats; a controlled group and two carnitine-treated groups. Random skin flap was elevated, on the backs of the rats. The controlled group was not given any pharmacologic agent. Two treated groups, Group 1 received carnitine orally (150 mg/kg/day) for 3 days before flap elevation and continued to 1 week after the procedure; Group 2 received carnitine intraperitoneally (100 mg/kg/day) for 1 week after flap elevation. The surface area of flap survival was measured in each group.

Results: The median areas of flap survival of the groups were 65.89%, 69.03%, 77.47% respectively. There was a significant improvement of flaps survival in carnitine-treated groups, especially carnitine injected group was found to be significantly higher than controlled group and carnitine-oral group ($p < 0.05$). The carnitine-oral group can slightly increase flap survival compared to controlled group but not statistically significant.

Conclusion: Effect of carnitine has increased flap survival in random skin flap. Carnitine injection form is more effective than the oral one.

UROLOGY

THE EVOLUTION OF NEURO-UROLOGY - FROM THE INDWELLING CATHETER TO HIGH-TECH MEDICINE - INCLUDING ECONOMIC ASPECTS

Helmut Madersbacher

Rehabilitation Center Bad H_ring (Tirol) and Department of Urology, Innsbruck University Hospital, Austria

In their foreword to the book "Neurourological Urology" E. Bors and A.S. Comar (1971) stated that Neuro-Urology can only be understood by combining thoughts and methods of Urology, Neuro-Surgery, Psychiatry, Traumatology and Rehabilitation Medicine.

In the following lecture I will discuss the progress (1) in understanding physiology and pathophysiology of the lower urinary tract, (2) in diagnosis and (3) therapy of neurogenic lower urinary tract dysfunction with remarks to economics and I'll finish with (4) some ideas on the future of Neuro-Urology.

(1) In the 1960's we only knew that via pathways from the CNS to the bladder contractions are induced by activating cholinergic receptors, about 10 years later also the afferent reflex pathway became more evident. During the next decade it was realized that normally the afferent input from the bladder to the CNS is conducted in myelonated A-_ fibres, but to convey afferent input under pathological conditions, e.g. after spinal cord injury, C-fibres are activated. During the last 10 years much attention was paid to the urothelium. Much of our understanding of cerebal structures to be involved in micturition and withholding micturition we are owing to MRI studies, initiated by Blok and Holstage in 1997. It was confirmed, that there is a pontine micturition center in the dorsal pons (M-region) and that the pontine center for the external sphincter is located more laterally (L-region). They also found that afferent input from the periphery projects firstly to the periaqueductal grey (PAG).

(2) In regards to diagnostic procedures video-urodynamics are the gold-standard to evaluate the underlying pathophysiology, for follow-up urodynamics may be sufficient depending on the individual situation. In combination with a targeted clinical investigation we are nowadays able to define the various dysfunctional patterns of detrusor and sphincter. Neurophysiologic testing may give additional information on the function/dysfunction especially of afferent nerves.

(3) The aim of therapy in neurogenic lower urinary tract dysfunction is still to preserve the kidney function and to control incontinence, possibly to restore continence. Since about 20 years the therapy of choice to treat the spinal reflex bladder is (a) to relax the overactive detrusor by antimucarinics and (b) to empty it with intermittent catheterization. This concept replaced the era of transurethral sphincterotomy, which was inaugurated in 1958. The experience, that intermittent catheterisation really works providing excellent results in regards to upper urinary tract, with an acceptable rate of urethral pathology, was one of the greatest progress Neuro-Urology has made during the last 25 years, enabling also adequate bladder emptying, e.g. of augmented bladders and bladder substitutes. If anticholinergics are not effective enough or are not tolerated in adequate dosages, the second choice nowadays is the injection of Botulinum toxine A into the bladder wall with excellent results. Botulinum toxin therapy is costly, however when comparing the annual costs for antimuscarinics and antibiotics with those for Botulinum toxin, that the difference is little and the quality of life with Botulinum toxin therapy much higher. An alternative to overcome aggressive detrusor overactivity is sacral deafferentation. The results to achieve detrusor acontractility are excellent and lasting, however the procedure is destructive, and patients are more and more reluctant where nerves are cut, even if they are not useful for them. In the era of Botulinum toxin the indications for sacral deafferentation have become fewer. An alternative to intermittent catheterization is the implantation of sacral anterior roots stimulator (Brindley) for individual patients. This technique, combined with sacral deafferentation has excellent results with a long-term efficacy in 85 % after a mean observation of 12 years. Considering that these patients do not need intermittent catheterisation, no antimuscarinics and no anticholinergics the higher costs for the implant are justified, considering last, but not least also the improvement in quality of life. About 15 years ago, a sophisticated method was recommended to express the underactive detrusor with the help of a Latissimus dorsi muscle transfer. Press conferences and articles in the newspapers predicted enthusiastically "no more intermittent catheterisation for patients with a weak detrusor", however the results in long term were disappointing and the same seems to be true for another attempt to empty a weak bladder as proposed by Prof. Chuan-Guo Xiaou. He recommends an artificial somatic-autonomic reflex pathway procedure for bladder control in children with spina bifida as well as in adults with neurogenic detrusor weakness. A not costly therapy is, however, intravesical electrostimulation, which is especially useful to improve or to normalize

the neurogenic hyposensitive and/or hypoactive detrusor.

(4) In the last part of this lecture I will discuss the future of Neuro-Urology, especially where do we need innovations, considering also the question of tissue-engineering and the problems we have with neuropathic smooth muscle cells in this regards. So far, and in the near future, proper initial management of the bladder during the spinal shock phase, adequate bladder rehabilitation and life-long neurological care are still the keys the ensure an almost normal life expectancy for tetraplegics and normal life expectancy for paraplegics as well as improved quality of life despite neuro-urological deficits.

COMPARISON OF THE PREDICTIVE ACCURACY OF SERUM PROSTATE SPECIFIC ANTIGEN AND FREE/SERUM PSA RATIO IN THE EARLY DETECTION OF PROSTATE CANCER IN THAI PATIENTS

Dulayanat Aranyapala, Choosak Pripatnanont, Monthira Tanthanuch

Department of Surgery, Songklanagarind Hospital, Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Prostate-specific antigen (PSA) screening for prostate cancer has proliferated over the past 2 decades, leading to dramatic increases in detection rates of prostate cancer. Although it has unquestionably led to increased detection of cancer and a migration to lower-stage and -volume tumours, it is still unknown whether PSA screening significantly reduces mortality from prostate cancer. Often thought to be dichotomous (i.e., either normal or elevated), PSA measurements actually reflect cancer risk, with the risks of cancer and of aggressive cancer increasing with the level of PSA. The recently developed risk calculator from the Prostate Cancer Prevention Trial, which integrates family history of prostate cancer, digital rectal examination findings, PSA test result, age, ethnicity, and history of a prior prostate biopsy with a negative result, allows clinicians to assess a patient's individual risk of cancer.

Objectives: To enhance the specificity of prostate cancer (PCa) detection and reduce unnecessary biopsies in Thai men with prostate-specific antigen (PSA) level > 4 ng/mL or free/total PSA ratio < 25%.

Materials and Methods: A total of 224 patients who underwent trans rectal ultrasound guide biopsy (TRUS biopsy) in Songklanagarind hospital during 1 Jan 2002 -31 Dec 2007 with indication serum PSA level > 4 mg/dl or Free/total PSA ration < 25% were reviewed. All men underwent prostate ultrasound and sextant biopsy with two additional transition zone (TZ) biopsies. If the first biopsies were negative, repeated biopsies were performed at 6 weeks. Total PSA, free/total PSA ratio (f/t PSA) were determined, and the sensitivity, specificity, and predictive values of these various parameters were calculated.

Results: Of 224 patients, 150 had histologically confirmed benign prostatic hyperplasia (BPH) and 74 had PCa. No predictors were more significant powerful, total PSA sensitivity 97.3 % specificity 5.33 % and F/T ratio sensitivity 89.74 % specificity 22.88 %. Areas under the receiver operating characteristic curves for f/t PSA were 19 %

Conclusion: This study recommends the use of both total PSA and F/T ratio for early detection prostate cancer.

SINGLE-PORT TRANSUMBILICAL LAPAROSCOPIC RENAL CYST DECORTICATION

Sompol Permpongkosol, Pokket Ungbhakorn, Charoen Leenanupunth

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

Background and Objective: Simple renal cysts are detected frequently by ultrasonography. Herein, we presented the results and the feasibility of single - port transumbilical laparoscopic renal cyst decortication for the treatment of symptomatic renal cysts.

Materials and Methods: Between August 2008 and January 2009, 6 patients with symptomatic renal cysts were laparoscopically treated by single port access, 2 (33 %) were women and 4 (67 %) were men. The median age was 67 years (range, 50 to 79 years). The surgical techniques employed were transperitoneal using R-port single port access laparoscopic system, a tri-port that allows the ingress of bent instruments through a single port. Demographic and surgical data were collected and analyzed retrospectively.

Results: Six cases of symptomatic simple renal cysts were decorticated laparoscopically by transumbilical single-port access in a four-month period. Pain was the most frequent symptom. The mean operative time was 2 hours, the estimated blood loss was between 50 and 100 mL. There were no intra and post - complications. However, one patient required a 2-mm needle-port to facilitate suturing due to bleeding. Pathological examination confirmed every lesion to be a simple renal cyst.

Conclusion: Single-port laparoscopic surgery is a safe, effective and minimally invasive alternative to open surgery for symptomatic simple renal cysts.

TRANSUMBILLICAL SINGLE PORT LAPAROSCOPIC SURGERY IN RE-OPERATIVE PYELOPLASTY

Sompol Permpongkosol, Charoen Leenanupunth
Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: We assessed the feasibility of adult redo laparoscopic pyeloplasty via transumbilical single-port access in a patient with ureteroplelvic junction obstruction.

Methods: A 38-year old patient underwent re-operative single port transumbilical pyeloplasty using the R-Port system® (Advanced Surgical Concepts, Wicklow, Ireland), inserted through a transumbilical incision. Specialized bent instruments were used in addition to standard laparoscopic instrumentation. During pyeloplasty, a 5-mm. needle-port was also inserted, with no skin incision, to facilitate suturing.

Results: Redo single port laparoscopic pyeloplasty, with no extra-umbilical skin incisions, was technically successful. The total operative time was 5.30 hours, the estimated blood loss was 100 mL. There were no complications during or after surgery. A 6-month follow-up intravenous pyeloplasty did not show any obstruction of urinary tract system.

Conclusions: Redo pyeloplasty by transumbilical single-port laparoscopic pyeloplasty is feasible. In experienced hands redo single port laparoscopic pyeloplasty can be performed safely with a success rate similar to that of open surgery, and it may provide faster recovery with decreased narcotic requirements and less morbidity. Further studies are needed to better define the role of single port laparoscopic surgery in re-operative pyeloplasty.

LAPAROSCOPIC RADICAL CYSTECTOMY WITH NEOBLADDER

Nakorn Tantirangsi, Suchart Chaimuangraj, Suthep Patcharatrakul, Wisoot Kongcahreonsombat
Division of Urology, Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: To present the surgical technique of laparoscopic radical cystectomy with intracorporeal urethral anastomosis.

Materials and Methods: A Thai 78-year-old man had gross hematuria for 6 months. The cystoscopy showed a 4-cm sessile mass at posterior wall of the urinary bladder. TUR-BT was performed and the pathologic report was Transitional cell carcinoma with muscle invasion. The CT scan showed cancer confined within the bladder wall. The radical cystectomy was performed by laparoscopic technique. A section of ileum sixty- five centimeters long was used to create the Struder neobladder by extracorporeal technique. The neobladder anastomosed to urethra by intracorporeal laparoscopic technique.

Results: The patient stayed in hospital for 5 days, estimated blood loss was 150 cc. (no blood transfusion), total cystectomy time was 60 minutes and total operative time was 5 hours.

Conclusion: The laparoscopic radical cystectomy with intracorporeal urethral anastomosis is the better alternative technique than open operation. With this technique the patient could be discharged sooner. The operative blood loss could be reduced because the anatomy of the operative field is clearly identified. The bowel function recovers early and the urethral anastomosis could be secured with water tight suturing.

LAPARO-ENDOSCOPIC SINGLE SITE (LESS) NEPHRECTOMY FOR BENIGN AND INFLAMMATORY CONDITIONS

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

Background: To report a contemporary series of patients with benign and inflammatory conditions of kidneys with laparo-endoscopic single site (LESS) nephrectomy.

Materials and Methods: During August 2008 to May 2009, 6 patients (mean age 60.8 years, range 37-91) underwent transumbilical single port laparoscopic (SPA) nephrectomy and confirmed with chronic pyelonephritis and non function kidney. Informations on the mode of presentation, surgical management, and complications were analyzed. All procedures were performed through a single intraumbilical multichannel laparoscopic port.

Results: LESS was a feasible and safe approach in 66.7% of patients who underwent SPA nephrectomy. Histology of Xanthogranulomotus pyelonephritis was confirmed in one case. In an additional procedure during the operation, two cases required fluid aspiration to decrease the kidney size. Two cases (33.3%) of SPA nephrectomies with higher waist circumference were converted to standard laparoscopic nephrectomy due to failure to progress. The postoperative complication rate was 16.7% (1 case) since umbilical hernia.

Conclusion: LESS of laparoscopic nephrectomy can be performed safely in most patients with benign inflammatory conditions that require surgical extirpation. In highly selected patients this approach can be offered,

with acceptable morbidity, allowing for lower blood loss and shorter convalesce time.

LAPARO-ENDOSCOPIC SINGLE SITE (LESS) SURGICAL NEPHRECTOMY IN A PORCINE MODEL

Sompol Permpongkosol, Yada Tingthanatikul, Ronnarat Suvikapakornkul

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

Background: Laparo-endoscopic single site (LESS) is a novel technique for performing laparoscopic surgery through a single umbilical incision that may offer all of the benefits of standard laparoscopy with reduced post-operative pain, decreased morbidity and improved cosmesis. The goal of our study was to determine if transvaginal nephrectomy was feasible in a porcine model.

Materials and Methods: We performed in a female pig with a weight 50 Kg. The pig was slept under general anesthesia in flank position. The R-Port access laparoscopic system, a single port multichannel canula with laparoscopic instrumentations, was used and inserted transvaginal. We monitored our operation by a regular laparoscopy by adding a trocar at umbilicus. A right kidney was extracted transvaginally.

Results: LESS-nephrectomy was successfully in the porcine model. Visualized was not obscured by bleeding. No operative complications were encountered and there was no need for additional open procedure. The animal was sacrificed at the completion of the procedure.

Conclusions: We demonstrate the feasibility and technique of LESS- nephrectomy in the living porcine model using currently available equipment. It has the potential of a less morbid approach with scarless surgery. Further development of instrument is warranted.

COMPARATIVE OUTCOMES OF THE OPEN, HAND ASSISTED AND FULL LAPAROSCOPIC LIVING DONOR NEPHRECTOMY

Pogate Ouenpakorn, Kittinut Kijvikai, Wit Wisetsingh, Suthep Patcharatrakul, Charoen Leenanupan, Suchart Chaimuengraj, Wisoot Kongchareonsombat

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

Background: Kidney transplantation is the standard treatment for end stage renal disease which the patients can quit the dialysis. There are many methods of harvesting kidney from living donor. The minimal invasive surgery tends to replace the open surgery such as hand assisted and full laparoscopic nephrectomy have been performed in many institutes. We showed the outcomes of these three procedures in Ramathibodi Hospital.

Materials and Methods: We recruited the data of living donor nephrectomy operation since January 2006 to March 2009. There were a total of 103 living donors divided into 68 open procedures, 14 hand assisted and 21 full laparoscopic procedures. Operative time (hour), warm ischemic time (min), length of hospital stay (day), and estimated blood loss (mL) were compared among three groups and complications were reported.

Results: The operative time (min), warm ischemic time (min), length of hospital stay (day) and estimated blood loss (ml) of open: HAL: full LAP are 144:192:162; 2.0:2.5:2.9; 6.5:5.0:6.6; 336:142:209 in orderly. Only two patients had bowel ileus in open procedure and one case in HAL.

Conclusion: Laparoscopic living donor nephrectomy has been shown to be a safe procedure in experienced hands. The recovery time, duration of hospital stay and blood loss were lower in the laparoscopic procedure. The operative time seemed not different among the three procedures. But the warm ischemic time is slightly higher in HAL and full LAP. As yet there is no clear evidence of fewer complications after laparoscopic procedure. Nevertheless the laparoscopic procedure needs the long learning curve and experienced surgeon.

SINGLE PORT ACCESS LAPAROSCOPIC NEPHRECTOMY IN THE MANAGEMENT OF CHRONIC AND XANTHOGRANULOMATOUS PYELONEPHRITIS

Sompol Permpongkosol, Keeratipon Wiengpon, Charoen Leenanupunth

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

Background: Single port access (SPA) laparoscopic nephrectomy for chronic pyelonephritis and xanthogranulomatous pyelonephritis (XGP) is complicated and more technically demanding than standard laparoscopic approaches for noninfectious renal diseases. We reported the feasibility of the SPA laparoscopic nephrectomy for management of chronic pyelonephritis and XGP.

Materials and Methods: Two women, each with one nonfunctioning kidney, underwent SPA laparoscopic nephrectomy by one surgeon (SP). The patients were 69 and 36 years old. The preoperative presentation, operative details, postoperative recovery, and peri-operative complications were recorded. The first patient presented

with nonfunctioning left kidney and a distal left ureteric stone (stone size, 2 × 1.5 cm). The second had multiple renal stones with left hydronephrosis and nonfunctioning left kidney. The R-Port access laparoscopic system, a single port multichannel canula with bent laparoscopic instrumentation, was used.

Results: Both patients successfully underwent SPA laparoscopic nephrectomy. No conversion to standard laparoscopic or open nephrectomy was required. Due to a very large diseased kidney in the second patient, needle aspiration of the kidney was performed to remove 600 cc of pus. The operative times were 240 and 300 minutes, with estimated blood losses of 50 and 350 mL, respectively. No operative or postoperative complications occurred. Operative specimens were pathologically confirmed to be chronic pyelonephritis and XGP, respectively.

Conclusions: SPA laparoscopic nephrectomy for chronic pyelonephritis and XGP was shown to be feasible and safe. SPA has enhanced cosmetic benefits and reduces morbidity associated with minimally invasive surgery.

EXPERIENCE OF LAPRA-TY CLIP FOR LAPAROSCOPIC UROLOGIC SURGERY

Kiratipol Wiengpol, Suchart Chaimuangraj, Suthep Patcharatrakul, Wisoot Kongchareonsombat

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

Objective: To present our experience in lapra-ty clips that can facilitate surgical tying in laparoscopic urologic surgery.

Materials and Methods: We presented the surgical technique using lapra-ty clip in 4 cases. We first used them in a case of laparoscopic partial nephrectomy due to renal mass. The rest three cases were for urethral anastomosis. Two of them were during the laparoscopic radical prostatectomy and the last one was in laparoscopic radical cystoprostatectomy intracoporeal during noebladder-urethral anastomosis.

Results: All operations were successful. In laparoscopic partial nephrectomy, after mass was removed, parenchymal defect bed was sutured by Vicryl and we used lapra-ty clip instead of suture knot tying. Operative time was 240 min. Estimated blood loss was 250 ml. Warm ischemic time was only 50 min. Tube drain was removed on the fifth day. There was no complication of bleeding or extravasation of urine. In laparoscopic radical prostatectomy, both cases were tested to be water-tight closure by intravesical instilling NSS 300 cc after complete vesico-urethral anastomosis and no grossly fluid leakage was detected. The silastic tube drainage was removed at day 3. In one case, Foley catheter was removed at day 5 and returned to normal voiding function earlier. Unfortunately in the other Foley catheter was removed in 14 days because of co-morbidities. Finally, patient underwent laparoscopic radical cysto-prostatectomy with ileal neobladder. Lapra-ty was used during neobladder-urethral intra-corporeal anastomosis. We found that fluid from silastic tube drainage was less than 10 cc in the 2nd day after postoperative, and we sutured in water tight closure. The Foley catheter was removed at day 10 without complication.

Conclusion: We can use lapra-ty clip to facilitate in laparoscopic urologic surgery.

LONG-ACTING INTRAMUSCULAR TESTOSTERONE UNDECANOATE FOR THE TREATMENT OF 135 LATE-ONSET HYPOGONADISMS

Sompol Permpongkosol, Rungrudee Talubsri, Krisada Ratana-Olarn

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

Background: The long term effects of long-acting testosterone undecanoate (TU) in late-onset hypogonadism in men have not yet been reported. The objective of this study was to investigate the effects of TU (1000 mg) in late-onset hypogonadism in Thai men.

Materials and Methods: In this study, 135 men with documented late-onset hypogonadism were investigated. The mean age and body mass index of patients were 60.16 ± 9.15 years and 25.89 ± 3.51 kg/m^2, respectively. Patients received TU 1000mg on day 1, day 42 and thereafter every 12 weeks. The mean duration of treatment was 60 weeks (range, 6 to 138 weeks). During the follow-up the patients were physically examined and serum levels of total- and free testosterone were measured. In addition, TU therapy effects were assessed by using the Aging Males' Symptoms rating scale (AMS) questionnaire, International Prostate Symptom Score (IPSS) questionnaire, the International Index of Erectile Function (IIEF-5 and-15), and satisfaction scores.

Results: During the 30-week follow-up, the mean total- and free testosterone serum levels increased from 289.12 ± 103.29, and 6.40 ± 2.50 ng/dl to 558.88 ± 231.69, and 13.24 ± 6.40 ng/dl, respectively. In 93% of patients, the testosterone serum level reached the normal limit (300ng/dl). PSA and hematocrit levels increased in 44% and 47% of patients, respectively. The mean changes were 0.296 ± 0.216 ng/ml and 2.99 ± 0.27 %, respectively. Side effects were weight gain in 10% of patients, headache and dizziness

in 2%, larger or painful breasts in 4%, pruritus in 2%, and acne in 3%. The analysis of the questionnaires showed treatment satisfaction in 89% of patients, although the AMS and IIEF-5 scores did not show significant improvements after three TU injections.

Conclusions: We have observed promising effects of the treatment with TU in late-onset hypogonadism in Thai men. Further studies with longer follow-up are warranted to optimize the administration schedule and to explore the long term effects of TU in these patients.

SINGLE-PORT LAPAROSCOPIC SURGERY WITH BENT INSTRUMENTS IN UROLOGY: INITIAL EXPERIENCE IN THAILAND

Sompol Permpongkosol

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

Objective: Natural orifice transluminal endoscopic surgery (NOTES) has become an exciting area of surgical development and may be the next generation minimally invasive surgery. We presented our initial experiences with single-port laparoscopic urologic surgery using the R-port laparoscopic system: a single port system with specially designed bent laparoscopic instrumentation.

Materials and Methods: We performed single-port laparoscopic surgery in 16 patients, including renal cyst decortications in 6, simple nephrectomy in 6, pyeloplasty in 1, radical nephrectomy in 1, redo-pyeloplasty in 1 and simple prostatectomy in 1. Through a single 2-cm intra-umbilical incision, the triport laparoscopic-port (trademark pending, Advanced Surgical Concepts, Wicklow, Ireland) was inserted transumbilically for a transperitoneal approach. No extraumbilical skin incisions were made.

Results: Since August 25, 2008, a total of 16 patients underwent single-port laparoscopic surgery for various upper abdominal and pelvic conditions. All cases were completed successfully; 2 cases with conversion to a standard laparoscopic approach and 1 case to open surgery. No intraoperative or postoperative complications developed. We reported the first case of single port laparoscopic surgery for xanthogranulomatous pyelonephritis.

Conclusions: Single-port laparoscopic surgery is feasible and safe. Additional experience and continued investigation are warranted. Embryonic-natural orifice transluminal endoscopic surgery appears to be a promising new approach for selected surgical conditions.

OUTCOMES AND COMPLICATIONS OF THE FIRST 80 UROLOGICAL LAPAROSCOPIC PROCEDURES PERFORMED BY ONE SURGEON

Sompol Permpongkosol

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

Background and Objective: Urological laparoscopic surgery is a technically challenging procedure. The goal of this study was to describe the outcomes and complications of the first 80 consecutive patients undergoing urological laparoscopic surgery performed by one surgeon. We described the surgical technique and the modifications that were applied

Materials and Methods: A retrospective chart analysis was performed, focusing on the outcomes and complications associated with first 80 laparoscopic surgeries performed at Ramathibodi Hospital, Mahidol University.

Results: There were various operations in the first 80 urologic laparoscopic procedures by one surgeon. Laparoscopic surgery was successfully completed in 91.25% of cases (73/80). Ten of our patients presented major complications (12.5%). Vascular injuries were the most com-mon intra-operative complication during learning curve.

Operation	Number	Open conversion	Major complication
Laparoscopic non-pelvic surgery	38 (47.5%)	3 (3.75%)	6 (7.5%)
1. Adrenalectomy	2	-	-
2. Nephrectomy	16	3	4
3. Renal tumor ablation	3	-	1
4. Renal cystic decortication	6	-	-
5. Pyeloplasty	3	-	1
6. Ureterolithotomy	2	-	-
7. Ureteroureterostomy	3	-	-
8. Nephroureterectomy	4	-	-
Laparoscopic pelvic surgery	42 (54.7%)	4 (5.0%)	4 (5.0%)
1. Varicocele	1	-	-
2. Radical prostatectomy	21	2	2
3. Simple prostatectomy	1	1	-
4. Urachal cyst removal*	3	0	-
5. Reimplantation ureter	3	0	-
6. Assisted simple cystectomy	1	0	-
7. Partial cystectomy	1	0	-
8. Assisted radical cystectomy	10	1	2
Total	**80**	**7 (8.75 %)**	**10 (12.5%)**

Note: * = laparoscopic partial cystectomy

Conclusions: Our results in terms of morbidity are similar to those reported elsewhere for urological laparoscopic surgery. It is possible to practically duplicate the principles of open surgery with laparoscopic techniques.