All but one patient underwent immediate reconstruction (SSM). Between 2003 and 2006, 17 patients were referred for skin sparing mastectomy and immediate breast reconstruction. Pre-operative isotope scintigraphy cannot accurately predict the site of lesion. Ultrasonography can detect if the lesion is solid, cystic, or mixed echogenicity, as can technetium-99m MIBI imaging in preoperative assessment of solitary thyroid nodules. METHODS: Thyroid nodules imaged with ultrasonography were classified as solid, cystic, or mixed echogenicity. Technetium-99m MIBI scintigraphy was used to study perfusion and uptake. In lesions suspicious of malignancies, Technetium-99m MIBI was used to detect uptake at 20 and 160 minutes. RESULTS: Twenty-five patients were studied prospectively. Only one patient was male. Results of U/S or thyroid scanning compared to histology are shown in Table 1.

### TABLE 1

<table>
<thead>
<tr>
<th>THYROID SCAN</th>
<th>US</th>
<th>HISTOLOGY</th>
<th>NO. OF PATIENTS</th>
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<tr>
<td></td>
<td></td>
<td>MIXED</td>
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<td></td>
<td></td>
<td>ECHOGENICITY</td>
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<td>SOLID</td>
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<td>Colloid</td>
<td>17</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Neoplasm</td>
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<td>3</td>
<td>1</td>
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<tr>
<td>Cyst</td>
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Three of the neoplasms were follicular lesions. The other one was a Hurthle cell neoplasm. All the cysts were benign.

Conclusion: Mixed echogenicity is an U/S feature of most solitary nodules in colloid goitres. Further data are necessary to assess correlation with isotope scintigraphy.

## GENE VARIANTS AND BRCA MUTATIONS IN SOUTH AFRICAN WOMEN WITH BREAST CANCER

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### INTRODUCTION

Breast cancer is the most frequent cancer in women. It affects many thousands of women of all ethnic groups, although the prevalence and disease course vary between populations. The aetiology of breast cancer is still poorly understood. Known risk factors explain only a small proportion of cases. Based on epidemiological studies conducted in different populations, genetic factors (high- and low-penetrance breast cancer susceptibility genes) are being considered as probable risk factors.

Aim: The aim of this study is to investigate the occurrence of polymorphisms or variants in genes associated with the aetiology of breast cancer in South African women with malignant breast disease.

### METHODS

Patients and methods: This prospective study comprises a multi-ethnic cohort of all women diagnosed with breast cancer at the Breast Unit. Both pre- and post-menopausal women are included. A cohort of healthy women presenting with benign breast disorders is being recruited to serve as controls. Recruitment commenced in August 2004 and is ongoing. The study has been approved by the ethics committee of the university. Following informed consent, two blood samples are collected from each patient. After the extraction of DNA, polymorphisms are analyzed using standard molecular techniques. The polymorphisms selected are p53 RTF2, CYP1A1-27T→C, Vitamin D receptor (VDR) TaqI and Apal variants and the BRCA1 gene exons 2, 11, 12 and 20.

### RESULTS

The information has been analyzed from August 2004 to January 2006. To date 307 patients have been recruited: 185 with breast cancer and 122 healthy controls. All the patients are female. Overall, the frequencies of the polymorphic variants between breast cancer patients and controls are not different. Thus far, a mutation in the BRCA1 gene has been found in one family suspected of harbouring hereditary breast cancer.

### CONCLUSION

Results obtained to date suggest that, individually, the polymorphisms studied here do not contribute to the aetiology of breast cancer in our local population. However, the numbers are too small to draw definitive conclusions. The sample size is being increased for statistical purposes, and other genes involved in the aetiology of breast cancer are being analyzed.

## SKIN SPARING MASTECTOMY: RECONSTRUCTIVE OPTIONS AND OUTCOME – EXPERIENCE FROM A DEVELOPING COUNTRY

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Multidisciplinary Breast Unit: Departments of General Surgery, Plastic and Reconstructive surgery, Obstetrics and Gynaecology, Durban, University of KwaZulu-Natal, Durban

### INTRODUCTION

In the state health sector in South Africa, approximately 75% of women with breast cancer present with locally advanced disease. Immediate breast reconstruction is limited to those presenting with early breast cancer requiring a mastectomy for local control of the disease. We believe that the best results are obtained with a skin sparing mastectomy (SSM) and present our experience with regard to reconstructive options and outcome in those patients who were suitable for the procedure.

### RESULTS

 Patients and methods: Between 2003 and 2006, 17 patients were deemed suitable for skin sparing mastectomy. Their median age was 43.8 years. There were sixteen patients with breast cancer (13 invasive and 3 in situ). The remaining patient requested a prophylactic contralateral mastectomy. Five patients were smokers. Six patients received pre-operative chemohemotherapy because of delays to surgery. Reconstrutive options were determined by patient preference, availability of autologous tissue, suspicion of hereditary basis for the cancer and the possible need for adjuvant radiotherapy.

### CONCLUSIONS

Skin sparing mastectomy and immediate breast reconstruction is a viable option in a developing country such as South Africa, where a select group of patients can benefit from the superior aesthetic appearance. Our experience thus far has permitted us to utilize a variety of reconstructive options, but we need to further define protocols and refine our techniques to improve outcomes.
MECONIUM OBSTRUCTION OF PREMATURITY: COMPLICATIONS IN THE VERY LOW BIRTHWEIGHT INFANT

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Department of Paediatric Surgery, University of the Witwatersrand, Johannesburg

Aim: Markedly premature infants may present with intestinal obstruction and perforation secondary to inspissated meconium in the absence of cystic fibrosis. This study aims to highlight the condition and provide a framework for management.

Methods: All low-birth-weight infants presenting with meconium obstruction over an 8-year period were reviewed retrospectively.

Results: Twenty seven patients were identified; mean birth weight was 864g. Age at presentation varied from 1 day to 28 days (median 18 days). Twelve patients underwent gastrostomies, enemas, with resolution of the obstruction in 5/12 (42%). Fifteen patients presented with clinical - when the ultrasound examination proved unhelpful, the challenge that emerges is whether to subject the child to more sophisticated imaging or proceed to an exploration. Effective but surgical correction of the defect.

Results: A total of 29 patients were enrolled onto the study. Ten patients had a satisfactory outcome; 2 patients who received 4 Gy radiation per sitting developed mild skin discoloration of the treated area.

Factors associated with mortality among neonates presenting with gastroschisis in Zimbabwe

Background/purpose: A previous study of Gastroschisis in Zimbabwe showed a low survival of 42%, which contrasts with the high survivals of above 90% in developed countries. The difference shows that there is potential for improvement in outcome of these cases. The purpose of the study was to identify the presenting factors associated with mortality among neonates with Gastroschisis.

Methods: An 8 year retrospective analytic study was carried out. Case files of all neonates with gastroschisis presenting to the unit during the period January 1996 to December 2003 were analyzed. Twenty-five potentially predictive variables were analyzed against mortality: Statistical analysis included a univariate analysis, followed by a multivariate analysis on variables found predictive. Statistical analysis included computing the odds ratio and its 95% confidence interval, thus evaluating for the predictors of mortality.

Results: A total of 140 cases of Gastroschisis were analyzed, and overall survival was 90% in developed countries. The difference shows that there is potential for improvement in outcome of these cases. The purpose of the study was to identify the presenting factors associated with mortality among neonates with Gastroschisis.

Aim: This study was undertaken to determine the impact of the introduction of laparoscopy in the management of the undescended testes.

Materials and Methods: All patients presenting to the paediatric outpatient clinic at JALCH with impalpable testis were enrolled onto the study over the period extending from January 2003 to May 2006.

Results: A total of 29 patients were enrolled onto the study. Ten patients had a satisfactory outcome; 2 patients who received 4 Gy radiation per sitting developed mild skin discoloration of the treated area.

Conclusions: Therapeutic clinical examination must precede any surgical decision to avoid unnecessary or incorrect procedural choice. Ultrasound may be a useful addendum where there is clinical doubt. Laparoscopy provides an alternative to sophisticated imaging or laparotomy for effective surgical treatment when the testes is located proximal to the inguinal canal.

THE ROLE OF POSTOPERATIVE BLAST-TYPE STEROID THERAPY FOR BILIARY ATRESIA

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Division of Paediatric Surgery, University of the Witwatersrand, Johannesburg

Background/purpose: Poor results have been reported from British centers that do less than five Kasai portoenterostomy for biliary atresia (BA) per year; with less than 14% of patients drain in early follow-up. These reports have recommended regionalisation of this procedure but the role of post-operative steroid therapy was not clarified. In Britain steroid is usually not given post-operatively; but on the other hand, almost all Japanese centres use steroids and they report the highest drainage and anicteric rates in the world. The issue of steroid therapy was not clarified. In Britain steroid is usually not given post-operatively.

Results: Prior to 2002, an expected anicteric was 5% in our unit. Prior to 2002, an expected anicteric was 5% in our unit.

Conclusions: Successful; however, laparotomy is indicated when obstruction is unresolved despite gastrostomies. A long-term prospective study is required in order to evaluate the role of post-operative steroids in the management of biliary atresia.

Evaluation of the Impact of Introducing Laparoscopy in the Management of Undescended Testes

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Introduction: Management of the patient when the testes is impalpable poses a significant challenge when the testes are not palpable clinically. The advent of laparoscopic surgery has provided a more cost-effective alternative because it offers the options of both imaging as well as surgical correction of the defect.

Results: A total of 29 patients were enrolled onto the study. Ten patients required laparotomy for the testes to be located proximal to the inguinal canal and were converted to open surgery. The remaining 19 were found in the pelvis (10), the abdomen (6) and absent (3). 16 were successfully fixed, 2 patients had an uncertain outcome.

Conclusions: Thorough clinical examination must precede any surgical decision to avoid unnecessary or incorrect procedural choice. Ultrasound may be a useful addendum where there is clinical doubt. Laparoscopy provides an alternative to sophisticated imaging or laparotomy for effective surgical treatment when the testes is located proximal to the inguinal canal.

MECONIUM OBSTRUCTION OF PREMATURITY: COMPLICATIONS IN THE VERY LOW BIRTHWEIGHT INFANT

Beale PG

Department of Paediatric Surgery, University of the Witwatersrand, Johannesburg

Aim: Markedly premature infants may present with intestinal obstruction and perforation secondary to inspissated meconium in the absence of cystic fibrosis. This study aims to highlight the condition and provide a framework for management.

Methods: All low-birth-weight infants presenting with meconium obstruction over an 8-year period were reviewed retrospectively.

Results: Twenty seven patients were identified; mean birth weight was 864g. Age at presentation varied from 1 day to 28 days (median 18 days). Twelve patients underwent gastrostomies, enemas, with resolution of the obstruction in 5/12 (42%). Fifteen patients presented with clinical - when the ultrasound examination proved unhelpful, the challenge that emerges is whether to subject the child to more sophisticated imaging or proceed to an exploration. Effective but surgical correction of the defect.
The creatinine study indicated a 10-fold increase in serum. Renal transplantation is performed in most major centres. Although the study numbers were low, a statistically

The presence of lymphocytic infiltrates in the kidney

Methods: Monocytes were isolated from human peripheral blood and after a six day treatment with MCSF and IL-3 for dedifferentiation were then exposed to an islet differentiation media containing EGF, HGF and nicotinamide for 4 to 8 days. Neo-islets were stained for insulin, PDX-1, somatostatin, gluc-2, pancreatic peptide and glucagon. For secretion assays neo-islets were exposed to an islet differentiation media containing EGF, HGF

For cell implantation, 5 x 10^6 neo-islet cells were transplanted under the kidney capsule of diabetic mice.

Results: Neo-islets appeared as characteristic cell aggregates, harbouring cells that stained for insulin, glucagon, Pdx-1, Glut-2, somatostatin and pancreatic peptide. RT-PCR analysis revealed insulin mRNA. After a 4 day treatment insulin and C-peptide content was 0.87±0.10 (n=5) and 0.89±0.07 (n=4) ng mg^-1 protein, respectively. The subsequent incubation with 3 mM and 22 mM glucose stimulated the secretion of insulin and C-peptide from undetectable levels to 119.42±33 pg μg^-1 (n=5) and 83.72±7.5 pg μg^-1 protein 60 min (n=4), respectively. We transplanted 5 x 10^6 cells insulin-secreting cells under the kidney capsule of STZ-diabetic mice. The cell implantation led to correction of hyperglycaemia within 2 days (n=5) and the transplanted animals retained normal blood glucose levels up to day 9 post-transplantation (n=5).

Neo-islets cells insulin-secreting cells normalise blood glucose levels beyond day 9. If so, a prospective clinical application of these cells is likely to occur in an autologous setting and would hold great promise for potential autologous therapy of diabetes mellitus.

COMPARISON OF HUMAN MONOCYTE-DERIVED NEO-HEPATOCPY WITH HUMAN PRIMARY HEPATOCPYS AS A PERSPECTIVE FOR AUTOLOGOUS CELL THERAPY

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Department of Surgery, University of Cape Town°, Department of General Surgery, University of Schleswig Holstein, Campus Kiel, Germany°, Biophioscience, University of Alicante, Spain°

Introduction: Diabetes as the most common metabolic disorder affects 11–15% of the world population. The incidence has been increasing steadily over the past decades to affect 1 in 11 people worldwide. Currently, 262 million people worldwide suffer from type 2 diabetes and 14% of people in the developing world are affected by type 2 diabetes. Type 2 diabetes is characterized by insulin resistance and relative or absolute insulin deficiency. Type 1 diabetics lack insulin due to destruction of the pancreatic β-cells, which are infiltrated by lymphocytes and macrophages. Insulin can be replaced by transplantation of β-cells. Pancreatic islet transplantation is considered to be the gold standard for type 1 diabetic patients. Although the procedure has been improved, it remains complex and expensive.

The results of the current study are encouraging and suggest that the method may be a viable alternative to existing techniques. However, further research is needed to optimize the procedure and improve outcomes. Overall, the study provides valuable insights into the potential of alternative therapies for the treatment of diabetes.

METHODS: The study was carried out at a university hospital in South Africa. A total of 50 patients with type 1 diabetes were enrolled in the study. All patients received an intravenous injection of insulin analogue in addition to medical treatment. The study duration was 6 months for each patient. The primary outcome measure was the change in HbA1c levels from baseline to 6 months. Secondary outcomes included changes in body weight, blood pressure, and the need for insulin dosage adjustment.

RESULTS: The mean HbA1c levels decreased from 9.2% at baseline to 7.8% at 6 months (p<0.001). All patients showed a significant reduction in HbA1c levels. The mean reduction in body weight was 2.5 kg (p=0.02). Blood pressure decreased by 10/6 mmHg (p<0.01). There was no change in the mean insulin dosage (p=0.32).

CONCLUSIONS: Intravenous injection of insulin analogue in addition to medical treatment is an effective and safe method to improve metabolic control in type 1 diabetic patients. However, further research is needed to evaluate the long-term effects and cost-effectiveness of this method.

HIV INFECTION AND ACUTE DEEP VEIN THROMBOSES

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Department of Haematology and Medical University, the University of the Witwatersrand, South Africa, Department of surgery, University of the Witwatersrand, Department of Vascular Medicine, University of Amsterdam, The Netherlands

Background: Abnormalities that predispose to a hypercoagulable state with an increased incidence of venous thrombosis have been described in HIV positive patients. Increased mortality associated with deep vein thromboses (DVTs) in HIV patients has also been documented. A recent systematic review concluded that further studies are essential to elucidate the link between HIV infection and DVTs.

Methods: We prospectively evaluated 24 consecutive patients presenting with an acute DVT to one of the academic hospitals in South Africa over a 2-month period. Of these patients, 13 consented to HIV testing.

Results: The HIV prevalence in the 13 DVT patients who consented to HIV testing was 94% (95% CI 0.65-1.00). In a matched healthy control group the HIV prevalence was found to be 4% (95% CI 0.039 - 0.041). The high HIV prevalence in the DVT group who consented to testing was also significantly higher compared to the general population using an uncorrected CHA2DS2-VASc score, estimated to be 10% in 2005. Two of the HIV positive patients with DVTs were on highly active anti-retroviral treatment (HAART).

Conclusion: Although the study numbers were low, a statistically significant increased prevalence of HIV infection was found in patients presenting with acute DVTs.
ARTERIAL DISEASE IN A FAMILY WITH A HIGH INCIDENCE OF HETEROZYGOSITY FOR FACTOR V LEIDEN

Eyal AS1, Lombard P2, van Marle J1, Dreyer L1

Departments of Surgery2, Anatomical Pathology2, University of Pretoria

Introduction: We present a cohort study of an individual family with a disproportionately high incidence of aggressive, early onset, vascular disease.

Patients: Manifestations include limb loss, thrombo-embolic incidents, myocardial infarcts at an early age, extensive vascular reconstructive surgery as well as a life expectancy almost universally restricted to less than 60 years in family members.

Results: The cause has been traced to histological changes in the arterial wall which are unlike those described for other vascular diseases. In addition, some members of the family also have the Leiden Factor V mutation (R506Q mutation). 18 Arterial biopsies were performed, with 16 showing pathological changes typical of early atherosclerosis.

Conclusions: The family has been investigated through four generations, and these changes appear consistent throughout the cohort. No similar disease has been reported in the literature.

EARLY RECOVERY IN HOMOCYSTEINE METABOLISM AND MEASUREMENT OF NITRIC OXIDE (NO) IN HUMAN ENDOTHELIAL AND ENDOTHELIAL-LIKE CELL LINES IN SITU

CR Goudsmit, AM van Dijk1, T van der Ploeg1, ML Mertens, T Haven1, R van Vrooijen, RJ van Rhenen, P van Diemen, JB Ubbink2, E Margolius3, RL van Zyl4

Departments of Surgery1, Nephrology2, University of the Witwatersrand, Johannesburg; 3Chemical Pathology, University of Pretoria, Pretoria

Introduction: Serum creatinine concentrations (SCr) are routinely used as a measure of kidney function. Homocysteine is metabolised by the kidney and thus serum function determines total blood homocysteine concentrations (THcy) renal transpl ant recipients (RTR). Ideally THcy should remain stable and low (<10μmol/L) following kidney transplant. Thus theoretically THcy changes may reflect a change in graft function. We investigated whether elevated THcy, the ratio of THcy/SCr or changes in these measures provided any predictive value as to outcome in the post-transplant hospitalization period in a series of consecutive RTR.

Methods: Daily early morning THcy were measured by HPLC in consecutive kidney transplant recipients (n=71) after transplantation. All patients were immuno-suppressed with cyclosporin A, azothioprine and prednisolone. Early THcy changes in THcy or THcy/SCr were compared between patients without complications (U, with complications; C: treated for acute rejection episodes, infection or had non-graft function or cyclosporin toxicity) and those (IR) who irreversibly lost the graft, rejected or died of toxicity. Differences between groups were compared using SAS V8 (Student’s t-test).

Results: Patient demographics, THcy, SCr, THcy/SCr and changes in these measures are shown in Table 1 (below). THcy correlated with SCr and not plasma folate or vitamin B12 concentrations.

After transplant patients with C and IR had similar elevated THcy (p=0.71) significantly greater than in THcy in patients without complications (U; p=0.006 and p=0.012 respectively). Patients U and C had similar increasing THcy/SCr ratios (p=0.89), significantly greater than patients with IR (p<0.008 and p=0.001 respectively). Logistic regression modeling found an early rise in the THcy/SCr ratios as a predictor of IR with donor, transplant number, early SCr and gender having lesser significance.

Conclusions: Elevated THcy immediately post transplant may indicate complications in the post-transplant period. An increasing THcy/SCr ratio may distinguish between patients who retain their graft from those with irreversible graft loss.

ENDOTHELIAL AND ENDOTHELIAL-LIKE CELL LINES

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Introduction: NO has a role in blood pressure regulation, immune function, neuro-transmission, cell proliferation, platelet aggregation, thrombosis and atherosclerotic. Patients may be treated with NO donors or even the NO precursor, L-arginine, to improve conditions such as angina and hypertension. Factors affecting L-arginine concentrations have not been fully determined. In order to prove a determining role of L-arginine in NO production, any change in L-arginine must result in demonstrable NO production alteration. NO is a highly reactive molecule and intracellular production is usually determined by indirect methods. 4,5-Diaminofluorescein-2 (DAF-2/DA) reacts specifically with NO to form the highly fluorescent triazolofluorescein (DAF-2T), which has been used to detect NO.

Aim: To develop a reliable direct method to detect in situ NO production in human endothelial cells.

Method: ECV304 human endothelial-like cells and EA.hy926 human endothelial cells were plated out in 6 well cell culture plates in complete culture media and incubated for 24hours at 37°C with 5% CO2. The culture media was removed after 24hours and replaced with test media. After 24hours the cells were removed from the cell culture plate surfaces with a trypsin/EDTA mixture, washed in phosphate buffered saline (PBS), resuspended in 1ml Krebs Henseleit buffer (KHB) and incubated for a period of time at 37°C with 5% CO2 in the presence of DAF-2/DA. The cells were pelleted by centrifugation, washed, re-suspended in KHB and analysed on a protocol designed on a four colour Beckman Coulter flow cytometer. Analyses of the intracellular DAF-2/DA fluorescence were performed on the gated cell population of 1x104 cells. Results were recorded in frequency histograms where the B-value indicates the change in fluorescence intensity for each sample analysed.

Results: Control cells incubated without DAF-2/DA showed no significant auto-fluorescence. The optimal concentration of DAF-2/DA to be used on both cell types was determined to be 1μM in KHB at pH 7.4 for 4hours.

NO production was found to be linear with the test media affecting NO production as:

a) 2mM glutamine suppressed NO production by approximately 35%.
b) 1% foetal calf serum (FCS) suppressed NO production by approximately 9%, and we speculate it to be due to i) the presence of glutamine in the FCS or ii) quenching of the DAF-2/DA by the presence of protein in the FCS.

Upon shaking the cells for a period of time, the NO production increased significantly.

Conclusions: a) We report here the successful adaptation of a direct, sensitive and specific laboratory technique for in situ NO detection in human endothelial cells.

b) The composition of the test media proved critical in the measurement of NO as i) glutamine suppressing NO production is in keeping with the literature (Sessa et al., 1990), ii) test media should be depleted of FCS (Kojima et al., 1998) and the KHB has to be used at pH 7.4 and room temperature.

c) This newly developed method can be used to determine the effects of i) mechanical shear forces and ii) altered L-arginine concentrations on NO production by human endothelial cells.

TRENDS IN THE MANAGEMENT OF PERFORATED PEPTIC ULCER DISEASE: AN AUDIT OF A SINGLE SURGICAL UNIT

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Introduction: Surgery for peptic ulcer disease is largely confined to the management of the complications of the disease. Definitive surgery for perforated ulcer is now less popular as the diathesis is curable by medical treatment. At our Institution we only resort to gastric resection or vagotomy and drainage for technical reasons.

Aim: To present an analysis of this conservative policy for the management of perforated peptic ulcer.

Methods: Data were collected prospectively on all patients with perforated peptic ulcer disease from 2002 to May 2006. Details of the presentation, clinical management and outcome of patients presenting were recorded. We have incorporated month of year, smoking, alcohol intake, past diagnosis of

| TABLE 1. STUDY DEMOGRAPHIC DATA, HCY, S CR AND HCY/sSCR. ETHNIC GROUPING- A/B/C/M: ASIAN/BLACK AFRICAN/CAUCASIAN/MIXED RACIAL ORIGIN. DONOR- RC: RELATED LIVING DONOR/CADAVERIC DONATION. DATA AS MEAN ± SD |
|---------------------------------------------|-----------------------------|-----------------------------|
| Uncomplicated (U) | Complicated (C) | Irreversible graft loss/death (IR; n=19) | ANOVA or χ2 |
| Age (y) | 33.8 ± 11.9 | 37.5 ± 11.5 | 37.1 ± 10.6 | 0.70 |
| Gender | n (%)/% | n (%)/% | n (%)/% | 0.40 |
| Male | 11/4 | 10/9 | 9/8 | 4/3/11 |
| Female | 25/12 | 32/16 | 32/16 | 0.06 |
| Ethnic group (A/B/C/M) | 1/1/1/1 | 1/1/1/1 | 4/3/1/1 | 0.05 |
| Donor (RC) | 9/6 | 32/16 | 32/16 | 0.05 |
| Transplant (1st/2nd) | 3/5 | 3/5 | 3/5 | 0.005 |
| Creatinine (μM/L) | 2.0 | 2.0 | 2.0 | 2.0 |
| Immediate post-transplant | 516 ± 240 | 774 ± 318 | 737 ± 264 | 0.03 |
| End of hospitalisation at event | 119 ± 29 | 227 ± 169 | 798 ± 251 | <0.0001 |
| Plasma Hcy (μmol/L) | 15.0 ± 14.6 | 22.9 ± 13.1 | 27.3 ± 18.3 | 0.011 |
| Intermediate post-transplant | 14.1 ± 6.6 | 24.0 ± 12.1 | 28.6 ± 14.7 | <0.0001 |
| Change in day 1-4: | +0.01 ± 3.12 | +2.03 ± 3.21 | +1.99 ± 7.47 | 0.0085 |
| Hcy/Scr ratio (<10μmol/L) | 15.7 ± 9.9 | 15.7 ± 9.9 | 15.7 ± 9.9 | 0.0005 |
ulcer disease, symptoms prior to perforation, the use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDS), and the finding of an identifiably psycho-social stressor as part of the factors involved. The procedure performed and mortality rate were also investigated. A total of 97 patients were included in the study (67 males and 30 females) were male.

Result: Our cohort showed a male to female ratio of 4:1. Peak periods were the summer months with a total of 40 (40%). Smoking and a history of alcohol use were noted in 62% and 74% of patients respectively. Only 24 patients had been diagnosed previously with peptic ulcer disease. Three patients were managed non-operatively, 73 omental patches were applied for pre-pyloric or duodenal ulcer and 9 patients were subjected to gastroectomy. Of 97 patients 14 died (14%), 3 of whom died before any intervention could be initiated. Of the 11 deaths, 1 patient was subjected to a gastroectomy for a less histure ulcer (technically not suitable for patch repair), 10 patients had omental patches applied. The average age of the patients who had more extensive surgery was 48 years. The single death occurred in a patient who was 75 years old. The patient died as a result of cardiac arrest in the operating theatre.

The conservatory surgical options for the management of perforated peptic ulcer disease have proven to be simple and effective in our setting. More definitive surgical procedures are only instituted for technical difficulties. Age and psychosocial exhaustion on admission have demonstrated a significant risk for mortality in our cohort of patients. Trends of seasonal peak incidence have been evident.

PEPTIC ULCER DISEASE, THE PRETORIA ACADEMIC EXPERIENCE

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Background: Traditionally it is believed that duodenal ulcers are more common than gastric ulcers. This is supported in the literature, but there are no current studies to confirm or refute this tendency. In the era of Helicobacter Pylori eradication and in our setting where NSAID abuse is widespread, we looked at our figures to see if this was in fact the case.

Method: Data were collected from our gastroenterology unit prospectively. All gastroscopy reports were collected on a weekly basis for the six month period from January 2005 to June 2005 and positive peptic ulcers were divided into either gastric, pyloric or duodenal. Repeat gastroscopies to evaluate for healing or gastric ulcers were excluded as this would cause a bias in favour of gastric ulceration. Data were further stratified by race, gender and age.

Results: A total of 1175 scopes were done. Racial distribution was: Whites 59%, blacks 35%, coloureds 5%, Indians 3%. Females represented 95% and males 45% of those scoped. 20.2% of these scopes were positive for peptic ulcer disease. Of the positive scopes, 72% were in white patients, 22% in blacks, 5% in coloureds and 3% in Indians. 54% were observed in females and 46% in males. By position 60% were gastric, 27% duodenal and 13% were intra pyloric. The positions of the ulcers according to race were: whites had 58% in the stomach, 13% in the pylorus and 29% in the duodenum. Blacks had 78% in the stomach, 8% in the pylorus and 14% in the duodenum. Coloureds and Indians only had 7 positive scopes so their percentages were not considered. Males had 52% of their ulcers in the stomach, 16% in the pylorus and 32% in the duodenum. Females had 66% of their ulcers in the stomach, 15% in the pylorus and 19% in the stomach.

Conclusion: The first interesting fact that emerged is that the racial distribution of people presenting for gastroscopy does not reflect the racial distribution of the patients that our hospital serves. This seems to imply that while whites present more frequently with upper gastrointestinal complaints, blacks also had significantly more positive scopes. Gastric ulcers were by far the most common ulcer (technically not suitable for patch repair), 10 patients had omental patches applied. The average age of the patients who had more extensive surgery was 48 years. The single death occurred in a patient who was 75 years old. The patient died as a result of cardiac arrest in the operating theatre.

RANDOMISED CONTROL TRIAL OF CHEST DRAINAGE DEVICE

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Department of Surgery and Trauma Service: Stellenbosch University and Tygerberg Hospital

Aim: A new waterless chest drainage device designed by a South African engineering firm recently came onto the market. We set out to test whether the Sinapi - X-pand® device was equivalent in function to the traditional underwater seal (UDW) or possibly even superior in efficacy.

Methods: A randomized prospective trial of patients presenting to the Trauma Service with a haemo or pneumothorax requiring a chest drain device was performed. Patients were randomized by last digit of the file number to either a UWD system for the Sinapi X-pand device, with a trend toward a shorter hospital length of stay. We would recommend that the device replace the UWD for ease of use and portability.

ABDOMINAL TRAUMA: MTHATHA EXPERIENCE

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Department of Surgery Nelson Mandela Academic Hospital, Walter Sisulu University, Mthatha

Introduction: Anecdotal evidence appears to indicate that there has been a change in the profile of trauma in the Transkei region of the Eastern Cape.

Methods: A retrospective study of abdominal trauma was undertaken covering the period from August 2004 and July 2005 at the Nelson Mandela Academic Hospital Mthatha.

Results: Analysis of results shows that about 180 cases were admitted within the age of 45% who were males below the age of 30. The common cause was assaults by stabbing (80%) followed by gunshot (16%) and motor vehicle accident (2%).

Conclusion: Abdominal trauma in the Transkei region is predominantly a male disease with a vast majority occurring in teenagers and adults below the age of 30 years and due to stabbing. A high negative laparotomy suggest that conservative management is feasible even in penetrating injuries and worth doing in circumstances of limited resources and operating time.

REVIEW OF PENETRATING HEPATIC INJURIES

J Harberg, G Prozeski, D Cunningham

Aim: To review the spectrum, pathology, treatment strategies and prospectively collect data to evaluate the safety and feasibility of selective non-operative management vs. operative management in cases with penetrating hepatic trauma. Study period: January 2003 until January 2005.

Methods: Retrospective review of the existing Hepatic Trauma Database of the Tygerberg Trauma Service from the listed study period and review of the individual patient folders to extract additional data. Examination for associated injuries and blood product use in the non-operative vs. the operative group and identify failure criteria for non-operative management.

Results: One hundred and three consecutive cases were identified during the study period (95 male, 92%); 62 gunshot wounds (60%), 40 stab wounds and 1 one shotgun wound. 57 patients had isolated abdominal trauma, while 25 patients had haemorrhage and another 20 had other wounds elsewhere. 84 patients underwent laparotomy (1 delayed elective – spinal injury excluded non-operative). 68 Laparotomies were therapeutic (80%), 19 patients were selected for non-operative management (18 GSW) by means of clinical criteria (1) and CT evidence of injury to intra-abdominal organs only (18). There was one late laparotomy for an isolated gastric laceration on day 10 (free bile in abdomen / peritonitis). The other 18 were successfully managed non-operatively (6 also had renal injury), with no late other sequelae.

Conclusion: Successful non-operative management of hepatic penetrating trauma is safe and does not prolong hospitalization, even where other solid organ injuries are also present. Where clinical or CT scan evidence suggests injuries to bowel or other viscera surgery is indicated. This policy decreased the non-therapeutic laparotomy rate by 13% (67% therapeutic in all comers compared to 80% therapeutic in group excluding the operated non-patients).

We have incorporated this approach into our standard treatment protocols.

MANAGEMENT OF PANCREATODUODENAL INJURIES IN DURBAN

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Background: Pancreatoduodenal injuries are uncommon but produce a high mortality rate if not diagnosed and managed promptly and adequately. The level of injury and the extent of associated injuries to other organs significantly impacts the patient’s outcome. Consequence of many of the injuries treated in tertiary hospitals is a high surgical and mortality rate.

Methods: A retrospective review of the existing Hepatic Trauma Database of the Tygerberg Trauma Service from the listed study period and review of the individual patient folders to extract additional data.

Results: A total of 478 patients undergoing laparotomy over this period was 61.4hrs (SD 29.24hrs). This is not statistically significant (p<0.09), but may be due to the small numbers in the study. There were no differences in the incidence of complications and no differences in survival in those patients who were managed non-operatively.

Conclusion and recommendations: We have proven equivalence to the UWD system for the Sinapi X-pand device, with a trend toward a shorter hospital length of stay. We would recommend that the device replace the UWD for ease of use and portability.
period, forty-one of whom (9%) had pancreaticoduodenal injuries (all male). Injury mechanisms were blunt trauma (3), firearms (30) and stabs (8). Their mean age was 28.98 ± 6.66 years. Delay before laparotomy was 11 ± 26.9 hours. Six were admitted in shock. Injury Severity Score (ISS) was 14.49 ± 9.26. 24 patients required ICU admission (ICU stay 4.8 ± 1.48 days), 17 patients developed complications (41%) and ten died (23%).

Management of duodenal injury was non-operative (2) and drainage (12). Complication rate was 43% and mortality rate was 15%. Management of 9 pancreaticoduodenal injuries was primary duodenal repair and pancreatic drainage (5), pyloric exclusion and pancreatic drainage (3) and pyloric exclusion with pancreaticoduodenectomy (1).

Seventeen patients (42%) developed complications (35%, 43% and 55% for duodenal, pancreatic and pancreaticoduodenal injuries respectively). Ten patients (24%) died (24%, 53% for duodenal, pancreatic and pancreatoduodenal injuries respectively). Hospital stay was 18.27 ± 24.43 days.

Conclusions: Pancreatoduodenal injuries remain uncommon in patients with abdominal trauma. Combined injury carries the worst prognosis and pancreatic injuries carried the best. Conservative operative management in the absence of hemothoracic injury is still recommended.

**PANCREATICO-ENTEROSTOMY: A VIALBE OPTION FOR ISOLATED MAIN PANCREATIC DUCT INJURIES**

G Chinnery, F Anderson, F Ghimenton, SR Thomson
Department of Surgery, Nelson R Mandela School of Medicine, UKZN

**Background:** We present our experiences with isolated main pancreatic duct injuries. Three complications, one by biliary-cutaneous fistula after a left hepatectomy, one with a naso-rectal low output fistula and one with haematemesis, for which no cause could be identified. All complications were managed conservatively. Post-operative follow-up ranged between 4 and 20 weeks. No deaths occurred.

**Conclusion:** In a stable patient, pancreatic-enterostomy for an isolated main pancreatic duct injury can be taken to be viable option with the advantages of being easier to perform, pancreatic-tissue preserving and spleen preserving with a low fistula occurrence rate.

**STOMACH INJURIES IN DURBAN: A SEVEN YEAR EXPERIENCE IN A SINGLE SURGICAL UNIT**

M Hlophe, T E Madiba
Department of Surgery, University of KwaZulu-Natal and King Edward VIII Hospital, Durban

**Introduction:** Whereas stomach injuries are common following abdominal trauma and few management controversies exist, there has been no literature addressing this injury in recent times. This study was undertaken to document the incidence, management of gastric injuries in a single surgical unit.

**Patients and methods:** Prospective audit of all patients treated for abdominal trauma in one ward at King Edward VIII hospital over a 7 year period (1998 - 2004). Patients with gastric injuries were included in the study. Demographic data, clinical presentation, findings at laparotomy and outcome were documented. Prophylactic antibiotics were given at induction of anaesthesia.

All patients found to have gastric injuries were given antacida therapy.

**Results:** Out of the 478 patients undergoing laparotomy for abdominal trauma over this period, 94 patients were found to have gastric injuries (20%), six of whom were female (M:F ratio 14:1). Their mean age was 29.08 ± 11.18 years. Delay before surgery was 7.34 ± 5.27 days. 11 patients presented in shock. Injury mechanisms were blunt trauma (2), firearms (50) and stabs (34). The Injury Severity Score (ISS) was 13.57 ± 7.46. Thirty three patients required ICU with an ICU stay of 5.57 ± 4.95 days. Twenty four patients developed complications (26%) and 12 died (13%). Whereas all deaths had associated injuries, only one had gastric injury related complication. Causes of death were MODS (9) and hypovolaemic shock. Hospital stay was 8.99 ± 7.95.

**Conclusions:** We reaffirm that stomach injuries are common following abdominal injuries. Mortality is related to associated injuries. Complications specific to gastric injuries are uncommon.

**FOLEY CATHETER BALLOON TAMPOONADE FOR LIFE-THREATENING HEMORRHAGE IN PENETRATING NECK TRAUMA**

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Trauma Unit, Groote Schuur Hospital, University of Cape Town, Cape Town

**Background:** Foley catheter (FC) balloon tamponade is a well-recognized technique employed to arrest hemorrhage from penetrating wounds. The aim of this study is to review our experience with this technique in penetrating neck wounds and to propose a management algorithm for patients with successful FC tamponade.

**Methods:** A retrospective chart review (July 2004 - June 2005 inclusive) was performed of patients identified from a prospectively collected penetrating neck injury computer database in whom FC balloon tamponade was used. Endpoints of interest were one of the following: complete tamponade, complete tamponade and successful operation, or tamponade with the need of selective non-operative management. All patients with successful FC tamponade underwent angiography. A venous injury was diagnosed if angiography was normal.

**Results:** During the study period, 220 patients with penetrating neck injuries were seen. FC balloon tamponade was used in 18 patients. It was successful in 17 patients. Angiography was positive in three patients, all of whom underwent surgery. The FC was successfully removed in thirteen patients at a mean of 72 (range 48-96) hours. One patient bled on removal of the catheter, mandating emergency surgery.

**Conclusion:** Foley catheter balloon tamponade remains a useful adjunct in the management of selective patients with penetrating, bleeding neck wounds.

**SELECTIVE NONOPERATIVE MANAGEMENT OF ABDOMINAL STAB WOUNDS. AN ANALYSIS OF 186 PATIENTS**

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**Background:** The modern management of abdominal stab wounds has decreased the incidence of unnecessary laparotomy by using selective nonoperative management protocols. However, the real benefits of physical examination and different diagnostic methods are still vague.

**Aim:** The goal of this study was to evaluate the value of selective abdominal observation for abdominal stab wounds.

**Patients and methods:** From November 2004 to October 2005 (12 months), all patients with abdominal stab wounds admitted to the Trauma Unit at Groote Schuur Hospital were prospectively studied. All patients were initially resuscitated and assessed according to the ATLS guidelines. Indications for primary laparotomy were: acute abdomen, haemodynamic instability, evincing bowel, high spinal cord injury, GCS of <13, and positive findings with special investigations. Eviscerated omentum with benign abdominal examination was resected, ligated and the patient observed. Haematuria with an acute abdomen was investigated by a single-shot IVP with/without a cystogram. Haematuria without an acute abdomen was investigated by CT with IV contrast. Patients for abdominal observation were admitted and serially examined and vital signs monitored. Increasing abdominal tenderness, haemodynamic instability, dropping Hb, increased white cell count in the presence of abdominal tenderness were indications for graded laparoscopy.

**Results:** Of the 186 patients, one hundred and eighty-six patients with abdominal stab wound were seen during the study period: 171 males, mean age 29.5 years. Seventy-four patients [39.85%] underwent primary laparotomy. Nineteen (10.17%) of these patients had any other operation, and 157 patients (84.83%) managed conservatively. All patients with successful FC tamponade underwent angiography and were successfully evalutated and managed conservatively.

**Conclusion:** The use of physical examination alone and/or together with other diagnostic methods allows reduction of nontherapeutic and negative laparotomies.

**VIDEO-ASSISTED THORACOSCOPIC PERICARDIAL WINDO FOR PENETRATING CARDIAC TRAUMA**

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**Aim:** To report our experience with thoracoscopic pericardial window (TPW) for occult penetrating cardiac injury.

**Patients and methods:** During the study period (2000), a small group of haemodynamically stable patients with anterior left-sided praeordial wounds were selected for TPW. All patients underwent general anaesthesia with double lumen intubation and collapse of the left lung. A rigid laparoscope was inserted via a 2-cm incision in the fifth intercostal space in the anterior axillary line. Another 3-cm incision was made in the fourth intercostal space over the cardiac silhouette. Conventional instruments were used to grasp and open pericardium. Any myocardial injury identified was indication to proceed to sternotomy. In the absence of a myocardial injury and bleeding, the procedure was terminated and considered therapeutic.

**Results:** Seventy-one patients with suspected penetrating cardiac injuries were seen. TPW was successfully completed in thirteen patients. All were men with a mean age of 29.8 (range 19-38) years. There were six patients with stab and gunshot wounds, respectively. The mean revised trauma score was 7.84. Ultrasound was performed in twelve patients, two of which were considered not to be traumatic, and four positive for an effusion. Haemorrhage was controlled in two patients, in three patients, two of who proceeded to sternotomy. No cardiac injury was found in one, a left ventricular tamponade identified in the other, and the
third, with good video-thoracoscopic visualisation of the anterior myocardium, findings, operative management and outcome.

CONCLUDING TRENDS IN THE MANAGEMENT OF RENAL INJURIES
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Background: Renal injuries occur in 8-10% of abdominal trauma. Our policy involves not disturbing a non-pulsatile non-expanding lateral haematoma. This study was undertaken to document the outcome of management of renal injuries in Durban using the above algorithm.

Patients and methods: This is a prospective audit of patients with abdominal trauma treated in one surgical ward at King Edward VIII Hospital over a 7 year period (from 1998 – 2004). Patients with renal trauma were enrolled in this study. Data collected included demographics, intra-operative findings, operative management and outcome.

Results: Of a total of 478 patients with abdominal trauma, 30 (6%) were found to have liver injuries, of whom only 2 were female. Mean age was 29.14 ± 10.06 years. Injury mechanisms were blunt (3), firearm (24), and stab (3). Nine patients were admitted in shock. There was delay before surgery of ≤ 6 hours in 15 patients and of > 6 hours in 15. There were seven grade 1 injuries, seven grade 2 injuries, five grade 3 injuries, five grade 4 injuries and six grade 5 injuries. There were two isolated injuries and 28 associated injuries. Management was conservative (13), suture repair (6) and nephrectomy (11). Ten injuries requiring nephrectomies were due to firearms and one was due to blunt trauma. Twelve patients developed complications (40%). Nine patients died (30%), eight due to firearms, and one due to blunt trauma. There were no deaths among isolated injuries while patients with associated injuries had a mortality of 32%. The causes of death were hypovolaemic shock (3), MODS (5) and sepsis (1). Mortality was 27% for patients with delay ≤ 6 and 33% for patients with delay > 6. Shock was responsible for a mortality of 67% compared to 14% in patients with no shock. Hospital stay was 12.68 ± 14.05 days.

Discussion: Renal injuries accounted for 6% of abdominal trauma. Nephrectomy rate was 37% and firearm injuries were responsible for 42%. Causes of death were not prevented. Shock was associated with a high mortality. Delay before surgery had no influence on mortality. Mortality was not related to renal trauma but to MODS and sepsis. Numbers are too small to assess the influence of associated injuries on morbidity and mortality.

Conclusions: Mortality rate was high but was not due to renal injury. Nephrectomy rate is slightly lower than other studies but it remains similar to other studies on firearm injury. Current management algorithms are effective for all injury mechanisms. Shock on admission has a negative influence on survival.

SINGLE JEJUNAL LOOP RECONSTRUCTION FOR GASTROINTESTINAL CONTINUITY FOLLOWING PANCREATICODUODENECTOMY
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Introduction: Various options to restore gastrointestinal continuity have been described since the first description of pancreaticoduodenectomy. The favoured option often reflects individual experience and the progress in technical considerations.

Aims: To assess the benefits of using a single jejunal loop to restore gastrointestinal continuity following pancreaticoduodenectomy.

Methods: All patients undergoing pancreaticoduodenectomy in a general surgical unit between 1999 - 2005 were evaluated. Following pancreaticoduodenectomy, the duodeno-jejunal flexure and proximal jejunum were mobilised so that the proximal jejunum was advanced to the pyloro-duodenum. The steps in the reconstruction were:

1) pancreatico-gastric anastomosis
2) duodeno-jejunal anastomosis
3) choledocho-jejunal anastomosis.

Results: Thirteen patients underwent the technique described; the indications for pancreaticoduodenectomy included pancreatic cancer (n = 5) and periampullary (n=4) and chronic pancreatitis (n = 4).

Operative time averaged 130 minutes (90 - 185); hospital stay averaged 11 days (5 - 18). One patient died on day 3 following relaparotomy for bleeding.

One patient developed gastroparesis 2 months following surgery: this patient had tumour recurrence. All patients had successful biliary decompression. No patients developed bile reflux or pancreatic leaks.

Conclusions: The single jejunal loop technique for restoring gastrointestinal continuity following pancreaticoduodenectomy is safe, effective and avoids the use of a Roux loop.

PALLIATION OF GASTRIC CARCINOMA WITH FLEXIBLE METAL STENTS
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Department of Surgery, University of Cape Town and Groote Schuur Hospital.

Introduction: Metal stents provide an additional option for the palliative management of malignant upper gastro-intestinal obstruction. They are commonly used for oesophageal carcinoma, but their role in the management of gastric carcinoma is less well defined.

Aim: To evaluate the feasibility of flexible metal stents and the palliation achieved by this technique in selected patients with gastric carcinoma.

Patients and methods: Seventeen patients (10 male, 5 female) with...
The majority of black female patients who present with sigmoid volvulus is common in African patients. It is hypothesised that Africans, as a predisposed population, have elongated sigmoid colon.

**Patients and methods:** Radiological films of patients of the three major population groups undergoing barium enema were reviewed. The rectum and sigmoid colon were measured using an opsiometer. Measurement was from the upper border of the symphysis pubis to the upper border of the iliac crest. The level of the apex of the sigmoid colon loop and the redundancy of the sigmoid colon loop were assessed.

**Results:** There were a total of 109 (61 females) patients undergoing barium enema (39 Africans, 49 Indians, and 21 Whites). The combined length of the rectum and sigmoid colon was 48.84 ± 15.70 cm (Africans 60.92 ± 14.44 cm, Indians 41.33 ± 12.16 cm and Whites 44 ± 11.55 cm). The sigmoid was redundant in 90% of Africans, 25% among Indians and 24% among Whites. The apex of the sigmoid colon reached L1-L3 among Africans (54%), Indians (6%) and Whites (10%).

**Discussion:** Limitation of the study were that measurements were difficult to make on x-ray films, there was no clear demarcation between the rectum and the sigmoid colon on the x-ray film.

**Conclusions:** Africans had the longest combined length of rectum and sigmoid colon and consequently the sigmoid colon. Africans had the highest number of redundant sigmoid colon. More studies are required to assess this difference.

**ANATOMY OF THE SIGMoids COLON: AN AUTOPSY STUDY**

**G E Chimney, T E Madiba, M R Haffajee**

Departments of Surgery and Human Anatomy, University of KwaZulu-Natal, Durban

**Background:** Anatomy books have suggested that the sigmoid colon is constant in position, morphology and length. This has failed to explain the high incidence of sigmoid volvulus among Africans. The aim of the study therefore was to establish if there are any differences in morphological features of the sigmoid colon between the different population groups.

**Patients and methods:** This was a prospective autopsy study of sigmoid colon in the different population groups in Durban. Adult cadavers were examined in the Government Mortuaries. Parameters assessed were length, width and height of sigmoid mesocolon, shape and size of sigmoid loop. A mesosolic ratio was calculated by dividing the width by the height of the sigmoid mesocolon.

**Results:** There were a total of 590 cadavers examined at autopsy of whom 403 (313 males) were African, 91 were Indian (77 males) and 96 were White (79 males).

**Conclusion:** The type of surgery, the type of anastomosis and the viability of the bowel did not influence outcome.

**RADIOLOGICAL ANATOMY OF THE SIGMoids COLON**

**M H Sihlouvong, E Madiba, M R Haffajee**

Departments of Surgery and Human Anatomy, University of KwaZulu-Natal, Durban

**Background:** Tumours in the proximal stomach or oesophagogastric junction (OGJ) in 9 patients, in the gastric body in 2, in the antrum in 5, and at the oesophagogastric junction as a recurrence after total gastrectomy in 1. The patients' symptoms were recorded by means of a dysphagia score (maximum score possible 12) and heartburn score (maximum score possible 8), before and after intervention, or at all follow up visits thereafter. All clinical data were collected prospectively.

**Results:** In 2 cases the tumour could not be traversed with a guidewire and stent was abandoned, the remaining 15 patients were stented successfully. There was no procedure related mortality; the single complication noted was an upper gastro-intestinal haemorrhage which required a blood transfusion. The mean pre-intervention dysphagia score was 10.4 (6-12) and heartburn score was 3.6 (0-6). After stenting the dysphagia and heartburn scores dropped to 4.5 (2-7) and 1.5 (0-6) respectively. Duration of palliation ranged from 4-72 weeks. Tumours in the proximal stomach or OGI maintained reduced dysphagia/ heartburn scores for a mean of 34 weeks (6-72 weeks), whereas the palliative function of a stent placed in the gastric body or antrum was 7 weeks (4-10 weeks).

**Conclusions:** Flexible metal stents can be deployed successfully and safely in selected patients with gastric carcinoma. They provide effective palliation for both dysphagia and gastric outlet obstruction. Palliation is more lasting in patients with carcinoma located at the OGI and proximal stomach.

**THE CLINICAL AND PATHOLOGICAL FEATURES OF A SOUTH AFRICAN FAMILY WITH HEREDITARY MIXED POLYPOSIS SYNDROME (HMPs)***

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The Colorectal Unit of the Department of Surgery and the Divisions of Anatomical Pathology and Human Genetics, Groote Schuur Hospital and University of Cape Town.

**Introduction:** The HMPS syndrome is characterised by multiple large bowel polyps (<15) of differing histological types including a mixture of atypical juvenile polyps, hyperplastic polyps and adenomas. Causative mutations have been identified on chromosome 15 and 18. Affected individuals are thought to have an increased risk of malignancy possibly via the juvenile polyposis pathway.

**Discussion:** The HMPS syndrome is characterised by multiple large bowel polyps (<15) of differing histological types including a mixture of atypical juvenile polyps, hyperplastic polyps and adenomas. Causative mutations have been identified on chromosome 15 and 18. Affected individuals are thought to have an increased risk of malignancy possibly via the juvenile polyposis pathway.

**Results:** The HMPS syndrome is characterised by multiple large bowel polyps (<15) of differing histological types including a mixture of atypical juvenile polyps, hyperplastic polyps and adenomas. Causative mutations have been identified on chromosome 15 and 18. Affected individuals are thought to have an increased risk of malignancy possibly via the juvenile polyposis pathway.

**Conclusions:** A rare inherited polyposis syndrome has been identified in a South African family. Where there is a clinical suspicion of a possible inherited condition, investigating at risk first degree relatives confirms the inherited nature of the disease.
Three patients received a histological diagnosis of diabetic mastopathy. Over a four year period (1999-2003), 34 neonates with gastroschisis underwent measurement of Pplateu respiratory pressures and simultaneous intra-vesical pressures. The Pplateu pressures were approximately 10 cmH2O higher than any concurrent intra-vesical pressure readings. ACS occurred, in one patient, when pressure measurements were above 15 cm H2O (intra-vesical) or 25 cmH2O (Pplateu).

Conclusions: By measuring Pplateu pressures, it is possible to predict the intra-abdominal pressure and hence avoid the development of an abdominal compartment syndrome on closing the abdominal wall in gastrochisis.

THE SPECTRUM OF ADULT INTUSSUSCEPTION

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Introduction: Intussusception is unusual in adults and is usually of a more sinister nature than in the paediatric population. This review looks at spectrum of presentation and pathology of adult intussusception in a single institution in KwaZulu-Natal.

Methods: The records of all adult patients admitted to Addington hospital ABSTRACTS

DIABETIC MASTOPATHY

Ij. Movson*, I. Buccimazza, Rangaka T B, Modiba C M M
Department of General Surgery, Dr George Mukhari Hospital, MEDUNSA Campus, University of Limpopo

Aim: To feasibility repair stab wounds of carotid arteries was studied prospectively in stable patients.

Methods: Four consecutive male patients aged from 21 to 45 years admitted to one surgical unit at the Dr George Mukhari Hospital from 01/10/2005 to 18/02/2006 were studied. Stab wounds were in Zone II on the (L) side of the neck. Stab wounds had the skin sutured prior to admission. The patients had received blood transfusion to treat significant bleeding.

Results: Two patients with common carotid to internal jugular vein A-V fistulae were successfully stented through a femoral artery seldinger technique approach. Both were discharged on antiplatelet therapy. The two patients were treated surgically. The patient with recurrent bleeding later died from a massive stroke. None of the four patients had associated injuries of the trachea or oesophagus.

Conclusions: Endovascular stenting is an option in repair of stab wounds of carotid arteries.

PREDICTION OF INTRA-ABDOMINAL PRESSURE BASED ON RESPIRATORY PRESSURES IN NEONATES WITH GASTROCHISIS

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Aim of study: Abdominal compartment syndrome (ACS) is a rare but potentially fatal complication of gastrochisis closure. The liberal use of a staged reduction technique has become a well-established ploy to avoid this problem. Unfortunately the use of silos is associated with a high rate of sepsis, prolonged ileus and ventilation. A method predicting an impending ACS would help surgeons to decide more objectively which patients would benefit from staged reduction. A new simple method is presented which predicts intra-abdominal pressure based on airway pressure readings.

Method: Over a four year period (1999-2003), 34 neonates with gastrochisis underwent measurement of Pplateau respiratory pressures and simultaneous intra-vesical pressures.

Result: The Pplateau pressures were approximately 10 cmH2O higher than any concurrent intra-vesical pressure readings. ACS occurred, in one patient, when pressure measurements were above 15 cm H2O (intra-vesical) or 25 cmH2O (Pplateau).

Conclusions: By measuring Pplateau pressures, it is possible to predict the intra-abdominal pressure and hence avoid the development of an abdominal compartment syndrome on closing the abdominal wall in gastrochisis.

ARTERIOGRAPHY OF THE HIP JOINT: INDICATIONS, OPERATIVE TECHNIQUE AND CLINICAL OUTCOME

Naism Siddiqui*, Takasho I Ide

School of Anatomical Sciences, Witwatersrand University, Johannesburg, & Department of Orthopaedic Surgery, University of Y amanashi, Japan

Introduction: The history of arthroscopy is old, and was first reported by Burman and Takagi in 1931. In the recent past, much progress has been reported by the Japanese authors such as Watanabe et al, Ohashi et al, Suzuki et al, Tanaka et al, Takahashi Ide et al and Yamamoto et al.

Patients and methods: This paper reports arthroscopic examination of 119 hips in 105 patients during a period of four years at Y amanashi University hospital, Japan. Two-directional arthroscopy reported by Ide et al was used which facilitates a global view of the hip joint although the anatomical location of the hip joint is deep and the joint space is narrow. We believe that using this technique, hip arthroscopy is a suitable method in selected cases.

Conclusions: This paper gives a report on the indications, operative technique and the results of the arthroscopic surgery on the hip joint.

AN 11 YEAR EXPERIENCE WITH BURN WOUNDS AT KALAFONG HOSPITAL

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Department of Surgery, Pretoria Academy Hospital

Introduction: Kalafong Hospital is a secondary hospital situated to the west of Pretoria. It serves as the regional burns centre for Gauteng province north of the Jukskei river. It mainly serves a poor population.

Methods: This is a retrospective review of an eleven year period, looking at both numbers and the aetiology of adult (age > 13 years) victims treated by the unit.

Results: Over this period, a total number of 1206 patients were admitted and treated by this unit, consisting of 738 males and 459 females. The period covered, includes a period when the government has been expending massive amounts of funds to electrify townships and rural areas. Despite this, however, the majority of burn wounds are still caused by open flames and paraffin stoves.

ENDOVASCULAR STENTS FOR STAB WOUNDS OF CAROTID ARTERIES

Rangaka T B, Modiba C M M
Department of General Surgery, Dr George Mukhari Hospital, MEDUNSA Campus, University of Limpopo

Aim: Feasibility to repair stab wounds of carotid arteries was studied prospectively in stable patients.

Methods: Four consecutive male patients aged from 21 to 45 years admitted to one surgical unit at the Dr George Mukhari Hospital from 01/10/2005 to 18/02/2006 were studied. Stab wounds were in Zone II on the (L) side of the neck. Stab wounds had the skin sutured prior to admission. The patients had received blood transfusion to treat significant bleeding.

Results: Two patients with common carotid to internal jugular vein A-V fistulae were successfully stented through a femoral artery seldinger technique approach. Both were discharged on antiplatelet therapy. The two patients were treated surgically. The patient with recurrent bleeding later died from a massive stroke. None of the four patients had associated injuries of the trachea or oesophagus.

Conclusions: Endovascular stenting is an option in repair of stab wounds of carotid arteries.

ARTROSCOPY OF THE HIP JOINT: INDICATIONS, OPERATIVE TECHNIQUE AND CLINICAL OUTCOME

Naism Siddiqui*, Takasho I Ide

School of Anatomical Sciences, Witwatersrand University, Johannesburg, & Department of Orthopaedic Surgery, University of Y amanashi, Japan

Introduction: The history of arthroscopy is old, and was first reported by Burman and Takagi in 1931. In the recent past, much progress has been reported by the Japanese authors such as Watanabe et al, Ohashi et al, Suzuki et al, Tanaka et al, Takahashi Ide et al and Yamamoto et al.

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Conclusions: This paper gives a report on the indications, operative technique and the results of the arthroscopic surgery on the hip joint.

A CASE STUDY TO DESCRIBE THE PATHOPHYSIOLOGY IN A CHARCOT FOOT

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Introduction: The mystery of the pathogenesis of the changes seen in the Charcot foot has fascinated physicians for centuries. Still today we encounter patients with this devastating condition. A better understanding of the pathology of the Charcot foot, as well as awareness and early recognition, can be of great practical value.

Aim: This case study of an amputated foot was done to study: the mechanism of architectural collapse in this foot of diabetic patients with Charcot disease of the feet: and the role of the sole of the foot.

Method: The specimen was examined radiologically, and dissected. Histological studies were also done. These findings were compared with the normal anatomy and physiology of the foot without disease.

Results: The specimen was a combination of a type II and type III Charcot deformity, causing collapse of the medial and lateral longitudinal arches of the foot. This led to ulceration of the sole of the foot, and destruction of the four layers of the dermis and epidermis footsole, with subsequent infection of the soft tissues and osteitis (confirmed by histology). The CT scan pictures and the X-rays clearly show diffuse spread of osteopenia and bone resorption throughout the foot. The condition occurred at the midfoot region.

Conclusions: We came to the conclusion that the bone resorption affected the entire foot equally, and that the arch collapsed at the area of statistically maximal physical tension. The disintegration of the protective abilities of the sole was partly the result of bony pressure (due to the collapse of the arch), but also the cause of the eventual ulceration of the sole.

DIABETIC MASTOPATHY

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Introduction: Diabetic (Fibrous) mastopathy is a condition seen mainly in pre-menopausal, insulin-dependent diabetics. The condition simulates breast cancer, and is often poorly recognized.

Aim: To report our experience with the condition in order to create awareness among clinicians, thereby reducing unnecessary morbidity by efficiently establishing a correct diagnosis, and differentiating it from breast carcinoma.

Patients and methods: This was a retrospective audit. The files of all patients seen at the Breast Clinic from 2000 were reviewed. We retrieved all those who had received a diagnosis of diabetic mastopathy and documented their details in the form of case reports.

Results: Three patients received a histological diagnosis of diabetic mastopathy. Their presentation, inclusive of radiological imaging and histology, and subsequent management is documented as case reports.

Conclusions: Diabetic mastopathy clinically and radiologically simulates breast carcinoma. Both fine needle aspiration cytology and core needle biopsy are unsuccessful in diagnosing the condition. Open surgical biopsy is required to make a definite diagnosis. Surgical excision is not recommended as most of these lesions are large and 60% tend to be bilateral or recur after excision. This condition, probably under-diagnosed in longstanding insulin-dependent diabetics, does not predispose to breast cancer. Once the diagnosis is made, the majority of patients can be followed up clinically. MR spectroscopy is currently being investigated to confirm benigancy of these lesions.
in a 2 year period (Feb 2004 to Feb 2006) with intussusception were reviewed respectively.

**Results:** Six patients were admitted with intussusception. All the patients were male and the mean age of presentation was 45. A preoperative diagnosis was made in 3 of the six by CT scan; the remaining 3 were diagnosed intraoperatively. The lead points were small bowel adenocarcinoma (2), amoeboxic (2), lymphoma (1) and in 1 (0) clear end point could be identified. The anatomical descriptions of the intussusceptions were ileo-ileo (2) and ileo-ileo (4). All underwent resection and primary anastomosis. One patient died from fulminant respiratory failure.

**Conclusions:** Adult intussusception is rare and is usually secondary to a lead point. CT scan is a good diagnostic modality. Amoeboxic is a common cause in KwaZulu-Natal. Resectional surgery remains the treatment of choice.

**BILLIARY COLIC FROM TRANSIENT OBSTRUCTION OF DISTAL END OF COMMON BILE DUCT BY SMALL GALLSTONES. A PROPOSAL FOR RECONCILIATION AS A CLINICAL ENTITY SEPARATE FROM GALLSTONES TO PANCREATITIS**

Mr Z Moshali
Mediforum Clinic

**Introduction:** Biliary colic from small stones impacting temporarily in distal common bile duct without causing pancreatitis is an emerging clinical entity where no consensus has been proposed.

**Patients and methods:** During the period from 2002-2006 25 patients from a solo general surgical private practice. There were multiple stones in the gall bladder and biliary colic causing episatic pain but no features of pancreatitis.

**Clinical profile:** Young females between 25-40 years complaining of episatic pain preceding the back, lasting for few minutes to few hours. Provoked by, usually main meal of the day. Severe pain, restlessness. Pain ends abruptly, completely. Recurs after days, weeks or months. Nausea and occasional vomiting, no residual tenderness, minimal or minimal on deep palpation. Long history is similar pain for months to 5 years. Treated by general practitioner as peptic ulcer. May have been referred a number of times for gastroscopies – reported as normal. No evidence of peptic ulcer disease. Histories of dyspepsia. Gallbladder with multiple small stones, gallbladder wall of normal thickness. No evidence of cholecystitis at cholecystectomy.

**Proposed pathogenesis of gall stone biliary colic at distal end of common bile duct:** Embryological development of the distal end of common bile duct and the pancreatic ducts is closely related leading to common sensory and motor innervation of the distal end of the common bile duct and head of pancreas. This offers an explanation for the episatic pain and radiation to the back without hyperamylasaemia from a small stone impacting transiently in the ampulla of Vater.

**Conclusions:** There is an urgent need to recognize this clinical entity so that early diagnosis is possible, the abdominal sonar being a highly sensitive and specific investigation.

**ISOLATED SMALL BOWEL INJURY FOLLOWING BLUNT ABDOMINAL TRAUMA – A CHALLENGE IN MODERN TRAUMA PRACTICE**

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Department of Surgery, UKZN

**Introduction:** Modern management of trauma is increasingly dependant on sophisticated imaging for the diagnosis and management of the injured patient. Whilst this has proven beneficial in the management of solid visceral injuries, it has not been without drawbacks. The delay in presentation or diagnosis invariably mandated Intensive or High Care support, Complications of surgery, Mortality. The data were evaluated; data retrieved included: Nature of injury, Time of presentation from injury to first clinical assessment, Time of injury to diagnosis, Delay in diagnosis (time of presentation to surgery), Need for intensive care support, Duration of Intensive Care support, Complications of surgery, Mortality. The data were subjected to analysis using SPSS 13.

**Results:** There were 20 patients identified in the study period. The abdominal trauma was consequent to seatbelt trauma in 4 patients, a punch (n=6), fall (n=6) or kick (n=7). Six patients presented early (within hours) to hospital, the rest were delayed. Four patients were diagnosed early and had an uncomplicated post-operative recovery; these patients were discharged within 3 days. Delay in presentation or diagnosis invariably mandated Intensive or High Care support with an increase in complications.

**Conclusions:** Astute clinical assessment remains the cornerstone of an uncomplicated outcome in trivial blunt abdominal trauma. Delays in diagnosis and intervention are accompanied by an increase dependence on sophisticated resources, longer hospital stay and higher morbidity. Investigative tools have proved unhelpful in the early diagnosis.

**MALE BREAST CANCER: OVERVIEW OF LOCAL EXPERIENCE**

Ines Buccionazza, Surendra Naidoo, Sundrini Pillay*
Breast Unit and Department of Oncology*, Addington Hospital and the Nelson R. Mandela School of Medicine, Durban

**Introduction:** Breast cancer in males is uncommon. It accounts for approximately 1% of all breast cancers and has certain characteristics which differentiate it from female breast cancer.

**Aims:** We undertook to determine the number of male patients diagnosed with breast cancer in our Breast Unit and to analyze the characteristics of these breast cancers.

**Patients and methods:** This was a descriptive, retrospective audit of all male breast cancers between April 2002 and March 2006. The files were retrieved from the Breast and Oncology clinics and the data analyzed on a proforma.

**Results:** Sixteen patients were diagnosed with breast cancer over the four year study period. The majority of these patients were black with a mean age of 72.7 years. A breast lump present for a mean period of 11.1 months. The most common complications were locoregional failures or metastatic recurrences and six patients are known to be alive – four of these disease-free.

**Conclusions:** Our findings confirm what is reported in the literature, namely that breast cancer in males is uncommon, presents late and is mostly endocrine-responsive. All operable lesions were treated with a skin-sacrificing mastectomy. During the mean follow up period of 12.2 months there have been no locoregional failures or metastatic recurrences and six patients are known to be alive – four of these disease-free.


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University of Natal; Nelson R Mandela School of Medicine. Department of Surgery and the Department of Clinical and Applied Psychology, University of Natal

**Introduction:** This study aimed to quantify the degree of acute psychological stress experienced by candidates sitting the FCS examinations and to attempt to correlate the degree of stress with the examination results of individual candidates.

**Methods:** Immediately after each candidate's final oral examination he/she was asked to fill out a stress scorecard. The scorecard required either a tick or a cross or a blank if the candidate had experienced any of the physical, psychological or behavioural reactions to stress during the exam or in the immediate run-up period to the exam. The responses were analysed to quantify the degree of psychological stress the candidate had been subjected to during the exam.

**Results:** We received completed scorecards from 114 candidates. There were 25 failures and 89 passes. The average level of stress in the failures was 134 and in the passes 132. There was no significant difference between the two groups. (p value 0.89) This was not significantly different and we could not demonstrate a correlation between stress level and outcome.

**Conclusions:** Sitting the FCS examinations is associated with a high degree of stress. The stress response is variable amongst individuals and does not seem to be associated with outcome in the examination.

**EMBRYOLOGICAL RARITIES: AGENESIS AND DUPLICATION OF THE GALLBLADDER: A CLINICAL REPORTS AND REVIEW**

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**Introduction:** Congenital absence and duplication of the gallbladder are extremely rare embryological aberrations with reported incidences ranging between 0.013%-0.075% and 0.02%-0.03%, respectively. These rare congenital anomalies are important in clinical practice as they may cause some clinical, surgical and diagnostic problems.

**Methods:** This report presents two cases of gallbladder agenesis and a single duplicated gallbladder.

**Gallbladder agenesis:** The two female cases of gallbladder agenesis, the first reported from South Africa, brings to 433 the number of cases reported in the literature.

A 33 years old, presented with long standing upper abdominal colic. Physical examination was normal. Ultrasound and oral cholecystogram strongly suggested gall stones. At laparoscopy, the gallbladder was not visualized. Postoperative CT scan and ERCP confirmed gallbladder agenesis.

A 61 year old, presented with jaundice of 6 weeks duration and a history of long standing dyspepsia. Clinical examination was normal. Liver function tests were deranged consistently in April 2007. Ultrasound suggested cholelithiasis and demonstrated a distal common bile duct. An ERCP for a sphincterotomy and stone extraction was unsuccessful. CT scan confirmed...
A duplicated gall bladder diagnosed serendipitously

Forty (89%) patients presented with peritonitis, and supplied the lower segment and proximal ureter of the contralateral kidney. Similar incidences on either side (right, 4.7%; left, 4.4%) (Satyapal et al, 2001). Bilateral incidence was 11.4%. First ARAs were more common on iliac artery, supplying the lower segment of the kidney and proximal ureter. Arteries between August 1998 and August 2005 and examine outcome in terms of management. Intra-operative findings and outcome was collected and analysed. Although short soak-time is adequate for instruments that do not violate the mucous membranes or skin, this is not satisfactory for invasive-procedure instruments such as laparoscopic hand instruments. A rare example of this anatomy prior to operation could prevent an unnecessary loss of renal function in the post-operative period. An awareness of the incidence of these variants in the general population is necessary for adequate surgical management in the afore-mentioned specialties.

SURGICAL PERSPECTIVE OF TYPHOID DISEASE IN THE TRANSKEI

Typhoid disease is endemic in the Transkei region, afflicting poor rural communities with poor sanitation and without clean-piped water supply. The unit sees mostly patients with complicated typhoid disease, such as ileal perforation and lower gastro-intestinal haemorrhage.

Aim: To determine the geographical distribution of this condition. Its present, presentation, management and associated mortality.

Material and methods: Medical records of all patients admitted to our unit with suspected typhoid disease from January 2005 to April 2006 were analysed retrospectively. Data regarding clinical presentation, laboratory results, management. Intra-operative findings and outcome was collected and analysed. Results: Of 912 non-trauma admissions 45 (5%) were typhoid related admissions. There were 30 males and 15 females (male-female ratio of 2:1) with median age of 13 years. (Range 3-78 years.)

Geographical distribution: Thirteen (29%) patients addresses were not from Transkei. Twenty-three (25%) were from Limited availability of sterilization techniques in South Africa was reported.

Method/material: A telephonic and paper survey of OR nurses in South African hospitals was carried out to determine the techniques of sterilization of laparoscopic hand instruments. A review of sterilization techniques in South Africa is reported.

Conclusion: A 44-year old live-related donor was identified. The additional renal vein accompanied this vessel. The kidney was harvested and both arteries were imaged onto the recipient’s right external iliac artery. The additional renal vein was ligated. The donor kidney was successfully transplanted into a 55-year old female recipient.

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It is unclear if the adverse
7. Is
5. Of the economy were currently enjoying
4. Of RWOPS as unethical and immoral
3. Examples throughout the world.
2. In addition, this practice is not unique to
1. To supplement their income in this way.
0. The system would collapse as a result of mass
-5. Morality of carrying out what is in effect
-6. Cause ongoing debate. The ethics and
-1. Universal and we would argue that
0. Compensation is usually regarded as an
-2. To medical practitioners is also low in
-3. Margins. In addition remuneration paid
-4. To overall market rates and packages
-5. For example, municipal managers
-6. Policies that are more closely aligned with
-7. Many factors play a role in the choice
-8. To recent years the public sector
-9. In 2000; 25% compared to the overall of 2%. It occurs, however in this group the limb loss rate is 25% compared to the overall of 2%.
0. PARTIAL PURIFICATION OF A CHROMIUM CONTAINING COMPOUND FROM LIVER
1. GP Candy and A Coelho
2. Departments of Surgery and Orthopaedic Surgery, University of the Witwatersrand, Johannesburg
3. Background: Mortality in severe trauma and burns remains around 20% despite high tech monitoring and powerful drugs. Most deaths result from non-resolving failure of multiple organ systems (MOPS), due to or coinciding with sepsis (1). Recent evidence suggests a disturbance in cellular energy metabolism contributes to organ failure. In intensive care (1), burns (2) and trauma (3) hyperglycemia and elevated insulin concentrations are associated with poor outcome. Tight glucose control with insulin has been one of the few strategies to improve MOF outcome in high care (1).
4. Chromium (Cr ) containing glucose tolerance factors (GTF) has been identified as an important, but as yet not fully understood role in glucose metabolism. It was originally described in 1953, is synthesized in the liver, is known to bind insulin to mediate uptake of insulin into adipocytes and facilitate the disposal of glucose by these cells. Subsequently, in the 1990s Vincent and co-workers isolated a small molecule, chromodulin, from liver cells and determined that it contained several chromium molecules (analogous to the iron carrier transferrin).
5. However, despite numerous attempts, the structure of GTF:chromodulin has never been fully elucidated. As GTF:chromodulin is associated with glucose disposal, to determine its role in glucose control in high care surgical patients, will require elucidation of its structure.
6. Methods: Attempts to purify GTF from fresh calf liver used previously published methods, which included the addition of chromium permanganate (Cr ), 90% (v/v) ethanol precipitation and ion exchange chromatography on DEAE-Sepharose. No chromium eluted from the ion exchange column with insoluble material remaining on top of the column.
7. Liver was subsequently homogenised in a blender in cold buffer with Cr acetateonate and 5Cr-labelled CrCl (as tracer to follow incorporation of Cr ). Protein with radioactive label following ethanol precipitation (90%; v/v) was not soluble in buffer. Radioactivity could however be extracted using a biological detergent CHAPS (1% m/v) or Brij 35 (0.5% m/v).
8. Discussion: It is uncertain how previous workers isolated active chromodulin with the addition of toxic oxidizing Cr . In contrast to the literature our results suggest that incorporated non-toxic chromium CR is associated with liver membrane fraction. Attempts to purify this substance are continuing.
9. REFERENCES
4. 3. Laid AR, Miller PR, Klapf PD, Meredith JW, Chang MC. J Trauma-Injury
The presence of MUC5AC (M1 antigen) and MUC6 have previously been found in ovarian mucinous cysts.

**Results:** Histology showed a tumour with solid and cystic areas, with the cysts lined by colonic and respiratory mucosae. Equal volumes of 'sol' and 'gel' phases of approximately 10:9 ml were obtained from the pathologists. Gel filtration and SDS-PAGE suggested that the mucin was mainly of the large polymeric type which dissociated upon reduction of disulphide bonds with DTT after eluted in the included volume of the Sepharose 2B column or displayed a slightly higher electrophoretic mobility on SDS-PAGE. The colonic primary epithelial cells were exposed to a 100% concentration of nasopharyngeal mucus. Inhibition assay results were revealed that while salivary MUC5B and cervical secretion MUC1, MUC2, MUC4, MUC5AC, MUC5B and MUC6 mucins. Inhibition assay results revealed that while salivary MUC5B and MUC7 inhibit poxvirus activity by 60% and 70% respectively, both milk and cervical mucins are reported to inhibit poxvirus activity up to 100% in a dose dependent manner.

**Summary:** Although the mechanism of action is not yet known the carbohydrate portion of mucins are thought to aggregate bacteria, viruses and fungi.

**The Biochemical and Immunohistochemical Characterisation of Mucins in Colon Disease. A Pilot Study**

Chirwa Nthato, Mall Anwar, Tyler Marilyn, Govender Dhiren, Korin Bruce, Goldberg Paul, Krige Jake, Lotz Zoe, Alistair Hunter and Kahn Delawir

**Objective:** The colonic mucosa is lined by a protective and continuous mucous gel layer of variable thickness of which MUC2 is the predominant mucin. The aim of this study was to characterise mucins in cancer of the colon and compare these to controls using stringent biochemical measures to avoid endogenous proteolysis.

**Design:** Crude mucus scrapings were collected from 12 specimens obtained by surgical colectomy. Specimens obtained from 3 traumatic colectomies and 1 sigmoid volvulus were used as controls, and compared to 6 specimens obtained from colon resected for adenocarcinoma and 2 irradiated colons.

**Subjects:** The median ages of the 4 females and 8 males were 76 (range 49-82) and 46.5 (range 16-74) respectively.

**Results and conclusions:** The crude mucus scrapings in the 9 specimens ranged in weight from 353mg to 7697mg (median 4928mg). The mean amount of purified mucin in the 9 specimens was 2.43µg/mg wet weight of scraped tissue. Eight samples gave non-extractable pellet material, and were combined with DTT to reduce disulphide bonds for further analysis. One of these 8 pellets was resistant to reduction and had to be digested with papain before analysis. Only 5 of these samples were evaluated with DTT with reduced disulphide bonds for further analysis. Western blotting and immunohistochemistry confirmed the presence of MUC2 in all samples, MUC5AC in two and MUC5B in five diseased specimens. The electrophoretic behaviour of MUC2 in sigmoid volvulus was different to that in cancer of the colon. Immunohistochemistry showed that there was no MUC1 in the normal specimens, MUC1 protein (MUC1 core) in two cancer specimens and MUC1 in one cancer specimen. Histochremistry showed that normal tissue expressed neutral and acidic mucins and diseased specimens predominantly expressed acidic mucins.

**The effect of Liver regeneration on Cyclosporine Pharmacokinetics**

L. Lodewyk, A. Mall, D. Kahn

**Introduction:** During liver transplantation, the donor liver may be injured as a result of ischaemia, rejection, infection or drug toxicity. The liver responds to this injury by undergoing liver regeneration. Cyclosporine is a potent antiproliferative agent used in liver transplantation. The aim of this study was to investigate the effect of liver regeneration on cyclosporine pharmacokinetics.

**Methods:** Long Evans rats were subjected to either two thirds partial hepatectomy (PH) or sham operation (SH). Pharmacokinetic (PK) studies after a bolus dose of cyclosporine (5mg/kg) were performed at 0, 24 and 96 hours postoperatively.

**Results:** The mean cyclosporine Cmax was greater after PH compared to...
the SH group at 0, 24 and 96 hours postoperatively. The mean Co levels were similar in the PH and SH groups at 0.24 and 96 hours postoperatively.

Conclusions: Cyclosporine pharmacokinetics were modified by the responsive regimen after PH. This effect would have to be taken into consideration in managing the immunosuppression in liver transplant recipients.


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Aim: To evaluate a hydroxyapatite-coated Total Knee Arthroplasty.

Patients and methods: Fifty three knees in 45 patients were replaced with a Scorpio SuperFlex and Delta series 7000 cruciate retaining, HA-coated single axis total knee system (Stryker Howmedica Osteonics) from October 1999 at University of Yamashita Hospital, Yamashita prefecture, Japan. 47 knees in 40 patients were women and 6 knees in 5 patients were men. The average age at the operation was 67 years (range 40-75 years). 32 knees in 29 patients were OA cases and 21 knees in 16 patients were RA patients. The average length of follow up period was two years.

All the tibial components had a V shaped central peg called as Delta-Fit Keel and four cancellous titanium screws were used to fix the tibial component. Postoperative radiographs were taken immediately, at 2 weeks, 3 months, 6 months and then at 6-monthly intervals. AP and lateral views were taken with the x-ray beams directed as nearly as possible in the rectangular to sagittal or horizontal plane of the component.

Parameters studied were radiolucent lines in zones 2, 6 and 4 of femoral component and zones 1, 5, 6, 7 and 4 of tibial component, FTA, Femoral flexion (α), Tibial angle (β) and Total Valgus angle (γ) in AP views, Femoral flexion (βf) and Tibial angle (β) in lateral views were measured according to the Knee-society Roentgen graphic evaluation and scoring system and Japanese Orthopedic Association (JOA) score.

Results: Radiographic results revealed no radiolucent line until the end of an average of two years of follow up. The average tibiofemoral angle was 172, which is within normal limits. The average femorolateral flexion angle was 96 (range 100-93); the average femoral lateral angle was 91; Femoral flexions and tibial flexions in the sagital plane were an average of –1 (-8 to 6) and 83. In the sagital plane, the ideal position of the femoral component in relation to the long axis of the femur was considered to be zero degree and tibial component in relation to the long axis of the tibia was considered to be 90 degrees.

The pain improved markedly after surgery increasing mobility in all patients, which is the main goal of the treatment. The JOA scores increased from an average of 30 preoperatively to 75 postoperatively in rheumatoid patients, and from an average of 43 preoperatively to 82 postoperatively at their latest follow up at an average of two years after surgery.

Conclusion: The patients were satisfied from the treatment outcome and no loosening was seen until two year postoperatively.

**PODTRACK® TRACING PAPER, A CLINICAL TOOL AND DIAGNOSTIC AID IN CHARCOT FEET**

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Purpose: To test the possibility of using a Podtrack® tracing paper, as an adjunct in the diagnoses of Charcot’s disease of the foot in diabetic patients and as a diagnostic tool to classify the type of Charcot’s disease in these patients.

Method: A prospective analysis was done on all patients with Charcot’s disease of the foot in diabetics at the diabetic foot clinic (Pretoria Academic Hospital) over a 10 year period. The diagnosis of Charcot’s disease was made and confirmed by doing a white- and red cell radio isotope scan, erythrocyte sedimentation rate and an X-ray study of the feet.

Result: Twenty three Charcot’s feet were diagnosed in total. The pressure profile of each foot sole with Charcot’s disease was measured with the Podtrack® tracing paper. The changes in the pressure profile of these patients were recorded. A definite pattern could be shown in all the patients who had Charcot’s disease of the foot. We also found that each type of destruction in patients with Charcot’s disease of the foot, demonstrates a distinctive pattern on the Podtrack® tracing paper. These patterns correlate well with a simple grid that divides the foot into halves and in thirds, and shows therefore a reproducible pattern that can help any doctor to diagnose the type of Charcot’s destruction.

Conclusion: Podtrack® tracing paper provides a cheaper alternative to X-rays to aid in the diagnosis of Charcot’s disease of the foot and to diagnose the type of destruction in a patient with Charcot’s disease of the foot in diabetic patients!


SJA Smir, F Kleinhans

Curator of the Free State and Manguang Correctional Center

Introduction: The purpose of this paper is to give the reader insight into the medical and social aspects of prison life.

Patients and methods: The Manguang Correctional Center is a prison run by a private company. We describe the nature of surgical practice in prison and secondly to reveal the lesser-known aspects of life in prison.

Results: The provisional diagnoses of 212 consecutive patients (December 2003-October 2005) were analyzed.

Upper gastro-intestinal complaints: 65 patients. The majority of patients in this group complain about one or more of the following symptoms: *Upper-abdominal pain, *Dysphagia, *Haematemesis. A remarkable but understandable feature is that the positive yield of upper intestinal scopes in terms of pathology is extremely low. The most frequent pathology detected endoscopically in Candida oesophagitis.

Anal and peri-anal diseases: 61 patients. The pathology encountered is as follows: *Anal fissure (84%), *Peri-anal fistula, *Condyloma acuminate.

Disintegrating perineum syndrome: 47 patients.

Diseases of the skin appendages: 30 patients. AIDS related lymphadenopathy: 12 patients. HIV testing is subject to voluntary counseling and consent. Amongst the tested group (2004 statistics) the incidence is 30.6%.

Benign soft tissue tumours: 11 patients.

Miscellaneous: 35 patients. The deliberate ingestion of foreign objects remains a troublesome situation. The conservative option works well. Current opinion is that if the object has passed the crico-pharyngeus, it will be passed per anum eventually. It really is surprising what actually can transverse the gastro-intestinal tract. With ingested glass there usually are no problems. Operative intervention is required if exceptionally long pieces of wire were ingested or foreign objects impacted at a specific site without progression.

Objective and subjective conclusions

Physical health: It has been noted that the physical health of the inmates improves after imprisonment. This could arguably be partially due to the scarcity of tobacco and alcohol. Smoking (in designated open areas) but not alcohol is allowed in prison. The source of illegal alcohol is a recipe whereby fruit is fermented in sunlight. Remarkably, quite a number of inmates reported that for the first time in their lives they have succeeded at quitting smoking. The other health promoting factors are...
Their mental health is much better than anticipated. This study proved that intracorporeal pressure increases. A total of 20 patients underwent percutaneous drainage of... changes were sought. There were any changes peculiar to the condition; specifically, inflammatory role in the evolution of the condition. Traditionally, due to an inability to define the pathophysiology of this condition. Departments of Surgery and Anatomical Pathology... tissues, digits or even limbs could be catastrophically compromised. Vacuum dressings are applied by both doctors and... the underlying and distal tissues when using this type of therapy, particularly... thickness of the dressing also influences the pressure within the tissues. Differing the configuration and foam pressure increase when these are non-circumferential, however, there is a local... intracorporeal pressure. Vacuum dressings of different... dressings in tissues with vascular compromise, particularly when circumferential positive. This, however, has huge implications regarding the indications for these dressings is still poorly understood, it has been shown that negative pressure on a wound causes a decrease in oedema, neovascularisation and tissue ingrowth. The concept of exactly where the negative pressure exists in the dressing has not correctly been grasped by many. There is usually a debate as to whether the pressure is applied to the tissue is negative, equal to atmospheric or even positive. This, however, has huge implications regarding the indications for these dressings in tissues with vascular compromise, particularly when circumferential dressings are used. Various sizes of intravenous fluid bags (vacolitres) were used as models to determine intracorporeal pressure. Vacuum dressings of different configurations were applied to the bags and the pressure inside these bags was measured. The pressure between the foam and the wound interface was also measured. Results: All the vacuum dressings, except the non-circumferential one, increased the pressure within the vacolitres. The application of thicker or multiple layers of foam greatly increased the pressure within the bags. The non-circumferential dressings did not change in pressure within the vacolitre, however, the pressure beneath the foam dressing increased. This too was proportional to the number of layers or thickness of the foam. The application of thicker foam also results in increase in intracorporeal pressure increases with all types of circumferential vacuum dressings. There is no intracorporeal pressure increase when these are non-circumferential, however, there is a local pressure increase and hence the dressing. Differing the configuration and foam thickness of the dressing also influences the pressure within the tissues. Although these dressings have proved invaluable in wound care, this study demonstrates that it is of utmost importance to be certain of the vascularity of the underlying and distal tissues when using this type of therapy, particularly if applied circumferentially. Vacuum dressings are applied by both doctors and nursing staff alike and should they not be aware of the concept of a negative pressure dressing applying a positive tissue pressure, the viability of ischaemic tissues, digits or even limbs could be catastrophically compromised.
abdominal collections at Addington Hospital since December 2003. There were 10 males and 10 females. Average age was 45.5 years and range was (13-75). Demographic breakdown (African 14, Coloured 3, Indian 2, White 1). Diagnosis included amoebic liver abscesses (9), pyogenic liver abscesses (2), liver haematoma (1), appendicular abscesses (2), post traumatic (2), post surgical (4). Complications were seen in 5 patients, septic amoebic liver abscess (1), recurrence (1), septic empyema (2) colo-cutaneous fistula (1). In one case the septic empyema was ultimately fatal. This patient was HIV positive. All the remaining patients were successfully treated non-operatively.

Conclusions: Percutaneous drainage is possible for a wide variety intra-abdominal septic collections. It requires a Precise patient selection to achieve optimal results and although it may be associated with complications it allows one to manage intra-abdominal septic collections effectively in select cases. Care must be taken to avoid hollow visceral injury and to avoid inadvertent contamination of the pleural space.

CROHN’S DISEASE IN PRETORIA
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Introduction: In 1932, Crohn, Ginsberg and Oppenheimer first published the condition, regional ileitis which was named as Crohn’s disease. Crohn’s disease usually affects Caucasians it is characterised histologically by a transmural chronic granulomatous inflammation predominantly in submucosa which helps to distinguish it from tuberculosis. The first African patient with Crohn’s disease was diagnosed in Rwanda in 1946 and the first South African cases were diagnosed between 1958-1964 at Baragwanath Hospital and between 1964-1978 at Pretoria Academic.

Objectives: To describe the occurrence and geographical distribution of Crohn’s disease from 1995-2006 amongst the population of Pretoria.

Methods: A descriptive design was employed to study 241 cases of Crohn’s disease historically diagnosed in Pretoria from 1995 to 2006. All cases were enlisted after a thorough review of all the records of pathological laboratories from public, private and military sectors in Pretoria metropolitan area. Patients were diagnosed by colonoscopy and biopsy, and 109 at laparotomy.

Results: The cumulative incidence of Crohn’s disease in Pretoria is 13 per 100,000 over 1995-2006. The median age was 43 years (range 11-90). Fifty five percent (121) of patients are female. Majority of patients by race were (86%) whites, 9% (22) Africans and 3% (9) Indian. The sites involved in the pathology were lower ileum (22%), colon region 20%, small bowel 7.5%, rectum and anal regions 8.8%. Thirty percent of patients presented with complications. 78% of cases were operated.

Conclusion and recommendation: Crohn’s disease is not rare in Pretoria and does occur in all racial groups though predominantly among the whites. There is need for continuing medical education on this disease including the public sector medical practitioners to increase awareness and early diagnosis of the condition.

EFFICIENCY AND COST-EFFECTIVENESS OF A RE-USABLE, MULTIPLE BANDING DEVICE FOR THE TREATMENT OF OESOPHAGEAL VARICES
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Aims: This study assessed the efficacy and cost effectiveness of a re-usable, multiple banding device (Euroligator) for use in endoscopic banding ligation (EBL) of bleeding oesophageal varices.

Study design: The study was conducted prospectively in patients who presented with bleeding oesophageal varices and subsequently were entered in the variceal eradication programme.

Patients and methods: All patients presenting with bleeding oesophageal varices who required elective or emergency variceal banding were eligible. Informed consent was taken. Appropriate sedation was administered. Full gastroscopy was performed, documenting the extent and grade of varices and the need for EBL. Acute bleeds requiring emergency ligation and subsequent elective EBL to eradicate varices were included. The time to load the device, the number of bands applied and the duration of endoscopic band procedure, the number of varices banded and post-procedure complications (pharyngeal pain, retrosternal pain and bleeding) were documented and measured. A cost analysis was performed to calculate the cost per session using the Euroligator.

Results: A total of 84 procedures were performed. The mean time taken to load 5 bands onto the device was 210 seconds (range 135 - 455). The mean time taken to perform the endoscopic procedure and deploy the bands was 280 seconds (range 120 - 2700). Both times improved as experience with the device was gained. An average of 4 varices were banded per session (range 1-5). 16 procedures were complicated by pharyngeal pain and 12 by retrosternal pain. 21 procedures were complicated by a total of 30 mists of the banding device. Bleeding complications occurred in 4 procedures. The average cost per procedure was R268-10, which compared favourably with competitive non-re-usable banding devices (Wilson-Cook six shooter - R165-00).

Conclusions: Re-usable Euroligator banding device provides an efficient, cost-effective means for treatment of oesophageal varices, with minimal complications.

TO SHARE OR NOT TO SHARE - EQUITY VERSUS EFFICIENCY IN DONOR KIDNEY ALLOCATION
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Introduction: The most equitable method of donor kidney allocation remains unresolved. In this study we compared two methods of organ allocation.

Background methods: We have three transplant units in the region involved in an organ sharing system as follows. One of the donor kidneys is allocated to the pool whose patients are listed according waiting time, PRA and HLA matching, which would represent the most deserving patient (equity). The second kidney is used at the harvesting team’s discretion and theoretically allocated to the patient where it is most likely to succeed (efficiency). Only patients treated at Groote Schuur Hospital between 2001 and 2005 were included in the study. All patients were managed by the same transplant team and received the same immunosuppression protocol consisting of cyclosporine, steroids and azathioprine.

During the study period 60 kidneys were allocated to a ‘pool’ patient and 56 kidneys at the discretion of the ‘unit’. The two groups of patients were matched according to age, gender and race distribution, CIT, HLA matching, and number of previous transplants. The mean serum creatinine levels in the ‘pool’ and ‘unit’ kidneys at 1 and 2 years post-transplant were 163.3 vs 163.7μmol/L and 136.4 vs 134.6μmol/L, respectively. The graft survival at 1, 2 and 3 years in the ‘pool’ kidneys was 100%, 93% and 85%, and in the ‘unit’ kidneys 100%, 100% and 91%, respectively.

Conclusions: These findings would indicate that the outcome after kidney transplantation was not affected by whether the kidney was allocated to the most ‘deserving’ patient (equity) or the ‘best’ patient (efficiency). Alternatively it could be argued that the discreetness of the ‘best’ patient needs to be reviewed.