

Abstracts

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LAPAROSCOPIC SURGERY

Laparoscopic Adrenalectomy in Asymptomatic Pheochromocytoma

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Background: Laparoscopic adrenalectomy has recently been used for removing a variety of adrenal neoplasm. However, laparoscopic adrenalectomy for pheochromocytoma remains controversial. We report the successful use of a laparoscopic approach for adrenalectomy in a case of asymptomatic pheochromocytoma.

Methods: The record of an asymptomatic pheochromocytoma patient was reviewed for symptoms, laboratory evaluation, localizing techniques, intraoperative hemodynamics, operative approach, pathological condition, and outcome.

Results: A patient with asymptomatic pheochromocytoma associated with high urine VMA but no hypertension was treated by right laparoscopic adrenalectomy. The 38-year-old female patient was referred to us for treatment of an incidentaloma. The diameter of the adrenal tumor was 5.6 cm, urine VMA level was 31.2 mg/mg creatinine (normal level, 1.5-7.0 mg/mg creatinine). Blood pressure was normal. Laparoscopic adrenalectomy was performed, using 3-trocar technique. During the operation, blood pressure rose transiently, and α blocker and sodium nitroprusside were administered. The duration of surgery was 120 minutes, and blood loss was minimal. The patients post operative course was uneventful. She was discharged on the third day after operation.

Conclusions: If the size of asymptomatic pheochromocytoma is not very large, and blood pressure and cardiac function are stable, laparoscopic adrenalectomy is indicated for this type of tumor.

A Randomized Controlled Trial of Laparoscopic Cholecystectomy Using Abdominal Wall Lifting Technique or Tension Pneumoperitoneum in the Treatment of Gallstones

T Tanprayoon, S Manusnakorn, C Tanphiphat

Objective: To compare the result of laparoscopic cholecystectomy using either abdominal wall lifting technique or tension pneumoperitoneum.

Design: A randomized controlled clinical trial.

Setting: A university hospital

Patients: Eighty-four patients with gallstone, who passed the eligibility criteria, were randomly allocated to either abdominal wall lifting or tension pneumoperitoneum group.

Outcome Measurements: Success rate, complication rate including cardiac arrhythmia, postoperative pain and costs in patient's and provider's perspectives were evaluated.

Results: Baseline characteristics of the 2 groups were comparable in age sex, associated diseases and history of previous cholecystitis. The clinical results were:

1. The success rate in tension pneumoperitoneum with CO₂ group (TPC) was 95.2 per cent and abdominal wall lifting group (AWL) was 66.7 per cent ($p=0.001$).

2. Operative time in TPC and AWL group was $64.6 \pm$

24.1 and 104.0 ± 32.2 minute, respectively, ($p < 0.001$)

3. Complication rate was equal in both groups (4.8%)

4. Cardiac arrhythmia occurred equally in both groups (9.6%)

5. There was no statistically significant difference in the pain score between the two groups.

6. Costs per successful case in TPC group were less than AWL group in both patient's and provider's perspective.

Conclusion: Tension pneumoperitoneum technique gave better clinical benefits (success rate and operative time) than abdominal wall lifting technique in laparoscopic cholecystectomy. The adverse effects of tension pneumoperitoneum were not higher than the abdominal wall-lifting group.

Laparoscopic Adrenalectomy for Primary Aldosteronism, A New Standard Treatment

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Rationale: Adrenalectomy is the curative treatment of primary aldosteronism and a laparoscopic approach could increase the patients's acceptance and lowers the morbidity. We reported our experience of the first 20 cases of adrenalectomy under laparoscopic procedure since 1995.

Methods: Patients were admitted in the Depts. of Medicine or Surgery. Most were referred with the diagnosis of "hypertension in the young". Adrenal cortical adenoma was suspected when they had weakness of extremities and hypokalemia. Biochemical results, low plasma renin activity and high urine potassium, confirmed the diagnosis. Renal artery stenosis, pheochromocytoma, and Cushing's syndrome were the differential diagnoses. The tumor was localized by using ultrasonography, computerized tomography or magnetic resonance imaging. Spironolactone was the preoperative antihypertensive drug of choice.

Results: We reported the management of 13 females and 7 males. The symptoms that brought them to seek medical care were hypertension and/or headache (60%), weakness (20%), congestive heart failure (5%), hemiplegia (5%), severe pre-eclampsia (5%) and inguinal hernia (5%). All except the last patient were found to have hypertension. Associated cardiovascular abnormality was found in 9 patients (45%). Thirteen patients reported weakness of extremities. Of the 20 cases, 12 adenomas were on the left adrenal gland and 8 were on the right. The mean size of the adenoma was 1.9 ± 0.5 (range 1-3) cm. All were confirmed postoperatively by pathological section to be cortical

adenomas. Removal of tumors under laparoscopy was successful in 18 cases and 2 had to be converted to open laparotomy. The mean surgical time of all cases was 112 ± 50 (range 50-230) min. Deducting the first 5 cases as learning period resulted in a mean surgical time of 91 ± 31 (range 50-165) min. Harmonic scalpel was used in 13 cases. There was no mortality and morbidity. All laparoscopic patients were discharged in the third postoperative day.

Complications During and After Laparoscopic Cholecystectomy

S Panpimanmas, K Kanyaprasit

Background/Aims: All the complications of laparoscopic cholecystectomy, bile duct injury and bile leak are the most serious complications. The purpose of this study is to present our data of incidence of the complications and our experience in the management of complications during and after laparoscopic cholecystectomy.

Materials and Methods: Retrospective study was made in 348 patients, 102 males and 246 females with the mean age of 52 years who underwent laparoscopic cholecystectomies during the period from January 1, 1995 to December 31, 1997 at the Department of Surgery, Rajavithi Hospital, Bangkok, Thailand. All complications were diagnosed and corrected.

Results: The complications included CBD injury in one case (0.29%) then we corrected by conversion to laparotomy with cholecystectomy and Roux-en-Y choledochojejunostomy. One case had cystic duct stump leakage (0.29%) with retained CBD stones. We corrected this by ERCP and endoscopic sphincterotomy and removal of stones. One case had port wound infection (0.29%) which we treated by drainage and antibiotics. All of these yielded satisfactory results.

Conclusion: Bile leak and bile duct injuries after laparoscopic cholecystectomy present a difficult surgical problem. Surgical or endoscopic interventions are needed to correct the biliary problem after the diagnosis was established.

Laparoscopic Hepatic Resection in a Normal Host's TB Liver: A Case Report

S Kornsutthisopon, K Vichitkamthorn

Background: The common manifestation of Mycobacterium tuberculosis is chronic fever and lung infection with bloody sputum cough. Other organs such as liver may be opportunistically infected in an immunocompromised

host, but is very rarely found in a normal host's liver.

Objective: To report a rare case of tuberculosis with only hepatic calcification in a normal host. The definitive diagnosis was obtained from laparoscopic hepatic resection.

Method: A 43-year-old Thai female, 17-year Hong Kong resident just returned to her homeland, had suffered from fever for two months. Her symptoms worsen within the last two weeks and she was treated as pneumonitis by Hong Kong doctors.

During admission, all septic work up included chest X-ray and sputum exam could not explain the etiology of her fever. A large amount of fluid collection was seen under the left lobe of liver by U/S and more details about calcification at superior surface of the left lobe of liver was detected from CT abdomen.

Laparoscopy was performed for the purpose of fluid and calcified liver tissue study. By CO₂ insufflation, using 10 mm optic view port at umbilicus for scope and two 5 mm ports at near right and far left subcostal, massive generalized thin fibrous adhesion was firstly divided. The thin fibrous wall off was opened to drain all of fluid collection. The hepatic resection of 2x2.5 cm calcified mass was completely done under 0 degree scope. However, it would be easier and to gain better view if a 30 degree scope were used.

Furthermore, only evidence from hepatic resection had shown granulomas with Langhans' giant cells. So definitive anti-TB drugs were started.

Conclusion: According to a rare episode of hepatic infection of tuberculosis, laparoscopy is a safe and beneficial diagnostic tool to get not only cytology but also histopathology.

UROLOGY

The Efficiency of Capsaicin in Management of Hyperactive Bladder

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P Tappayuthpijam

Objective: To evaluate the efficiency of capsaicin in the patients with hyperactive bladder.

Materials and Methods: A self control prospective study was conducted in 14 patients with hyperactive bladder. Capsaicin 1 mM/L in 30 per cent ethanol in saline was intravesically instilled in all patients. Capsaicin was extracted from Thai chili by Department of Pharmacy, Faculty of Medicine Siriraj Hospital. The voiding symptoms and urodynamic parameters were evaluated before and one month after intervention.

Results: At one month after capsaicin instillation, the mean frequency of urination decreased from 16.5 ± 4.8 times/day to 8.6 ± 2.4 times/day ($p < 0.001$), the mean frequency of urinary leakage decreased from 9.6 ± 8.1 times/day to 2.4 ± 4.3 times/day ($p = 0.007$), the mean maximal bladder capacity increased from 160.8 ± 123.3 ml to 236.9 ± 146.0 ml ($p = 0.026$), and the mean detrusor pressure at maximal bladder capacity decreased from 71.0 ± 29.2 cm H₂O to 57.3 ± 27.2 cm H₂O ($p = 0.034$). The cost of one capsaicin instillation was approximately 250 Baht.

Conclusion: Intravesical capsaicin significantly improves both clinical and urodynamic evaluations in the patients with hyperactive bladder. Thus, capsaicin should

be a good option treatment for Thai patients in regard to high efficiency and cost effectiveness.

Pathologic Features of Harvested Kidneys in Living Donors of Rabbits

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P Lertsitthichai

Objective:

1. To study gross pathology of renal grafts in rabbit model after adequate preservation.

2. To assess the association of gross renal pathology and marker of ischemia (areas of hypoperfusion, surface mottling, visible clots red streak sign, and warm ischemic time) with histologic ischemia (tubular injury and presence of glomerular RBC's) in the rabbit model.

Methods: Six rabbits (Wt. 1.8 - 2.5 Kgs) were harvested for their kidneys under general anesthesia with standard operative procurement. Collin's base solution was perfused through aorta until effusate via IVC was clear. The renal grafts were meticulously inspected for abnormal finding including intravascular clotted blood, hypoperfused area of red streak on surface and cut-section appearance. The kidneys were marked and sampled (both normal and hypoperfused areas), then sent to pathologist for blind histologic gradings. The pathological reports were in terms of renal tubular injury grades and glomerular RBC retention grades. Data were pooled for statistical analysis.

Data was analyzed for significant gross ischemic pathology/markers associated with each type of histologic ischemia separately, using stepwise multiple linear regression, and also analyzed for significant factors associated with both types of histologic ischemia together, using canonical correlation analysis.

Results: Of 10 kidneys (from 6 rabbits) 9 were found to have gross pathologic changes (5 with surface within) 6 with presence of clotted blood, 7 with hypoperfused areas, and 7 with red streak areas).

Areas of hypoperfusion, surface mottling, and visible clots were significantly related to the histology of tubular injury [coefficients (p-value) of 0.64 (0.01), 0.46 (0.01) and 0.52 (0.02) respectively], while only hypoperfusion and warm ischemic time were associated with presence of glomerular RBC's [coefficients (p-value) of 0.73 (0.00) and 0.90 (0.00) respectively]. Canonical analysis revealed that all 4 factors above were associated with both tubular injury and presence of glomerular RBC, together, with the most important factors being the presence of areas of hypoperfusion and surface mottling. Red streak sign was not an important factor in all analyses.

Conclusion: Despite adequate preservation, there were abnormal gross pathologies inspected. Four gross pathology/markers (hypoperfusion, mottling, visible clots and warm ischemic time) were significantly associated with histologic ischemia, the most important factors being presence of areas of hypoperfusion and surface mottling.

Male Erectile Dysfunction

WJG Hellstrom

Introduction: Issues regarding sexual dysfunction and therapies for improved erectile function have pervaded civilizations since antiquity. Sexual dysfunction is prevalent (52% of men 40 to 70 years of age in the United States are estimated to have some degree of impotence) and this can affect a couple's quality of life.

With pervasive media coverage most people are aware of the subject of erectile dysfunction (ED) and about many of the available therapies. Patients and partners need to have realistic expectations and also need to know what treatment will not do, such as improving orgasms, make a penis larger, and treat other dysfunctions. They must be cautioned that a specific treatment will not work all the time and may have some adverse effects. Also, patients and partners need to know that rectifying erectile dysfunction will not necessarily improve their marriage, and that solving sexual problems may actually add stress to a relationship.

Hence, an astute clinician may implement counselling and/or sex therapy when the situation warrants such intervention.

Treatments to be covered in this presentation include oral medications, transurethral medications, intracavernosal injections (ICI), vacuum constriction devices (VCDs), penile implants, and future innovations.

Oral Medication: The use of an oral pill such as panacea to cure all troubles is deeply ingrained into people's minds and is understandably promoted by the pharmaceutical industry. The importance of the placebo effect when using an oral medication can best be exemplified by earlier studies using these agents, as the treatment and placebo arms commonly registered approximately 30 per cent efficacy rates. The recent introduction of sildenafil (Viagra) has changed the way clinicians have dealt with erectile dysfunction (ED) and the perceptions that men afflicted with this problem approach it.

Smooth muscle relaxation is mediated by nitric oxide released from nerve endings following sexual stimulation. Nitric oxide stimulates guanylate cyclase, a cytosolic enzyme, to produce cGMP, which decreases intracellular calcium, allowing smooth muscle relaxation in the penis. Phosphodiesterase (PDE) catalyzes the conversion of cGMP to GMP. The main PDE activity in the human corpora cavernosa is due to PDE type 5. Sildenafil citrate inhibits the action of the phosphodiesterase 5 (PDE5) isoenzyme, thereby allowing cGMP to continue its action of relaxing smooth muscles. This PDE inhibitory mechanism enhances penile erection, but importantly, only during sexual stimulation.

A recent study found a significant dose-response relationship for sildenafil in the proportion of men achieving erections firm enough for intercourse. The efficacy of sildenafil was approximately 70 per cent overall, and was significantly more effective than placebo for all etiologies. Of interest, sildenafil demonstrated greater efficacy with spinal cord injury and TURP impotent patients, compared to radical prostatectomy and diabetic impotent patients. Further investigation in this area is warranted.

Adverse effects (vs. placebo), include headaches (16% vs. 4.7%), flushing (10% vs. 1%), dysphagia (7% vs. 2%), nasal congestion (4% vs. 2%), and visual effects (3% vs. 0%). The incidence of side effects is dose-related.

Because sildenafil has been shown to potentiate the hypotensive effects of nitrates, its administration in patients taking any form of nitrate is absolutely contraindicated. Nitrates include nitroglycerin, isosorbide mononitrate, isosorbide dinitrate, erythrityl tetranitrate, pentaerythritol tetranitrate, and sodium nitroprusside.

As of April 1999, 450 deaths have been associated with

sildenafil. A cause-effect relationship of death to sildenafil has not been established, however, clinicians need to pay close attention to such developments in the future.

Investigational oral agents about to apply for FDA approval, include apomorphine SL (Uprima) and phentolamine (Vasomax). Apomorphine is a centrally acting agent that is believed to act through a dopaminergic mechanism in the mid-brain. Controlled sublingual administration has been recently evaluated in a phase III study of 457 men with erectile dysfunction with no major organic component. Apomorphine was found to be significantly better than placebo in causing an erection firm enough for intercourse. The major adverse event was nausea.

Phentolamine mesylate (Vasomax), a non-specific alpha blocker, theoretically allows erections to occur by counteracting sympathetic tone thereby relaxing smooth muscle and dilating arteries. A double-blind, placebo controlled study of more than 400 men with minimal erectile dysfunction found the following responses: 37 per cent at 40 mg and 45 per cent at 80 mg vs 16 per cent with placebo. Side effects included headaches, facial flushing, and nasal congestion.

Minimally Invasive Therapies: With transurethral treatment, a medicated pellet of alprostadil (PGE_1), is inserted intraurethrally by a thin plastic applicator following urination. The alprostadil (PGE_1) relaxes smooth muscles and dilates arteries. Success rates for transurethral alprostadil have varied; however, in the largest series to date, 65 per cent of pre-selected patients (43% overall) had erections sufficient for intercourse (vs. 19% with placebo). Efficacy was similar in different age groups, and with varying etiologies of erectile dysfunction. The most common side effect was penile discomfort (32%), urethral bruising (12%), and urethral abrasions causing bleeding/spotting (5%). There were no cases of urethral strictures or priapism with this agent. Because of symptomatic hypotension (3%), dizziness (4%), and syncope (0.4%), patients are advised to give their first application in the doctor's office, and use the lowest effective dose. The recent innovation of the "Actis" constriction ring to entrap medication within the corporal bodies for a longer duration has shown improved efficacy.

In a recent study of 221 patients who failed to respond to sildenafil or had a side effect of sildenafil therapy resulting in discontinuation, were enrolled in 62 sites in a postmarketing study. Patients were administered 1 or 2 doses of transurethral alprostadil in clinic, and the erection was judged by the investigator and patient as to whether it was sufficient for sexual intercourse. Of the 221 patients, 14 (6%) rated their erectile dysfunction as mild, 100 (45%) as moderate, and 107 (48%) as complete. The mean age

was 63 (range 30-91). Overall 125/221 (57%) of the patients achieved an erection sufficient for intercourse with transurethral alprostadil in clinic. Of the 125 successful patients, 34 used the ACTIS[®] constriction band. Doses of 500 or 1000 mcg of MUSE[®] were required by most (>70%) of the successful patients. These data indicate that MUSE[®] (alprostadil) was well tolerated and can effectively produce erections in many men who are unresponsive to or cannot tolerate Viagra (sildenafil).

Alprostadil (PGE_1), papaverine, and phentolamine either alone or in combination can be injected into the corpora cavernosa to induce smooth muscle relaxation and increase blood flow into the penis. Intracavernosal injection (ICI) therapy has been found to be effective in the treatment of erectile dysfunction of various etiologies, including neurogenic, vasculogenic, psychogenic, and hypogonadal cases, with an overall efficacy of satisfactory intercourse in 87 per cent. Adverse effects include penile pain (37%), prolonged erection (4%), penile fibrosis (3%), hematoma (4%), and ecchymosis (3%).

Because of the concern about priapism and the possible need for its management, most generalist will refer such patients to urologists. Contraindications include sickle cell disease, multiple myeloma, leukemia, penile deformity, concomitant MAO inhibitor administration, non-compliant patients and in untrustworthy alcoholics and drug addicts.

Vacuum constriction devices (VCD's) have been a mainstay for many decades. They have an initial success rate of 80 to 90 per cent, however, approximately 25 to 40 per cent of patients drop out by the end of the first year. VCD's are effective with both organic and psychogenic erectile dysfunction, and this form of treatment is entirely reversible.

A VCD is placed around the non-erect penis and a vacuum pump then empties the cylinder of air and pulls blood into the penis. A tension ring is slipped around the base of the penis to maintain rigidity for no longer than 30 minutes to prevent ischemic damage. Important criteria for VCD use are a certain degree of manual dexterity with the device and a compliant and understanding partner. Relative exclusions are in men with a tendency toward priapism (sickle cell disease and polycythemia), patients on anticoagulation medications, and those with significant anatomical deformities (Peyronie's disease).

Surgical Therapy: Penile prostheses are an effective and appropriate therapy for men with erectile dysfunction in whom other less invasive therapies have failed or are found not to be suitable. Also, patients with significant anatomical deformities, such as Peyronie's disease, may need an implant at the time of a surgical straightening

procedure.

Penile implants can be either malleable or inflatable. Malleable or semi-rigid devices are always firm or erect and are indicated in men who have a physical condition that limits manual dexterity. Inflatable or hydraulic devices consist of three basic components: reservoir, pump, and cylinders. Using the pump, the patients squeeze a saline solution from the reservoir into the cylinders to cause an erection. The main advantages of the inflatable device are concealability and the ability to expand in girth to provide ample rigidity.

The surgical implantation of prostheses are low-morbidity, have a negligible complication rate, and are associated with high satisfaction for both patient and partner. Disadvantages include the need for overnight hospitalization, the risks of surgery with anesthesia, irreversibility, the chance of infection, and the possibility of mechanical device dysfunction requiring revision surgery.

Conclusion: There are a number of therapies (old, new, and on the horizon) that should enable practically every man suffering from impotency to gain his erectile function back. It is important that the physician who first evaluates a man with erectile dysfunction to do so in an empathetic and knowledgeable manner, and to appreciate that when the oral or lesser invasive therapies are not effective, that such patients should be referred for appropriate yet successful treatment.

Evaluation of Transurethral Alprostadil for Safety and Efficacy in Men with Erectile Dysfunction

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A multicenter study was conducted to evaluate the safety and efficacy of transurethral alprostadil (MUSE) in 90 subjects with erectile dysfunction who were recruited in 5 trial centers. Transurethral alprostadil was titrated in a stepwise fashion in clinic from 250 to 500 to 1000 mg based on erectile response and tolerability. The erectile response were evaluated with an Erection Assessment Scale (score 1-5). The dose that produced a maximal penile response of score 5 (full rigidity) or 4 (erection sufficient for intercourse) was selected for home treatment.

In-clinic titration phase: Of the 90 subjects entered, 12 dropped out due to reasons unrelated to efficacy of MUSE. The remaining 78 patients completed in-clinic titration. Of these, 60 men (76.92%) had penile responses of score 4 or 5. Home treatment phase: from 60 subjects, 7 lost to follow up, of 53 men had at least one successful

intercourse in 3 months home treatment in 66.67 per cent. Adverse events: During home treatment phase, 5 patients withdraw due to adverse event and 13 patients experienced with penile pain. No severe adverse events were reported.

In conclusion, transurethral alprostadil is an efficacious and safe treatment of erectile dysfunction in men. The efficacy in Thai population is comparable to that reported previously in Europe.

A Case Report of Laparoscopic Orchiopexy

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There has been a number of different approaches in the management of nonpalpable testis. The Laparoscopic Orchiopexy has become widely used in cases of intra-abdominal testis since 1996. A case report using this technique in an 11 years old boy with right undescended testis will be presented.

The laparoscopic working sheath was inserted through a small sub-umbilical wound. The intra-abdominal testis was found close to the left inguinal ring. After inserting a 10 mm trocar in the RLQ and another 5 mm trocar in the LLQ of the abdomen, the testicular vessels were dissected free in their entire length. The scrotum was then opened for dilatation of inguinal canal using ballooned Foley's catheter. The testis was next mobilized into the scrotum for orchiopexy.

The patient was discharged from the hospital on the second post operative day without requiring analgesics.

At 3 months follow-up, there was neither testicular atrophy nor inguinal hernia and the boy is doing well.

Complete Penile Disassembly Technique for Epispadias Repair

P Sujijantararat

Purpose: To improve cosmetic outcome of epispadias repair.

Patients and Methods: The technique involves complete disassembly of epispadiac phallus into 3 parts: the urethral plate, right and left hemicorporeal glandular bodies. Urethral plate is tubularized and brought ventrally. Two hemicorporeal glandular bodies are medially rotated and approximated together over the tubularized urethral plate. Two boys underwent this new technique at 7 and 11 years old. The first case was peno-pubic epispadias. The second was exstrophy bladder who had functional bladder closure at birth.

Results: Follow up at 3 years and 1 year respectively revealed favourable cosmetic outcome in both cases, with conical glands and ventrally situated external meatus.

Conclusions: This new technique does improve cosmetic result of epispadias repair.

Endoscopic Treatment of Benign Ureteral Strictures

B Lojanapiwat, S Soonthornpun, S Wudhikarn

Advances in endourology have provided the urological surgeon with an alternative to open surgery for the treatment of benign ureteral stricture.

Twenty-three benign ureteral strictures in 20 patients were treated by endourological method: 11 endoureterotomies using cold knife via Storz ureteroscope 9.5 Fr and 12 high-pressure balloon dilation were performed. The ureters were stented with 7 Fr double J stent for 6 weeks.

The success rate was 8/11 (72%) in endoureterotomy group and 7/12 (58%) in balloon dilation group after follow up of more than 6 months.

Endoscopic treatment is an acceptable initial treatment for benign ureteral stricture with 65 per cent success rate.

Epidemiology Study of Erectile Dysfunction in Thai Men

A Kongkanand, D Teenuuanviwat, S Sethapongkul, A Sirunraks

Research in erectile dysfunction (ED) is dynamic and plentiful in developed countries, especially in the U.S. However, little is known about erectile dysfunction in Thailand. This study attempts to increase understanding of erectile dysfunction by estimating prevalence, identifying risk factors, examining consequences, as well as analyzing counselling and health seeking care. The study of population comprises a nationwide representative sample of 1,250 Thai men, aged between 40 and 70 years, in urban areas. A stratified random sample is used to select target men from 9 provinces - Bangkok Metropolis, Chiang Mai, Kampheng Phet, Chon Buri, Chanthaburi, Surat Thani, Trang, Khon Kaen and Chaiyaphum. Data are collected by personal interviews conducting at the houses of the individuals by trained staff. Statistical method includes distributions, cross tabulations, chisquare analysis and logistic regression analysis. The estimated overall prevalence of ED is 37.5 per cent. The prevalence rate is found to increase with age. Of all four regions together with Bangkok metropolis, the latter has the lowest prevalence while the North has the highest level. Results of this study

indicate that ED is mostly caused by organic abnormality, partially caused by psychogenic condition. Illnesses concerning a blood circulation such as diabetes, heart disease and hypertension are the strongest effect on ED. Bothersomeness of urinary symptoms and level of depression are also positively related to ED. For unhealthy behaviors, smoking has an indirect effect on ED through vascular diseases, while exercise can directly enhanced erectile function that appear to be compatible with respondents' belief. In addition, ED's experiences also differ greatly with individual socioeconomic status. Income is a significantly important factor determining ED. Sexual activity both actual behaviors and subjective phenomena substantially decline by degree of ED. Less than one percent of them seek care for ED. Elderly persons from low socioeconomic status hesitate to discuss ED, feel uncomfortable but in the higher educated groups tend to discuss and rather believe in treatment.

High-Flow Priapism: Diagnosis and Management: A Case Report

K Tangjitramaneesakda, S Leewansangtong, W Chaiyasoot

A 34 year-old man presented with painless and persistent erection one day after perineal injury from motorcycle accident. He had the persistent erection for 20 days before admission. Cavernous blood gas showed a high level of PaO₂ and a low level PaCO₂ which were similar to those of the artery. This indicated a high flow priapism. The arteriocavernous fistula was demonstrated by both a perineal duplex, doppler ultrasonography and an internal pudendal arteriography. The selective embolization was performed at the left internal pudendal artery with gelfoam particles. Detumescence was gradually presented within 10 days after treatment. Three weeks after embolization, no arteriocavernous fistula was detected.

Diagnosis of Prostatic Carcinoma in Rajvithi Hospital: The Yield of Serum Prostatic Specific Antigen, Digital Rectal Examination, and Transrectal Ultrasound

S Tangpitaggul, V Chunhachai, D Augkarasagul, S Pumpisamchai, V Gitang

Three tests are commonly used to diagnose prostate carcinoma to date: serum prostatic specific antigen (PSA), digital rectal examination (DRE) and transrectal ultrasound (TRUS). We evaluated these 3 tests in 51 patients with 6-sector prostate needle biopsy to rule out prostate carcinoma. Of the biopsies 17 (31.48%) revealed prostate cancer. As

a single test, digital rectal examination was superior to PSA to reveal prostatic carcinoma (9.80% versus 5.88%). Combination of digital rectal examination and PSA revealed 9 (17.64%) patients of prostatic cancer. There were 3 patients with Prostatic Intraepithelial Neoplasia but none revealed prostatic cancer (follow up 16, 13, 13 months). We concluded that DRE plus PSA was superior to DRE or PSA alone to detect prostatic carcinoma. Hypoechoic lesion revealed in TRUS was not specific for prostatic carcinoma. Systemic sextant biopsy technique should be employed.

Five-year Follow-up of 95 Patients with Prostate Cancer in Siriraj Hospital

S Leewansangtong, C Nualyong, S Soontrapa, T Bhanalaph, A Tantiwong

Objective: To determine the clinical features, tumor characteristics, and treatment outcomes of prostate cancer.

Materials and Methods: We retrospectively evaluated the clinical features, tumor characteristics, and treatment outcomes of 95 patients who newly registered in Siriraj Hospital from 1993 to 1995. A survival end point in each stage was determined.

Results: The mean age was 72.37 years. The distributions of stage are 7.5 per cent for stage A, 1.1 per cent for stage B, 67.7 per cent for stage C, and 23.7 per cent for stage D. The prognosis of a clinical localized disease appeared very well. Most patients with a urinary symptom were highly associated with a stage C or a stage D disease and were treated by hormonal therapy. With a maximal follow-up of 60 months, the median survivals of stage C and D patients were 45 and 12 months, respectively. The combined androgen blockage failed to demonstrate the survival benefit of metastatic disease.

Conclusion: Most Thai patients with prostate cancer were older than the life expectation age of Thai men. Among the patients with localized disease, their treatment outcomes were good. The patients who presented with the urinary symptom had the locally advanced or the advanced disease. With hormonal treatment, their prognoses were not impressive.

retrospective study was carried out by reviewing patients' records between June 1994 - May 1999.

There were totally 12 cases in the study with the patients' age ranged between 51 - 72 years (mean = 64). Preoperative PSA were obtained in 11 cases with the value ranged between 1.9 - 41.5 ng/ml (mean = 17.9). The histology proved for cancer were obtained by TRUS + biopsy and TUR-P in 50 per cent of each methods. The preoperative clinical stages were stratified as T1 and T2 stage in 50 per cent of each stages. The operative time ranged between 150 - 210 min (mean = 189) and the operative blood loss were 800 - 2,500 ml (mean = 1,158). Blood transfusions were required in 11 of 12 cases with the amount ranged between 1-6 units (mean = 2.6). Apart from bleeding there was no major perioperative morbidity. The pathological stages were T1N0M0, T2N0M0, T3N0M0 and T3N1M0 in 41.7, 33.3, 16.7 and 8.3 per cent respectively. There was no overstaging but understaging was found in 4 cases (33.3%) and pathological positive margin were encountered in 2 cases (16.7%). Urinary incontinence were experienced in the first two weeks postoperatively and gradually improved to totally continence in one month in all cases. The follow-up period ranged from 2 - 33 months (mean = 11.8).

In conclusion, radical prostatectomy is safe for localised prostate cancer in this early experience in Siriraj Hospital. However, bleeding complication and preoperative understage are still of great concerns.

Fournier's Gangrene

S Nampradit, C Nualyong

Objectives: Fournier's gangrene has been originally described as abrupt onset and rapid progression of the perineal infection without definite cause. However, the less abrupt onset and the definite cause of the disease can be identified in many cases presently. Therefore, this study was conducted to reidentify the epidemiology, methods of treatments and the outcome.

Patients and Methods: Retrospective study was carried out by reviewing the patient's records between 1988 - 1998 and several parameters were analysed.

Results: There were totally 16 patients diagnosed Fournier's gangrene with an age range from 29 to 74 years (mean 43). The definite causes were as follows: urological cause in 4 cases, anorectal cause in 5 cases, cutaneous infection in 3 cases, perineal trauma in 1 case and unknown cause in 3 cases. Diabetes was still the major associated disease. The methods of treatments consisted of debridement, broad spectrum antibiotics administration

Radical Prostatectomy in Localised Prostate Cancer: Siriraj Experience

C Nualyong, A Tantiwong, S Soontrapa, S Leewansangton

To identify the initial result of treatment of localised prostate cancer by radical retropubic prostatectomy, this

and surgical reconstruction. The mortality was 12.5 per cent (2/16) which was lower comparing to many reports. The BUN value may be the important prognostic factor of this disease.

Conclusion: Fournier's gangrene is a rare disease with a significant figure of morbidity and mortality.

Studer Neobladder: Preliminary Experience in Thailand

C Leenanupunth, W Kochakarn, K Ratana-olarn

Purpose: We reported the results of the ileal low pressure bladder substitute combined with an afferent tubular isoperistaltic segment (Studer Neobladder) is our institution.

Materials and Methods: Between April 1996 and April 1999, 18 men with invasive bladder cancer who had to undergo radical cystoprostatectomy had Studer Neobladder for orthotopic bladder substitute. We followed and analyzed the complications, mortality and morbidity, metabolic changes and functional results.

Results: The median followup of the patients was 12 months (range 2 - 36). The functional bladder substitute capacity increased with time, the average being 450 ml after 6 months. After one year 90 per cent of the patients were continent by day and 70 per cent were continent at night. Three patients died from metastatic diseases. Two patients had tumor recurrence in the urethra. No significant upper tract deterioration was found. Serum electrolytes, BUN and creatinine were not significantly changed.

Conclusions: Studer Neobladder is appropriate for orthotopic bladder substitute after radical cystoprostatectomy in selected patients. Many advantages of the operation should make the procedure a method of choice in the neobladder era.

The Efficiency of Adjuvant Immunotherapy with Intravesical BCG for Superficial Bladder Cancer

T Luangon, S Leewansangtong, S Soontrapra, T Bhanalaph

Objective: To evaluate the efficiency of intravesical BCG for transitional cell carcinoma in the superficial bladder cancer patients.

Materials and Methods: A retrospective study was conducted in 20 patients with transitional cell carcinoma grade 2, stage A. Intravesical BCG was instilled in all patients. Of 20 patients, 14 were instilled at the recurrent episode and 6 were instilled immediately. The recurrent rate and the risk of recurrence were compared among the cohort groups of 14 patients before BCG instillation (cohort

A1), 14 patients after BCG instillation (cohort A2) and 6 patients with immediate BCG instillation (cohort B)

Results:

	Cohort A ₁	Cohort A ₂	Cohort B
Mean recurrent rate per year	0.68	0.37	0.23
Mean time of first recurrent episode (months)	15.3	25.3	30

The risks of recurrent parameters in the patients with BCG instillation at the recurrent episode were lower than the patients without BCG instillation. The risks in the patient with immediate BCG installation is lowest. However, these were not statistically significant different.

The relative risk of recurrent in cohort A₂ compared with cohort A₁ at first, second, third and fourth years were 0.5, 0.36, 0.09 and 0.5, respectively.

Conclusion: Intravesical BCG appears to decrease the risk of recurrence in the superficial bladder cancer patients. However, it could not achieve statistical significance.

The First Experience in Percutaneous Nephrolithotomy Through an Intercostal Approach

D Akarasakul

Seven patients underwent percutaneous nephrolithotomy through a nephrostomy tract placed over the 12th rib at Rajavithi Hospital during January 1997-January 1999. All procedures were accomplished as a single stage access in a standard operating room and used C-arm as guide to access tract. The ultrasonic lithotripsy was operated to break the calculi. 3/7 patients suffered postoperative complications. 1/7 patients had a residual calculi. 6/7 patients had stone free (less than 3 months). The intercostal approach for PCNL was an easy technique, but some more experiences are needed for lessening the complications.

Percutaneous Nephrolithotomy for Renal and Upper Ureteric Calculi

C Nualyong, S Leewansangtong, T Taweemonkongsap

Objectives: This study was to evaluate our experience of percutaneous nephrolithotomy (PCNL) for the treatment of renal and upper ureteric calculi.

Patients and Methods: Between July 1994 and May 1999, 100 patients underwent PCNL in Siriraj Hospital and data were recorded in an already designed case-record form. We evaluated the outcome of PCNL by reviewing

these case-record forms.

Results: Seven of 100 cases (7%) failed technically and were excluded from the analysis. For the 93 successful cases (65 males, 28 females) the age ranged from 18 to 73 years (mean 45.6 ± 13.3). Types of calculi were staghorn stone, renal pelvis stone, multiple stones, calyceal stone and upper ureteric stone in 25/93 (26.9%), 34/93 (36.6%), 15/93 (16.1%) and 7/93 (7.5%) cases respectively. The stone surface area ranged from 0.7 to 17 cm² (mean 5.3 ± 3.7). The renal accesses were done under fluoroscopic control in all cases. The sites of access were the upper calyx in 64/93 cases (68.8%) which were supracostal puncture in 37/93 cases (39.8%). The number of tract accesses required were 1, 2 and 3 tracts in 69/93 (74.2%), 18/93 (19.4%) and 6/93 (6.5%) cases respectively. The overall stone free rate was achieved in 68/93 (73.1%) cases and size of residual stones were ranged from 0.5 to 9 cm² (mean 1.9 ± 2). The overall complication rate was 32.3% (30/93) and bleeding was the most common which occurred in 22/93 (23.7%) cases. The most serious complication was arterio-venous fistula which occurred in 4 cases (4.3%) and could be managed successfully by embolisation. Pneumothorax occurred in only 2 cases (2.2%). Analgesic injections for postoperative pain were required in 56/93 (60.2%). Postoperative hospital stay ranged from 3 to 28 days (mean 8.7 ± 5.2).

Conclusion: PCNL is a safe and effective method of treatment for renal and upper ureteric stone with minimal discomfort postoperatively.

Laparoscopic Nephrectomy: An Early Experience at the Police General Hospital

S Patcharatrakul, A Tharnpipit, A Santingamkun, A Montamara, R Hakeem, C Pruksapong, W Wachirapunyanukul

Objective: To report the immediate outcome of transabdominal laparoscopic nephrectomy at the Police General Hospital.

Patients and Methods: Between July 1997 to March 1999, transabdominal laparoscopic nephrectomy was performed in 12 patients, 8 males and 4 females, age between 22 - 72 years old (mean 46 years). All had non-functioning kidney of benign nature.

Results: The laparoscopic nephrectomy was successful in 9 patients with one conversion due to unclear anatomy. The other two cases were classified as laparoscopic -assisted nephrectomy. The duration of procedure ranged from 50 minutes to 3.40 hrs. (mean 2.56 hrs.). Postoperative hospital stay was 4-8 days (mean 5.6 days) and the analgesic

requirement (IM pethidine) was 0-150 mg (mean 43 mg). Most patients resumed oral fluid in the first postoperative day and were ambulatory in 1-3 days (mean 2 days).

There were no operative death and only minor complications were encountered of which 2 had superficial wound infection and 2 had prolonged postoperative fever (≥ 3 days).

Conclusion: Transabdominal laparoscopic nephrectomy for benign renal condition is considered safe and applicable with encouraging result.

PSA, Free/Total PSA RATIO, DRE, Relatively Involving Decision for Ultrasonic Guided Prostate Biopsy for Prostate Cancer Detection

P Boonyapanichskul, M Huntrakul, S Chalachiva

During the period of 5 months from December 1998 to May 1999, 103 patients who came for medical check up with or without lower urinary tract symptoms (LUTS) had blood PSA and free PSA checked together with digital examination (DRE). Thirty eight cases were found to have high PSA (over 4 ng/ml). Free/Total PSA were also calculated. Digital rectal exam (DRE) in all cases were negative for nodule. Patients who had LUTS of Prostates with high PSA level were followed up during Maxaquin administration for 6 weeks. The patients who still had elevated PSA over 4 ng/ml after treatment course were advised for ultrasonic guided prostate biopsy. All patients who had elevated PSA without LUTS were advised for prostate biopsy at the beginning. Seventeen cases had prostate biopsy under above mentioned criteria. Transrectal ultrasonic guided with color doppler application were used in all biopsy cases and at least 12 cores were obtained using routine sextant plus laterally placed and mid portion random biopsy. Positive biopsy for cancer were found in 6 cases. Of the 11 negative biopsy, focal PIN I was found in one case, chronic prostatitis was found in 4 cases and the rest were reported only benign hyperplasia.

Of the six biopsy positive cases, 5 were found to have F/T PSA ratio below 15 per cent thus giving false negative prediction in 17 per cent when using F/T PSA cut off ratio at 15 per cent. Of the negative biopsy case two were found to have F/T PSA ratio below 15 per cent thus giving false positive prediction at 18 per cent.

We conclude that by using high PSA, together with F/T PSA ratio cut off at 15 per cent to predict and select patient for prostate biopsy in negative DRE patient can give us considerable accuracy in diagnosing prostate cancer and economically reduces unnecessary prostate biopsy cases.

PEDIATRIC SURGERY

Factors Influencing the Outcome of Gastroschisis

S Saranritthichai

Gastroschisis is one of congenital anomalies. It has a paraumbilical abdominal wall defect. We do not know the real prevalence of this disease in Thailand. But there seem to be high and the mortality rate is also still high.

Objective of the study:

- to determine baseline data and the mortality rate of this disease.
- to determine the potential factors that might effect the outcome.

Research Design: Cross-sectional study.

Materials and Methods: Retrospective data was collected from patient collecting data forms and medical charts of 103 newborns with gastroschisis who were treated in Khon Kaen Hospital during July 1, 1991 to June 30, 1997 (6 years period). All of these patients were treated by one surgeon and followed up for 2-8 years. Univariate and multivariate analysis were used for data analysis.

Results: In 103 cases, Boy: Girl = 1.15:1, Mother's age equal and less than 21 years was 70 per cent. Most of cases were products of normal labour (97.1%). Birth weight ranged from 1000-3600 grams. Most of them were under 2500 grams (73.8%). Size of defect equal and less than 3 cms in 91.3 per cent, and 53.3 per cent had viscera bacterial contamination. Time before operation was 2 to 48 hours. Only 32 per cent were operated before 6 hours. Four cases were transferred from other hospital beyond 24 hours after birth, and 98.1 per cent had no retained nasogastric tube before transfer. Thirteen cases (12.6%) had associated anomalies (excluding malrotation). There were 2 perforation of stomach, 3 jejunal atresia, 3 ileal atresia, 2 colonic atresia, 1 subglottic stenosis and 1 undescended testis. Primary closure was performed in 32 cases (31.1%) and the other 71 cases (68.9%) were closed by staged repair procedure of which 92.2 per cent complete closure could be achieved in 7 days. The most common early complication was wound infection (19.4%) and the late complication was gut obstruction due to adhesion in 4 cases. Mortality rate was 20.4 per cent. Birth weight, prematurity, time before operation, size of defect, viscera contamination and operative procedure were not related to mortality except associated anomalies were the factors influencing mortality ($p = 0.01$).

Conclusion: Although from this study associated anomalies were the significant factors that effected the outcome of gastroschisis, prompt and proper management,

such as preparation for transfer, preoperative management, operative procedure decision, and postoperative management are important for better survival of this disease.

Umbilical Incision: A New Approach for Pyloromyotomy

S Chittmittrapap

Objective: To introduce a new approach for Pyloromyotomy, curative operation for hypertrophic pyloric stenosis.

Patients and Methods: Between July 1997 and May 1999, six infants underwent Ramstedt's pyloromyotomy using the umbilical incision.

Results: The average operating time was 48 minutes. Including inversion appendectomy, the average hospital stay was 3 days. There was no morbidity or mortality.

Discussion: The umbilical incision is a new approach for pyloromyotomy in order to achieve cosmetic result, avoiding of the transverse right upper quadrant or upper midline scar.

Reduction Without Extension of the Defect: A New Technique for Primary Closure of Abdominal Wall Defect

S Chittmittrapap

Objective: A new technique for primary closure of abdominal wall defect is introduced to facilitate easier closure and to avoid abdominal wall trauma and hemorrhage. This technique also resulted in a better and nicer scar.

Patients: Six babies, five gastroschisis and one omphalocele, required primary closure of the defect soon after birth during 2-year period (1997 - 1999). A new technique was introduced in these babies.

Result: All patients were successfully managed by primary closure without extension of the defect. All of these required assisted ventilation 3-7 days postoperatively. There was no serious morbidity and mortality.

Method: The edematous herniated bowel loops were covered with warm saline-soaked gauze and the gastrointestinal content was milked back into the stomach where they were aspirated through the nasogastric tube. The bowel loops were also gently compressed to reduce swelling. The standard technique recommended the superior extension of the defect to facilitate reduction and stretching of the abdominal wall. One may experience that even

though the bowel loops were easily pushed back into the cavity, the bowels reherniated easily as well. Suturing the defect was also very difficult with extensive pulling and abdominal wall hemorrhage may occur. So, a new technique is introduced. Reduction of the herniated bowels was performed without extension of the previous defect. Reduction is more difficult but once the bowel loops were pushed into the abdominal cavity, reherniation was seldomly experienced. Closure of the defect is easier and less risk of bowel injury during suturing.

Successful Treatment of Wilms' Tumor with Intracardiac Extension

M Laohapensang, U Prakanrattana, S Sriyoschati, S Kongsayreepong, S Pornvillawan, G Veerakul

Extension of Wilms' tumor through the inferior vena cava into the heart presents a technical challenge to the surgeon. Two pediatric patients were referred to Siriraj Hospital because of heart failure due to intracardiac extension of Wilms' tumor. Multimodal treatment that combined resection, chemotherapy and radiotherapy along NWTs guideline were applied to both patients. The completeness of tumor removal required the combination of opened heart surgery and exploratory laparotomy. The opened heart surgery was done first, aiming at removal of intracardiac tumor and the tumor in suprahepatic IVC. Abdominal exploration was performed two days later to remove tumor in retrohepatic and infrahepatic IVC, using total hepatic vascular exclusion technique, and radical left nephrectomy. The postoperative courses were uneventful. The follow-up shows that our first patient has survived four years after the operation, two years after the cessation of chemotherapy and the other still remains on chemotherapy two months after this operation.

We suggest that complete surgical excision of the tumor and thrombus could be done with satisfactory result.

Surgery of the HIV-Seropositive Children

M Anunkosol

Problem/Background/Objective: Acquired immunodeficiency syndrome (AIDS) has increasingly caused social trouble. In children, most of the patients are vertically infected. This study is intended to delineate the surgical experience in the HIV-seropositive children.

Research Design: Retrospective, 5-year period between 1992 and 1997.

Patient Selection: Pediatric surgical patients who were HIV seropositive detected by both enzyme-linked immunosorbent assay and particle agglutination test.

Results: Thirty nine patients were HIV seropositive, six were older than 18 months (indicating HIV infection), and 33 (>80%) were younger. One third of the latter group (12 cases) had clinical features that met WHO pediatric AIDS definition, hence leaving 21 cases inconclusive of HIV infection. Surgical diagnoses were grouped as congenital malformations (15 cases), infections (14 cases), tumors (3 cases), trauma (1 case), and miscellaneous (6 cases). Thirty one operations were carried out as surgically indicated. Five patients succumbed to sepsis, and one to wasting syndrome.

Conclusion: Pediatric surgeons will increasingly be exposed to the HIV-seropositive children, as more parental AIDS cases have occurred, stressing the importance of the universal precautions. In this study, only therapeutic operations were carried out, but diagnostic procedures for AIDS - complicating conditions were anticipated in the near future.

Familial Duodenal Atresia: A Report of Two Siblings

S Thepcharoennirund

The familial occurrence of duodenal atresia is extremely uncommon. The author reports duodenal atresia occurring in two siblings who underwent successful surgical repair at the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital. To the author's knowledge, this is the first report of familial duodenal atresia in Thailand.

Posterior Plication and Suspension: Experience in Childhood Rectal Prolapse

S Roekibunsi

Rectal prolapse in children is usually self-limiting after conservative treatment. However, a small group of patient requires surgical management. Over a recent period of 3 years, we have treated 5 patients at King Chulalongkorn Memorial Hospital using a posterior plication and rectal suspension procedure with levator repair. Only 2 patients developed minor mucosal prolapse in early post operative follow-up period, and all resolved spontaneously. The author's experience suggests that this procedure is simple but definitive with a satisfactory result.