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Abstracts
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GENERAL SURGERY

Advances in the Management of Breast Cancer

Udi Chetty

A pre-operative diagnosis of breast cancer allows the patient to be managed in a logical way, that is having made the diagnosis, staging the disease, considering the appropriate locoregional treatment and discussion with the patient of the various options. A pre-operative diagnosis can be obtained in over 80 per cent of cases using imaging techniques in combination with fine needdle aspiration cytology and core biopsy.

Clinical staging has its limitations. Pathological staging of the axilla in patients with operable breast cancer is still the single most important prognostic factor. Sentinel node biopsy techniques have been shown to be an accurate method of obtaining the appropriate nodes. Bone marrow aspiration and immunohistochemical staining for cytokeratins is being developed as a method of identifying those with micrometastatic disease.

Earlier diagnosis at presentation is associated with better prognosis and screening programmes have demonstrated a reduction in mortality from breast cancer of about 20 per cent.

Most patients with small tumours can be treated by breast conservation. Clinical trials have demonstrated that mastectomy is unnecessary in those with a tumour that can be adequately excised with a clear margin followed by radiotherapy. The options of managing the axilla will be discussed. Patients with larger but operable tumours or multifocal breast cancers require a mastectomy which can be combined with immediate breast reconstruction.

Large multicentre trials have established the value of adjuvent systemic therapy. A summary of the Oxford overview will be presented.

The survival from breast cancer is improving. In Scotland 75 per cent of patients diagnosed with breast cancer survive over 5 years which is an improvement from around 55 per cent some 20 years ago.

Post Mastectomy Breast Reconstruction

JH Stevenson

An overview of the techniques used in post mastectomy breast reconstruction including use of implants and autogenous methods of reconstruction. The results in a recent review carried out in Ninewells Hospital comparing the peri-operative morbidity in the immediate and delayed reconstructions using free T.R.A.M. flap breast reconstruction in 100 patients are presented. Recent developments in assessment of patients for reconstruction and refinements in T.R.A.M. flap technique are discussed.

Chemotherapy for Breast Cancer

O Eremin

Chemotherapy for the purposes of this talk will not encompass hormonal therapy for breast cancer. In breast cancer, chemotherapy is given in three therapeutic settings (a) adjuvant, (b) neo-adjuvant and (c) palliative. There is now good evidence from meta-analysis of published data that adjuvent chemotherapy may be beneficial. For example, CMF in pre-menopausal women who had undergone curative treatment for operable breast cancer (mastectomy or wide local excision and axillary surgery with or without

radiotherapy) and who have nodal involvement by tumour cells, or have an aggressive (Grade III) tumour, derive long-term benefit, in terms of overall and disease-free survival. The management of metastatic breast cancer is undergoing important changes with the introduction of new chemo-therapeutic agents. For example, the Taxanes, navelbine with continuous i.v. infusion of 5FU, oral capecitebine and, more recently, Herceptin monoclonal antibody (with docetaxel) in women with tumours expressing receptors for EGF. Currently, high-dose chemotherapy with stem cell rescue appears to be of limited value in women with advanced disease. Many centres are now using neo-adjuvant chemotherapy for patients with large (>3 cm) or locally advanced (T3 , T4, N2) breast cancers with a view to destaging the disease in the breast and, thereby, improving loco-regional control, as well as increasing the likelihood of breast conserving surgery. Attempts are being made to try and predict the response to the neo-adjuvant chemotherapy, using novel imaging (Sestamibi, PET scanning), at an early phase of treatment and to target drug treatment to those with occult micrometastatic disease (eg tumour cells or proteins in bone marrow).

Through-the-Scope (TTS) Enteral Stent for Malignant Gastric Outlet Obsttuction

DWH Lee, ACW Chan, EKW Ng, YH Lam, SKH Wong, JYW Lau, SCS Chung

Background: In patients with advanced malignancy or poor general condition, endoscopic stenting offered an alternative palliative means to relieve obstructive symptoms in a minimally invasive fashion. We aimed to report our technique and results on through-the-scope-stent (TTSS) in palliating malignant gastric outlet obstruction.

Materials and Methods: From Sept 98 to Mar 2001, 17 patients received a total of 18 TTSS for relieving GI obstruction. The procedures were done under intravenous sedation and fluoroscopy. Enteral Wallstents (Schnedier, USA) with a diameter of 20 or 22 mm and length 60 or 90 mm were used and delivered over a guidewire through endoscope with an operating channel of at least 3.7 mm. The patency of the stent was comfirmed with Gastrograffin contrast.

Results: Seventeen patients (11 males, 6 females) with median age of 60.5 (IQR 56-75.25) underwent ITSS. The locations of the obstructions were antral-pyloric: 9; duodenum: 6; oesophago-jejunostomy anastomosis: 2. 17/18 (94%) stents were successfully deployed. One stent failed to deploy through the scope. One patient required the insertion of a second stent because of migration of the first stent. One patient required subsequent endoscopy to stop bleeding from the tumour. Endoscopic stenting relieved obstructive symptoms in 14 patients (82%). The median dysphagia score improved from 4 to 2 after stenting ($p=0.001$, Wilcoxon signed rank test). The median survival after stenting was 6 weeks (IQR 3-9).

Conclusion: TTSS is safe and feasible. It offered a minimal invasive way to palliate obstructive symptoms in patients with terminal malignancy.

Dendritic Cells in patients with Breast Cancer: Immature Phenotype and Defective Function

S Satthaporn, B Al-Sarireh, A Robins, M El-Sheemy, JA Jibril, D Clark, D Valerio, W Vassanasiri, O Eremin

Introduction: Dendritic cells (DCs) play a crucial role in presenting antigens to T lymphocytes and inducing cytotoxic T cells, including those directed against tumours. The function of DCs have been studied in patients with breast cancer in order to understand the factors leading to failure of an effective systemic and loco-regional anti-cancer host response and the resultant progressive tumour cell growth.

Methods: DCs were obtained from the peripheral blood (PB) and lymph nodes (LNs) of women with operable breast cancer using immuno-magnetic bead selection. The stimulatory capacity of DCs in the allogeneic mixed leukocyte reaction (MLR) and autologous T cell proliferation test (PPD as stimulator), the eexpression of surface markers and the production of cytokines in vitro by DCs from patients with breast cancer and normal healthy donors (controls) were determined and compared.

Results: Using the above methodology, 70-75 per cent purified DCs (PB and LNs) were isolated. PBDCs and LNDCs from patients with breast cancer demonstrated a significantly lower capacity to stimulate in MLR compared with PBDCs from controls ($p<0.05$). Also, antigen-driven autologous T cell proliferation in patients with breast cancer had a significantly decreased ability to respond to PPD when compared with PBDCs from controls ($p<0.05$). T cells from breast cancer patients, however, responded as well as control T lymphocytes in the presence of control DCs. PBDCs and LNDCs from patients with breast cancer expressed significantly lower levels of HLA-DR, CD40 and CD86 and induced decreased amounts of interleukin-12 secretion in vitro when compared with DCs from normal donors ($p<0.05$).

Conclusion: These data suggest a defective, swithched off DC function in patients with operable breast cancer. These may be important factors inducing inhibition of anti-

cancer host defence and resulting in progressive tumour growth seen in patients with breast cancer.

The Usefulness of Neo-Adjuvant Chemotherapy in Squamous Oesophageal Cancer : A Non-Randomized Comparison Study of Pulse and Continuous Regimen Versus Historic Control

ACW Chan, JF Griffith, SF Leung, YH Lam, CCh Lam, DWH Lee, JYW Lau, EKW Ng, SCS Churg

Background: We reported our results on the use of preoperative chemotherapy in patients with localized squamous oesophageal cancer, and compared these results to our historic control group of patients treated by surgery alone in a single institution.

Methods: From 1991 to 1997, 83 consecutive oesophageal cancer patients underwent surgical exploration after completion of 2 pulse or continuous infusion cycles of cis-platin and 5-fluorouracil chemotherapy regimens. Outcome analyses were compared to 76 historic control patients who were operated upon from 1985 to 1990. The two groups were comparable in demographic characteristics and tumour stage. The resection rates, operative morbidity, mortality, and survival rates were compared. Tumour response was assessed by the magnitude of tumour volume reduction measuring from pre- and post- chemotherapy CT scan volumes.

Results: Partial response was achieved in 50 per cent of patients who received chemotherapy. There was no chemotherapy-related mortality. The resection rate, morbidity rate, mortality rate and median survival between the surgery alone group and chemotherapy group were 71.1 vs 82 per cent, 41 vs 55 per cent, 4 vs 10.8 per cent and 12.0 vs 13.5 months respectively. There was no statistically significant difference between the two groups.

Conclusions: Preoperative adjuvant chemotherapy using cisplatin and 5-fluorouracil infusion followed by surgery had no added benefit in overall survival compared to surgery alone.

Outcome of Inguinal Hernia Repair : Totally Extraperitoneal Laparoscopic Hernia Repair (TEP) Versus Open Tension Free Repair (Lichtenstein Technique)

S Subwongcharoen

Background: Result and efficacy of laparoscopic hernioplasty has been controversial. Many techniques were performed and evaluated. TEP technique has been used for laparoscopic hernioplasty in this center. Complication, benefit and efficacy in term of recurrence were studied and compared with open tension free repair (Lichtenstein).

Methods: Fifty-five patients with 4 recurrent, 16 bilateral and 35 unilateral groin hernia underwent laparoscopic hernioplasty by TEP technique. The other 24 patients with 1 recurrent, 2 bilateral, and 21 unilateral groin hernia underwent Lichtenstein's hernio-plasty (OH). Operative time, complication, hospital stay and recurrence after one year follow up were recorded.

Result: Mean operative time was 67.85 ± 21.66 and 55.85 ± 10.60 minutes, mean difference 12.00, 95%CI (1.83, 22.16), P-value 0.02 (TEP vs OH).

Mean hospital stay was 2.76 ± 1.29 and 2.38 ± 0.58 days, mean difference 0.33, 95%CI (-0.26, 0.93), P-value 0.27 (TEP vs OH).

Complication rate 12.7% and 12.5% P- value 0.64 (TEP vs OH).

Most complication were minor such as seroma, hematoma, neuralgia, and one case of pubic osteitis needed removed of staples and some part of the mesh. There was one conversion to open repair due to large sac and some part of large bowel adherence. One recurrence after one year follow up in laparoscopic group was noted. No major morbidity or mortality was encountered in this study.

Conclusion: This study demonstrated that complication of TEP technique was minimal and safe to perform. Although operative time was longer and there was one recurrence in TEP group that might be due to early learning period in the new surgical procedure.

Dendritic Cells in Patients with Breast Cancer: Reversal of Defective Function in Vitro

S Sathaporn, B Al-Sarireh, A Robins, M El-Sheemy, JA Jibril, D Clark, D Valerio, W Vassanasiri, O Eremin

Introduction: Escape from immune surveillance is believed to be a fundamental biological feature of malignant disease in man, that contributes to uncontrolled tumour growth, which eventually leading to death of the host.

Dendritic cells (DCs) play a crucial role in initiating and developing effective cell-mediated immune (CMI) responses. Defective DC function has been demonstrated in malignant disease. Reversal of this dysfunction and the establishment of a satisfactory DC function in vitro is a key element in the induction of effective anti-cancer immune responses.

Methods: DCs were generated from the peripheral blood (PB) and lymph nodes (LNs) of women with operable breast cancer by culturing monocytes in cytokine-

conditioned medium. Monocytes were isolated using density gradient centrifugation and plastic adherence. These cells were cultured in vitro, supplemented with recombinant human granulocyte-macrophage colony stimulating factor (rhGM-CSF), rh interleukin-4 (IL-4), interferon-α (IFN-α) and tumour necrosis factor-α (TNF-α). The stimulatory capacity of DCs in the allogeneic mixed leukocyte reaction (MLR) and expression of surface maturation markers were determined and compared with freshly isolated DCs.

Results: PBDCs and LNDCs from cytokine-comditioned medium demonstrated a significantly higher capacity to stimulate in MLR compared with freshly isolated PBDCs and LNDCs from patients with breast cancer ($p<0.05$). PBDCs and LNDCs from cytokine-conditioned medium expressed significantly higher levels of HLA-DR, CD40 and CD86, compared with freshly isolated PBDCs and LNDCs from patients with breast cancer ($p<0.05$).

Conclusion: This data shows that defective function in patients with breast cancer can be reversed in vitro culture with cytokines. This induction of DC maturation and activation could be used in DC-based immune therapy.

A Lateral Segment Living Related Donor Liver Transplantation in Children

S Teeraratkul, S Sriphojanart

Objective: To present the transplantable indications, evaluative methods for surgical technique of donor liver harvesting, and implantation of liver graft to the recipient.

Materials and Methods: The recipient was a one year old girl with biliary atresia disease who was not improved after Kasai's operation. The patient had end stage liver failure and multiple episodes of esophageal varices bleeding. She had been on cadavertic liver transplantation waiting list for 4 months. Because of her severe recurrent esophageal varice bleeding and hepatic encephalopathy, the living related donor liver transplantation was offered to the parents. A 32 year old mother was carefully evaluated both physical and mental status by the transplantation team and was accepted to be a liver donor. The donor and recipient had identical blood group A. The CT angiography was employed to evaluate liver volume and vascular anatomy of the donor. Ultrasonography was used for recipient preoperative evaluation, showing that the donor had no portal vein thrombosis. The left lateral liver segment was harvested by non-touch technique to the hepatic artery. Cusa dissection combining with bipolar forceps coagulator were used to resect the liver tissue. The donor inferior mesenteric vein was used for vein graft to the portal vein. The absorbable sutures were used for hepatic and portal veins anastomosis. Hepatic artery anastomosis was performed under microscopy. Bile duct of liver graft was anastomosed to jejunal valve conduit of the recipient. FK 506 and steroid were the immunosuppressive agents. Doppler ultrasonography was used for evaluation of the vascular patency after transplantation.

Results: The patients recovered unevenful. The physical and mental status of the mother before and after surgery were good. The recipient was doing fine and her liver function returned to normal within one month.

Conclusion: Living liver donor is another choice for liver transplantation in the situation of lacking of cadaveric donor. The procedure was safe in the donor and good outcome in recipient can be achieved in center with experience in liver transplantation.

Duodenal Diverticulization, Pyloric Exclusion Bypass and Retrograde Tubal Jejunostomy: A Comparative Study of the Efficacy of the Intraluminal Pressure Reduction within the Duodenum in Animal Model

K Peetiya, W Pibul, P Jittlaongwong, A Pongpattananurak, T Ingsirorat

Objective: In primary repair after duodenal injury, an increase of intraduodenal pressure is an important predisposing factor of postoperative leakage. In this study, the intraluminal pressures in second part of duodenum following duodenal diverticulization, pyloric exclusion bypass and retrograde tubal jejunostomy in animal model will be measured and statistical analysis made to assess and compare the efficacies of the procedures.

Materials and Methods: Twenty four selected healthy male hamsters, 3-4 months age, 180-200 g weight were randomized into 4 groups: control group, duodenal diverticulization group, pyloric exclusion bypass group and retrograde tubal jejunostomy group. Six hamsters in each group were anesthetized with ether. Gastrostomy and esophagogastric junction ligation were performed. Another gastrostomy tube and a retrograde duodenostomy tube were inserted to record pressures in all groups. Baseline pressure was recorded, and NSS 1 ml + air 1 ml was push into stomach to initiate pressure change. This was repeated twice in 30 seconds apart. The average pressure was then recorded. Polygraph machine was used in all measurements. Wilcoxon's rank sum test statistic was used in the analysis with $p<0.05$ regarded as singnificance.

Results: Intraduodenal pressure change in control group was significantly higher than the other three groups ($p<0.05$). And these three groups were not different in

intraduodenal pressure changes (p>0.05).

Group	Intragastric pressure (mmHg)			Intraduodenal pressure (mmHg)		
	Resting	Push air+water	Pressure change	Resting	Push air+water	Pressure change
Control	2.21	7.54	5.33	2.08	8.67	6.58
Diverticulization	0.96	6.67	5.71	1.96	3.29	1.33
Pyloric exclusion	0.58	4.08	3.50	1.75	2.79	1.04
Retrograde jejunostomy	1.75	4.83	3.08	2.50	3.96	1.46

Conclusion: All the three experimental procedures demonstrated significant intraduodenal pressure reduction than the control but there was no statistical significance in their efficacies among themselves.

Increased DNA Synthesis in 80 per cent Hepatectomized Rat by Injection Insulin to the Portal Vein

S Kasemthamakhun, A Chujhun, K Leelawat, S Trubwongcha-reon, C Sutipintawong, S Tujinda

Objective: To study the effect of insulin to DNA Synthesis in 80 per cent hepatectomized rat by injection insulin to the portal vein and measured the number of DNA synthesis in liver cells by using BrDU immunohistopathology assay.

Materials and Methods: S-D rats were randomized in 3 groups. Group one, we performed 80 per cent hepatectomy and provided 0.0125 U regular insulin to the livers via their portal veins. Group two, only 80 per cent hepatectomy was done. Group three, (Sham operation) their abdomen was opened but their livers were not touch. 24 Hours after operation, all groups were injected with 2 ml. BrDU to their peritoneal cavity and sacrified later to remove the remnant of livers. The remnant of livers were test with BrDU immuno-histopathology technique and the number of DNA synthesis were measured.

Results: DNA synthesis was found to be highest in group one (received insulin group) and no DNA synthesis in sham operation (group three).

Conclusion: Insulin injection via portal vein can increase the rate of DNA synthesis in hepatectomized rats.

Percutaneous Endoscopic Gastrostomy (PEG) Using Self-made (Taksin) PEG Tube

S Chuthapistith, T Youngrod, C Pornpattanarak, C Ongrattanapol

Percutaneous Endoscopic Gastrostomy (PEG) is now a standard procedure for gastrostomy. Since Ponsky performed this procedure in 1980, it was widely used in clinical practice. Since economic crisis in Thailand, the cost of PEG tube has been now our major problem. So, we created our self-made PEG tube for use in practice named "Taksin PEG tube". Taksin PEG tube made from Levin's type nasogastric tube and attached with our self-made introducer. The introducer of Taksin PEG tube was made from unsaturated polyester resin. This introducer was approved for its tension from School of Civil Engineering, Asian Institute of Technology that it could be used safely in human with 4 times of tension more than usual human abdominal muscle resistance. The main purpose of this tube was to create a gastrocutaneous fistula under endoscopic method.

This video presentation demonstrated the principle and methods of pulled technique of percutaneous endoscopic gastrostomy using Taksin PEG tube. It also showed indications, complications and replacement of the tube.

In conclusions, pulled technique percutaneous endoscopic gastrostomy using Taksin PEG tube so demostrated should be another choice for a cost-saving gastrostomy.

Mechanical Bowel Preparation for Elective Colonoscopy: A prospective, randomized, surgeon blined trial comparing sodium phosphate and senna

K Jittawatanarat, V Khattipattanapong, P Sirisa-ad, P Leesawat

Objective: To compare the cleaning ability, patient compliance and safety of two oral solutions for elective colonoscopy.

Methods: All eligible patients were prospectively randomized to received either NaP or senna as mechanical bowel preparation for colonoscopy. A detailed questionaire was used to assess patient compliance. The surgeons were blinded to the preparation. Sodium, potassium, chloride, bicarbonate, phosphate and calcium were monitored bofore and after bowel preparation. Statistical analysis was performed using unpaired, paired t test, Mann-Whitney test and Chi-square.

Result: Forty nine patients, well matched for age, gender and diagnosis, were prospectively randomized to receive either NaP or senna for elective colonoscopy. There was a significant increase in serum phosphate level after administration of both NaP and senna (P<0.05); and significant decrease of bicarbonate only in senna group (p=0.02). Both groups of patient did not have clinical sequelae. No statistical significant about the tolerance, patient compliance and patient willingness in both groups but the bowel movement of senna was less than NaP significantly (p=0.008). For quality of cleaning, the last bowel movement quality of stool that patient decribed in

NaP were superior to senna (p=0.019) but no differnce in surgeon inspection during colonoscopy. Surgeon score NaP as "exellent" or "good" in 79.2 per cent compared with 59.1 per cent in senna (p=not significant)

Conclusion: Both oral solutions proved to be equally safe and well-toleranted. However the overall qualily of preparation with senna was slightly inferior to NaP, but there was no stastistical significance.

Transrectal Ultrasound (TRUS) in Preoperative Staging of Rectal Cancer

A Methasate, V Boonnuch, P Watanapa, D Lohsiriwat

Treatment of rectal cancer now ranges from local excision to abdominoperineal resection and optimal type of surgery depends on accurate preoperative staging, as does the indication for any preoperative neoadjuvant treatment. Transrectal ultrasound (TRUS) has become an important tool in preoperative staging of rectal cancer.

In this study, 25 patients with a preoperative histological diagnosis of adenocarcinoma localised in the rectum were examined using TRUS. We compared preoperative transrectal ultrasound stage with the postoperative histological stage. In addition, we also assessed whether some anatomic and pathological characteristics of the neoplasm (differentiation, type of growth and presence of peritoneal inflammatory reaction) influenced the diagnostic precision of TRUS.

TRUS showed a diagnostic accuracy of 84 per cent in the diagnosis of local tumor invasion (T) and 70 per cent in the diagnosis of lymph node metastasis (N). Overstaging of the cancer occurred due to local inflammation of the tumor. Diagnosis of the lymph nodes distance from the probe was still the problem.

We conclude that TRUS is useful in preoperative staging of rectal cancer and should be used to select the optimal treatment.

Technique of Lymphatic Maping with Isosulfan Blue and Sentinel Lymph Node Biopsy for Breast Cancer Patients

A Ratanawichitrasin, S Rojananin, GM Doherty, K Bhodhisuwan

Objective: Lymphatic mapping and sentinel lymph node biopsy has been studied worldwide with the aim to obtain accurate staging while creating minimal morbidity for breast cancer patients. The accuracy and success of sentinel lymph node biopsy technique varies from 87 per cent to 99 per cent either using isosulfan blue, technetium colloid 99m or combination of both techniques. Inexperience and improper surgical technique can cause unsuccessful sentinel lymph node biopsy especially when using isosulfan blue dye as a lymphatic mapping tracer. This VDO presentation was aimed at helping surgeons to learn and familiar with the proper technique of lymphatic mapping and sentinel lymph node biopsy using isosulfan blue, which is available in Thailand.

Patients and Methods: This VDO presentation demonstrated the technique of lymphatic mapping with isosulfan blue and sentinel lymph node biopsy in details which included blue dye injection, massage, incision planning, timing, dissection of blue lymphatic tract and sentinel lymph node biopsy.

Conclusion: The technique of lymphatic mapping using isosulfan blue dye and sentinel lymph node biopsy is simple if performed properly. Surgeons can do the blue dye technique without any expensive or sophisticate instruments.

PLASTIC SURGERY

Facial Nerve Paralysis and Reconstruction

RT Ramsden

Facial nerve paralysis is a devastating psychological burden. In addition it causes a number of physical problems which may have serious consequences for the patient. In particular it may have serious implications for the health of the eye if a deficient blink reflex is combined with loss of the tear film. The problem is further compounded if there is co-existing loss of corneal sensation as may occur if there is also damage to the trigeminal nerve, a combination that is not infrequently encountered in skull base surgical practice. The facial nerve may be involved in disease at any point from the brain stem to the face and facial paralysis at presentation is usually, but not always, an indicator of malignancy. Lesions of the cerebellopontine angle, the temporal bone, the middle ear, the upper neck and the parotid gland may all present with facial weakness. Furthermore surgery in these regions may either accidently or deliberately lead to the sacrifice of the nerve. A surgeon who deals with lesions of the facial nerve or the areas it passes through must be familiar with facial reainimation

techniques. Three main methods of facial nerve grafting are in common usage.

1. End to end anastomosis
2. Cable grafting
3. Facio-hypoglossal anatomosis

This paper analyses the experience of the Manchester Royal Infirmary Skull Base Surgery Team with a series of 69 facial nerve grafts performed between 1978 and 2000. The results are recorded using the standard House Brackmann (HB) facial nerve grading scale at 6, 12, 24, and 36 months after nerve grafting.

End to end anastomosis confers the best long term facial nerve results, followed by cable grafting and then facio-hypoglossal anastomosis.

Management of Cutaneous Malignant Melanoma

Udi Chetty

The surgical management of cutaneous malignant melanomas has changed from what used to be the established practice of excising at 5cm around the melanoma to one where the microstage of the melanoma directs how radical the excision should be. Skin lesions usually pigmented considered suspicious of malignant melanoma should be biopsied with margin of 2-5 mm. Incisional biopsies should be avoided except for very large lesions as there is the problem of selecting the appropriate area to biopsy. Subungual lesions require the nail to be removed and the mass or pigmented area biopsied.

For pathological examination the whole lesion should be adequately sampled by serial transverse slicing at approximately 2mm intervals and examining sections cut at three levels. The Breslow thickness of the tumour, measured from the granular layer of the epidemis to the base of the tumour in millimetres, is the important "microstaging" measurement. Clark's levels, that is the depth of penetration of the dermis is less reliable and the presence of ulceration indicates a worse prognosis.

In situ malignant melanomas require no more that a 5 mm margin of excision with a small amount of subcutaneous fat. For invasive malignant melanomas with less than 1mm Breslow, a 1cm margin of excision down to the deep fascia is all that is required as demonstrated by the WHO randomised study. Lesions between 1-2mm require a 2cm margin and lesions over 2mm require a 3cm margin. There are several large ongoing clinical trials that comparing a 1cm versus 3cm margin for tumour of over 2mm Breslow.

Routine elective dissection of the regional lymph nodes has shown no overall benefit in clinical trials and this is associated with considerable morbidity. A selective approach to lymph node dissection is advisable and a sentinel node biopsy is a reliable method of identifying the lymph nodes that are involved. If only one or two involved nodes are present below the inguinal ligament, a subinguinal node dissection of the femoral triangle is indicated. If there is gross involvement of the subinguinal nodes, or the node of Cloquet is involved, then an extended dissection to include the iliac and obturator nodes should be considered.

There is currently no standard adjuvant systemic therapy today for melanoma patients. Kirkwood's high dose interferon alpha regime has demonstrated some benefit but associated with significant side effects. Intermediate dose of interferon alpha given for two years produced a significant effect in terms of disease free interval but not yet overall survival in EORTC trial.

Burns Reconstruction: New Technologies in Teaching, Training and Feedback

SY Ying, WS Ho, A Burd

Background: Surgical reconstruction in the burn patient is one of the most challenging aspects of Plastic and Reconstructive Surgery. The multiplicity of problems that can occur in a single patient, the variety and range of problems together with the often compromised access to tissue and reconstructive options means that the trainee reconstructive burns surgeon either has to have a long apprenticeship or find ways to maximize all potential training opportunities. This problem is compounded by the multiple demands on the clinician in training which means that the ideal situation of having trainer, trainee and patient together is not always a practical possibility. We have sought to address some of these problems by incorporating commercially available technology to expand the pool of experience of individual traines, make real dilemmas more immediate; present material for discussion and to allow for constructive feed back.

Method: In the outpatient clinic reconstructive problems are recorded on a modified Brou chart. Digital photographic records are then taken with a Kodal DC210 zoom camera and downloaded into Powerpoint. Hard copy of photographs are made using an HP Deskjet 970. Trainer and trainees meet at a convenient time away from the clinic to discuss the cases and debate reconstructive options. This makes the basis of a text addition to the powerpoint presentation which is archived using a Yamaha cRW6416, CD disk writer. Interoperative and post-operative slides are added to the archived presentations where available.

Results: This project began in an attempt to enhance

teaching and training when multiple clinical commitments have prevented the ideal situation of desingated teaching clinics. The immediate availability of digital images and their potential manipulation have proved very successful in provoking constructive learning.

Discussion: We have yet to assess whether this is an effective way of learning but it has been readily accepted. This is applicable to student teaching as well and the accumulation of archived presentation is proving a valuable teaching resource. We are now exploring creating a web-based database but have to consider carefully the ethical and confidentiality aspects of so doing.

The Use of Mandibular Advancement Splint (MSN) in Patients with Snoring and Obstructives Sleep Apnoea

H Khalil

Introduction: Snoring is a very common disorder affecting approximately 40 per cent of the adult population, of these around 10 per cent would have some degree of obstructive sleep apnoea. It has been well documented that the problem viewed anatomically is multisegmental in that the nasopharynx, oropharynx and hypopharynx all contribute toward the snoring. A variety of treatment options are available which include the mandibular advancement splint. We have been using the HERBST Splint for the last five years in nearly 300 patients.

Materials and Methods: All patients have been selected for the mandibular advancement splint after having had full polysimnography and a technique called sleep nasendoscopy. During sleep nasendocsopy stage 1 and 2, type of sleep is induced using midazolam and propofol and by using the fibroptic nasendoscope we ascertain the level of obstruction. If the obstruction is found to be at the level of tongue base and/or epiglottis, we would advance the mandible to see if it improves the airway and snoring. If it does, then these patients are referred for HERBST splint. The patient is then seen by the orthodontist who will take an impression and a lateral cephalogram before fabricating the splint.

Results: Of the 300 patients, 35 patients have been unable to use the splint as it has caused significant temporo-mandibular joint problems. The remaining patients have found the device to be exceptionally satisfactory in reducing the snoring as well as the daytime sleepiness. We have objective documentation of the efficacy of the HERBST splint. We have repeated the sleep studies with the HERBST splint in situ and documented an objective improvement in apneoa/hypoapneoa index, the O_2 desaturation, the sleep architecture as well as the snoring pattern. In addition we have video documentation of the improvement in the nasopharyngeal, oropharyngeal and hypopharyngeal dimensions whilst the splint is in situ.

Conclusion: Mandibular advancement splint offers an effective way of treating patients with snoring and obstructive sleep apnoea. Patient selection however is of utmost importance.

Sarcoma in Head & Neck Region

A Ratanawichitrasin

Either soft tissue sarcoma or osteogenic sarcoma is uncommon compared with epithelial carcinoma. From Siriraj Cancer Registry Database, sarcoma occurred in only few percent of all head and neck region malignancy. Head and neck is not the common site for sarcoma; it occurs only less than 1 per cent of the sarcoma throughout the whole body.

Sarcoma can be located in every part of head and neck region from skin, orbit, nose, sinus, mandible or neck. In head and neck, soft tissue sarcoma is more common than osteogenic sarcoma. The pathology varies from Rhabdo-myosarcoma, Hemangiopericytoma, Fibrosarcoma, Leio-myosarcoma, Dermatofibrosarcoma, Spindle cell sarcoma, Osteosarcoma etc. Average age of patients was 32, and were found equally in both sexes. Common presentation was mass and its effect. Pain usually occurred as the diseases progressed. It was difficult for diagnosis; most of the patients were diagnosed from pathologic reports after incision biopsy. Regional lymph nodes metastases were rare.

With the nature of low response rate to radiation therapy, surgery is the major modality of treatment for sarcoma. Operative treatment of head and neck sarcoma should be well planned and considered of adequate resection, function and cosmetic results. Due to the high incidence of recurrence, multiple resections and flap reconstruction may be needed whenever its recur or incomplete excision. Distant metastasis was found occasionally and systemic cytotoxic chemotherapy may have a role in the treatment.

Volunteer Surgeon for Cleft Lip/Palate Project (Under Royal Patronage)

A Chuangsuwanich

Cleft lip and cleft palate (CL/CP) are common congenital anomalies. The incident of CL/CP is between 1:546 to 1:778 live births, so the estimated baby born with

CL/CP should be 1,660 babies each year. Before 1980, there were few plastic surgeons in Thailand, therefore a singificant number of patients born with CL/CP did not receive adequate treatment especially those who lived in the rural areas of the country. The Society of Plastic and Reconstructive Surgeons of Thailand (SPRST) in co-operation with The Ministry of Public Health launched the first campaign for the operation for these deformities in many remote provinces as a tribute to His Majesty the Crown Prince during July 1987-July 1988, in which 509 patients were operated. The SPRST has continued the campaign with The Princess Mother's Medical Volunteer Foundation and the Ministry of Public Health for this 1,096 patients treated during May 1989-July 1991. The operations for these deformities on behalf of His Majesty the King for the cerebration of his 72th birthday has been launched since June 1999. This project has provided the operations for 2,019 patients up to now. These included the patients not only with the deformities of CL/CP, but also congenital hand anomalies, scar contracture, facial cleft and ear anomalies. All we did to these CP patients were not only the operations but also the ongoing schedules for speech therapy or other medical care. Other deformities required subsequent operations and rehabilitation were also provided in this occasion. In conclusion, all the projects were successful because of the co-operation of all medical personnel as a provision to the benefit of the patients.

Pleomorphic Adenoma of The Parotid Gland : Is Long Term Follow up Needed?

OM Ayoub, B Kunwar, RK Mal

Introduction: Pleomorphic adenoma is a slow-growing benign salivary tumour most commonly arising in the parotid gland. Macroscopically it has a surrounding capsule from which it can be enucleated, an often used treatment in the past. These tumours do not have a true capsule but can press surrounding normal salivary gland, frequently having finger like extensions into the normal tissues. Recurrent, or more accurately residual disease, is thought to be due to these small islands of tumour which may be left behind at surgery, in particular enucleation which is associated with higher recurrence rate. The current common practice is excision of these tumours through superficial parotidectomy and postoperative follow up. However, is long term follow up necessary, does it reduce the morbidity from tumour recurrence?

Methods: We reviewed the charts of 182 parotid tumours operated upon by a single surgeon (RKM) between 1973 and 1999. We included only 58 cases of pleomorphic adenomas removed by superficial parotidectomy. We excluded cases that had follow up of less than 12 months.

Results: In our study, we had 34 females mean age of 58.24, males mean age of 50. The average follow up was 6 years with a range of 1-23 years. We had only one recurrent case in this series.

Conclusion: It is interesting to note that in our experience as in other groups who undertake large numbers of procedures upon the parotid gland, the incidence of recurrence of pleomorphic adenoma is extremely low if not zero. Therefore long-term follow up is felt to be unnecessary.

Digital Camera AidS in Detecting Tissue Ischemia: A Preliminary Report

P Kietdumrongwong, V Chowhchuvech

Background: Microvascular condition is the main factor in successful free-tissue transfer, which has increasingly gained popularity during the past 20 years. Detection of early failure is of paramount importance for salvaging ischemic flap. Color is more frequently used as a clinical indicator in detecting flap ischemia. However, expertise is needed in detection the subtle change of color. By using digital camera, pictures taken serially can be analyzed by personal computer to compare the degree of color changes. With this hypothesis, we experimentally created an ischemic state in volunteers and correlated the differences of color in digital camera pictures with the disturbances of blood supply.

Objectives: To detect early change in color of tissue ischemic state by using digital camera.

Materials and Methods: A Pneumatic tourniquet was applied to the left arm of 5 healthy colleagues with 250 mmHg pressure for 15 minutes. Two different digital cameras (Kodal DC 260 and Olympus Camedia C-2000) were used together simultaneously, in order to compare 2 studies at the same time. The photograph was taken serially every 5 minutes since the pressure was applied. The pictures were analyzed by Adobe Photoshop software to measure the skin color over their foreams in RGB and CMYK modes. Data statistic program was used for data analysis. The values of the colors were plotted corresponding to the time intervals. The difference of color magnitude was calculated and analyzed.

Results: The prelimianry study showed the differences in magnitude of color change at different time intervals. But statistic significance could not be measured due to the limited number of the samples. However, there is a trend of possibility that digital cameras can detect subtle

change of color in ischemic state though invisible to the human eyes.

Conclusion: Digital cameras may aid in predicting ischemic state. However, further studies in clinical trial are needed to conclude the result. Therefore, the method of measuring changes of colors with a digital camera will be applied to patients in Songklanagarind Hospital soon.

The Deep Inferior Epigastric Artery Perforator Free Flap for Early-stage Breast Cancer: A case report

K Laochaisri, A Cholpan, R Wongtrangkapan, K Kitti-ampon, A Chuangsuwanit, S Muangsombut

Reconstruction of the female breast following mastectomy has become commonplace. The number of donor sites have increased as the quest both for improving reconstruction and reducing morbidity continues. There are a number of donor sites which resemble breast tissue in terms of skin texture, suppleness and colour. The "gold standard" for transfer in breast reconstruction, however, is the lower abdominal skin and fat. The tissue can be moulded into virtually any breast shape desired. The lower abdomen can provide enough material for total autologous breast reconstruction. The main problem with the majority of TRAM flap technique is that they may be associated with significant donor site morbidity due to harvest of some or all of the rectus muscle. The deep inferior epigastric perforator (DIEP) free flap spares the whole rectus abdominis muscle, includes skin and fat only, and therefore, preserves adequate abdominal wall competence.

In this report, we presented a case of 45 year-old female with left breast cancer stage 1. We applied modified radical mastectomy and immediate breast reconstruction using the deep inferior epigastric artery perforator free flap and obtained satisfactory outcome

We feel that, in the future, this perforator technique will become the standard for autogenous breast reconstruction at our institution.

Scrotal Free Flap: A New Fasciocutaneous Free Flap

P Eamtanaporn, A Kruavit

The aim of this study was to develop a new free flap from the scrotum that can be used as an alternative expendable donor site for free flap reconstruction.

Dissection study was performed in ten male fresh cadavers and dye injection study was performed in four. The mean surface area of the unilateral scrotal flap supplied by the vascular pedicle from the external pudendal artery and vein was 44.3 cm^2. The mean pedicle length was 8.95 cm, the mean diameter of the artery at its origin from the femoral artery was 1 mm, and the mean diameter of the vein at its origin from the long saphenous vein was 1.68 mm. The fasciocutaneous areas that were supplied by this unilateral vascular pedicle were three fourth of the suprapubic area, three fourth of the penile skin, all of the prepuce skin, and unilateral half of the anterior part of the scrotum.

Thereafter, the scrotal fasciocutaneous free flap was developed for clinical application in two patients. The first flap was used to cover the wound at distal leg with exposed tibia while the second flap was used to cover the wound with exposed tendons on the dorsum of the hand. Both cases proved that scrotal free flap could be successfully used in clinical practice.

The thinness and pliability of this flap, the long vascular pedicle, the minimal donor site morbidity, and the possibility to raise the flap simultaneously with the recipient site dissection were the major advantages. The small caliber of the flap vessels, the small size of the flap, and the unsightly appearance of the scrotal skin were its disadvantages.

In conclusion, the new scrotal fasciocutaneous free flap should be included as an additional tool in the reconstructive surgeon's armamentariums.

Dry-preserved Porcine Xenograft for Split-thickness Donor Sites: An alternative for donor site dressing

N Songthong, V Srimuninnimit, Y Suwinchai

In this report, dry-preserved porcine dermis that had been sterilized with Ethylene Oxide gas was used for the treatment of split-thickness skin graft donor sites in 7 patients (11 donor sites). The mean age was 38.7 years old. Half of each donor site was dressed with porcine dermis and the other with tulle gras for comparative study, then covered with multilayered gauzes and elastic bandage. The outer layers were changed if there was serum or blood oozing through. Each donor site was left occluded for 14 days, except for the last 2 donor sites that were opened at day 7 and found that wounds dressed with porcine dermis already healed but not with the tulle gras. The dressing was opened and the ease of dressing removal, the quality of healed skin and skin characteristics were assessed. Porcine dermis dressing was easier to be removed from the wound bed with less trauma than the tulle gras. There was neither infection nor allergy at the donor site covered with porcine dermis. The authors conclude that dry-preserved porcine xenograft can be used as an alternative biologic dressing

for split-thickness skin graft donor site. It is easy to prepare. It can be stored for a long period of time at room temperature. It can be applied with either side upward. It is quite inexpensive when compared with the commercially available product (E-Z DERM(tm)) that is used for the same purpose.

Advantage of Cilostazol, An Antiplatelet Agent, in Microvascular Anastomoses: A histologic comparison

A Susupaus, S Supwongcharoen, T Boonyapattanapong, K Witulchart, R Poolsawatkittikul

Objectives: To evaluate benefit effects of cilostazol compared with aspirin and control group for microvascular anastomoses in term of histologic change and patency rate of vascular lumen.

Materials and Methods: Microvascular anastomoses was performed on right common carotid artery of 32 rats. They were randomized to receive aspirin (n=11), cilostazol (n=11) and control group (n=10). On 7th postoperative day, all rats were sacrificed and pathological changes at the site of vascular anastomeses were studied.

Results: The narrowing lumen at anastomoses site, by thrombosis and fibrous ingrowth, has developed in 5 of 10 in control group (50%), 1 of 11 in aspirin group (9%) and 1 of 11 in cilostazol group (9%). Two complete obstruction were found in control group. Seventy, ninety and forty-five percent loss of intimal layer have occurred in control group, aspirin group and cilostazol group respectively. Aspirin group had significantly loss of intimal layer than cilostazol group ($P<0.05$).

Conclusions: The loss of intimal layer in microvascular anastomoses can significantly improved with cilostazol. The patency rates of vascular lumen seem to be better in aspirin and cilostazol group but without statistical difference. More sample size are necessary to evaluate this aspect.

Nose Reconstruction in Burn Patients at Songklanagarind Hospital

V Chichareon, N Donsakul, V Chowchoovej, P Sanguanchua

Objective: Nasal deformity after facial burn usually poses the difficult problems to reconstruction. The scar contracture of the nasal tip, infratip and lobule need more major reconstruction than using the composite graft. The paramedian forehead flap is the flap of choice. For the larger defect and/or the forehead flap is not available, the radial forearm free flap is the alternation.

Materials and Methods: Retrospective evaluation of nose reconstruction in burn patients at Songklanagarind Hospital was reviewed. Three patients with facial deformaties from acid burn and thermal burn were treated with total nose reconstruction. The technique of paramedian forehead flaps and radial forearm free flap for total nose reconstruction were presented.

Results and Conclusion: The aesthetic result of total nose reconstruction depends on the optimal timing of surgery, assembling of three layers reconstruction, choice of the flap and reconstruction of the nasal lining, skeletal elements and external cover in one stage. The approach of a staged-procedure is obsolete.

Septoscrotal Flap: One-Stage Repair Technique for Penile Paraffinoma

T Phanomthum, S Meungsombat

Foreign body injection is often attempted in order to increase the circumference of the penis shaft e.g. olive oil, vaseline, penicillin, paraffin, etc. These materials are injected into the penile skin by the patient himself or by the untrained persons who practice medicine fraudulently. The complications usually follow, such as penile deformity, skin necrosis, skin infection, limited erectile function, and the inability to have sexual intercourse. Definitive treatment includes total removal of skin, subcutaneous tissue that infiltrated by the foreign body and soft tissue currettage. The scrotal skin, which has high elasticity, had been used to cover the defect but the operation was divided into two stages. We tried a new technique for one stage septoscrotal flap, that was supplied by septal branch of internal pudendal artery, to provide for raliable and stable coverage. From October 1999 to January 2000, 15 patients with penile paraffinoma had been treated using this septoscrotal flap. All flaps survived completely. The results were successful and without major complications. Septoscrotal neurovascular island flap is effective and reliable for one-stage penile resurfacing.

Syringe High - Vacuum Wound Drainage

A Kruavit

A disposable plastic syringe is used as a high-vacuum wound drainage. This medical device consists of a 50 ml syringe, a plunger of a 20 ml syringe, and a nasogastric tube.

The plunger of the 20 ml syringe is carved at both ends so that it can be fitted in the plunger of the 50 ml syringe. The nasogastric tube is connected between the wound and the 50 ml syringe. Negative pressure in the

hollow barrel of the syringe is created and maintained by blocking its plunger not to be pulled back by the carved plunger of the 20 ml syringe. Negative pressure can be adjusted so that it is high enough to drain the blood and the seroma from the wound. The more distance the plunger being pulled backward, the more negative pressure is created. When the drainage of blood or seroma is full or nearly full, the syringe is disconnected from the nasogastric tube and the blood or the seroma are removed from the hollow barrel. The negative pressure drainage system can then be created again by the same manner.

This technique of using a syringe high-vacuum wound drainae is inexpensive and clinically effective. One set of 50 ml syringe high-vacuum wound drainage costs 39 Baht while one commercially made 50 ml vacuum drainage costs 245 Baht. Furthermore, the disposable syringe and the nasogastric tube can be reused by gas sterilization to make the system more cheaper. This device can also be made by the same technique mentioned above by using a 20 ml syringe and a plunger of a 10 ml syringe for drainage of a small wound.

Microvascular Free Posterior Interosseous Flap and A Comparison with the Distally Based Posterior Interosseous Flap in Reconstruction of the Hand in Leprosy

K Laochaisri, A Cholpan, R Wongtrangkapan, K Kitti-ampon, A Chuangsuwanit, S Muangsombut

The posterior interosseous flap was first introduced by Zancolli and Angrigiani (1985). The posterior interosseous artery is located in the intermuscular septum between the extensor carpi ulnaris and extensor digiti minimi muscles. The posterior interosseous artery is anatomically united through two main anastomoses: one proximal (at the level of the distal border of the supinator muscle) and one distal (at the most distal part of the interosseous space). In the distal part, the posterior interosseous artery joins the anterior interosseous artery to form the distal anastomosis between both. The posterior interosseous flap can be widely used as a reverse flow island flap because it is perfused by anastomoses between the anterior and the posterior interosseous arteries at the level of the wrist. However, the pedicled flap is associated with partial or even complete loss when there is venous congestion. This happens because it depends on retrograde venous drainage. The flap has not gained wide acceptance due to tedious pedicle dissection, absence of distal artery(5%), and venous problems

There were 2 cases of leprosy patients who received paraffin injection to augment first web space of the hand. Case 1 received the distally based flap. Case 2 received microvascular free flap. We found that the distally based flap resulted in significantly prolonged venous congestion compared to the microvascular free flap. Therefore we feel that the microvascular free posterior interosseous flap is more reliable than the distally based posterior interosseous flap in reconstuction of the hand in leprosy

Anatomical Restoration of the Eyebrow in Asian

D Pathomvanich

Introduction: Anatomical location and shape of the eyebrow have not been widely described in the medical literature other than distribution of the hair direction.

Objective: To review the anatomical location, shape and aesthetic pleasing of the eyebrow in the Asian men and women for eyebrow restoration .

Materials and Methods: The eyebrow of 12 men and 10 women were examined with the age range from 20 to 40 yrs. Measurement of the length,width,medial and lateral ends, the height of the brow were as follow. The distant between the medial brow is 2.40 cms in men, 2.48 cms in women. The superomedial end located just at the medial orbital rim.The inferomedial edge is below the rim. The medial end located medial to the medial canthus is 0.6 cm in men and 0.49 cm in women. The apex or the heightest point located between lateral limbus and lateral canthus and about 1 cm above the rim. The lateral end located at the same level of the medial end with some variation. It forms a slope downward on aging. The maximum width is usually at the middle third averaging 1.5 cms in men and 1.19 cms in women. Hair direction points verticle on the most medial end then starts to converge toward the tail in the majority of the patient. The average length is 5.5 cms in men and 5.22 cms in women. These informations is the general guideline when applied to place the anatomic position of the eyebrow for restoration especially in the facial burn and congenital absent of the eyebrow where there are no existing brow as landmark. The shape of the brow are not much difference in reality between men and women. However most women want narrow eyebrow in contrast to men who wants uniform thickness of the whole eyebrow. 21G needles are used to transplant the single hair in very acute angle. During insertion the hair direction is critical in orientation. An average of 100 to 200 single hair were transplanted on each side. Fine hair are chosen to transplant in the medial and lateral ends.

Results: The aesthetic pleasing results were obtained in majority of the patients. However poor hair direction were still the most complaint from the patients. Two to

three sessions are usually needed for patient sastisfaction.

Conclusion: The anatomical location of the Asian eyebrow is located above the rim in contrast to the white that is located just below the rim. The shape and position of the brow can be easily drawn from the described anatomy. Hair replacement is performed in very acute angle using the smallest needle as possible for dense packing and meticulous attention in controlling the hair direction during insertion.

Neoclitoris in Genital Reassignment Surgery

P Tiewtranon, P Chokrungvaranont, S Jindarak, S Wannachamras

Objective: Aesthetic and sensational neoclitoris is highly considered by the male to female patients for Genital Reassignment Surgery. This study is to determine the result of our refined technique of using the glans penis (homologous with the female clitoris) with the neurovascular pedicle to provide the circulation and sensation in the 250 male transexuals.

Mathods: Two hundred and Fifty sensate pedicled neurovascualr glans neoclitorides were reconstructed in the neovaginoplasties during January 1999-December 2000. The age ranged between 18-72 years, the most common ages were between 20-40 years old. Twenty six patients had HIV+, 4 patients had diabetes mellitus under controlled by insulin. Our surgical technique was by excising 8-10 mm of the glans penis and 5 mm of the preoputial skin, with the dorsal vesels and nerves, the Buck's fascia, the tunica albuginea as the pedicle. It was curled over the mons pubis and descended through the tunnel of the skin to form the clitoral column and the glans neoclitoris with the prepuce at designated location above the vulve vestibule and the neourethral opening.

Results: For the imediate result (7-14 days) 94.4 per cent was very pinkish, but it was only 84, 70 and 50 per cent in the patients age group of 50-60 years, 60-70 years and more than 70 years respectively. Hypersensitive clitorides were found in 93.2 per cent; it was 100 per cent in the patients who were less than 40 years. Two out of 4 diabetes mellitus patients clitorides were sensitive. The delayed results (3-27 months) were evaluated in 187 patients. All of the neoclithorides decreased in sizes, less than 4 mm, and 2.6 per cent had completely disappeared. Only one patient had no sensation and flat clitoris. Eighty two had orgasm, 16 per cent had sexual pleusure, 2 per cent had no sexual intercourse. All were satisified except in only one patient.

Conclusions: Our new refined technique of clitoroplasty was very reliable and offered the most satisfaction rate both immediate and delayed in the largest number of patients ever reported. The results were also related to age and systemic diseases, but were not related to HIV positivity.

A Study of Gluteus Maximus Muscle Flaps for Anal Sphincter Reconstruction in Human Soft Cadavers

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Objective: The aim of this study was to study neurovascualr anatomy and length of gluteus maximus flaps created as for anal sphincter reconstruction.

Materials and Methods: Twelve human soft cadavers were used in this study. In each cadaver a proximally based flap of the gluteus maximus muscle was performed on one side and a distally based flap on the other. All flaps were carefully dissected with neurovascular preservation and examined by one surgeon. After placing the dissected flap across the anus, the length of the flap projecting beyond the anus was measured. The differences between such lengths of both types of falps were assessed by student's t-test.

Results: The location of the neurovascular pedicle of the gluteus maximus is constant at about 1 centimeter superior and lateral to ischial tuberosity. The average distances of the proximally based flaps and distally based flaps were 8.08 and 4.50 centimeters (S.D.=0.51 and 0.79), respectively. The average differences was 3.58 centimeters (S.D.=0.51), which was statistically significant with P value < 0.001.

Conclusion: The knowledge of the neurovascular pedicle landmark at 1 centimeter superior and lateral to ischial tuberosity allows quick and safe dissection of the gluteus maximus flap. Results showed that the proximally based flaps were significantly longer than distaly based flaps and that transposition and wrapping around the anus with proximally based flaps were always easily carried out without tension. These findings support the use of unilateral proximally based gluteus maximus flap instead of unilateral or bilateral distally based flap in patients with anal incontinence.

Vacuum-assisted Closure: A Reliable Method to Secures Skin Graft

A Sarovath, C Chartdokmaprai

Objective: The skin grafting procedure is a simple

method for covering the wound. Critical care for survival of the skin graft is to provide appropiate contact between the under surface of the graft and the recipient bed. Either a tie-over bolster dressing or simple open technique may be necessary to secure the graft in place during the period of inoculation and capillary ingrowth that usually takes 2-5 days. However, in some areas such as irregular surface, exudative surface, or the surface subjecting to repeated motion, successful grafting procedure is much more difficult because the collection of fluid from exudate or moving beds that can result in failure or complete loss of the grafts. A tie-over bolster dressing is frequently cumbersome and fails to distribute generalized pressure to the grafts over the beds.

We applied a Vacuum-Assisted Closure (VAC) technique, a cheap local made foam with continuous negative pressure of 100-120 mmHg, to secure the grafts, to prevent fluid collection and to ensure good contact between the grafts and the beds.

Materials and Methods: From October 2000 to February 2001, prospective studies were carried out in 14 consecutive patients (17 wounds). The age range was 2-74 years. Three wounds were on the trunk, 11 were on lower extremities and 3 were on upper extremities including hands. The wounds areas were between 15 cm^2 -300 cm^2. Each wound was covered with skin graft and VAC dressing was applied on the graft for 4-7 days. The grafting areas and the survival areas were measured in all wounds. The wounds were examined every week for three weeks after surgery.

Results: About 90-100 per cent of graft areas survived in all wounds. No complication was detected.

Summary: The VAC dressing over the graft is a reliable technique to secure the graft in different areas. This dressing technique is an alternative treatment to secure the graft, especially in the difficult recipient beds.

PEDIATRIC SURGERY

Ovarian Tumors in Children

S Thepcharoennirund

Between August 1987 and April 2001, eighteen cases of ovarian tumors were operated at the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital. The age varied from 11 months to 14 years. The most common presenting symptom was abdominal pain (67 %). Eight patients were diagnosed to be acute appendicitis before surgery. Ten patients had twisted ovarian tumors. Seventeen patients had a benign ovarian tumor and one had malignant ovarian tumor. Unilateral salpingo-oophorectomy was performed on 16 patients, cystectomy on 2 patients and incidental appendectomy on every patient.

Congenital Diaphragmatic Hernia Improvement of the Survival with the New Concept

M Laohapensang, R Ruantrakool, C Sathornkich

Congenital diaphragmatic hernia (CDH) is one of the most challenging congenital anomalies. Despite advances in critical care, it still has high mortality rate.

From February 1993 to June 1999, our division of Pediatric Surgery changed the trend of treatment of CDH from emergency surgery to preoperative stabilization using hyperventilation technique. We could improve the survival rate in the high risk group of CDH from 0 up to 50 per cent. Half of these patients, who could not tolerate hyperventilation method, still succumbed to pulmonary barotrauma.

From July 1999 to March 2001, we tried to prevent pulmonary barotrauma by the concept of permissive hypercarbia. We found that only one patient could not survive. The other seven patients had successfully preoperative stabilization and survived after the operative repair of the diaphragmatic defects.

Our results show that we can reduce the mortality rate of the high risk group CDH from 12.5 to 50 per cent if we try to prevent pulmonary barotrauma which is the serious side effect of prolonged preoperative stabilization.

Long-Term Results of Surgical Treatment for Hirschsprung's Disease : A Comparitive Study Between Soave-Boley's and Modified Duhamel's Pullthrough Operation

S Patrapinyokul, L Prateepchaikul, A Lim

Objective: To compare short-term and long-term functional results of GIA-stapler assisted Modified Duhamel's pullthrough and Soave-Boley's pullthrough in pediatric patients with Hirschsprung's disease.

Methods and Results: Eighty-five patients with histologically proven Hirschsprung's disease who had been operated on by one of the authors between 1988 and 1999

were retrospectively reviewed. All patients with total colonic aganglionosis and/or other major associated gastrointestinal malformations eg. anorectal malformations, intestinal atresia were excluded from this study.

Before 1994, 45 consecutive patients had Soave-Boley's endorectal pullthrough (SBP) while 40 consecutive patients had GIA assisted Duhamel's pullthrough operation (GDP) since 1994. There is no operative mortality and no significant differences between the two operations regarding age, sex, percentile weight at time of operation, levels of the aganglionic segment, complications and hospitalized days. The SBE group had longer average operative time (p=0.05), needed more frequent blood transfusion (p=0.05), higher incidence of early and late soiling (p=0.05). There were no significant differences in Kelly's score for fecal continence (p=0.05) in the first 6 postoperative months.

Long-term follow up was randomly conducted in 30 GDP patients and 31 SBE patients at 2 years or more after operation. Overall continence scores of both groups were below normal. The GDP group had significantly higher fecal continence score than the SBP and less number of patients with persistent soiling and incontinence (p=0.05). Manometric studies showed higher mean resting internal sphincter pressure, squeeze pressure, ano-rectal pressure differences in SBP than GAD but the percentage of relaxation reflexes between the two groups was comparable. All patients with poor continence had no relaxation reflex.

Conclusion: The short-term results of GIA assisted Duhamel's pullthrough (GDP) and Soave-Boley's pullthrough (SBP) are comparable although SBP requires more blood transfusion and longer operative time than GDP. The GAP group has better long-term fecal continence with less severe incontinence than the SBP group. Some patients still have abnormal recto-anal sphincter reflexes particularly those with poor continence.

Congenital Megacolon: Diagnosis Using Size of Submucosal Nerve Trunk As a Criteria

S Sangkhathat, S Patrapinyokul, K Tatayathikom, W Mitanun

Introduction: Cholinergic hyperinnervation in submucosa of aganglionic segment of Hirschsprung's disease has been described. However, objective measurement of the nerve fibers were insufficiently reported.

Objectives: To study the amount and size of hypertrophic submucosal nerve trunks in the aganglionic segment of Hirschsprung's disease semiquantitatively and evaluate the possibility to use the size as an objective diagnostic criteria.

Materials and Methods: Thirteen specimens of aganglionic segment from Hirschsprung's disease and six specimens of the age-matched controlled subject without colonic innervation disorders were studied with S-100 immunohistochemical technic. The submucosal nerve trunk was counted per ten HPF and measured in width, semiquantitatively. Fiber sizes were stratified into small (<20 microns), medium (20-40 microns), and large (>40 microns). Maximum fiber size in each specimen was also recorded. Comparison of fiber density was done by the unpaired student T-test with statistical significance being set when $p<0.05$.

Results: In the control group, small and medium size submucosal nerve trunks were found discretely, whereas the fibers were increased in number and size in the aganglionic segments. Average density of submucosal nerve trunk in the aganglionic segments and the controls were 12.5 and 3.4 fibers per ten HPF, respectively. The large nerve trunks were detected in 12 of 13 aganglionic specimen and none was detected in the controls. The maximum fiber size in aganglionic segment was 78.2 microns, compared to 24.1 microns in control group. The sensitivity and specificity to set the presence of hypertrophic nerve trunk, larger than 40 microns as a diagnostic criteria for Hirschsprung's disease are 92.3 and 100 per cents, respectively.

Conclusion: Submucosal nerve trunks in the aganglionic segment of Hirschsprung's disease is increased in number and size compared to the age-matched controls. The nerve trunk larger than 40 microns was found only in Hirschsprung's disease group. The data suggest the use of this size as an objective diagnostic criteria, which may be valuable in the rectal suction biopsy specimen.

Key words: Hirschsprung's disease, Enteric nervous system.

What Should be the Minimal Screening Protocol for Associated Urologic Anomalies in Anorectal Malformations?

S Sangkhathat, S Patrapinyokul, K Tatayathikom

Associated anomalies in urological system has been reported around 20-54 percent in infants with anorectal malformations. Although some anomalies may result in permanent renal damage and need to be detected, appropriate screening strategy remains controversial.

Objectives: To study the incidence of associated urologic anomalies in pediatric patients with anorectal malformations and review the effectiveness of each diagnostic tools in the detection of urologic problems. This information is believed to be valuable in directing appropriate urologic screening strategy in this group of

patients.

Designs: Retrospective review

Materials and Methods: Charts and films of pediatric patients underwent definitive surgery for anorectal malformations during April 1988 and April 2001 were retrieved and reviewed regarding types of the anorectal defects, evidence of associated anomalies, clinical evidence of urinary problems and results of investigation including urinalysis, ultrasonography, voiding cystoure-throgrophy (VCUG), intravenous pyelogram and renal isotope scan.

Results: There were 184 patients operated during the thirteen-year period. Sixty eight cases (37.0%) were classified as low (infralevator) type of defects. Five cases were cloaca whereas in 14 patients the types cannot be specified.

Urinalysis was done in all cases. One hundred and four patients (84%) were screened by KUB ultrasonography. VCUG were added in 78 cases (42.4%), 17.6 per cent of cases in low type and 56.8 per cent in non-low type group. Abnormal urologic screening was detected in 43 cases (23.4%) or 14.7 per cent and 28.4 per cent of patients in low type and non-low type group, respectively. Abnormalities detected by ultrasound were hydronephrosis in 19 cases, single kidney in 10 cases, duplex kidneys in 3 cases and 2 cases with crossed ectopia. All upper tract anomalies were confirmed by IVP. VCUG detected 16 cases of vesicoureteric reflux. Marked irregular bladder mucosa with or without diverticulum, suggestive of spastic neurogenic bladder were noted in 9 patients.

Majority of the patients with hydronephrosis found by ultrasound were asymptomatic and had spontaneous resolution after anoplasty procedures, refluxes were detected in only two cases, spastic bladder was associated in three cases. In contrast, in cases with vesicoureteric reflux, ultrasound had detected hydronephrosis and/or hydroureter in only two cases (12%) despite 12 in 16 cases were grade 3 or more. Half of the cases with VUR experienced at least one episode of urinary tract infection during treatment or follow-up period although initial urinalysis were unremarkable in more than sixty percents. Renal scan (DMSA) was done in six patients. Study revealed parenchymal scar in three cases.

Conclusion: Screening for associated urologic anomalies in pediatric patients with anorectal malformations is important because significant anomalies may predispose the child to permanent renal damage. Ultrasonography is non-invasive and accurate tool in evaluating upper urinary tract anomalies but is not sensitive enough to detect vesicoureteric reflux. Cystogram is then necessary, especially in cases with non-low type defects.

Childhood Intussusception : Successful Air Receduction Under Ultrasound Guidance

M Laohapensang, C Sathornkich

Intussusception is a common pediatric surgical emergency. Because of idiopathic origin and no definite leading point, the accepted initial treatment of childhood intussusception is non-operative reduction with barium or air enema. Laparotomy is only indicated in the patients in whom enema reduction proved unsuccessful.

Many studies show that air reduction seems to be associated with fewer complication and highest successful rate, but they need fluoroscopy to visualize the lesions.

We present the results of new method using air reduction under ultrasound guidance to avoid radiation exposure.

From February 2000 to June 2001, five patients, with history of intussusception less than 24 hours, were treated with air reduction under ultrasound guidance. All of the lesions were easily identified and could be reduced successfully without any complication.

Our preliminary results show that this method should be considered for the treatment of childhood intussusception because of the simplicity, safety and no radiation exposure required.

Surgical Treatment for Congenital Duodenal Obstruction

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Thirty-four congenital duodenal obstruction (19 duodenal atresia, 7 duodenal web, 7 annular pancreas and one duodenal stenosis) were surgically treated in Siriraj Hospital between 1990 and 1999. Eleven per cent of duodenal atresia had no bile-stained vomiting. Duodenal web which received web excision and duodenoplasty in 43 per cent of cases, presented with bile-stained vomiting. Duodeno-duodenostomy, duodeno-jejunostomy and web excision with duodenoplasty were performed in 29, 2, and 3 patients respectively. Dudeno-duodenostomy and web excision with duodenoplasty had no difference in the feeding capability. There was no statistically significant difference in duration of TPN, ability to be early fed, post-operative onset of full feeding and hospital stay between diamond-shaped (n=18) and side-to-side (n=11) duodeno-duodensotomy. Although transanastomotic feeding tube (n=4) decreased percentage of TPN requirement and made early feeding possible, the onset of full feeding duration of TPN and hospital stay were not different from those who had no transanastomotic tube (n=30).