BJUI

BAUS Annual Meeting, 17–20 June 2013, Manchester Central

Poster Sessions

Tuesday 18 June 2013

Poster Session 1
10:30–12:00 Charter 2
STONES
Chairs: Mr Oliver Wiseman & Professor Elspeth McDougall
Posters P1–P11

Poster Session 2
10:30–12:00 Charter 3
PENILE CANCER
Chairs: Professor Damian Greene & Mr Vijay Sangar
Posters P12–P21

Poster Session 3
14:00–16:00 Charter 2
CLINICAL PRACTICE AND EDUCATION
Chairs: Mr John McCabe & Mr Chris Blake
Posters P22–P36

Poster Session 4
14:00–16:00 Charter 3
UPPER TRACT MALIGNANCY
Chairs: Mr Gren Oades & Mr Jim Adshead
Posters P37–P50

Wednesday 19 June 2013

Poster Session 5
10:30–12:30 Charter 2
PROSTATE CANCER TREATMENT
Chairs: Associate Professor John Davis & Mr Vijay Ramani
Posters P51–P66

Poster Session 6
10:00–12:00 Charter 3
RECONSTRUCTION & INFERTILITY
Chairs: Mr Jonathan Ramsay & Miss Daniela Andrich
Posters P67–P80

Poster Session 7
13:30–15:30 Charter 2
FEMALE UROLOGY
Chairs: Mr Arun Sahai & Mr Simon Fulford
Posters P81–P92

Thursday 20 June 2013

Poster Session 8
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LUTS AND BLADDER DYSFUNCTION
Chairs: Mr Chris Harding & Miss Tina Rashid
Posters P93–P103

Poster Session 9
10:30–12:00 Charter 3
BASIC SCIENCE
Chairs: Mr Ravi Barod & Mr Rakesh Heer
Posters P104–P115

Poster Session 10
12:30–14:00 Charter 2
BLADDER CANCER
Chairs: Mr Param Mariappan & Mr Rob Mills
Posters P116–P126

BJUI

Tuesday 18 June 2013
Poster Session 1
10:30–12:00 Charter 2
STONES
Chairs: Mr Oliver Wiseman & Professor Elspeth McDougall
Posters P1–P11

P1

Ethnic diversity of stone patients treated at an urban hospital in the UK

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Birmingham City Hospital, United Kingdom

Introduction: Ethnic differences in incidence of stone disease are well documented. We evaluated ethnic diversity of patients treated for stone disease in a multicultural inner-city population and compared it with corresponding Census data for our catchment area.
Patients and Methods: A database of 967 patients between January 2001 and December 2011 having renal stone analysis at our institution was analysed for demographic details. This was cross referenced with age, gender and ethnicity of the referral population from 2011 Census data.
Results: During this period, 967 patients(median age 50 yrs; 72% men, 28% women) had stone analysis. Of these 64.9% were of Caucasian, 23.0% South Asian, 4.5% Middle Eastern, 5.5% Afro-Caribbean, 0.8% Far Eastern and 1.3% mixed/unspecified ethnicity. The hospital catchment population is 500,000(median age 39 yrs; 49% men, 51% women). The ethnicity breakdown from 2011 Census data for the study population is 79.7% Caucasian, 13.3% South Asian, 0.7% Middle Eastern, 5.2% Afro-Caribbean, 0.6% Far Eastern and 0.5% mixed/unspecified.
Conclusions: The proportion of Afro-Caribbean and Far Eastern origin patients that underwent stone analysis mirrored the ethnic distribution of the community served by the hospital. However, higher proportions of Middle Eastern and South Asian patients, predominantly male,were seen. In contrast, a lower proportion of Caucasians required intervention. Compared to the census population, stone patients were predominantly of male gender with a higher median age. We advocate larger prospective studies including information on dietary intake, migratory trends, and acculturation, a function of length of residency in a new country.

P2

21st Century Emergency Stone Management in a District General Hospital; Are we still in the Stone Age?

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Doncaster Royal Infirmary, United Kingdom

Introduction: Minimally-invasive endoscopic stone surgery has reduced morbidity allowing early return to normal activities for patients. Despite evidence that emergency ureteroscopy (URS) and stone fragmentation is safe and effective; the emergency management of stone disease has not mirrored the elective management. We assessed the efficacy and safety of emergency URS at our institution.
Patients and Methods: We performed a prospective study of all patients undergoing emergency URS over 12 consecutive months, commencing October 2011. Indications for surgery included; failed medical treatment, pain and patient choice. Stone characteristics, stone-free rates, peri-operative complications and hospital stay were recorded. We compared patients undergoing elective URS for urolithiasis over the same period.
Results: 62 emergency and 40 elective URS were performed. 24 (39%) emergency URS were additional cases on elective lists, and 38 (61%) were performed out of hours/weekends. Median length of stay was 1 and 3 days respectively for elective and emergency URS. 23 (58%) patients were stented undergoing elective URS and 35 (56%) undergoing emergency URS. Stone free rates were 90% and 82% in the elective and emergency groups respectively (Fisher's test, $p = 0.39$). Mean stone size was 7.4 mm and 6.6 mm in the elective and emergency groups respectively ($p = 0.11$).
Conclusion: Emergency stone surgery is safe and effective. It offers immediate pain relief and stone fragmentation. Furthermore, it reduces radiological imaging, stent issues and multiple hospital admissions if conservative/medical management is opted for initially or if the patient be discharged pending semi-elective URS. However, it does require appropriately trained staff, particularly out of hours.

P3

Predicting success of emergency extracorporeal shockwave lithotripsy (eeswl) in ureteric calculi

AP Panah, S Patel, A Bourdoumis, F Zaman, S Kachrilas, A Goyal, A Papatsoris, N Buchholz, J Masood
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Purpose: To evaluate the efficacy of emergency ESWL and associate factors that may predict successful outcome.
Materials and Methods: We retrospectively reviewed patients presenting with first episode of ureteric colic, which subsequently underwent eESWL – defined as treatment within 72 hours of presentation. Patients divided into two groups according to ESWL success and the following parameters were analyzed: age, gender, stone size, location and density in Hounsfield units (HU), time between presentation and ESWL treatment, number of shock waves and ESWL sessions for achievement of stone free status.
Results: 97 patients, (mean age 40 yrs; 76 male/21 female) were included. 71 patients were stone-free after eESWL (73.2%) (group A); 26 patients failed treatment and underwent ureteroscopy (group B). Mean stone size in group 1 was 6.4 mm and 7.7 mm in group 2 and there was a statistically significant correlation with stone free rate ($p < 0.01$). Mean stone density was 480 HU in group 1 and 612 HU in group 2 and there was also a statistically significant correlation with stone free rate ($p < 0.01$). More patients in group 2 received treatment after 48 hours compared with group 1 (38% vs 22.5%).
Conclusion: eESWL is safe, effective and should be considered in patients with ureteric colic. Early treatment (? 48 hours) minimizes stone impaction and increases the success rate of ESWL. Stone size and density are important factors in predicting outcome. Randomized studies comparing the outcome of eESWL with routine outpatient ESWL also need to be conducted to look at stone clearance rates.

P4

Are tethers tolerable? A pilot study to assess patient experience and perception of Tethered Ureteric Stents

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The Royal Bournemouth Hospital, United Kingdom

Introduction: Ureteric stent placement following ureteroscopy is associated with significant morbidity. Furthermore, conventional stents require cystoscopic removal. Tethered stents can negate the need for this secondary invasive procedure, although are not routinely used in the UK. Reasons for this include concerns over accidental stent removal, and the negative patient experience of tethers. We aimed to assess whether these concerns are justified by retrospectively reviewing a cohort of patients in whom a tethered stent had been inserted post-ureteroscopy.
Materials & Methods: 82 patients (28 female, 54 male), median age 56 years (range 39–86) underwent tethered ureteric stent insertion following ureteroscopic surgery by a single surgeon between August 2009-May 2012. Patient records were reviewed for demographic and operative data, whilst patient experience and perception were evaluated by an administered survey.
Results: 57 patients (70%) responded to the survey. 49 patients (91%) found the tether acceptable. 38 patients (86%) showed preference for a tethered stent, should they need a stent in the future. Stent extraction using the tethers was possible in 73 patients (89%). 7 patients (8.5%) required a flexible cystoscopy for stent removal due to migrated tethers. Accidental stent displacement occurred in 2 patients (2.4%), without adverse effects.
Conclusions: Ureteric stent use following stone surgery should be minimised where possible. However, if the decision is made to leave a stent, tethers are well tolerated and should be considered as a means of reducing healthcare costs and stent-related morbidity. Further work is needed to evaluate the clinical and cost effectiveness of tethered stents.

P5

Risk factors for the development of strictures with the fine calibre semi-rigid ureteroscopes: Analysis in 1209 patients

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Objective: Use of laser with narrow semi-rigid and flexible ureteroscopes has decreased the incidence of ureteric strictures to under 2%. In this study we analysed the effects of various factors that can contribute to the development of strictures in the modern day semi rigid ureteroscopy.
Materials and Methods: We analysed data from 1209 patients at 2 centres over 10 years. Hospital data was obtained using appropriate OPCS codes and electronic records. This was cross-referenced with database to identify those patients who developed post-operative ureteric strictures and underwent appropriate interventions. Chi-square test was used for statistical analysis.
Results: Between January 2001 and January 2011, 1209 ureteroscopic procedures were performed for ureteric stones. Mean age was 49.7 yrs (Range 21–86) and mean follow up was 2 years. Eleven ureteric strictures (0.9%) were subsequently treated. Risk factors identified included stone in upper third of ureter, recurrent UTI's and impaction of stone. There was a greater frequency of occurrence of a stricture, impaction and recurrent UTI in the upper ureter compared to the middle ureteric groups ($p = 0.0002$). Similarly, there was more impaction in the upper ureteric compared to the middle ureteric group ($p = 0.001$)
Conclusions: Ureteric stricture following ureteroscopic stone surgery in the modern era is rare but combination of impaction and recurrent UTIs seem to bear significance in the development of strictures especially in upper ureter. Prospective auditing of ureteroscopic procedures with risk factors may help in counselling of patients about likelihood of ureteric strictures.

P6

Should Flexible Renoscopy be considered the 'Gold Standard' in Percutaneous Nephrolithotomy

VA During, NJ Rukin, HA Syed
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Introduction: Percutaneous nephrolithotomy (PCNL) is the gold standard for the treatment of large and/or complex renal calculi. There have been many technological advances to try and improve stone free rates following this procedure. This study details our experience of using antegrade flexible renoscopy as a standard following all PCNL procedures and the use of lasertripsy via the flexible scope for stone fragments not accessible to conventional methods of stone fragmentation.
Patients and Methods: A Retrospective analysis of 104 consecutive PCNL procedures, all of whom had antegrade flexible renoscopy via the original percutaneous tract was made. The primary outcome was stone free rate. Secondary outcome measures included complication rates and requirement for adjuvant stone treatment. Results from our study were compared to those from the UK national British Association of Urological Surgeons (BAUS) registry for PCNL.
Results: Stone free rates, determined as no visible fragments on post-operative imaging, was 75% overall, which is superior to those recorded in the BAUS PCNL registry (68%). Further sub-analysis demonstrated stone free rates for complete staghorns of 43% vs 34% in BAUS registry, for partial staghorns of 79% vs 56%, stones >2 cm of 63% vs 70%, 1–2 cm of 82% vs 80% and <1 cm 100% vs 88%.
Complication rates were low and the requirement for adjuvant treatment was only 13%.
Conclusions: The addition of antegrade flexible renoscopy and lasertripsy to conventional prone PCNL has improved stone free rates, particularly in complex staghorn calculi. Antegrade renoscopy should therefore be regarded a standard of care in PCNL.

P7

Is flexible ureterorenoscopy and laser fragmentation the future for larger renal calculi?

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Introduction: Advances in flexible ureterorenoscopy (FURS) have enabled endoscopic treatment of larger renal calculi. Current guidelines do not provide a size threshold for FURS. We aim to analyse the outcomes of FURS for calculi 12 mm and larger.
Material and Methods: A prospective study was designed to analyse FURS for stones at least 12 mm, over 36 months across two centres. Three and 6 month follow up were studied with electronic systems, clinic letters and imaging. Residual stone < 3 mm was considered stone-free. Statistical analysis was performed using Two-tailed Fisher's exact test; statistical significance was considered $p < 0.05$.
Results: 71 patients, mean stone size 20.01 mm (range: 12–45) underwent FURS and laser. 57.7% of calculi were found in the renal pelvis, 29.6% in the lower calyx, nine were stag-horn and 13 had multiple pelvi-calyceal stones. Access sheath and postoperative ureteric stenting were used in all. 91% were followed-up. 69.2% were stone free following the first FURS, 21.5% needed an extra procedure to achieve clearance.

Table (for P7)

Group	Stone size (mm)	Number of patients	Average size	Stone free rate	Significance		
					Group	"p" value	Significant
1	12to =< 15	28	14.0	85.7%			
2	12to =< 20	47	16.0	80.8%	1	0.756	No
3	12to =< 25	54	17.0	77.8%	1	0.559	No
4	12to =< 30	59	18.0	76.3%	1	0.402	No
5	>15	37	24.6	56.7%	1	0.015	Yes
6	>20	18	30.6	38.9%	2	0.002	Yes

Conclusions: FURS is a safe and effective method to treat larger (>12 mm) renal stones, with low complication and readmission rates. A second or planned two procedure FURS can clear most larger stones.

P8

Percutaneous Nephrolithotomy in England: Practice and outcomes described in the Hospital Episode Statistics Database

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Introduction: There is an increasing need for complete and accurate data on surgical outcomes in the United Kingdom. We investigated whether the Hospital Episode Statistics (HES) database could be used to evaluate the outcomes of Percutaneous Nephrolithotomy (PCNL).
Methods: We extracted HES records for all patients undergoing PCNL (M164) in English NHS hospitals. Primary outcomes were haemorrhage, infection, and mortality within 30 days of surgery.
Result: Between March 2006 and January 2011, 6,118 index PCNL procedures were performed in 165 hospitals. Most patients were men (55%) and more had left-sided procedures (57%). Median length of stay was 4 days.
Haemorrhage was recorded in 87 patients (1.4%): 24 (0.4%) had angiography and 21 (0.3%) then had selective embolisation. 230 patients (3.8%) had a urinary tract infection during their admission for PCNL and 54 patients (0.9%) had sepsis. There were 17 in-hospital deaths (0.3%) within 30 days of surgery.
951 patients were readmitted electively within 30 days of discharge: 311 had ureteric stent removal and 121 had lithotripsy or ureteroscopy. There were 674 emergency readmissions: 90 patients (1.5%) with urinary tract infection, 23

sepsis (0.4%), 72 (1.2%) haematuria, 29 (0.5%) haemorrhage, and 33 (0.5%) with acute urinary retention.
Conclusion: Haemorrhage and infection represent relatively common and potentially severe complications of PCNL which can be identified in HES using ICD-10 and OPCS-4 codes. PCNL outcomes according to HES need to be corroborated using other data sources if HES is to be used to evaluate the performance of urologists or healthcare providers in England.

P9

Does body mass index (BMI) predict outcome in supine percutaneous nephrolithotomy (sPCNL)?

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Objective: High body mass index (BMI) is a recognised adverse indicator for operative and post-operative complications in patients undergoing surgery. The purpose of the current study was to evaluate the outcome and complications in patients undergoing supine percutaneous nephrolithotomy (sPCNL) stratified by their BMI, as per the WHO categories into non-obese (BMI <30 kg/m^2) and obese (BMI >/= 30 kg/m^2).
Method: We performed sub-group analysis based on two BMI categories on the 102 patients that underwent sPCNL at our institution between 2009 and 2012. We interrogated our prospective database for any differences in the patient characteristics, intra- or post-operative outcomes and final stone free rates. The unequal variance *t*-test was used to compare the mean of two groups.
Results: There were 68 patients with BMI <30 kg/m^2 and 34 with BMI >/= 30 kg/m^2. Apart from the BMI and stone size, the groups were compared with regard to their baseline characteristics, stone-free and complication rates, and length of hospital stay. The demographic and surgical outcome results are summarised in table 1. Complications noted in the BMI <30 group were: pyrexia – 1; renal colic – 1; haematuria – 1; haemorrhage / angiography – 1 worsening of renal function – 1; pulmonary embolism – 1. No major complications occurred in the BMI >/= 30 group.
Conclusion: s-PCNL can be safely and effectively performed in obese patients with no increase in complications. The stone clearance rate is comparable in both non-obese and obese patients.

Table 1 (for P9). Comparison between two BMI groups

	BMI < 30 kg/m^2 (n = 68) Mean (95% CI)	BMI >/= 30 kg/m^2 (n = 34) Mean (95% CI)	*P* value
BMI (kg/m^2)	26 (25.4–26.7)	35 (33.6–37.2)	<0.0001*
Age (years)	53 (49.2–56.8)	57 (52.3–61.7)	0.18
Stone size (mm)	21 (18.7–22.4)	26 (22.9–29.2)	0.0035*
Pre-operative Hb (g/L)	13.2 (12.8–13.6)	13.8 (13.3–14.3)	0.06
Post-operative Hb (g/L)	13.7 (10.9–14.2)	12.5 (11.9–13.1)	0.4
Pre-operative serum creatinine (micrograms/L)	94.7 (83.1–106.3)	100.1 (81.1–119.1)	0.6
Post-operative serum creatinine (micrograms/L)	105.5 (88.3–122.6)	98.11 (81.5–114.7)	0.5
Operative time (min)	83.2 (74.1–92.2)	83.8 (69.4–98.3)	0.9
Length of hospital stay (days)	3.3 (2.8–3.8)	3 (2.6–3.4)	0.3
Stone free rate (%)	82%	79.6%	–

BMI – body mass index; 95% CI – 95% confidence interval; Hb – haemoglobin; *statistically significant

P10

Is Percutaneous Chemolysis valid?

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Purpose: Over the last decades, percutaneous chemolysis as a primary or adjuvant treatment for urinary stones has fallen in and out of favor. We present our Department's experience upon percutaneous chemolysis over the last ten years.
Materials and Methods: Retrospectively, all patients undergoing percutaneous chemolysis between 2001–2011 were identified and the patient's files were reviewed. Duration of the treatment, complications, dissolution results and recurrence rates were analyzed.
Results: A total of 29 patients with complete or partial infection staghorn stones (mean size:3,9 cm) were treated in our Department, with adjunctive local chemolysis. We used Suby-G solution for irrigation chemolysis. There were 17 women and 12 men, presented with a mean age of 62 years. Most of the patients had multiple co-morbidities and/or were unfit for a second look percutaneous nephrolithotripsy or other intervention. The duration of the treatment was 4–12 days (mean:9,6 days). No serious complications were recorded. In 16 cases (55.1%) kidneys were completely stone free at the end of the chemolytic lavage, 8 stones (27.5%) showed partial dissolution, half of them presenting residual fragments less than 5 mm. The follow-up was from 1 to 11 years (mean: 63 months) and the recurrence rate was 13.7%.
Conclusions: Percutaneous chemolysis is an effective and safe adjuvant method for decreasing the burden of residual renal stones.

P11

Stone clinic follow-up strategy – anticipation, planning and prevention: a 5-year observational cohort study

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Introduction: There is limited evidence to inform follow-up strategy in the stone clinic and factors influencing individual follow-up are complex. This study aims to determine whether duration and frequency

of follow-up in our institution is related to frequency of emergency or elective admissions.

Method: Records of 218 patients, booked for outpatient follow-up in a tertiary stone unit in September 2007 were reviewed, with respect to length and frequency of follow-up, elective and emergency admissions, lithotripsy and investigations in clinic.

Results: 218 patients were booked for clinic: 34 new; 138 'follow-up'; 46 did not attend. Median follow-up was 4 years (range = 0–5). 94% patients had imaging (86% plain X-ray) in clinic. Of those patients with no stones on follow-up imaging, only 22% were discharged. 30% patients required at least one elective admission, 15% required ESWL and 18% required emergency admission during their follow-up. Overlap between these groups of patients means that overall 36% patients required either elective or emergency intervention.

Neither length, nor frequency of follow-up correlated strongly with the rate of emergency ($r = 0.213$ and 0.244) or elective admissions($r = 0.32$ and 0.47).

Conclusion: Follow-up strategy remains a challenge. The fact that 36% patients required some intervention and that most of those had elective intervention during their follow-up indicates the importance of close follow-up in selected patients. However, the overall lack of correlation between follow-up intensity and elective and emergency admissions suggests that better risk stratification could be achieved.

BJUI Tuesday 18 June 2013 Poster Session 2 10:30–12:00 Charter 3 PENILE CANCER Chairs: Professor Damian Greene & Mr Vijay Sangar Posters P12–P21

P12

Does BCL-2 play a significant oncogenenic role in Penile Cancer?

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Introduction: Bcl-2 is an anti-apoptotic protein, which by promoting cell survival facilitates the acquisition of mutations and dedifferentiation. It is over-expressed and may play a prognostic role in squamous cell carcinoma (PSCC) is not well investigated. The aim of this study was to assess bcl-2 expression in a uniquely large series of PSCCs and evaluate its relationship with clinicopathological features.
Materials and Methods: We examined 218 formalin-fixed paraffin embedded PSCCs from a single surgeon at St George's Hospital, including 168 usual type, 30 basaloid and 20 verrucous tumours.Tissue microarrays were created and sections were immunohistochemically stained for Bcl-2. Human papillomavirus (HPV) subtype was analysed using PCR analysis. Expression of Bcl-2 was analysed and correlated with tumour grade, stage, subtype and HPV status. Chi squared test was used to evaluate any statistical significance between variables.
Results: Bcl-2 was expressed in 22.6% (38/168) of usual type, 43% (13/30) of basaloid and 10% (2/20) of verrucous tumours (P = 0.01). However, there was no correlation between Bcl-2 expression and tumour grade, stage or HPV status of tumour. (P = 0.13, P = 0.45 and P = 0.33 respectively).
Conclusion: BCL-2 was upregulated in a minority of PSCCs suggesting it does not play a major role in oncogenesis. However it appears to show significantly higher expression in basaloid tumours, which are known to be aggressive. We speculate that Bcl-2 upregulation may be a late event in penile carcinogenesis, and unrelated to HPV status. Further work and correlation with outcome and in lymph node metastases is warranted.

P13

P16INK4A as a surrogate marker for HPV infection in Penile Cancer

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Introduction: The pathogenesis of penile squamous cell carcinoma (PSCC) is poorly understood. It is proposed that human papillomavirus (HPV) is involved in its carcinogenesis, but few studies investigating PSCC have explored cell-cycle protein expression in HPV positive and HPV negative tumours. At present, HPV DNA is detected by methods such as polymerase chain reaction (PCR), but immunohistochemistry (IHC) would be a simpler, cheaper method. We aim to validate the accuracy of p16INK4AIHC as a reliable marker of HPV infection.
Methods and Materials: 237 PSCC samples were examined immunohistochemically for p16INK4A protein expression and 229 PSCC samples were typed for HPV by PCR, which was taken as the gold standard. Methodological agreement and correlation were calculated using the kappa statistic and chi squared, respectively.
Results: Of tumours typed for HPV by PCR, 57% (131/229) were HPV positive and 43% (98/229) HPV negative. Comparing HPV positive to HPV negative samples, expression of p16INK4A had a sensitivity of 66.4%and specificity of 83.6% (kappa = 0.4834). When evaluating high-risk HPV versus all low risk and negative HPV, sensitivity was 68.8% and specificity 83.5% (kappa = 0.4859). HPV16 positive versus HPV16 negative and all HPV negative samples demonstrated sensitivity of 72.2% and specificity of 79.2% (kappa = 0.5176). Each of the aforementioned groups demonstrated statistically significant correlation with HPV positivity ($p < 0.0001$).
Conclusion: P16INK4Aprotein expression using IHC is only a moderate surrogate marker for HPV, high risk HPV and HPV16 infections in PSCC. If HPV typing is to determine future treatment, up to 25% of cases will be misassigned using P16.

P14

The accuracy of Magnetic Resonance Imaging (MRI) in predicting the invasion of the tunica albuginea and the urethra during the primary staging of Penile Cancer

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Introduction: Penile preserving surgery is increasingly offered to men with localised penile cancer and surgical margins of less than 10 mm appear to offer excellent oncological control. Invasion of the tunica albuginea (TA) and the urethra are important factors in determining the feasibility of such surgery and preoperative imaging is helpful in planning surgery. We report our experience of Magnetic Resonance Imaging (MRI) for the local staging of penile cancer.
Materials and Methods: One hundred and four (104) patients with clinical T1-T3 penile cancer had pre-operative MRI and are included in the study. Four patients with poor quality MRI images are excluded from study. We reviewed the accuracy of the preoperative MRI in predicting invasion of the tunica albuginea and the urethra.
Results: One hundred patients pre-operative MRI and post-opearative histology was included for final analysis. The mean age was 65 years and number of patients with pathological stage T1, T2 and T3 were 32, 53 and 15 respectively. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of penile MRI are depicted in the following table.

Table (for P14)

	Sensitivity	Specificity	PPV	NPV
Tunica albuginea invasion	82.1	73.6	54.8	91.4
Urethral invasion	62.5	82.1	40.0	92.0

Conclusions: This study shows that penile MRI was an accurate imaging modality in assessing the tunica albugenia invasion, but it had lesser sensitivity in diagnosing urethral invasion.

P15

Surveillance in patients with T1G2 penile cancer

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Introduction and Objective: Nodal status is the primary factor affecting prognosis in patients with penile cancer. The management of patients with T1G2 disease (intermediate risk) with clinically N0 disease is controversial. The aim of this study was to compare the outcome of patients on surveillance to those undergoing Dynamic Sentinel Lymph Node Biopsy (DSNB) or Superficial Modified Lymph Node Dissection (SMLND) with T1 G2 tumours.
Methods: Data of patients with T1G2 penile cancer (surveillance, DSNB and SMLND) were obtained from a hospital electronic database and analysed using Prizm software. Comparisons were made between patients who underwent surveillance (Group A) versus DSNB/SMLD (Group B).
Results: There were 38 (76 groin basins) patients in group A versus 17 (32 groin basins) in group B. Other results (group A versus group B): Age of diagnosis (years) 60.29 +/− 2.08 vs 60.18 +/− 2.96, p = 0.98; Follow-up duration (months) 42.24 +/− 5.0 vs 26.12 +/− 4.63, p = 0.05; Primary surgery: Total Glansectomy (42% vs 47%, p = 0.71), Total Penectomy (2.6% vs 0%, p = 0.67); Histology: NOS (60.5% vs 71%, p = 0.48); nil nodal involvement or metastasis and LVI (both groups); 1 dead (each group – not related to penile cancer).
Conclusions: This study suggests that patients with T1G2 penile cancer have a low risk of nodal disease. Those undergoing surveillance have a good prognosis which is comparable to those undergoing DSNB/SMLND. A surveillance programme appears to be safe in these patients, although close clinical monitoring will be required pending further larger scale longitudinal studies.

P16

Use of intraoperative frozen section during organ sparing surgery for penile cancer

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Leicester General Hospital, United Kingdom

Introduction: Penile cancer is rare in the UK. Squamous cell carcinoma (SCC) is most common type of penile cancer. Glans tumors are more common and conservative penile sparing surgery has established its efficacy. Frozen section is a valuable technique which provides intraoperative margins assessment to adapt best possible strategy.
Objectives: We evaluated the role of intraoperative frozen section during penile sparing surgery and its potential influence on oncological outcome.
Materials and methods: We included all patients with penile cancer between January 2007 and December 2011, who were treated by penile sparing surgery using frozen section at our institution. Data regarding surgical treatment, pathological characteristics, and MDT outcomes were collected retrospectively.
Results: Among 43 patients, surgical treatment included glansectomy in 21 (48.8%), partial penectomy in 18 (41.8%) and total penectomy in 2 (4.7%) patients. Two patients (4.7%) had local excision for small lesions. Eleven patients (25.5%) had positive margin, which changed the intraoperative surgical strategy. Out of these margin positive patients (n = 11), 6 patients (54.5%) had positive corporal biopsies while rest of them (5 patients 45.5%) had positive urethral margin. One patient showed extensive inflammation with non-conclusive frozen section findings but had negative margin on final paraffin based results. Final histopathology showed non-specific SCC in 33, basaloid SCC in 7 patients, adenosqamous in 1 patient and pseudoepitheliomatous balanitis in 1 patient. None of the patients had positive margins on final paraffin based results.
Conclusion: Intraoperative frozen section is highly invaluable technique which helps to improve oncological outcome in penile sparing surgery.

P17

Should centralised histopathological review in penile cancer be the global standard?

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Introduction: In 2002 NICE recommended that penile cancer services should be centralised to Supra-Network Multidisciplinary Teams (Sn-MDT). A proposed advantage of centralised pathological review was to ensure accurate pathological diagnosis and hence appropriate management. This study assesses the role of centralised pathology review in penile cancer management.
Methods: Data was collected, retrospectively, for all squamous cell carcinomas (SCC) and carcinoma-in-situ (CIS) of the penis, referred from 21 centres to the regional Sn-MDT, between 1/1/2008 and 30/03/2011.
Histology reports, slides and unsectioned blocks from the referring hospitals were reviewed by 1 of 2 Sn-MDT pathologists. Differences between the Sn-MDT histology report and that of the referring hospital were recorded and divided into critical changes (those likely to alter management) and non-critical changes (those unlikely to alter management).
Results: A total of 155 cases of SCC or squamous cell CIS of the penis were referred. The mean age at diagnosis was 65.8 (range 21–98) years.
After Sn-MDT review, the histological diagnosis was changed in 48/155 (31%) cases. From these, 29/48 (60%) were deemed to be critical (table 1).
Conclusions: A significant proportion of histology reports were revised following review in the Sn-MDT. Many of these changes potentially altered management. Accurate pathological diagnosis plays a crucial role in maximising the potential for good clinical outcomes in penile cancer. Centralisation of services enables health care professionals to develop expertise in this very rare disease. In histopathology, centralisation has increased exposure to penile cancer and improved diagnostic accuracy, and should therefore be considered the standard of care.

Table (for P17)

Type of histology change		Number	Critical change?
Upgrades	Dysplasia/other to CIS	4	Yes
	Dysplasia/other to invasive SCC	6	Yes
	CIS to invasive SCC	4	Yes
	G1 to G2 invasive SCC	5	Yes
	G2 to G3 invasive SCC	14	No
	G1T1 to T2 SCC	2	Yes
	G2T1 to G3T2 SCC	3	No
Downgrades	CIS to dysplasia	4	Yes
	Invasive SCC to no tumour/other	3	Yes
	G2T2 to G1T2 invasive SCC	1	No
	G2T1 to G1T1 invasive SCC	1	Yes
	T3 to T2 invasive SCC	1	No

P18

Feasibility of delayed dynamic sentinel lymph node (DSLN) biopsy following primary surgery for penile carcinoma

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Introduction: The optimal management of penile cancer patients with clinically impalpable inguinal lymph nodes (cN0) is controversial. The technique of DSLN biopsy performed in patients who have previously undergone surgery for the primary penile cancer was evaluated.
Materials and Methods: A cohort of 63 consecutive patients with impalpable inguinal lymph nodes, who had previously undergone resection of primary penile tumour (Stage ≥ T1, Grade ≥ G2) were retrospectively reviewed. Using a standardised protocol, 99 mTc-nanocolloid was administrated at the site of previous surgery. Patients underwent planar lymphoscintigraphy and a SPECT to localise the SLN. Intraoperative localisation using patent blue dye and a gamma ray probe was performed. The removed SLN underwent histopathological analysis. Lymphadenectomy was only performed if the SLN was positive for micrometastases. Median follow up was 16 months.
Results: A total of 113 groins underwent DSLN biopsy and 209 SLN were removed. SLN was positive in 9 groins (8.0%) of 8 patients (12.70%). These had at least one positive SLN, one had bilateral SLN metastases; 10 positive SLN (4.78%) in total. One patient developed regional recurrence after excision of a negative SLN (1.6%). The estimated 2-yr disease-specific survival for patients with negative and positive SLN was 98.1% and 87.5% respectively (p = 0.125). Using DSLN occult lymph node metastases in penile cancer can be detected with a sensitivity of about 88.9% and specificity of 100%.
Conclusions: Our experience demonstrates the feasibility of performing DSLN biopsy as a delayed procedure using a combination of planar lymphoscintigraphy and SPECT for SLN localisation.

P19

Longitudinal analysis of outcomes for men with node positive penile cancer – are we improving?

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Introduction: The presence of lymph node metastases (N+) is associated with a marked survival disadvantage in men with penile cancer compared to men with node negative (N-) disease. The aim of this study was to determine the clinical and survival outcomes of N+ disease over the last 10 years.
Methods: Prospective data was collected for 100 N+ patients (Group A), between 2002–2012 and compared with N- patients (Group B) for the same period. The outcomes for these men were compared against historical data (Group C; pre-2002). Multivariate analysis was utilised to determine independent clinical and histopathological predictors of advanced disease states and outcome (time to recurrence and overall survival). Survival differences are demonstrated using Kaplan-Meier survival curves.

Results: 410 men were treated for penile cancer between 2002 and 2012. Primary tumours for N+ patients were significantly associated with: higher grade and stage, presence of lymphovascular invasion, increased depth of invasion and multifocality. Overall survival for group A was significantly poorer than group B [HR 8.50 (2.74 to 26.34)]. Disease in ≥3 inguinal lymph nodes ($p = 0.04$) and the presence of extranodal spread ($p = 0.002$) were also significant predictors of death. Surgical complications were significantly reduced in Groups A&B compared to Group C; however there was no statistical difference in overall survival and time to tumour recurrence.
Conclusion: Despite centralisation of penile cancer services in the UK, the long term survival trends for node positive disease remains static. Novel adjuvant therapies are urgently required and current guidelines adressed to improve outcomes.

P20
5 year outcome of Squamous Urethral and Squamous penile cancer: a comparative single centre study

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Introduction: Urethral squamous cell cancer (SCCu) is a rare disease in men with less than 2000 reported cases in the literature and an estimated incidence of 4.3 per million male population. Currently, there is no consensus on treatment modalities. At our centre, we have managed patients based on an established treatment algorithm for penile cancer (SCCp) in the absence of more evidence-based guidelines. Our aim was to analyse the survival of patients with SCCu and compare it with survival of our SCCp cohort.
Materials and Methods: This is a retrospective study of all male patients with a histological diagnosis of SCCu from April 2000 to July 2011 at a single institution. 26 patients were identified and data analysed using Kaplan Meier survival curves and log rank test for trend.
Results: For the SCCu group as a whole, 5 year cancer-specific survival was 88.6%. Those with node-negative and node-positive disease had a 5-year cancer-specific survival of 96.2% and 51.6%, respectively. However, there was no significant difference between the curves ($P = 0.0028$).
For SCCp, 5 yr cancer-specific survival at the same institution was 84.9% ($n = 433$, $P < 0.0001$). For patients with node-negative disease and node-positive disease survival was 97.1% and 50.1%, respectively ($P < 0.0001$).
Conclusion: The data suggests that using the same treatment algorithm, SCCu patients have comparable outcomes to SCCp patients. The study is limited by small patient numbers, which probably contributes to the variability in node-specific 5-year survivals. However, in the absence of better data, it is reasonable to continue treating distal urethral cancer as for penile cancer.

P21
Outcomes from non-squamous (non-SCC) penile cancer in a UK supra-regional network

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Introduction: Penile cancer is usually squamous. It is thought that the basaloid and sarcomatoid variants are associated with a higher risk of recurrence, metastatic spread and death. The aim of this study was to delineate the recurrence, metastatic and mortality rate for non-SCC penile cancer.
Patients and methods: From 2006 a total of 366 men were diagnosed with penile cancer throughout the supra-regional network. The penile cancer histopathology database was analysed to identify those with non-SCC variants.
Results: From a total of 366 men, 29 (7.9%) were found to the have basaloid subtype, 7 (1.9%) verrucous, 6 (1.6%) sarcomatoid and 1 (0.3%) adenosquamous. Within the basaloid group the cancer specific mortality rate was 24%. This compares to 15.9% for G3pT1 squamous penile cancer. The mean survival of the patients who died was 10.6 months from diagnosis. 24% of the basaloid subtype had metastatic spread within 10 months from diagnosis. A cancer specific mortality rate of 33% was seen in the sarcomatoid group. Metastases were found in 2 of the patients, one presenting with metastases the other developing metastases after 2 years. The patient with adenosquamous subtype had nodal extracapsular spread at diagnosis and died 8 months later. The verrucous group had no recurrences, metastases or deaths.
Conclusion: This study confirms that the non-SCC subtypes are associated with higher cancer specific death rates and risk of metastatic spread than the common squamous type. The low local recurrence rate probably reflects the utilisation of frozen section at the time of the primary resection.

BJUI

Tuesday 18 June 2013
Poster Session 3
14:00–16:00 Charter 2
CLINICAL PRACTICE AND EDUCATION
Chairs: Mr John McCabe & Mr Chris Blake
Posters P22–P36

P22

Urological procedures coding: who should do it?

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Introduction: Accurate coding of elective in-patient hospital activity is essential for health provision monitoring, quality/governance assessments and provider re-imbursement through payment by results. Coding staff require clear, precise diagnoses/procedures information to produce accurate figures of hospital activity. Clinician involvement in the coding process is vital, but who does coding best? We compared accuracy and financial implications of coding by urological consultants and clinical audit coders.

Patients and Methods: Consultant urologists completed electronic discharge summaries detailing diagnoses, co-morbidity and procedures, generating episode codes (urologist coding). A clinical audit coder independently reviewed the case notes generating another code (audit coding). Finally, a combined team (urologist and experienced clinical coder) applied local/national standards creating an episode code (gold-standard).

Results: 30 randomly-chosen, elective, inpatient cases were examined retrospectively. Surprisingly, coding by experienced urologists was less accurate compared to clinical audit coders, who demonstrated superiority, accurately coding for diagnoses, procedures and spell HRGs, thus ensuring correct re-numeration (table 1). Vague descriptions of urological conditions, poor documentation of non-urological co-morbidities, time constraints and inadequate understanding of procedure groupings contributed to inaccurate urologist coding.

Conclusion: Accurate urological coding is best performed by coders not urologists. Clinicians can make a vital contribution by ensuring clear documentation of procedures, and primary and co-morbid diagnoses. Formal agreement of common codes between urologists and coders will reduce inconsistency and improve efficiency.

P23

Lost revenue from missing co-morbidities: A service improvement audit

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Introduction: At our institution clinical coders are not allowed to search paper or electronic notes for co-morbidities when submitting final HRG (Healthcare Resource Group) codes for revenue generation. Accurate recording of co-morbidities maximises the tariff e.g. circumcision £881, if they have hypertension it is £1086. Coders are only allowed to access electronic day surgery discharge summaries for details of the procedure and any potential co-morbidities. This service improvement audit looks at the lost revenue as a result of inaccurate recording of co-morbidities.

Table (for P22)

	Urologist coding (percentage accuracy)	Clinical audit coding (percentage accuracy)
Primary diagnosis	63.3%	87.7%
Secondary diagnosis	43.4%	89.9%
Primary procedure	75%	86.7%
Secondary procedure	50%	69.2%
Spell HRG alterations	12 (40%)	3 (10%)
Potential loss of income for period	£8468	£3456

Methods: Between 1st July 2012 and 30th September 2012 all urological procedures performed in the day surgery unit (DSU) were retrospectively identified. The following data were collected; type of procedure, date of procedure, if discharge summaries were recorded electronically on the Electronic Patient Record (EPR) for coders to access and if co-morbidities were listed on the discharge summary and whether they were complete.
Results: 206 procedures were performed in DSU, in 119 (57%) the patients did not have any co-morbidities on note review. Of the remaining 87, 28 (32%) had co-morbidities that where accurately recorded and 59 (68%) had co-morbidities and were not and so incorrect HRG codes were submitted. The 10 most common procedures were financially evaluated and generated £244,452 of income during the period studied with £22,758 lost in revenue due to inaccurate recording of co-morbidities on the discharge summary. This represented an 8.9% quarterly loss of DSU income.
Conclusions: Accurately recording co-morbidities generates more revenue which can be re-invested to improve services.

P24
Is the drive for national cancer statistics affecting the quality of the data produced?

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Introduction: The Cancer Outcome and Services Dataset (COSD) aim is for a single cancer registration system by January 2015. Monthly submissions are made locally to the national registry. For every new cancer diagnosis the initial patient record must be completed within 3 months of diagnosis and final updates within six months. A financial penalty is in place for non-compliance with a 70% target for complete data including TNM staging, introduced in January 2012. Nx and Mx are not recognised stages on the registry and therefore these patients are largely staged as N0, M0, unless there is high clinical suspicion otherwise.
Methods: All new diagnoses of urological cancer were captured over the 7 month period 1/3/12–31/10/12. All patients were reviewed as to AJCC 7th edition TNM stage and whether they had been imaged for the presence of suspicious lymph nodes and evidence of distant metastatic disease.

Results (for P24):

Cancer	Number	Local imaging (including nodes)	%age	Metastatic staging	%age
Prostate	136	69	50.7	36	26.4
Bladder	33	19	57.6	6	18.2
Kidney	16	16	100	14	87.5
Ureter	2	2	100	2	100
Testis	5	5	100	5	100
Penis	2	2	100	2	100

Discussion: A single cancer registry is clearly a useful tool but the maintenance of high quality data is also key. Nx and Mx are recognised TNM stages as not all patients with low risk prostate and bladder cancer would require formal staging. If the registry software forces a "best guess" at N and M stage, the data from our audit shows that almost half of all prostate and bladder cancers could potentially be incorrectly N staged and around three quarters incorrectly M staged. National cancer data is therefore being significantly corrupted by the financial constraints of the registry system.

P25
Robotic surgery, can we reduce costs?

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Introduction: There has been a dramatic rise in the number of robot-assisted radical prostatectomies (RARP) performed in the UK in recent years. However, RARP is an extremely expensive procedure with significant costs in terms of acquisition, maintenance, and instrument costs. We examine the differences in cost structures between four surgeons all performing RARP at a single institute. What was the major spending and were there any potential cost savings?
Methods: Four surgeons (A to D) were monitored anonymously over a four week period and all consumables used during RARP documented. Precise costings of individual items were identified from Oracle iProcurement™ web-based purchasing system and an average RARP cost per case per surgeon calculated.
Results: Significant differences were noted between individual surgeons performing RARP. Surgeon A was 26% cheaper in his use of consumables than surgeon D with an average RARP price of £1062 in comparison to £1426 per case. Case by case variation occurred with a maximum expenditure of £1902 by surgeon C. Based on the 2011 caseload of 350 RARP performed annually at our institute we identified potential cost savings of up to £127,000/yr if all surgeons had adopted a financially leaner technique.
Conclusion: Surgeons will always have individual preferences on particular instruments and consumables used and it is important to never make concessions which may impact on safety or surgical outcomes. However, in the current economic climate it is important for surgeons to consider the equipment they use, its cost, alternatives and whether it is necessary at all.

P26
Development and Content Validation of a Surgical Safety Checklist for Robotic Surgery

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Introduction: Safety checklists used within surgery have enhanced patient safety in healthcare institutions worldwide.
Aim: To identify and assess potential hazards in robot-assisted urological surgery and based on this information, to develop a comprehensive checklist

to be used in the robotics operating theatres.
Method: Healthcare Failure Mode and Effects Analysis (HFMEA), a risk assessment tool, was employed in a urology operating theatre with innovative robotic technology in a UK teaching hospital between June-December 2011. A 15 member multidisciplinary team identified "failure modes" through process mapping and flow diagrams. Potential hazards were rated according to severity and frequency and scored using a "hazard score matrix". All hazards scoring 8 or above were considered for "decision tree" analysis, which produced a list of hazards to be included in a surgical safety checklist.
Results: Process mapping highlighted three main phases: the anaesthesia phase, the operating phase and the post-operative handover to recovery phase. A total of 45 failure modes were identified, 60% of which had a hazard score ≥ 8. A total of 20 hazards were finalised via decision tree analysis and were included in the checklist. The focus was on hazards specific to robotic-urologic procedures such as patient positioning (hazard score 12), port placement (hazard score 9) and robot docking/de-docking (hazard score 12).
Conclusions: HFMEA has been used to identify hazards in an operating theatre with innovative robotic technologies, leading to the development of a surgical safety checklist. Further work will involve multi-centre validation and implementation of the checklist.

P27
The expensive robot – what about the return to work argument?

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Introduction: Robot assisted laparoscopic radical prostatectomy (RALP) faces intense scrutiny because of the cost to buy and maintain the current commercially available system. Making the business case for a buying a robot is daunting, but one often ignored side of the argument is the possible huge gain from an economically active man returning to work earlier than after open retropubic radical prostatectomy (RRP). Sick pay costs employers on average £1500 per employee every week.
Methods: We analysed information on consecutive RALPs, held on a prospectively maintained database. The records go back to the start of Da Vinci RALPs in the department, with the appointment of a post-fellowship consultant.
Results: There were 115 working men in a cohort of 217. Men who underwent RALP on average returned to work in 3.7 weeks. The corresponding figure for RRP for a consultant in the same department at the peak of his learning curve was 11.8 weeks (42 working men in the last 100 cases done). The average age of the group was 64.2 with a mean presenting PSA of 8.4. The gland volume ranged from 22–102 cc (mean 37.3 cc). The largest group were Gleason 7 patients with final histology showing pT2c (109) and pT3a (63) in the majority. Average blood loss was 252 ml.
Conclusion: It would be useful to consider early return to productivity in the decision-making to buy a robotic system, in a department where the status quo is RRP.

P28
Sustainable improvements in efficiency and quality of care – the standard of care in urological outpatients should be a one-stop clinic

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Introduction: Patients frequently wait many weeks for an initial urology appointment and subsequent investigations. This is undesirable for everyone, especially patients with serious and/or debilitating conditions. We therefore developed a one stop clinic for all new urology referrals in which investigations are completed during one visit. We report a comparative cohort study investigating the effect of this new clinic on efficiency and quality of care.
Patients & Methods: We identified a consecutive series of 200 new referrals to the urology service before and after introduction of the new pathway. We examined the impact of the new clinic on waiting times, investigations and quality of care.
Result: The wait for the commonest tests (flexible cystoscopy and ultrasound) was eradicated. The mean wait from referral to diagnosis dropped from 3.7 months to 1.0 months ($p = 0.004$). The number of hospital visits before diagnosis dropped by 50% ($p < 0.001$). The discharge rate rose from 5.4% to 33% ($p < 0.001$). More patients (76.3% versus 42.3%) were seen by a consultant and more (92% versus 3.6%) cystsocopies were performed by referring clinician ($p < 0.05$). The new clinic generated 26% fewer letters (equivalent to 1344 letters annually).
Conclusion: The new pathway significantly improved efficiency and quality for all new referrals thereby improving access and reducing inequality. The clinic was developed with minimal expenditure and has been successfully reproduced in our satellite unit. The service has been sustained for over a year, treating in excess of 5000 patients and we propose it be the new standard of care in urology outpatients.

P29
Antibiotic resistance for coliform infections: Trends over last five years

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Introduction: Urinary tract infection and increasing antibiotic resistance is a global phenomenon. We aimed to look at the antibiotic resistance patterns in our University teaching hospital for Escherichia coli infections.
Patients and Methods: Results of all coliform positive urine cultures in a 5-year period were analysed for our hospital and the Urology department from January 2007 to December 2011. Data was collected from the microbiology department and analysed using SPSS. Increasing or decreasing patterns of resistance to trimethoprim, ciprofloxacin, amoxicillin, gentamicin and nitrofurantoin were examined using the Cochran-Armitage test for trend.
Results: 15289 urine specimens were positive for coliforms during this 5-year period, 685 (4.5%) of which were from the urology department. Resistance to trimethoprim and ciprofloxacin was lower in 2011 (36.6% and 13.5%) compared to 2007 (38.1% and 15.5%), but this was not significant. The percentage resistance to

amoxicillin and ciprofloxacin did not change greatly over this period. There was a tread of increasing resistance to gentamicin (from 3.4% to 5.1%; p = 0.003) and of decreasing resistance to nitrofurantoin (from 10.4% to 1.6%; p = < 0.0005). Similar patterns were seen in urology specific patients, but in part because of the smaller samples sizes only the decrease in resistance to nitrofurantoin (19.8% to 3.8%; p = < 0.0005) was statistically significant.
Conclusions: The hospital prevalence of coliform infections remains stable over last five years. Whilst gentamicin resistance remains low, there has been a statistically significant rise from 2007–2011. Conversely, nitrofurantoin resistance has significantly decreased and therefore should now be considered the mainstay for treating coliform infections.

P30
Reducing the rate of sepsis post TRUS prostate biopsy by optimising the prophylactic antibiotic protocol

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Introduction: Sepsis following a TRUS prostate biopsy is potentially a life-threatening complication, which has a reported rate of 1–3%. An initial audit at our institution revealed a higher rate of sepsis. Ciprofloxacin resistant E.Coli was found to be the responsible organism in several cases. This prompted a change in the antibiotic protocol and a re-audit was performed.
Methods: Initially, all patients who underwent TRUS prostate biopsies between April and November 2009 were retrospectively audited. These patients received prophylactic oral Ciprofloxacin and Metronidazole both before the procedure and for three days after. A record was made of subsequent sepsis development and its potential risk factors. These included the operator performing the procedure, number of biopsies taken and patient factors – age, diabetics, recurrent UTIs, MRSA status, presence of a urinary catheter, previous prostatitis and past TRUS biopsies. The audit was repeated between April and November 2010 following the addition of intravenous Gentamicin to the antibiotic protocol.
Results: During the initial audit, 135 patients were identified. Eleven (8%) developed sepsis. During the re-audit, following the addition of intravenous gentamicin, 147 patients were identified, of which only three (2%) developed sepsis (p = 0.011; Chi-squared). The rates of sepsis for both cohorts were independent of the operator performing the procedure, number of biopsies taken and patient risk factors. Cases of Ciprofloxacin resistant E. Coli were noted during both audits.
Conclusion: The addition of intravenous Gentamicin has significantly reduced the rate of sepsis following TRUS prostate biopsies and this is independent of other risk factors.

P31
What are the governance issues of the risk of sepsis following transrectal biopsy of the prostate?

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Introduction: Data on the septic complications of transrectal prostate biopsy raises important questions. The risk of septicaemia was first recognised in the 1980s. Prophylactic antibiotic regimens continue to evolve due the increasing number of biopsies, and antibiotic resistance. This study follows the path of infection and tested the most widely accepted antibiotic regimen, and reviews the safety of the procedure.
Methods: The prospective study was performed in the UK and China with the same protocol. Patients had pre-biopsy urinalysis and post-biopsy blood cultures at 5 min, 1 h and 24 h. The prophylactic antibiotics were ciprofloxacin, continued for 3 days, and metronidazole.The patients were advised of the potential risks of the procedure and informed consent was obtained.
Result: Of 137 patients studied, 11.7% had positive blood cultures. 3.7% had fever and sepsis (2 patients required intensive care treatment). 8% were bacteraemic.
Conclusion: Our reported sepsis rate of 3.7% is substantiated elsewhere. The concept of a numeric threshold for disclosing risk is legally outdated. For a diagnostic procedure surely this is a "significant risk which would affect the judgement of the reasonable patient." (Lord Woolf, 1999: Butterworths Medico-Legal Reports 48:118). As a responsible profession we have a responsibility to advise our patients of the true rate of septic complications of the biopsy and inform them that alternative procedures such as the transperineal approach exist, and have a lower risk of infection.

P32
Venous thrombo-embolism (VTE) prophylaxis and urological pelvic cancer surgery

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Introduction: NICE guidance 92 (2009) recommends the use of thrombo-prophylaxis to 28 days post-operatively in patients undergoing abdominal or pelvic cancer surgery. This study aimed to assess compliance with NICE guidance throughout the UK for urological pelvic cancer surgery and assess healthcare professionals' knowledge of local and network guidelines.
Methods: Online or telephone surveys via healthcare professionals in cancer centres.
Results: Responses were obtained from 55 doctors and 45 clinical nurse specialists covering 63 cancer centres, including 49 of the 50 specialist pelvic MDTs in England. Consultants had the best awareness of local and network guidelines on VTE prophylaxis. Death or serious complications from thrombo-embolic events was reported following cystectomy (n = 14) and prostatectomy (n = 4) in the last 2 years.
In cystectomy centres (n = 60), 34 units routinely discharge patients with anti-DVT stockings and 8 units in selected patients. 41 units (68 %) always use sub-cutaneous low molecular weight heparin (LMWH) post-discharge. 6 (10%) units select LMWH for high-risk patients.
In prostatectomy centres (n = 63), 38 hospitals always recommend anti-DVT stockings and 8 hospitals use them in high-risk patients post-discharge. 39 (62 %) and 6 (10 %) of units always or sometimes use post-discharge LMWH respectively. 18 centres (28 %) never use LMWH post-discharge.

Length of treatment is mostly 28 days (30 days n = 3; 14 days n = 4). Four consultants quoted lack of evidence for not following NICE guidance.
Conclusions: NICE has issued explicit guidance on VTE prevention which has not been adopted in all urology cancer units. Uniformity might be achieved through BAUS.

P33
9 year follow up of Urology Undergraduate Education and Urological Exposure: Are more students considering a career in Urology ?

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Introduction: Conventional lecture based teaching is in danger of being replaced by problem based learning (PBL). Undergraduate exposure to urology is continually diminishing resulting in a marked deterioration in urological knowledge and skills.
Methods: A conventional lecture based urological study day for final year medical students has been organised annually for the last 9 years.
Feedback was collected in the form of a standard questionnaire. Students were asked to score each lecture and their overall exposure to urology out of a maximum score of 10. They were also asked to score, whether they had ever considered urology as a career, and also their opinion of PBL compared to conventional lectures.
Results: 1445 students have attended, 1357 providing feedback. The mean score for all lectures was 8.77 (8.54–8.91). Only 1 student thought that PBL was the best form of medical education 79% preferred a combination of PBL and conventional lectures and 21% preferred lectures only. Over 9 years urological exposure initially declined but has reached a trough of 1.78 (Max 10) and those considering urology as a career initially declined from 26% to 7.4%, but in recent years has increased back to 21%.
Conclusion: There remains a role for more conventional teaching in conjunction with PBL. Career pathways are being decided earlier, therefore undergraduate exposure to urology is essential to ensure competency and also to ensure that all students at least consider urology as a career.

P34
Competency in Scrotal Examination – Survey of Newly Qualified Doctors

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Introduction: Testicular cancer awareness has increased following a number of high profile public information campaigns, emphasising early detection and early presentation to a doctor. Teaching scrotal examination technique to medical students is difficult however, given its personal and intimate nature, in comparison to abdominal or chest examinations. We aimed to assess opinions from newly-qualified doctors of the quality of scrotal examination (SE) training in medical school.
Methods: An online survey was created using SurveyMonkey™ and distributed to 475 Interns in the Republic of Ireland (ROI). The survey was accessible from October to December 2012.
Results: In total, 179 responses were received (response rate = 37%). Overall, 67 respondents were male (37.4%). 164 respondents (91.4%) completed medical school in ROI.
Only 101 (56.4%) had formal SE training during medical. Various training methods were used including demonstration models (50%), human volunteers (10%) or both (21%). The majority of respondents feel that SE training was inadequate in medical school (74.9%) and that they did not feel competent in performing SE on graduating (73.2%).
Of note, 175 respondents (97.8%) do not routinely examine the scrotum when examining a male abdomen. Of male respondents, 16 (33.3%) do not perform self- examination of their testicles.
Conclusion: SE is poorly taught in medical schools with many new graduates not competent in the technique. This could compromise a doctor's ability to educate a patient in testicular self-examination. Similarly, this lack competence may explain the poor rates of SE when examining the male abdomen.

P35
Can trainees achieve operative indicative numbers set by the Joint Committee of Surgical Training?

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Introduction: We investigated whether operative indicative numbers for urology set by the JCST are achievable within our region.
Method: Following consent, logbook data spanning 77 logbook years from 18 sites were obtained from 24 trainees in a single region, with exclusion of 3 logbooks for incomplete entry, and 16 logbook years for work at different (n = 9) or outside trusts in the same year (n = 7). Sites with less than 3 logbook years were also excluded. A training site was "JCST compliant in a procedure" if more than 50% of trainees achieved their annual JCST targets per year (Total indicative numbers/5). It was assumed that logbooks were current and validated. ANOVA was used for significance analysis.
Results: In a region-wide analysis, estimated 5-year case volumes did not reach JCST indicative numbers for 5 procedures (TURP/TURBT/slings/andrology/paediatric). In any given year, surpassing threshold numbers were easiest for ureteroscopy (65% of trainees), and most difficult for andrological procedures (15% of trainees). Only 2/10 sites provided sufficient volumes for JCST compliance in all three endoscopic procedures (TURP/TURBT/ureteroscopy). Training year (ST3–7) did not significantly affect case numbers.
Conclusion: Achieving target volumes for all trainees would pose a challenge in our region. Despite surgical training becoming increasingly transparent, no published current data exists on surgical training quality per site and region. Here we show an objective ranking method to assess training quality with respect to one accepted standard, surgical volume. Prospective knowledge of surgical caseload and accessibility of procedures at individual sites would allow better placement of trainees.

P36

Validation of the Bristol TURP simulator

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Introduction: Simulation is an important part of urology training. Despite the assessment and validation of several virtual reality TURP simulators, the most widely used simulator has never been validated. This study assessed the validity of the Bristol TURP simulator© (Limbs & Things UK).

Materials and Methods: The Bristol TURP simulator© is a prostate model that is reseceted with a conventional monopolar resectoscope. Eight expert urologists (>55 TURPs) and eight trainees (<10 TURPs) performed simulated TURPs.

Face and content validity were assessed using structured questionnaires. Content validity is an essential part of simulator assessment and was evaluated by comparing the performance of experts and trainees using validated rating scales and resection efficiency. Blinded video analysis was used to reduce bias.

Results: Study participants felt the simulator was a good training tool and should be included in the curriculum, therefore establishing face validity (mean likert scores 4.56/5 and 4.75/5 respectively). Individual components of the simulator such as tissue cutting, tissue feel and spatial orientation were adequate (mean likert scores 3.25/5 to 3.75/5) but simulator realism was limited by the lack of bleeding. Experts performed significantly better than novices, thus establishing construct validity.

	Trainees (Median and CI)	Experts (Median and CI)	Mann-Whitney U test
Resection efficiency (g/min)	0.90 (0.63–1.10)	2.19 (1.49–2.77)	$p < 0.001$
Global Rating Score (max 5)	2.0 (1.59–2.66)	5.0 (4.58–5.17)	$p < 0.001$
OSATS-G (max 30)	14.5 (10.9–17.6)	28.0 (26.3–28.5)	$p < 0.001$

Conclusion: We have established that the Bristol TURP simulator has face, content and construct validity which supports its continued use for training.

BJUI Tuesday 18 June 2013 Poster Session 4 14:00–16:00 Charter 3 UPPER TRACT MALIGNANCY Chairs: Mr Gren Oades & Mr Jim Adshead Posters P37–P50

P37

Alcohol intake is inversely associated with the risk of Developing Renal Cancer – A Prospective Cohort Study using Food Diaries in EPIC Norfolk

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Introduction: Approximately 20% renal cell carcinomas (RCC) present with disseminated disease, so primary prevention remains important and previous reports have suggested alcohol may protect against RCC. The aim of this study was to investigate, for the first time, the effect of alcohol in a prospective cohort study using information from detailed 7-day food diaries (7-DD).
Patients & Methods: 23,658 patients were recruited into the European Prospective Investigation into Cancer (EPIC) Norfolk cohort between 1993 and 1997. Each subject completed a 7-DD at enrolment. The cohort was followed until December 2010 and patients who developed RCC were identified and verified. A case-cohort analysis was performed, using Cox regression, on the cases with 3746 random controls. All analyses were adjusted for age at recruitment, sex, smoking, body mass index and total energy intake.
Result: 65 participants developed RCC. We observed significant inverse associations between increasing alcohol intake and RCC risk. Compared to non-drinkers, all higher quintiles of alcohol intake were inversely associated with RCC risk. The hazard ratio (HR) for highest intake versus non drinkers was 0.39 (95% confidence interval (95% CI) 0.16 to 0.91, p = 0.03). The HR for trend was 0.77 (95% CI 0.64 to 0.93, p = 0.006).
Conclusion: The main finding was up to a 61% reduced risk of RCC among subjects consuming higher levels of alcohol. Our observations support accumulating evidence that alcohol is associated with a lower RCC risk and plausible biological mechanisms should be sought. Alcohol intake needs to be measured in future aetiological studies of RCC.

P38

Prognostic significance of chromosome 9p deletion status in clear cell Renal Cell Carcinoma

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Aim: Chromosome 9p deletion in renal cell carcinoma has been suggested as an independent prognostic factor by previous investigators who employed fluorescence in-situ hybridisation (FISH).[1,2] However there has been lack of standardisation of technique and cut off percentage of abnormal nuclei to define 9p deletion status. The aim of this study is to assess the impact of the various degrees of chromosome 9p deletion on recurrence free survival (RFS) and cancer specific survival (CSS) in clear cell renal cell carcinoma (ccRCC).
Methods: Tissue Microarrays (TMAs) were constructed from 86 ccRCC tumors (6 cores from each tumour) and analysed using FISH. Tumours were classified according to 9p status into 3 subgroups depending on mean percentage of abnormal nuclei in all cores (High >50%, intermediate 30–50% and low <30%). Tumor grade, stage and size; lymph node involvement; the presence of metastasis were recorded. Fisher exact test was used to compare proportions. Kaplan Meier analysis was used to assess RFS and CSS. Cox proportional hazards models was constructed using TNM staging, tumor grade, and 9p status.
Results: There were 34, 33 and 19 patients in the group of low, intermediate and high degree of 9p deletion respectively with a mean follow up of 73 months. Tumours with low level of 9p deletion were significantly smaller (p = 0.0004) when compared to the other 2 groups. Tumours with high levels of deletion were likely to have a higher stage and grade when compared to the other 2 groups however statistical significance was not reached.
The survival analysis showed a trend suggesting the likelihood of recurrence and cancer related mortality in patients exhibiting high levels of 9p deletion; however statistical significance was not reached. The mean CSS for patients with high levels of 9p deletion was 81.6 months compared to 103 and 95.5 months for intermediate and low groups respectively. The mean RFS for patients with high levels of 9p deletion was 74 months compared to 101 and 91 months for both intermediate and low level of 9p deletion groups, respectively.
Conclusion: High levels of 9p deletion in ccRCC appear to have an impact on RFS

and CSS in a cohort of patients with long term follow up. This could serve as a biomarker for selecting patients who could benefit from adjuvant treatment.

References

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P39

Diagnosis of Upper Urinary Tract Tumours: is blue light assisted ureterorenoscopy required in addition to modern imaging and ureterorenoscopy?

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Introduction: Photodynamic diagnosis has been used in the bladder and has shown to decrease the recurrence rates of bladder tumours by improving visualisation of abnormal tissue for biopsy and therefore enhancing diagnosis and early treatment. We aimed to assess the diagnostic accuracy of Photodynamic Diagnostic ureterorenoscopy in detection of UUT-TCC in comparison with white light ureterorenoscopy and CT Urogram.
Method: Between 2009 and 2011, 30 patients underwent PDD-FURS following CTU. The sensitivity, specificity, and detection rate was calculated.
Results: PDD-FURS was not significantly more sensitive than CTU and WL-FURS to detect UUT-TCC (0.94 (95% CI: 0.71–0.99) vs. 0.82 (95% CI: 0.57–0.96) vs. 0.81 (95% CI: 0.54–0.96) respectively; PDD-FURS vs. CTU: p = 0.249; PDD vs. WL: p = 0.277). Furthermore, no significant difference was found between CTU and WL-FURS (p = 0.935).
There was no difference in the specificity between PDD-FURS and WL-FURS (1.0 (95% CI: 0.75–1.0) and 1.0 (95% CI: 0.75–1.0) respectively) (P = 1), while PDD-FURS was significantly more specific than CTU (CTU: 0.21 (95% CI: 0.05–0.51) (P < 0.001). WL-FURS was also more specific in detecting tumours than CTU (P < 0.001). PDD-URS detected more UUT-TCCs than CTU or WL-FURS (94% (16/17) vs. 76.5% (13/17) vs. 82% (14/17) respectively). PDD-FURS depicted carcinoma in situ in 3 patients (2 primary and 1 concomitant), which were seen neither on CTU nor on WL_FURS at all.
Conclusion: Oral 5-ALA induced PDD-FURS has a high sensitivity and specificity to detect lesions and a higher detection rate to diagnose UUT-TCC than WL-FURS and CTU.

P40

Photodynamic therapy (PDD) for Upper tract TCC – Initial experiences

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Introduction: Persistent haematuria or abnormal urinary cytology despite negative conventional investigations remains a diagnostic dilemma. We evaluate the role of Hexylaminolaevalunate (HEXVIX) with retrograde instillation, in identifying upper tract TCC.
Methods: Following negative intial screening, patients with persistent haematuria or abnormal urinary cytology underwent upper tract PDD FURS. Initial rigid URS and visual placement of a sensor guidewire without contrast was performed. 15 ml HEXVIX is instilled and retained using a ureteric access sheath (12/14F), for 30 minutes. White and blue-light flexible URS was performed using the Storx Flex X2 with blue-light filter. Lesions were biopsied using Piranha forceps and ablated with the Holmium Laser.
Results: Between March 2009 and September 2012, 24 patients (13 male) were evaluated. Indications were persistent haematuria (macroscopic N = 14, microscopic N = 4, abnormal cytology N = 6). 10 patients had abnormal cytology (atypia N = 4, high grade TCC N = 6), mean age 65 (range 33–89).
11 lesions fluoresced and in total 8 malignant lesions (33% of total) were detected. All 3 lesions seen on white light were seen on PDD. PDD detected an additional 8 lesions, of which 5 were malignant (3 G3pta/t1, 2 CIS). 2 lesions both G2pta were not detected on PDD (1 due to equipment failure). At mean follow-up of 23 months (range 1–59) no recurrences have been detected. One patient has had persistent cytology suggesting high grade TCC. Overall PDD detected an additional 5 lesions (20% of total cohort) compared to white light (N = 5).
Conclusions: Initial experience suggests PDD aids in the diagnosis of upper tract TCC.

P41

A novel method for categorisation of lymphadenopathy with renal cancer: the Unequivocal system

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Lymphadenectomy (LND) is not routinely undertaken in patients with renal cancer, but may confer a survival benefit for select cases when performed. One difficulty is that lymphadenopathy (LA) has been associated with a high false positive rate for metastasis. This study addresses radiological assessment of LA and correlates radiological with pathological findings.
We analysed over 500 nephrectomies for renal cancer over an eight year period from 2004 of whom 82 had undergone LND because of LA. For the purpose of this study pre-operative CT imaging was independently reviewed by one consultant surgeon and two consultant radiologists. Retroperitoneal (RP) lymph node status was stratified as 1= unequivocally positive, 2= equivocal status (not convincingly positive or negative), or 3= unequivocally negative, based on size, distribution and subjective appearance of RP nodes, renal primary tumour and surrounding RP tissues. Correlation was later made with pathologic analysis of resected lymph nodes and the results are shown below. Good consistency for categorisation was demonstrated between all 3 reviewers.

Radiologic node category	Number of patients (%)	Pathologic node positive (%)
1 / "Unequivocally positive"	22 (27)	18 (82)
2 / "Equivocal"	51 (62)	4 (8)
3 / "Unequivocally negative"	9 (11)	0
Total	82 (100)	22 (27)

This study suggests that LA can be stratified preoperatively in a meaningful way that may help select patients for LND. All patients with any preoperative suggestion of lymphadenopathy may benefit from LND, but patients with unequivocally negative nodes will not receive any benefit from LND.

P42
PADUA score rather than tumour size predicts warm ischaemia times in robotic partial nephrectomy

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Introduction: Robotic partial nephrectomy (RPN) is increasingly preferred in the management of small renal masses. Our objective was to evaluate whether tumour size or PADUA (Preoperative Aspects and Dimensions Used for an Anatomical) score might be useful in selecting patients for RPN, especially when aiming for warm ischaemia times (WIT) of under 20 minutes.
Patients and Methods: 50 RPNs have been performed by a single surgeon at our tertiary hospital. A sliding clip renorraphy with early unclamping technique is employed. Data was collected prospectively onto a secure database. Statistical analysis includes Mann-Whitney U test and Spearman rank correlation.
Results: 42 patients had malignant disease. Median tumour size was 26 mm (interquartile range 17–32 mm). Median WIT was 16 minutes (14–19 minutes). Median estimated blood loss was 285 ml (100–460 ml). One patient had a positive margin. All patients remain disease free at a median follow-up of 10 months (3–22 months). PADUA score but not tumour size was significantly correlated with WIT ($r = 0.33$; $p < 0.05$) whereas tumour size but not PADUA was significantly correlated with blood loss ($r = 0.40$; $p = 0.005$), console time ($r = 0.37$; $p = 0.01$) and complications ($r = 0.32$; $p = 0.03$). Median PADUA scores were significantly higher in patients whose WIT >20 minutes (9 vs 7; $p = 0.04$) but median tumour size was not significantly different.
Conclusion: In our series, PADUA classification is useful in anticipating WIT, whereas tumour size aids planning operative time and potential blood loss. These factors should be used to aid patient selection and counselling for RPN.

P43
Can the R.E.N.A.L nephrometry score be globally applied ? Experience from a tertiary UK referral centre

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Introduction: RENAL nephrometry score (RNS), since its introduction in 2009, has been widely used now to predict postoperative outcomes after partial nephrectomy (PN) for renal tumours. We used this score in a local cohort of PN patients to see if it can accurately predict postoperative complications.
Methods: Our study included 128 consecutive patients undergoing PN. The individual RENAL nephrometry score was calculated for each patient based on the preoperative tumour characteristics on CT scan. The postoperative complications were recorded using the Clavien-Dindo classification. A multivariate ordinal regression model was fitted: including RNS, RENAL score suffix (anterior, posterior or neither tumour location), age at operation, ASA grade (1, 2, 3) and surgical procedure type (open or laparoscopic) as explanatory variables .
Results: There was a significant association found between RNS and the grade of complication , showing that a patient with a RNS one point higher than another would be expected to have a 1.3 times greater odds of being in a higher complication grade (95% CI: 1.01 to 1.66) after adjusting for RENAL score suffix, age at operation, procedure and ASA grade. We noted that a lesion found posteriorly ('p') could be estimated to have an almost 2.6 times greater odds of being in a higher complication grade (OR 3.85 (95% CI:1.04 to 6.54) after adjusting for other variables. No statistically significant effect was observed between age, ASA, operative procedure and the complication grade.
Conclusion: Our study concludes that RNS can be globally applied to predict complications after PN.

P44
The Effect of Renal Cancer Surgery on Glomerular Function – a Single Institution's Experience with Radical and Partial Nephrectomies

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Introduction: With the increasing incidence of surgery for small renal masses we aimed to assess the impact of Partial Nephrectomy (PN) and Radical Nephrectomy (RN) on Glomerular Filtration Rate (GFR) in our institution, to help guide the multi-disciplinary team and patient consultation as to the likely outcome from their surgery.
Methods: We analysed all nephrectomies performed in our institution. The eGFR was calculated according to the Modification of Diet in Renal Disease equation, and the indications (elective or imperative) for partial nephrectomies was also assessed.
Results: 211 RNs, and 130 PNs had full data available for analysis.
For RN, the median drop in eGFR was 28% (inter-quartile range 12–40%) falling from 65 ml/min to 47 ml/min over 12 months. There was no correlation with stage or grade.
The overall loss in renal function at 12 months following PN was 8% (−3–17%), falling from 74 ml/min to 69 ml/min. This difference from RN was statistically significant ($p < 0.01$).
Interestingly, in solitary functioning kidneys ($n = 24$) there was a similar fall (8%).
In patients with pT1a tumours and normal renal function (eGFR >60 ml/min) the fall in renal function was 29% for RN (18–42%) and 9% for PN (−1–19%) ($p < 0.01$).
Conclusion: At one year following RN, patients have lost 28% of their pre-operative renal function. This functional loss is significantly reduced for PN at 8%. PN should be the operation of choice for renal cancer if technically feasible, as there is a significant preservation of renal function even in patients with normal contralateral kidneys.

P45

Multi-institutional analysis of renal function following cryoablation of small renal masses in solitary kidneys

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Introduction: Presence of small renal masses (<4 cm) in solitary functioning kidneys represents an absolute indication for nephron sparing surgery.
The purpose of this study was to evaluate the outcomes of cryoablation in patients with solitary kidneys focusing on renal function in a large multi-centre series.
Patients and Methods: Data from 343 consecutive cases that underwent laparoscopic cyroablation at 3 institutions was studied. Experienced laparoscopic surgeons performed all operations. Patient demographics, tumour size and renal function were analysed with specific focus on serum creatinine concentration and estimated glomerular filtration rate (eGFR). Data was collected pre-ablation and 3 months post-operatively.
Results: Fifty-two patients were identified with solitary kidney, of which two were excluded because of long-term dialysis. Of these, 46 patients had solitary kidney secondary to previous malignancy and 4 had a non-functioning contralateral kidney. Cryotherapy was perfomed laparoscopically in 46 patients and 4 were ablated percutaneously (CT-guided). Mean age was 65.7 years (range 44–82). Mean tumour size was 2.9 cm (range 1.5 to 5 cm). Mean pre-operative creatinine was 141.8 mmol/l (range 56–404 mmol/l), 3 month post-operative creatinine was 148.7 mmol/l (range 66–358 mmol/l), and the percentage difference equating to 4.9%, $p = 0.793$. Post-operative renal function did not change significantly as measured by eGFR. Pre-operatively it was averaged at 46.9 ml/min (range 24–90 ml/min), at 3 months was recorded at 44.6 ml/min (range 15–78 ml/min), percentage difference of −5.1%, $p = 0.076$.
Conclusion: Our findings suggest cryoablation in solitary kidneys does not alter renal function significantly, therefore cryotherapy is a viable option for small tumours.

P46

Outcomes of an aged and complexity matched comparison between open and robotic-assisted partial nephrectomy

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Aims: Since commencing robotic partial nephrectomy (RPN) in 2010, we compared initial results with an established open partial nephrectomy practice (OPN) (2004–2012). All cases were performed for elective indications.
Methods: The peri-operative, oncological, and functional outcomes of 60 RPNs were compared with 59 OPN cases in matched cohorts using a prospective database.
Results: Mean age was 54.6 years (RPN) and 59 years (OPN). The mean tumour size was 3.08 cm for RPN and 3.61 cm for OPN (NS) and mean PADUA score was 7.3 (RPN) and 7.9 (OPN) (of 28/59 available) (NS). Operative times were longer for RPN (181 vs 139 minutes, $p < 0.01$), although estimated blood loss was greater for OPN (240 vs 164 mls, $p < 0.05$) and warm ischaemic times were lower for RPN (18.5 vs 21.0 mins, $p < 0.05$). The hospital stay was shorter for RPN (3.7 vs 5.6 days, $p < 0.001$).
There were 2 positive margins in each group but no radiological recurrences at 14 and 36 months respectively. There was one conversion to radical nephrectomy in each group. There were 2 Clavien grade II and 1 IIIb (ureteric stent) complication in RPN and 5 grade II, 2 IIIb (embolisation, caval filter) and one transfusion in OPN. Serum creatinine rose by 11.2 mol/l (RPN) and 13.2 mmol/l (OPN) (NS) whilst haemoglobin drop was greater for OPN (2.5 vs 1.65g/dl $p < 0.001$). 46/59 OPNs and 47/60 RPNs were performed for malignancy.
Conclusions: In the elective setting RPN can be performed with equivalent oncological and functional results with some potential reduction in complications, hospital stay and blood loss.

P47

Robotic versus traditional laparoscopic partial nephrectomy: comparison of outcomes with a transition of techniques

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Aim: We evaluate the effect of a transition from laparoscopic partial nephrectomy (LPN) to robotic assisted laparoscopic partial nephrectomy (RALP) on peri-operative and oncological patient outcomes.
Patients and Methods: We present the results of the last 50 LRP (Group-1) to our first 50 RALP (Group 2). The perioperative data was evaluated using appropriate comparative test. The parameters compared include operative times, warm ischemia time, estimated blood loss, complications using the Clavien Dindo system and oncological outcomes including positive surgical margin (PSM) rates.
Results: Patients in group 1 ($n = 50$) and group 2 ($n = 50$) had comparable pre-operative RENAL score, ASA scores and tumour size characteristics. Ninety four percent of patients in gp1 had reteroperitoneal LPN vs 96% of patients in gp2 had transperitoneal RALP. The mean total operative time [gp1(163) vs gp2(195), $p = 0.003$] and EBL [gp1(294) vs gp2(187), $p < 0.001$) were noted. The was no statically significant difference in WIT between the groups [gp1(24.7) and gp2(21.8), $p = 0.18$]. Post operative histology was comparable in both groups and the psm were 8%(gp1) vs 4%(gp2) [$p = 0.58$]. Clavien dindo major complications was 16%(gp1) vs 4%(gp2) [$p < 0.001$]
Conclusion: RALP appear to have a longer initial total operative time when compared to LPN, this however reduces after the first 20 case. RALP has a significant reduction EBL and post operative major complication rates including the risk of AV Fistula/Urinoma. Our data indicates that it is safe to change from LPN to RALP with no compromise to patient safety and oncological outcomes.

P48

Laparoscopic Versus Robotic-Assisted Nephroureterectomy for Upper Urinary Tract Urothelial Carcinoma

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Introduction: We sought to establish whether there were any operative or peri-operative advantages to using the Da Vinci robotic platform over our established laparoscopic nephroureterectomy.
Patients & Methods: We prospectively collected data on all patients listed for a minimally invasive nephroureterectomy at a single institution between September 2005 and July 2012. We present patient demographics and peri-operative outcomes, including operative time, peri-operative blood loss, length of inpatient stay and time until patients became catheter-free.
Results: Eighty-four patients underwent a minimally invasive nephroureterectomy; 54 laparoscopic (LNU) vs. 30 robotic (RANU), with a mean age of 66 years ±SD 11 years. 52 out of 54 (96.3%) laparoscopic cases were performed via a retroperitoneal approach with initial endoscopic circumferential release of the distal ureter and bladder cuff. All robotic cases were performed transperitoneally using a closed technique. Whilst operative time was shorter for LNU (204.6 minutes ±SD 69.0 vs. 235.8 minutes ±SD 42.6 ($p < 0.05$), mean blood loss (55.8ml ±SD 82.4 vs. 135.3ml ±SD 243.6), period of urinary catheterisation (median 1 day vs. 13 days) and length of inpatient stay (median 2 days vs. 4 days) were all significantly less in those undergoing RANU. Indeed, 43.3% were discharged the day following surgery without a urinary catheter.
Conclusions: There does appear to be a benefit, particularly from the patient's perspective, in performing a RANU with respect to bloods loss, a shorter hospital stay and a shorter time to catheter removal when compared to a standard laparoscopic approach.

P49

Laparoscopic Radical Nephrectomy to treat Renal Cell Carcinomas ≥10cm

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Introduction: Laparoscopic radical nephrectomy (LRN) is an established treatment of T1 and smaller T2 renal cell carcinoma (RCC). However, both open and laparoscopic excision of large tumours is technically challenging. The role of LRN for large T2 disease is not fully established. This study evaluates our experience of LRN for RCC ≥10cm.
Patients and Methods: Patients were identified retrospectively from local and BAUS Laparoscopic Nephrectomy electronic databases, from 2004 to 2012. Thirty patients were identified (19 male and 11 female). Age range was 42 to 81. Eighteen patients had surgery with curative intent, 12 patients had cytoreductive nephrectomy.
Results: Median tumour size was 11cm (range 10cm – 17cm). Median operating time was 117.5 minutes (63–210 mins). Median estimated blood loss was 100ml (2 patients received intra-operative transfusions). Median length of stay was 4.5 days (1–31). Two cases (6.7%) were converted to open (1 due to haemorrhage, 1 due to tumour size/splenic invasion). Six patients were staged pT2, 15 pT3a, 8 pT3b and 1 pT4. Three patients had pathological nodal disease. Post operative complications included wound infection (n = 1), chest infection (n = 2), collection (n = 1) and acute urinary retention (n = 1). All patients who underwent LRN with curative intent were margin negative (67% margin negative in cytoreductive patients). One-year overall survival was 83% (94% for patients with curative intent).
Conclusion: Although technically challenging, laparoscopic nephrectomy for RCC 10cm or greater can be safely achievable with good oncological outcomes. It carries the associated advantages of little blood loss and a short hospital stay.

P50

Contemporary outcomes of cytoreductive nephrectomy at a UK tertiary referral centre

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Introduction: Cytoreductive nephrectomy (CN) is well-established as part of treatment in selected patients with metastatic renal cell carcinoma (mRCC). Adjuvant treatments with tyrosine kinase inhibitors and interferon have demonstrated survival benefit in this patient group.
Patients and Methods: Patients undergoing CN in the period Jan 2004-Dec 2010 were identified from a departmental database. Retrospective records review was undertaken to extract clinico-pathological details and survival outcomes.
Results: Fifty-seven patients were identified with median age of 62 years and median follow-up of 61 months. The commonest site of metastasis was lung (65%).
16% of CN were performed laparoscopically and tumour size ranged from 2.3 to 18.4cm. Surgical complications included two deaths within 30 days, 18 patients with Clavien-Dindo grade II complications and 3 cases with grade IVa complications.
Twenty-six patients received adjuvant treatments – sunitinib (n = 16), interferon (n = 8) or interleukin (n = 2). The median time starting adjuvant therapy post-operatively was 4.2 months (range 1.2–43). Kaplan Meier (KM) analysis showed an overall 5-yr disease-specific survival (DSS) of 35%. 61% of patients died during the study period and the median time to death was 13.8 months. There was clear survival benefit for patients in the 'good' MSKCC prognostic group compared to the 'intermediate' MSKCC group (50%vs13% 5-yrDSS; $p = 0.049$). Patients receiving adjuvant treatments did not have improved survival (but small patient numbers).
Conclusion: CN can be performed safely in our unit although it carries significant morbidity. Survival outcomes are comparable to published series and we confirm the better prognosis in the 'good' MSKCC risk group.

BJUI

Wednesday 19 June 2013
Poster Session 5
10:30–12:30 Charter 2
PROSTATE CANCER TREATMENT
Chairs: Associate Professor John Davis & Mr Vijay Ramani
Posters P51–P66

P51

Can the findings of randomised clinical trials concerning the efficacy of prostate cancer therapy in men with early disease be replicated in national cancer registries?

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Introduction: Two recent randomised trials have compared radical prostatectomy with observation in men with early prostate cancer. The first – SPCG-4, reported that radical surgery was associated with a reduction in prostate cancer death. In contrast, the second – PIVOT, found no such association. We identified both the SPCG-4 and PIVOT study populations within a national cancer registry to identify if these trial findings could be replicated in the non-trial UK setting.
Methods: National cancer registration records were linked to both hospital admission records and mortality records. Data were available on 75,735 men.
Results: For the SPCG-4 matched cohort, 8-year Overall Mortality (OM) for men undergoing radical therapy was 18% versus 34% for men undergoing observation (OR 0.44, 95% CI 0.40–0.47, $p < 0.001$, NNT 6). Comparable figures for Prostate Cancer Mortality (PCM) were 9% and 21% (OR 0.33, 95% CI 0.29–0.37, $p = < 0.001$, NNT 8). For the PIVOT matched cohort, 8-year OM for men receiving radical therapy was 8% versus 15% for men undergoing observation (OR 0.5, 95% CI 0.44–0.56, $p < 0.001$, NNT 14). Comparable figures for PCM were 3% and 1% (OR 0.46,, $p < 0.001$, NNT 50).
Conclusions: Using UK cancer registry records, we were able to replicate the survival benefit of radical therapy identified in the SPCG-4 study. While radical therapy was also found to be associated with a reduction in all-cause and prostate cancer mortality in men with similar disease characteristics as those included in the PIVOT trial, the high NNT suggest our findings may reflect our larger study population.

P52

Concordance rates between prostate biopsy and radical prostatectomy Gleason scores – assessing the impact of the ISUP (2005) changes in Gleason grade

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Introduction & Objectives: Prostate biopsy (PB) Gleason score (GS) is an important prognostic marker influencing the clinical management of prostate cancer. However discordance rates between PB GS and radical prostatectomy (RP) GS are around 45%. In 2005, the International Society of Urological Pathology introduced changes to Gleason grading. These were widely adopted by 2007 and accompanied by uro-pathological subspecialisation. We evaluated the concordance rates of PB and RP GS at our institution to assess the impact of these changes.
Materials & Methods: A retrospective analysis of men undergoing RP between 2004 and 2011 was performed. Of 353 consecutive patients, 316 results were available for review**.** Under-grading was defined a PB GS less than the RP GS. Over-grading was defined as a PB GS higher than the RP GS.

Results (for P52):

	2004–2007 (n = 134)	2008–2011 (n = 182)
Mean age (Range)	69 (55–79)	63 (48–77)
Mean Pre-Biopsy PSA (ng/ml)	9.4	8.3
GROUP 1 – BIOPSY GS ≤ 6	**n = 55**	**n = 57**
RP Gleason ≤ 6	**18 (33%)**	**18 (32%)**
RP Gleason = 7	34 (62%)	37 (65%)
RP Gleason ≥ 8	3 (5%)	2 (3%)
GROUP 2 – BIOPSY GS = 7	**n = 54**	**n = 110**
RP Gleason ≤ 6	7 (13%)	11 (10%)
RP Gleason = 7	**38 (70%)**	**87 (79%)**
RP Gleason ≥ 8	9 (17%)	12 (11%)
GROUP 3 – BIOPSY GS ≥ 8	**n = 25**	**n = 15**
RP Gleason ≤ 6	1 (4%)	0 (0%)
RP Gleason = 7	13 (52%)	7 (47%)
RP Gleason ≥ 8	**11 (44%)**	**8 (53%)**
OVERALL		
Under-grading (Biopsy ≤ RP)	46 (34%)	51 (28%)
Same grade (Biopsy = RP)	67 (50%)	113 (62%)
Over-grading (Biopsy ≥ RP)	21 (16%)	18 (10%)

Conclusions: Despite the implementation of ISUP (2005) GS changes, under-grading remains a significant problem for PB GS = 6 cancers. This is concerning as many of these patients are offered active surveillance (AS) as a treatment option. Our results support the use of early re-biopsy within AS protocols to aid identification of these under-graded cases.

P53
PSA surveillance following surgery for high risk prostate cancer with favourable pathological features

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Objective: To report the outcome of robotic-assisted laparoscopic radical prostatectomy (RALP) for men with localised high-risk prostate cancer at diagnosis.
Patients and Methods: Between October 2005 and July 2012,1029 patients underwent RALP of whom 135 patients fulfilled the D'Amico criteria for high risk prostate cancer (PSA > 20, Gleason grade ≥8 or clinical stage ≥cT2c). Outcome was analysed for the 85 men that underwent surgery without adjuvant therapy. Biochemical recurrence was defined as a PSA of greater than 0.2ng/ml.
Results: For these 85 men, mean age was 63.7 years (standard deviation 6.35). Median PSA level was 8.6ng/ml (interquartile range 6.3–12.2ng/ml). 26% of specimens were Gleason 8–10 at prostatectomy. 73% were pathological stage pT3, with seminal vesicle invasion evident in 16%. Downgrading was seen in 27.1% and downstaging was seen in 3.5%. Upgrading was seen in 21.1% and upstaging seen in 71.8%. Overall positive surgical margin rate was 16.5%. All positive surgical margins were seen in pT3 tumours representing 19% of pT3 tumours. With a median F/U of 1.7 years (mean 1.93). biochemical recurrence free survival is 80/85 94% (59.3% of the high risk PC cohort), in 5 of these salvage radiotherapy has been triggered after a median of 354 days (Standard deviation = 427 days). PC specific mortality was <1%.
Conclusion: RALP with wide excision allows accurate staging and grading in high risk prostate cancer and allows identification of a subset of patients suitable for post-operative PSA surveillance.

P54
Accuracy of Briganti Nomogram in predicting lymph node positive disease in patients undergoing Radical Prostatectomy – Results from a UK Tertiary Centre

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Introduction: Pelvic lymph node dissection (PLND) is recommended for men with intermediate and high risk prostate cancer who are undergoing radical prostatectomy (RP) to identify lymph node invasion (LNI). PLND is however associated with complications and could be avoided when the probability of LNI is low. Briganti *et al*. recently proposed a nomogram to predict the probability of LNI (low and high risk groups). The aim of this study was to assess validity in a contemporary cohort of patients managed at a UK tertiary referral centre.
Methods: All patients who underwent RP and PLND for prostate cancer from Jan 2007-Feb 2011 were identified from a prospectively acquired departmental database. The Briganti nomogram (based on PSA, clinical stage, primary and secondary grade, percentage of positive cores) was used to predict the probability of LNI. This was compared to pathological specimens from PLND to assess accuracy.
Results: Of a total of 243 patients who underwent LRP in the study period, 79 were intermediate or high d'Amico risk and therefore underwent PLND. Median age was 65 years. Mean number of excised lymph nodes was 10 (1–24). Seven patients (8.8%) were found to have LNI (Table 1). Forty-three patients (54%) had a predicted Briganti probability of LNI of <0.05 (Briganti low risk). No patients with predicted Briganti low risk were found to have LNI.
Conclusion: The Briganti nomogram accurately predicted patients at high risk of LNI in our cohort. Using this normogram over half of the patients would have avoided unnecessary co-morbidity associated with PLND.

Table 1 (for P54)

No of patients (intermediate/ High) (%)	79 (100%)
Age median(range)	65 (50–74)
PSA ng/ml median (range)	12.9 (3.35–38)
% of positive biopsy cores	
Median (range)	35 (0.5–100)
Clinical Stage (n)	
T1	47
T2	24
T3	8
Primary Biopsy Gleason pattern	
3	63
>4	16
Secondary Biopsy Gleason pattern	
3	43
>4	36
No. of lymph nodes removed	
Mean (range)	10 (1–24)
No of positive lymph nodes	
Median(range)	1 (1–3)
LNI (%)	**7 (9%)**

Briganti et al. European Urology 2012, Vol. 61, Issue 3, pages 480–487

P55

How does positive surgical margin (PSM) length affect biochemical recurrence (BCR) after robotic-assisted radical prostatectomy (RARP)? Analysis of a single center with minimum follow-up of five years

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Introduction: It is well established that PSM is a risk factor for BCR. In this study we aim to assess the impact of length of PSM as a predictive variable for BCR.
Patients & Methods: From Jan 2002 to Dec 2006, 944 men with clinically localized or locally advanced (cT1-3) prostate cancer underwent RARP at our institution. Data were prospectively collected and included: age, BMI, preoperative PSA, prostate volume, clinical stage, biopsy Gleason score, pathological stage, specimen Gleason score (GS), margin status, number of PSM and extent of PSM and were associated with BCR rate. Kaplan-Meier survival plots, Cox univariable and multivariable regression analysis were used to determine biochemical recurrence-free survival.
Results: In total, 194 (21.6%) patients were found to have PSM. In multivariable regression analysis: PSA > 10 (HR: 1.86, 95%CI: 1.27–2.72, p = 0.0013), pT3a stage (HR: 1.62, 95%CI: 1.07–2.46, p = 0.0221), pT3b stage (HR: 3.09, 95%CI: 1.69–5.67, p = 0.0003), GS: 3+4 (HR: 2.20, 95%CI: 1.34–3.60, p = 0.0017), GS: 4+3 (HR: 5.08, 95%CI: 2.95–8.74, p < 0.0001), GS: ?8 (HR: 3.89, 95%CI: 1.90–7.93, p < 0.0002) and PSM length? 3 mm or multifocality (HR: 2.84, 95%CI: 1.76–4.58, p < 0.0001) remained independent predictors of BCR.
Conclusion: In a large RARP series with median follow-up of 6.3 years, PSM length ≥3mm was an independent predictor of BCR. Patients with PSM <3 mm had similar BCR outcomes to those with negative surgical margins.

P56

The UK Independent HIFU registry: 5 year oncological outcomes in over 500 men following whole-gland primary HIFU

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Introduction: High-intensity focused ultrasound (HIFU) is a minimally-invasive whole-gland therapeutic option for non-metastatic prostate cancer. We report medium term outcomes following primary whole-gland HIFU (Sonablate® 500), from a multi-centre UK population collected within a national registry.
Patients and Methods: Patients treated with whole-gland HIFU for primary non-metastatic prostate cancer at 8 centres were entered into a UK independent registry. Biochemical disease free survival (BDFS) rates were evaluated using Phoenix (PSA nadir+2ng/ml) and Stuttgart (PSA nadir+1.2ng/ml) criteria in those men with at least 6 months' post-HIFU data. Histological outcomes were reported in those receiving post-operative biopsy.
Results: 570 consecutive men with non-metastatic prostate cancer received primary whole-gland HIFU (10/2004 and 06/2012). 23%, 34%, and 43% of men had low, intermediate and high-risk cancer (D'Amico classification), respectively. Neo-adjuvant hormone treatment was received by 34% (193/570), for gland cytoreduction in 60% (116/193). Mean number of HIFU treatments was 1.3, with a median follow-up of 57 months (IQR 38–73). Median PSA fell from 6.9ng/ml (range 0.1–74.7) to a nadir of 0.33ng/ml (range <0.1–30.4). 512 men had minimum of 6 months follow-up; BDFS was 84% (Phoenix) and 75% (Stuttgart). 'For cause' biopsies were performed in 35% (197/570) after final HIFU treatment, with positive histology in 38% (75/197) (overall 15% biopsy positive [75/512]). Adjuvant hormone ablation was received by 21% (119/570), and alternative salvage treatment in 10% (55/570).
Conclusion: Whole-gland HIFU is a therapeutic option for prostate cancer that is repeatable and delivered within a day case setting with favourable medium term disease-free outcomes.

P57

Focal Therapy Targeted to the Index Lesion in Multifocal Prostate Cancer: a Prospective Development Study

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Introduction: Focal therapy of localised prostate cancer has demonstrated encouraging early genitourinary functional and oncological outcomes. We aimed to evaluate the outcomes in men with multi-focal disease in which the dominant index lesion was ablated.
Patients and Methods: An ethics committee approved, prospective development study of focal index lesion ablation using high-intensity focused ultrasound (HIFU) (Sonablate 500) in men with localised prostate cancer. Disease burden was characterised on multi-parametric (mp)MRI and transperineal template mapping OR mpMRI and standard transrectal ultrasound (TRUS) guided biopsies. Genitourinary side-effects and quality of life were assessed using validated patient questionnaires. mpMRI and protocol-mandatory biopsies of the

treated area and/or 'for-cause' biopsies to untreated areas were carried out at 6 months, and mpMRI at 12 months.
Result: Fifty-six men underwent focal index lesion HIFU. Mean age was 64 years with a median PSA of 6.6. 13%, 84% and 4% had low, intermediate, and high-risk cancer (NCCN classification). Erections sufficient for intercourse fell from 76% at baseline to 67%, with an increase in PDE5-I use from 13% to 43%. Pad-free continence was preserved in 93%, and leak-free pad-free continence fell from 98% to 92%. Median PSA nadir was 2.4. One man received hormone ablation therapy for residual disease. Two men underwent repeat focal HIFU. Overall absence of clinically significant disease was 87% (45/52) at 12-months.
Conclusion: Focal index lesion ablation of multifocal prostate cancer is acceptable to men and demonstrates encouraging short-term functional and oncological outcomes in a cohort of men with heterogeneous baseline function.

P58
Salvage radical prostatectomy: Comparing outcomes in a single surgeons series in the advent of a robotic approach

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Introduction: Radical prostatectomy for biochemical recurrence of prostate cancer following radical radiotherapy is increasingly being utilized as a salvage treatment, with increasing evidence that this treatment option can provide ongoing cure. With the advent of minimally invasive surgery, questions are raised about oncological outcomes of surgery in the non-salvage setting, however it has been shown that hospital stay and blood loss are improved in minimally invasive surgery but there is no difference in oncological outcomes when performed by the experienced surgeon. There are a small number of case series presented in the literature of robotically assisted minimally invasive surgery being used in the salvage setting, which have favorable outcomes when performed by high volume surgeons.
Methods: We have retrospectively reviewed the case notes of all salvage radical prostatectomies by a single surgeon within our institution between 2001 and 2012. We have compared oncological outcomes, hospital stay, blood loss and length of surgery in open versus robotic approach this time period. Patients had been referred from other institutions to our centre, but all had pre-operative localized disease on imaging.
Results: There were a total of 30 cases, 14 open and 16 robotic cases. Median length of hospital stay for the robotic series was 2 days (2–6 days) whilst the open cases had a median stay of 5 days (4–9). Median length of surgery was 160 minutes (110–180 mins) and 190 minutes (80–210 minutes) in the robotic and open series respectively. Median blood loss was less in the robotic series at 100mls (50–500mls) compared with the open series at 400mls (50–1200mls). There was no significant difference in oncological staging at pathological review.
Conclusion: Oncological outcomes have not been compromised by using minimally invasive technique in this single surgeon's series, however there was a reduction in hospital stay, operative time and blood loss when the robotic assisted approach was implemented in a surgeon with a large series of open and robot assisted prostatectomy.

P59
Quality of life assessment of Robot-Assisted Radical Prostatectomy: lessons learned from routine office encounters using the EPIC survey

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Introduction: We report our experience with quality of life assessments of robot-assisted radical prostatectomy patients in the setting of routine care in the office using comprehensive, validated survey instruments.
Methods: From 5/2006 to 8/16/2012, two experienced surgeons from a single, academic institution completed 1,224 robot-assisted radical prostatectomy (RARP) procedures. Patients completed surveys pre-operatively, and at routine post-operative intervals including 6 weeks, 6 months, 1 year, and 2 years. The instruments included the Expanded Prostate Cancer Index (EPIC).
Results: EPIC surveys take patients approximately 20 minutes to complete, and data managers 10 minutes to enter. 3,872 surveys were entered for an estimated 645 work hours. Review of the hormonal and bowel summary and subscales showed baseline scores >90 and no treatment-related effect. Urinary summary and bother returned to baseline by 6 months, while urinary irritative/obstructive domains improved slightly at 6 months and beyond. Urinary incontinence was 92 at baseline, 49 at 6 weeks, 74 at 6 months, and 82 at 1 and 2 years. Sexual function at the same intervals was 57, 24, 30, 37, and 39, while bother was 72, 40, 42, 51, and 56.
Conclusions: Patients are willing to complete EPIC surveys during an office setting, but the scoring is likely too burdensome for routine clinical care. Our results suggest an opportunity to delete the bowel and hormonal scales in the surgical setting, and to place a greater emphasis on subset analysis of urinary and sexual domains. The urinary summary and bother scales suggest excellent post-operative recovery.

P60
Radical prostatectomy follow up in secondary care – how long is too long?

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Background: In our institution the number of patients undergoing radical prostatectomy (RALP) has grown from 113 in 2007 to 320 in 2011. Audit undertaken in 2008 demonstrated our capacity for follow-up needed expansion to sustain this growth, which led to the implementation of a new protocol for follow-up after RALP.
Methods: Local GPs and our patient prostate cancer advisory group were consulted to help design a protocol of PSA follow-up with the aim of repatriation of patients back to primary care after 2 years. Each patient undergoing RALP was followed up in 6 out-patient visits: 4 visits in Year 1, 2 visits in Year 2. We reviewed the number of visits per patient 2009/10 following introduction of the protocol (n = 343) with a pre-protocol group in 2005/06 (n = 128). We also evaluated reasons for deviation from the protocol to evaluate feasibility and safety.

Results: The pre-protocol group, 73% presented with Gleason >7(11% positive margins), compared to 78% (18% positive margins) in the post-protocol group. Mean number of visits was 15 (range: 7–23) in the pre-protocol group, versus 7 (range:4–17) in the post-protocol group ($P < 0.001$). 27%(n = 94) of men in the post-protocol group needed >6 visits: 62 presented with disease progression, 31 had an extra visit due to new members of staff, and 1 patient died. However, only 13% (n = 46) of men needed >7 visits.
Conclusion: We have demonstrated a safe and sustainable model of follow-up freeing up out-patient capacity for new patients, and improving quality of care with more time spent with each patient.

P61
Long-term outcomes for patients who deferred initial treatment for localised prostate cancer

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Introduction: Many localised prostate cancers (PC) have a protracted natural history and often pose little threat to patients during their lifetime. We report our long-term follow-up of men with localised PC who deferred initial treatment.
Methods: Data was collected prospectively in an early PC database between February 1997 and September 2012. Data included age, stage, grade, PSA at diagnosis, whether treatment was required and survival.
Results: 406 patients with a median age of 68 years (range 46–92yrs) at diagnosis were followed-up for a median of 4.6 years (range 0.3–15.9yrs). The median PSA at diagnosis was 8ng/ml; 69% of patients had PSAs =10ng/ml and 18% between 10–15ng/ml. Overall, 80% of patients had Gleason score of = 6, 19% Gleason 7 and 1% Gleason = 8 at diagnosis. 133 (33%) received treatment with a median time from diagnosis of 23 months (range 4–149 months). The reasons for prompting treatment include 88 due to PSA progression, 17 with stage progression, 22 due to patient choice and 7 for unknown reasons. 18 underwent radical retropubic prostatectomy, 72 had external beam radiotherapy (42 including hormones), 35 had hormones alone and 8 had other treatment (e.g. brachytherapy). Overall 5 and 10 year survival was 88% and 70%, respectively. PC specific 5 and 10 years survival was 99% and 91%, respectively.
Conclusion: We observe a low mortality and requirement for treatment in patients who defer initial radical treatment. With close monitoring, this strategy can be employed safely in patients with localised PC, but requires significant clinical input.

P62
Radical prostate cancer therapy is associated with a survival benefit in the older man

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Introduction: Data from randomised trials suggest older men have little to gain from radical prostate cancer therapy. In contrast, observational studies have suggested that older men might be at increased risk of prostate cancer-related death . Using a national cancer registry, we sought to explore this issue further.
Methods: National cancer registration records were linked to both national mortality records national hospital admission records. Data were available on 75,735 men.
Results: Older men were more likely to have high-grade prostate cancer (<70 yrs: 20% v's >79 yrs: 36%) and be staged with locally advanced (<70 yrs: 20% v's >79 yrs: 35%) or metastatic disease (<70 yrs: 18% v's >79 yrs: 25%). Older men were less likely to receive radical therapy (<70 yrs: 46% v's >79 yrs: 4%). For men aged <70, radical therapy was associated with decreased all-cause and prostate cancer mortality, irrespective of D'Amico risk stratification. For men aged between 75 and 79, radical prostate cancer therapy was only associated with a survival benefit in men with high risk disease (OR: 0.49, 95% CI 0.36–0.66, $p < 0.001$) for which the NNT was 5.
Conclusions: Older men present with more advanced and more aggressive prostate cancer and as such are more likely to die from their disease. Radical therapy was associated with a survival benefit up to the age of 80 providing therapy was targeted to those with higher risk disease.

P63
Is targeted antimicrobial prophylaxis for transrectal ultrasound guided biopsy of prostate the safest way of preventing infective complications?

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Introduction: Ciprofloxacin is the most common agent used for antibacterial prophylaxis during Transrectal Ultrasound Guided Biopsies of prostate (TRUB). Growing fluoroquinolone resistance in Enterobacteriacae is thought to be a major contributing factor to an increasing infective complication rate following the procedure. The aims of our study were to evaluate prevalence of fluoroquinolone resistant Enterobacteriacae in rectal swabs from our local population and to assess the feasibility of targeted antibacterial prophylaxis for TRUB.
Methods: Consecutive patients undergoing TRUB from September 2011 till December 2012 had a rectal swab taken when the decision to have the biopsy was made. The swabs were cultured on Ciprofloxacin MacConkey agar to screen for fluoroquinolone resistant Gram negative organisms, which were then tested for sensitivity to Gentamicin and Amikacin. Targeted antimicrobial prophylaxis was given to patients carrying fluroquinolone resistant bacteria. Hospital admissions for infection following the procedures were considered as end points of the study.
Results: Two hundred and seventy four rectal swabs were taken out of 268 patients. Six patients had repeat biopsies with median interval 4 months (range 2 to 12). Ciprofloxacin resistant Gram-negative bacilli were found in 29 (10.6%) of the swabs. Five (18.3%) of them were also resistant to Gentamicin. There was no resistance to Amikacin found. Two patients (0.7%) were admitted with infective complications following the procedure. There was no delay in patient pathway observed.
Conclusion: Eleven per cent of patients undergoing prostate biopsy in our hospital carried Enterobacteriacae resistant to Ciprofloxacin. Targeted prophylaxis for TRUB is feasible and safe.

P64

Assessing the applicability of the WHO FRAX osteoporotic fracture risk scoring system and national osteoporosis group guidance (NOGG) in patients with prostate cancer on androgen deprivation therapy (ADT)

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Introduction: The prevalence of osteoporosis in prostate cancer patients is 15%–41%. ADT reduces bone mineral density (BMD) and increases fracture risk which may be reversed by treatment with bisphosphonates or denosumab.
We assessed whether current guidelines utilising FRAX scoring and national guidance (NOGG) with/without DEXA results were applicable to men on ADT.
Patients and Methods: 392 men either receiving or about to commence ADT underwent DEXA scanning between 2008–2011. Retrospective data was collected on patient demographics, prostate cancer and medical history, BMD and T-score values.
Results: Average age and BMI were 78 and 29 respectively. 60% were on established ADT and 20% had metastases. 16% of patients were osteoporotic (half of whom had suffered a fracture), 54% osteopenic and 31% normal.
In patients with osteoporosis (n = 58), FRAX analysis without T-score inclusion gave an average fracture risk of 15%, dropping to 10.5% with T-score included. Applying NOGG guidance recommended DEXA scanning in only 26% and treatment in just 3 patients.
In patients in whom sequential DEXA scans were available, patients given bisphosphonate treatment (17 patients) had a BMD gain of +1%/year (lumbar) and 0%/year (hip). In contrast, 59 patients having no treatment had a BMD loss of –2.5%/year (lumbar) and –2%/year (hip) ($p < 0.05$).
Conclusion: Using FRAX scoring and NOGG, very few patients would have needed either DEXA scanning or osteoporotic treatment even though they were osteoporotic on DEXA. FRAX scoring and NOGG do not appear to be applicable to patients on ADT for prostate cancer.

P65

Sequential treatment with Cabazitaxel and Abiraterone in Patients with Metastatic Castrate-Resistant Prostate Cancer (mCRPC) previously treated with a Docetaxel-Containing Regimen: A Single UK Cancer Centre's Experience using Early Access Programme and Cancer Drugs Fund

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Background: The TROPIC Trial demonstrated improved OS in patients with mCRPC who progressed with Docetaxel. We report our experience using sequential treatment with Cabazitaxel and Abiraterone in patients receiving treatment within the EAP and via the CDF.
Methods: Retrospective review of patients receiving Cabazitaxel and Abiraterone from 1st January 2011 to 17th October 2012. Electronic records provided documentation regarding disease response and treatment toxicities.
Results: 38 patients received Cabazitaxel, 12 were within the EAP and 26 via the CDF. Median age was 68.9 years (59–83) within the EAP group and 70 years (52–78) within the CDF, whilst median number of cycles was 6 (1–10) and 5 (1–10) respectively.
Biochemical and clinical response to Cabazitaxel was 74%. 20/34 (59%) patients received Abiraterone after Cabazitaxel with symptomatic benefit after cycle 1. PSA response in both was discordant with clinical benefit.
33/38 patients remain alive (Gleason score = 8, 15 of 38). Of the January 2011–2012 cohort 15/20 are alive with a mean survival of 12.1 months (3.4 – 19.4). There were no treatment related deaths.
Treatment related adverse events are shown in Table 2.

Table 2. Incidence of Treatment Related Adverse Events. Comparison with TROPIC data

Adverse Event	All grades	
	TROPIC (%)	EAP + CDF (%)
Fatigue	37	32
Diarrhoea	47	26
Neutropenic Sepsis	8	8
Thrombocytopenia	–	5
Peripheral Neuropathy	14	0
Cardiac Toxicity	1	0

Conclusion: Cabazitaxel offers demonstrable response rates and meaningful survival with an acceptable toxicity profile.
A number of patients (59%) managed sequential Cabazitaxel and Abiraterone with sustained symptomatic benefit.

P66

PUKA Study: a snapshot of radical prostatectomy practice in the UK

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We aimed to conduct a snapshot of radical prostatectomy (RP) practice to:
- Increase the volume of surgeons contributing to national audit and improve data entry.
- Investigate if data from a snapshot reflects the findings from the 2011 BAUS Prostatectomy Audit (2011 Audit).
- Report functional and oncological outcomes for RP in the UK, as data was insufficient in the 2011 Audit to define this.

From 01/06/2012–30/08/2012, every member of BAUS was asked to submit details of the first RP performed on/after 10/10/2011, to the Prostate UK Audit (PUKA) study. Quality and completeness of data was assessed. Casemix and outcomes were detailed. Comparisons were made between surgical techniques and to the 2011 Audit findings.
Only 48(42%) consultants entered cases, however, there was more complete data capture for patients entered than in the 2011 Audit ($p < 0.001$). Many findings of the PUKA study agreed with the 2011

Audit. At 6 months, 95.7% of patients were disease free and there was no difference in incontinence (45% overall) or erectile dysfunction (89% overall) rates between techniques.
The PUKA study did not increase the number of contributors compared to the 2011 Audit; however data capture is more complete. Many findings of the PUKA study agree with the 2011 Audit but national audit may only be truly accurate if it is compulsory.
This study confirms the appropriate patient selection of intermediate and high risk patients for RP in the UK. All techniques are safe and effective, however open RP may have higher rates of bleeding and transfusion.

BJUI Wednesday 19 June 2013 Poster Session 6 10:00–12:00 Charter 3 RECONSTRUCTION & INFERTILITY Chairs: Mr Jonathan Ramsay & Miss Daniela Andrich Posters P67–P80

P67

Microdissection testicular sperm extraction as a secondary procedure in men with non-obstructive azoospermia

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Introduction: The role of microdissection sperm retrieval (m-TESE) in men who have already undergone sperm retrieval using TESE/TESA has not been systematically evaluated. The aim of this study was to determine the outcome of m-TESE as a secondary procedure in men with non obstructive azoospermia (NOA) in whom no sperm was seen on previous single/multiple TESE or TESA.
Methods: A total of 54 men with NOA underwent microdissection testicular sperm extraction. All patients had previously undergone single/multiple TESE or TESA and no sperm found. None of the patients had undergone previous m-TESE. Pre-operative FSH, LH and histopathology were examined as predictive factors for sperm recovery. All patients underwent pre-op genetic screening. Five patients had genetic abnormalities (AZFc micro-deletions and X klinefelters) detected preoperatively.
Results: The mean age of patients was 39 years (range 26–57 years). Spermatozoa were successfully retrieved in 28 men by m-TESE. The mean (range) FSH and LH levels were 19.1 IU/L (3.1–58.5) and 12.5 IU/L (2.1.–32.5) respectively. There was no correlation in FSH levels and the ability to find sperm by m-TESE [p = 0.5]. Sperm retrieval rates for patients with Sertoli cell only (38%) were significantly lower compared to the hypospermatogenesis group (77%) and maturation arrest (50%) [p = 0.02]. There were no significant complications following surgery.
Conclusion: In men with NOA who have undergone previous attempts at sperm retrieval, secondary microdissection sperm retrieval will retrieve sperm in 52% of patients comparable with the results of a primary procedure.

P68

Patency rates following a single surgeon's technique for macroscopic vasectomy reversal

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Introduction: Current practice recommends the use of microsurgical vasectomy reversal to ensure the best chance of patency. We report a single surgeon's macroscopic technique for approximating the dissected vas deferens with a single intraluminal suture.
Method: Retrospective review of post-reversal patency rates, assessed by semen analysis, using the aforementioned technique performed by a single surgeon.
Results: 95 men (mean age 40.7 years, 28–62 years) underwent macroscopic vasectomy reversal between 1993–2011. Reversals occurred on average 7 years post-vasectomy (range <1–31 years). 73 men (76.8%) provided at least one semen sample for analysis, on average 5.8 months post-reversal. Patency was proven in 62 men (85%), with a sperm count >40 million in 82%, >50% progressive motility in 33.9% and >15% normal morphology in 10.9%. 15 men provided a further sample for analysis, on average 8 months later. Whilst sperm count improved in the majority on repeat analysis (80%), motility and morphology showed minimal improvement. Of the 22 (23.2%) men that failed to provide semen samples for analysis, five were known to have successfully fathered children, increasing the implied patency rate to 91.8%.
Conclusion: Respectable patency rates have been demonstrated for this easily reproducible technique, without the need for potentially expensive microsurgical equipment.

P69

Post Vasectomy Semen Analysis Guideline: Is it time to change?

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British Andrology Society (BAS) guideline recommends 2 consecutive azoospermic samples, initially at 12 and 16 weeks before declaring vasectomy successful. EAU and AUA guidelines, in contrast, suggest that only one azoospermic or low density non-motile sperm sample at 12 weeks is required. We compared these guidelines.

Methods: 8026 patients who underwent vasectomy were identified from the regional fertility database. The post vasectomy semen analyses results were evaluated to compare outcomes and related costs of using BAS versus EAU/AUA guidelines.
Results: From 8026 patients, 3990 (49.7%) provided minimum two samples for analysis. 4036 (50.3%) only provided one sample. There were 45 primary failures (0.56%) (motile sperm). Of the 3990 patients, 2322 (58%) met BAS criteria for successful vasectomy and 863 (21.6%) did not, but special clearance was granted.
If EAU and AUA criteria were used, 7988 (99.5%) would have achieved clearance on the first sample. 45 primary failures (0.56%) as above. 685 patients (8.5%) failed to send in subsequent samples suggesting better compliance.
Repeated testing if the first sample contains azoospermia or low density non-motile sperm does not offer any clinical advantage. No patients cleared by the EAU/AUA criteria subsequently failed on BAS criteria.
Total cost was £636,480. The potential cost would have been £179,550 if the EAU/AUA guidelines were used; a potential saving of £456,930 (71%).
Conclusion: EAU/AUA guidelines reduce unnecessary testing without compromising detection with better compliance.

P70
Patient-reported outcomes after urethroplasty

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Introduction: We report patient-reported outcomes two years after urethroplasty.
Methods: The urethral stricture surgery patient-reported outcome measure (USS PROM) is a validated questionnaire comprising an additive LUTS construct; Peeling's voiding picture; LUTS-specific quality of life and treatment satisfaction questions, and EQ-5D. Men with anterior urethral stricture at four UK centres completed the PROM before and approximately two years after urethroplasty. Changes in score were analysed. EQ-5D health state utilities were calculated using the UK time trade-off value set.
Results: 46 men median age 43 took part, comprising 34 bulbar, 8 penile and 4 peno-bulbar urethroplasties. Mean follow-up was 25 months. Median LUTS scores (24 = most symptomatic to 0 = least symptomatic) improved from median 12 at baseline to 4 (mean of differences 6.6 scale points, 95% CI 4.1–9.2, $p < 0.0001$). 72% of men felt their urinary symptoms interfered less with their overall quality of life; 17% reported no change and 11% were worse. 86% of men were satisfied with urethroplasty. 48% of men reported a health state corresponding to 'full heath' in the EQ-5D descriptive system preoperatively. EQ visual analogue scale scores (best imaginable health = 100, worst = 0) improved from mean 69 at baseline to 79 (mean of differences 9.9, 95% CI 1.8–18, $p = 0.018$) and health state utility values (1 = full health, 0 = dead) improved from mean 0.79 to 0.89 (mean of differences 0.10, 95% CI 0.02–0.18, $p = 0.012$).
Conclusions: Significant improvements in LUTS and health-related quality of life, comparable to those seen at 4–6 months in the USS PROM development study, remained evident approximately two years after urethroplasty.

P71
Patients Reported Complications and Their Satisfaction with Intermittent Self Catheterisation

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Introduction: Patients with urethral strictures or incomplete bladder emptying often perform intermittent self dilatation (ISD) or catheterisation (ISC) respectively. Despite advances in ISC catheter technology, there is no recent data regarding the problems encountered and complication rates whilst performing ISC or ISD or indeed, how ISC and ISD impacts upon quality of life (QOL).
Patients and Methods: Patients attending nurse led catheterisation clinics were asked to complete a questionnaire regarding their demographics, duration of ISC, frequency, reason for catheterisation and complications.
Results: 95 patients completed the questionnaire. 57% performing ISC, 40% ISD and 3% for both incomplete emptying and urethral strictures. The most common complications reported were cystitis (43%), Pain (32%), Bleeding (31%), difficulty introducing catheter (17%) of which 3% required surgical intervention, pyelonephritis (6%), orchitis (3%). Most patients found that their QOL improved (69%) but some found it worsened (7%) and the rest no change (24%).
Conclusion: Most patients (69%) performing ISC/ISD are comfortable in carrying out the procedure and felt it has improved their QOL. Complications are frequent with infection being the most common even with new catheter technology.

P72
Bacteraemia during urinary catheter manipulation: a prospective study

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Introduction: An incidence of bacteraemia up to 10% is reported during catheter manipulation. In a separate study, we have shown an association between urological procedures and infective endocarditis. We therefore sought to investigate the rate of bacteraemia during catheter manipulation in a contemporary series, using contemporary culture and molecular methods.
Methods: We conducted an ethically approved cohort study of patients undergoing catheter manipulation (urethral and suprapubic catheter removal/change). The catheters were *in situ* for ≥3 weeks. Medical history and blood samples were obtained. 20ml of blood was obtained at four different time points (pre-procedure, when the catheter was removed, when the new catheter was re-inserted and 0–10 min post-procedure). 15ml of the blood was used for the 'culture-method' and it was inoculated into BACTEC[a] Plus Aerobic and Anaerobic culture vials, incubated for 10 days and subcultured on day 10. Bacterial identification from the culture method was done using 16S PCR. The remaining 5ml of blood was used for the 'molecular method' and it was used to extract bacterial DNA, using the MolYsis Complete5 kit by Molzym™. Broad-range 16S PCR (Mastermix 16S by Molzym™) and Multiplex PCR (Plex-ID by Abbott™)

were performed. Sequencing and mass-spectrometry were respectively used for bacterial identification. A pre-procedure urine sample was also cultured. A follow-up telephone interview at 3 months was conducted.
Results: 49 patients were recruited with a total of 163 blood samples. The mean age of the patients was 72.8 years. 34 patients had urethral catheter removal, 7 had urethral catheter change, 7 had suprapubic catheter change and 1 had suprapubic catheter removal. 6 patients had antibiotic prophylaxis. 7 out of 34 patients (20.6%) in the urethral catheter removal group and 1 out of the 7 patients (14.3%) in the suprapubic catheter change group had bacteraemia. No bacteraemia was noted in the urethral catheter change and the suprapubic catheter removal groups. The main organisms causing bacteraemia were *Staphylococcus epidermidis* and *Klebsiella oxytoca*. Bacteriuria, mainly mixed organisms, was present in all the patients. 9 out of 49 patients (18.4%) required therapeutic antibiotics within 1 month of the procedure. 1 of these patients (11.1%) was bacteraemic during his procedure.
Conclusion: We report a higher rate of bacteraemia during catheter manipulation than previously reported. This subclinical bacteraemia is likely to originate from the bacteriuria present in all the patients and may be present for longer periods of time than investigated in this study. The significance of transient bacteraemia(s) in relation to more serious infective complications like infective endocarditis is not known.

P73
A case-control study: are urological procedures associated with the development of infective endocarditis?

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Background: There are case-reports and case-series linking urological procedures to infective endocarditis (IE). However, the evidence of a causal relationship is lacking and no major guideline advises routine antibiotics prophylaxis to prevent development of IE during urological procedures. To date, no case–control study has been published to examine the relationship between urological procedures and the development of IE.
Method: We retrospectively evaluated the IE database at our institution over the last 12 years and identified patients diagnosed with enterococcal, coagulase negative staphylococcal (CoNS), *Streptococcus bovis* group and oral streptococcal IE. Data relating to demographics and possible risk factors including invasive procedures were collected. A novel case-control design was used, whereby both cases and controls had IE. The study design utilises the fact that the normal human microbial flora is specific to an anatomical site and instrumentation of a particular site is likely to cause a bacteremia and hence IE from the organism residing at that site. The S. aureus group was not included as the organism can be found at multiple sites. Univariable, multivariable and missing data (the multiple imputations method) analyses were carried out using SPSS Version 19.0.0, Copyright 2010, IBM Company.
Results: We included 384 patients: 111 enterococcal IE, 86 CoNS IE, 36 *S. bovis* group IE and 151 oral streptococcal IE. The development of enterococcal IE was statistically associated with preceding urological procedures within 1 year of the disease (OR: 8.21, CI: 3.54–19.05, $p < 0.05$). Increasing age (OR: 1.03, CI: 1.01–1.05, $p < 0.05$) and being an IV drug-user (OR: 6.69, CI: 1.72–26.1, $p < 0.05$) were also associated with enterococcal IE. Haemodyalysis (OR: 7.06, CI: 2.48–20.1, $p < 0.05$) and the presence of an intracardiac device (OR: 4.28, CI: 2.00–9.16, $p < 0.05$) were associated with the development of CoNS IE. We found no association between the development of *Streptococcus bovis* group IE or enterococcal IE and gastrointestinal procedures.
Discussion: This is the first study showing that enterococcal IE is statistically associated with preceding urological procedures. The bacteraemia leading to IE may be a result of the urological procedures or a consequence of the underlying urological pathology causing recurrent subclinical bacteraemia(s).

P74
Total phallic construction in patients with the exstrophy/epispadias complex

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Introduction: To present an 8-year experience of total phallic construction with the radial-artery-free-flap (RAFF) in 20 patients with the bladder exstrophy-epispadias complex.
Patients and Methods: All 20 patients had a true micropenis (<6cm) and 7 had had their bladder neck closed and were voiding through a Mitrofanoff. The median age was 23.6 years (range 19–29). The stages of the procedure (perfomed at 4 monthly intervals) are:
1) Creation of the phallus with primary urethral anastamosis for voiding/ejaculation
2) Glans sculpture
3) Implantation of an inflatable penile prosthesis
Results: After an average follow-up of 20 months (range: 2–38), 8 patients have completed the 3 stages of the process. After revision surgery, 19 patients are able to void and/or ejaculate from the tip of the phallus and 5 patients who have undergone penile prosthesis implantation are engaging in penetrative sexual intercourse. Acute arterial thrombosis at the level of the saphenous graft had occurred in one patient leading to partial phallic necrosis. Urethral complications included fistulae(5) and stricures (2) at the site of the anastomosis and were all repaired during stage 2.
Conclusions: RAFF phalloplasty still represents the solution of choice in patients with a micropenis due to exstophy/epispadias. Patient satisfaction is high although they should be warned that complications are common.

P75
Radiotherapy Significantly Reduces the Success of the Artificial Urinary Sphincter in Treating USUI in Men following Treatment for Prostate Cancer

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Introduction: Complete continence rates of 4–86% have been reported in men

having bulbar artificial urinary sphincters (AUS) for the treatment of urodynamically proven stress urinary incontinence (USUI). We have reviewed the outcome of patients having AUS for USUI following treatment for prostate cancer.

Patients and Methods: Notes of men treated with a bulbar AUS for USUI from 1996–2012 were reviewed. Demographic data, mode of prostate cancer treatment(s), presence of bladder neck stricture at or prior to presentation and outcome in terms of complete continence were evaluated.

Results: 147 (aged 30–82) men with USUI had insertion AUS in this period. 54 had USUI consequent to treatment(s) for prostate cancer. Overall 23 (43%) had a bladder neck stricture at or prior to presentation.

The average length of follow-up was 13.9 months. Outcomes are listed in Table 1.

Table (for P75)

Aetiology of USUI	Additional Radiotherapy	Primary or Revision AUS	Number	Stricture	Dry
Radical Prostatectomy	No	Primary	17	9 (53%)	15 (88%)
		Revision	3	1 (33%)	2 (66%)
	Yes	Primary	14	9 (64%)	8 (57%)
		Revision	3	1 (33%)	1 (33%)
Radiotherapy	No	Primary	2	1 (50%)	1 (50%)
HIFU	No	Primary	2	2 (100%)	0 (0%)

Conclusion: Radiotherapy significantly adversely affects continence following insertion of bulbar AUS for the treatment of USUI post prostate cancer treatment. The incidence of bladder neck stricture is high in men with USUI following all forms of treatment. Revision bulbar AUS following radiotherapy yields particularly poor continence outcomes and HIFU salvage appears unachievable although the numbers are small.

P76
Quadratic suburethral male sling

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Introduction: Management of male genuine stress incontinence has been historically with lifestyle modification, physiotherapy and insertion of artificial urinary sphincter. Transobturator suburethral slings have been used for a number of years. A second generation 4 armed quadratic sling is made up of 2 transobturator and 2 prepubic arms. The 12 month data are described herein.

Methods: A prospective database included 24 consecutive men. All underwent urodynamics, flexible cystoscopy, 24 hour pad test. Nocturnal incontinence was a exclusion criterion. They filled in the ICS male incontinence and the ICIQ-UI questionnaires pre-operatively and at months 1, 3, 6 and 12 post-operatively.

Results: 22/24 had undergone radical prostatectomy and 2/24 HoLEP. There were 6 cases with salvage radiotherapy and one with cryotherapy. Mean pre-operative pad number was 3/24 hours (range 1–8), mean pad weight 387g (11–1,600g). The procedure was well tolerated, performed in day surgery or as 23 hour stay admission. Despite the challenging cohort 17/24 (71%) patients were rendered dry with surgery; the remaining 7 were all improved. Mean post-operative pad number was 0.5 and a weight of 9g. Symptom scores improved by 66–72%. Patients with lower preoperative pad number/weight were more likely to be cured. All cases cured at 3 months remained dry at 12 months follow-up.

Conclusion: Early results of the new generation sling are encouraging, with all cases either improved or cured. Longer term results are expected, as this technique is rolled out in a multinational study.

P77
Reconstructive surgery for fistulae following treatment of rectal cancer is feasible and effective

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Introduction: Neo-adjuvant chemo-radiation is commonly administered before abdomino-perineal (APR) or anterior resection (AR) for locally invasive rectal cancer. This has changed the nature/severity of urological complications arising from surgery alone.

Patients and Methods: 21 patients (mean 63years) presented 3–36months after surgery and radiotherapy for rectal cancer: urocutaneous fistula post-APR(n = 13); uro-rectal fistula (URF) post-AR(n = 4); voiding difficulty and recurrent urinary infection(n = 4). All had pelvic pain. Urethrography/MRI showed a fistulous track, usually from the prostatic urethra, with variable degrees of cavitation into the presacral space in all.

4 patients with less troublesome symptoms were treated conservatively. 1 subsequently required surgery for an infected, discharging cavity. He and 15 of the others had the cavitating fistula excised and repair of the urinary defect, and rectum in those with URF. 12 repairs were transperineal; 4 abdomino-perineal. The remaining 2 had urinary/colonic diversion with repair of the other system.

Results: 8 transperineal repairs were successful. 4 failed, generally because of failure to obliterate the presacral cavity with gracilis – repeated abdomino-perineally. These and 4 other abdomino-perineal repairs (packing the cavity with omentum) were all successful. 8 required augmentation cystoplasty (small bladder; to close prostatic urethral defect, or both). 2 required subsequent Artificial Sphincter (AUS). Post-operative recovery is commonly protracted.

Conclusions: Most patients with fistulae following rectal cancer treatment are salvageable and do not need double diversion. Minimally symptomatic ones may be managed conservatively. Reconstruction is a major undertaking; usually best done abdomino-perineally; commonly requires a cystoplasty; may need subsequent AUS.

P78
Funnelling of the bladder neck after radical retropubic prostatectomy – radiological appearance and clinical relevance

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Introduction: Recurrent bladder neck contractures (BNC) following radical

prostatectomy (RRP) are successfully managed by surgical reconstruction. Redo-vesico-urethral anastomosis (redo-VUA) is often made more difficult by significant scarring/ fibrosis extending more proximally than the anastomosis. 'Funnelling' of the bladder neck (BN) may be responsible for this. We define MRI and urethrographic evidence to support this.
Materials and Methods: 106 post-RRP pelvic MRIs were reviewed (T2; coronal plane). Surgery was performed between 1994–2011 via open or laparoscopic/ robotic approach. 19 pre-operative urethrograms from patients undergoing redo-VUA were also reviewed.
Results: In 81 of 106 MRIs reviewed (76.4%), the bladder base was not flat but had a tapered, 'funnel-shaped' appearance, seen to lie within the levator sling. Of those having confirmed BNC, typical funnelled appearance was noted in 16 urethrograms (84.2%). 7 of these also had MRIs; all showing 'funnelling' of the BN. It is often not possible to identify individual landmarks (VUA, bladder component above, membranous urethra below) and pinpoint the exact stricture location because this 'funnelled' area becomes incorporated into the BNC.
Conclusion: 'Funnelling' of the BN is clearly identifiable on MRI and fluoroscopy after RRP, making it difficult to identify anatomical landmarks and the exact location of strictures using routine imaging techniques when planning surgery for BNC. This 'funnelled' area gets caught up in the scarring/fibrosis around the anastomosis and accounts for the extensive dissection necessary to reach healthy BN tissue during reconstruction in these cases.

P79
The efficacy of the T shunt procedure and Intracavernous Tunnelling (snake maneuver) for the treatment of the ischaemic priapism

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Introduction: Ischaemic priapism results in necrosis of the corpus cavernosum smooth muscle with resultant erectile dysfunction and penile shortening.
The aim of this study was to assess the outcome of the T shunt procedure and intracavernous tunnelling for the management of the ischaemic priapism.
Materials & Methods: Over a 36 month period 45 patients presented with prolonged ischaemic priapism. Patients were divided according to the duration of priapism: Priapism <24 hours – (n = 6), Priapism 24–48 hours (n = 11) and Priapism > 48 hours (n = 28). All cases had an unsuccessful aspiration and intracorporal administration of sympathomimetics and underwent 'T-shunt' procedure and intracavernous tunnelling with a size 8 Hegar dilator each side. All patients completed an IIEF5 questionnaire pre and 3 months post operatively.
Result: Resolution of the priapism using T shunting and snake maneuver occurred in all patients with a priapism duration <24 hrs, in 55% of patients with a duration of 24–48hrs and in 35% of patients with a duration >48hrs.
The average IIEF-5 score in all of the patients preoperatively was 24. After a median follow-up of 3 months, the IIEF-5 score is shown in the table:

Table (for P79)

	Severe ED (1–7)	Moderate ED (8–11)	Mild-moderate ED (12–16)	Mild ED (17–21)	No ED (22–25)
(Priapism <24 hrs)	16,5%	–	16,5%	16,5%	50%
(Priapism 24–48hrs)	54%	–	18%	9%	9%
(Priapism > 48hrs)	100%	–	–	–	–

All of the patients, who developed severe erectile dysfunction, had a penile prosthesis implantation. Those with moderate and mild ED are under treatment with PDE5 inhibitors.
Conclusion: T shunting is a useful technique in early priapism but after 48 hrs should not be offered as it neither treats the priapism nor changes the inevitable outcome of corporal fibrosis.

P80
The safety of synchronous prosthesis insertion following radical orchidectomy

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Introduction: The insertion of a testicular prosthesis at the time of radical orchidectomy is an important component of testicular cancer treatment. Anecdotally men are not offered prostheses due to urologist's concerns regarding an increased risk of infection and subsequent chemotherapy delay.
Patients and Methods: As part of ongoing region-wide audit, data was collected retrospectively in 2003, 2006 and 2010, on all radical orchidectomies performed for testis cancer in NW England from April 1999 to July 2002, July 2002 to November 2005 and November 2007 to November 2009 respectively.
Results: 904 men underwent a radical orchidectomy; (310, 247 and 347 in the 2003, 2006 and 2010 cohorts). Data was missing in 19(2.1%). 413(45.7%) were counselled regarding the insertion of a prosthesis. 228(25.2%) underwent concurrent orchidectomy and prosthesis insertion (55% of those counselled). 8(0.9%) underwent prosthesis insertion at a later date. There was a significant difference in age between those receiving a prosthesis and those who did not, 32 vs. 35 years ($p < 0.0001$). The median length of stay for concurrent prosthetic vs. non-prosthetic patients was 2 vs. 3 days ($p = 0.3$), 30 day re-admission rate was 2.6% vs. 4.4% ($p = 0.54$) and the 30 day return to theatre rate was 1.3% vs. 1.6%. ($p = 1.0$). One concurrent prosthesis required change to a smaller size, no additional patients required removal.
Conclusions: Over half of men offered a prosthesis take up the option. Concurrent prosthesis insertion is not associated with an increased risk of complications and can be offered routinely and safely to men undergoing radical orchidectomy.

BJUI

Wednesday 19 June 2013
Poster Session 7
13:30–15:30 Charter 2
FEMALE UROLOGY
Chairs: Mr Arun Sahai & Mr Simon Fulford
Posters P81–P92

P81

Preliminary results of a double-blind, parallel group, randomised controlled trial to assess the efficacy and morbidity of alkalinised lidocaine versus lidocaine gel in achieving anaesthesia prior to intra-vesical botulinum toxin injections

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Introduction: Lidocaine/lignocaine gel is the standard agent used for intravesical local anaesthetic procedures. However gels may not provide an even mucosal coating and the physical characteristics of alkalinised lidocaine (AL) solution may result in more uniform spread and better absorption by bladder mucosa. Although AL can control pain in conditions like painful bladder/interstitial cystitis it has not been evaluated as a topical anaesthetic for intravesical procedures. We present a double-blind, parallel group, randomized controlled trial to compare the efficacy and morbidity of AL with lidocaine gel.
Patients and Methods: Based on a power of 80% and alpha 0.05, 54 male and female patients (mean age 59.8 years) were randomly divided into 2 groups by centrally allocated, computer-generated random-number sequences. The primary outcome measure was average pain felt during the procedure assessed by visual analogue scale score.
Results: Results from 50 patients showed a mean pain score of 14.41mm (AL) and 19.88mm (Gel), with no adverse events attributable to the anaesthetic agent in either group. Longer duration of contact appeared to increase efficacy. Graphical analysis showed a more even and predictable response in the AL group.
Conclusions: These results provide level 1 evidence that both AL and lidocaine gel are equally effective and safe for topical intravesical anaesthesia prior to botulinum toxin injections, based on a significance level of 20mm mean difference in VAS. Increasing time between anaesthetic instillation and start of procedure is likely to increase efficacy. AL appears to provide a more uniform effect and therefore may be preferred.

Table (for P81)

Group	Mean VAS score	SD	95% CI	Range
Alkalinised lidocaine	14.41mm	18.65	0–50.96	0–7.5
Lidocaine gel	19.88mm	18.18	0–55.51	0–7.5

P82

Botulinum Toxin Type A for the treatment of non-neurogenic overactive bladder: does using OnabotulinumtoxinA (Botox®) or AbobotulinumtoxinA (Dysport®) make a difference?

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Introduction: Botulinum toxin A is used for the treatment of refractory overactive bladder. This is the first study to compare the clinical effects of two different commercially available toxins – OnabotulinumtoxinA (Botox® by Allergan) and AbobotulinumtoxinA (Dysport® by Ipsen) – in non-neurogenic overactive bladder.
Patients and Methods: All patients (n = 207) who underwent treatment with botulinum toxin for non-neurogenic overactive bladder from January 2009 to June 2012 at our institution were included in a prospective database. Details of their presentation, treatment and outcomes were recorded. In December 2009, the department changed from using OnabotulinumtoxinA to AbobotulinumtoxinA. The clinical outcomes from the groups prior to and after the change in toxin type are compared.
Results: Results from the OnabotulinumtoxinA group (n = 101) and the AbobotulinumtoxinA group (n = 106) were compared. Median age was 62 (range 19 – 92) and male to female ratio 46:161. Similar reductions in daytime frequency, nocturia, and incontinence episodes were observed, with no difference in duration of effect between the two groups. However, the AbobotulinumtoxinA group had almost twice the rate of symptomatic urinary retention requiring intermittent self-catheterisation (ISC) (23% vs. 42%).
Conclusion: AbobotulinumtoxinA use was complicated by a significantly higher

risk of requiring ISC. This study suggests that these two toxins are not interchangeable at the doses used.

P83

External urethral sphincter electromyographic activity (EMG) in asymptomatic women and the influence of the menstrual cycle . . . More questions than answers

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Introduction: In 1985, Clare Fowler described an association between abnormal EMG activity (complex repetitive discharges (CRDS) and decelerating bursts (DBS)) in the striated external urethral sphincter and urinary retention in women. Fowlers' syndrome is thought to account for 1/3rd of cases of retention in young women. Two studies have reported CRDS and DBS in the sphincters of asymptomatic females.
This study was undertaken to investigate sphincter activity during the menstrual cycle.
Patients and Methods: Women with regular menstrual cycles and no urinary symptoms were recruited. Exclusion criteria included hormonal contraception. Volunteers completed a menstruation chart, IPSS, urinary flow and had a sphincter EMG in their early follicular (EF) and midluteal (ML) phases. Progesterone and eostrodiol levels were measured.
Results: 14 asymptomatic females (21–39yrs) were recruited. Eight women had normal EMGs in EF and ML phases. Two women had 'abnormal' EMGs with CRDS and DBS in both EF and ML phases. Four had a normal EMG in the EF phase but marked CRDS and DBs in the ML phase.
Conclusion: CRDS and DB activity occurs in the urethral sphincters of asymptomatic women. This study has shown for the first time that CRD and DB activity may vary in women during the menstrual cycle and there is a tendency to 'abnormal' activity in the ML phase. CRDS and DB activity may be important in the aetiology of urinary retention in young women. However, CRDS and DBS may be coincidental and this should be considered to avoid an over diagnosis of Fowler' syndrome.

P84

Sacral Nerve Stimulation (SNS) for the treatment of idiopathic refractory overactive bladder: cost-effectiveness compared to optimal medical therapy, botulinum toxin A (BoNT-A) and percutaneous tibial nerve stimulation (PTNS)

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Introduction: Sacral nerve stimulation (SNS) efficacy for overactive bladder (OAB) has been widely demonstrated yet its cost-effectiveness is unknown. Cost-effectiveness of SNS in patients with OAB with incontinence (OAB-wet) was compared to optimal medical therapy (OMT), Botulinum Toxin A (BoNT-A) and PTNS within an NHS setting.
Methods: A Spanish Markov model was adapted to UK practice based on existing data and expert advice. Treatment success was defined as >50% improvement in OAB-wet symptoms. Health resource use included pre-/peri-/and post-procedure assessments; procedures (device replacement 4.5yrs); drugs/catheters/follow-ups and adverse events. Both SNS testing with tined-lead (SNS-tined-lead) and PNE (SNS-PNE) were evaluated. Incremental-cost-effectiveness-ratios (ICER; costs per quality-adjusted-life-year) were calculated for SNS vs. OMT and vs. BoNT-A(10yrs), and SNS vs, PTNS(5yrs); with univariate sensitivity analyses.
Results: At 10 years, the cumulative costs of SNS-tined-lead, SNS-PNE, BoNT-A and OMT were £22,052, £19,952, £20,756, £11,918 respectively; PTNS 5-year costs were £17,915.The QALYs for SNS-tined-lead, SNS-PNE, BoNT-A and OMT were 6.82, 6.64, 6.35 and 5.45 (10 yrs) and 3.44 for PTNS (5 yrs). ICERs were £7,060 and £18,459 for SNS-tined-lead vs. BoNT-A, and vs. OMT (10 yrs); both SNS-tined-lead and SNS-PNE were dominant (less costly/more effective) to PTNS at 5 yrs, and to BoNT-A at 7 yrs.
Conclusions: SNS for OAB-wet patients provides quality of life improvement. Higher initial costs for SNS are offset by reductions in follow-up costs over time. This produces ICERs that are clearly below the threshold for cost-effectiveness. SNS represents value for money compared to OMT, BoNT-A and PTNS providing additional value at small incremental cost.

P85

Retropubic versus Transobturator Slings for Stress Incontinence: A Systematic Review and Meta-analysis of Efficacy and Adverse Events

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Introduction: Mid-urethral slings have become the gold standard treatment for stress urinary incontinence. We performed a systematic review and meta-analysis of randomised control trials (RCTs) comparing efficacy and adverse events of retropubic (RPT) and transobturator tapes (TOT), including sub-analysis in patients with MUI, in terms of efficacy and adverse events. We also attempt to answer the question whether one route is better than the other in patients with ISD or mixed incontinence (MUI).
Materials and Methods: A comprehensive literature search, up to June 2012, was performed for all RCTs comparing all types of RPT and TOT. Papers were appraised using a structured format based on CONSORT criteria by two independent analysts and meta-analysis conducted using Review Manager software (v5).
Results: From 63 RCTs, there was no difference in objective or subjective cure rates overall between TOT and RPT [Figure]. Voiding dysfunction, perforations and haematoma were less common with TOT. However chronic pain was less common with RPT. There is not enough evidence on MUS surgery in patients with pure ISD to draw any meaningful conclusions and the results of comparisons in MUI were conflicting.
Conclusion: The evidence continues to suggest that, in the surgical treatment of women with SUI, TOT are as efficacious as RPT but have different adverse events. The choice of device does not influence outcome according to the available data. Women should be warned about the

differences in adverse events, and their likely impact on quality of life, when the choice of mid-urethral tape is being made.

Table (for P85)

Parameter	Odd Ratios
Objective cure	OR 1.13 (95% CI 0.95–1.35)
Subjective cure	OR 1.11 (95% CI 0.91–1.34)
Chronic pain	OR 0.34 (95% CI 0.24–0.50) favouring RPT
De novo urgency	OR 1.07 (95% CI 0.84–1.37)
Perforation	OR 4.40 (95% CI 2.93–6.61) favouring TOT
Haematoma formation	OR 3.35 (95% CI 1.61–6.98) favouring TOT
Vaginal erosion	OR 0.70 (95% CI 0.46–1.06)
Voiding dysfunction	OR 2.00 (95% CI 1.54–2.59) favouring TOT

P86

The management of urethral erosion after mid-urethral tape insertion: An update

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Introduction: Mid–urethral tapes (MUT) are widely used in the management of female stress incontinence. Urethral erosion (UE), estimated to occur in 0.5% of cases, is a devastating complication that necessitates operative management. We describe the different surgical approaches, illustrated with examples from a recent series of UE referred to our center, in the context of the existing literature.
Patients and Methods: All cases of UE of MUT managed operatively by a single surgeon at our department between 1/11/2010 to 1/11/12 were collated and reviewed. Demographic details, initial approach, presence of stones, method of tape removal, continence status and any further incontinence procedure were recorded.
Results: A total of 9 patients underwent tape excision for UE, age range 32–50 years. Six had originally undergone tape insertion using a retropubic approach and 3 using a trans-obturator approach. In 2, stone formation was present on the tape. Four remained satisfactorily dry post-excision with 5 requiring subsequent autologous sling insertion. One patient developed a urethra-vaginal fistula after repair.
Conclusions: UE is an uncommon but challenging complication of MUT insertion. With the increasing number of procedures being performed, it is likely to become more frequently encountered and is associated with an incidence of incontinence that may necessitate further procedures. The operative approach should be considered to be a progressive one, with a combination of endoscopic and trans-vaginal approaches. It is essential that the management is addressesd nationally by the establishment of a network of regional centers dealing with this important complication.

P87

The type of surgical treatments and their outcome for midurethral sling tape complications

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Introduction: We have noted an increasing number of referrals for midurethral sling (MUS) tape-related complications. We have assessed the type of intervention performed for each complication and its outcome.
Patients and Methods: A prospective database of 33 patients (median age 53 years), referred for management of MUS tape-related complications, was reviewed. Data was acquired on: patient demographics, type and date of tape(s) insertion, type of complication, intervention performed and outcomes in terms of cure of presenting problem, persistent or new onset stress urinary incontinence (USUI) and new onset symptoms. Statistical analysis was by chi-squared analysis.
Results: The main complications referred and their treatment and outcomes are as tabulated.
Conclusions: BOO was as effectively relieved by tape incision or excision. Vaginal extrusion was most effectively treated by tape excision. Urethral erosion required tape excision, urethral closure and MFP interposition with a 50% recurrence/persistence of USUI. Open excision with simultaneous colposuspension or rectus fascial sling was the most effective treatment for bladder erosion.

Table (for P87)

Complication	Treatment	Cure	Persistent/ Recurrent USUI	Other
Bladder Outflow Obstruction (BOO) 9	Vaginal tape incision	5/5	2/5	
	Vaginal tape excision	3/4	2/4	Distal urethral stricture
Vaginal Extrusion 7	Vaginal recovering of tape	2/4	1/4	
* 2 failed recovering patients	Vaginal tape excision	5/5*	3/5	
Urethral erosion +/– Urethrovaginal fistula 12	Vaginal tape incision	0/2	0/2	Recurrent urethral erosion 2/2
** 2 failed tape incision patients	Vaginal tape excision/ Martius fat pad interposition (MFP)	14/14**	6/14	
Bladder Erosion 10	Endoscopic resection	4/11***	4/11	
*** 1 repeat endoscopic resection	Open excision	1/1	1/1	
	Open excision + colposuspension/ rectus fascial sling	5/5	0/5	

Some patients had >1 tape, >1 complication and >1 procedure

P88

Salvage stress incontinence surgery: indications and outcomes of autologous rectus fascia sling

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Introduction: The historical use and outcomes of autologous sling for treatment of primary stress urinary incontinence (SUI) are well known, but the indications and outcomes of this technique in the modern era are not documented. We report the outcomes of autologous sling for salvage SUI.
Patients and Methods: A retrospective analysis of the work of 3 specialty surgeons at one institution over 3 years was performed. Indications, pre and post-operative urodynamic findings and outcomes were tabulated.
Either short (sling-on-a-string) or full-length rectus facia slings were harvested and implanted under vision around the bladder neck. The slings were tensioned according to urodynamic findings, with type III SUI treated with a tight sling to ensure continence, at the expense of catheter dependency.
Cure was considered dry or one pad for reassurance. Repeat urodynamics were performed in all cases that were not dry. Follow up is at least one year.
Results: Outcomes according to indication are shown in table 1. 16 of 24 cases of SUI were cured. Failure occurred in one case type IIB SUI and the others type III SUI. 8 of 16 cases (type III SUI) were rendered catheter dependent. Four cases had persistent detrusor overactivity leakage.
Conclusions: The indications for autologous sling are reserved for persistent SUI following primary failure; mesh complications, diverticulectomy or neuroplathy. Success occurs in approximately two-thirds of cases depending on urodynamic findings. Tightening of slings in type III SUI risks catheter dependency in 50%. Autologous sling surgery is a useful rescue surgery for complex SUI.

Table (for P88)

Indication (n)	Previous SUI Procedures (range)	Blaivas Classification SUI (n)	Outcome Cured; catheter dependent
Failed primary SUI surgery (13)	2 to 4	IIA(1); IIB (3); III (9)	9/14; 5 catheter dependent
Post urethral diverticulectomy (5)	Not applicable	III (5)	3/5 (one persistent SUI; one persistent fistula); one catheter dependent
TVT complication (eroded tapes) (3)	2	IIA (1); III (2)	2/3; 2 catheter dependent
Neuropathic incontinence (3)	0	IIB (3)	2/3; all previously catheter dependent

P89

TVT for Neurogenic Stress Urinary incontinence (NSUI) – NICE or Not?

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Introduction: In the NICE guidelines on urinary incontinence in neurological disease the use of synthetic tapes in patients with neurogenic stress urinary incontinence (NSUI) is not advised due to "the risk of urethral erosion". We have audited our experience of Tension Free Vaginal Tape (TVT) in NSUI.
Results: 13 had a TVT for NSUI. The underlying neurological conditions were spinal injury (6), Cauda Equina Syndrome (CES) (3), Multiple Sclerosis (1), spina bifida (2) or cerebral palsy (1).
The patents were 30 – 80 years of age with a mean 61.53. Median follow up was 47.5 months.
7 patients had SUI due to neuropathy of the pelvic floor and sphincter (5) and/or pre existing SUI prior to spinal injury (2). 6 of these 7 patients are completely dry: 2 using an SPC, 3 using ISC and 1 is voiding and doing ISC occasionally.
In 6 patients urethral erosion secondary to previous urethral catheterisation was also present. All 6 patients had a supra pubic catheter (SPC) before and after insertion of TVT. 4 were completely continent after the procedure.
None of the patients have suffered post TVT urethral erosion.
Discussion: TVT is an effective treatment for NSUI whether associated with previous catheter induced urethral erosion or not. We have not seen any urethral; erosions after an average of 4 years follow up. We recommend TVT for NSUI.

P90

Sexual function following mid-urethral sling surgery

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Introduction: Little is known regarding the impact of incontinence surgery on sexual function. The aim of this study was to assess sexual function prior to and six months post mid-urethral sling surgery.
Patients and Methods: From February 2011 till December 2012, data was collected prospectively on patients undergoing mid-urethral sling surgery. They were asked to complete two validated questionnaires – the King's Health questionnaire and the Pelvic Organ Prolapse/ Urinary Incontinence Sexual Function questionnaire (PISQ-12) pre-operatively and six months post-operatively.
Results: Surgical interventions included 82 retropubic mid-urethral tapes (TVT), 4 TVT's with prolapse repair and 7 transobturator tapes (outside-in). Mean age was 53 years (range 34 – 79). To date 37/93 completed both sets of questionnaires. 19/37 were sexually active. No patient had reported a worsening in their personal relationships post operatively. Three parameters of sexual function (coital incontinence, fear of incontinence and intensity of orgasms) were analysed in the sexually active patients. The mean pre-operative score for coital incontinence was 0.9 with an improvement post-operatively to 0.3. Coital incontinence was reduced in 9/19 and unchanged in 10/19. The mean pre-operative score for fear of incontinence

during sexual activity was 1.2 versus a mean post-operative score of 0.3 with a reduction in 8/19, unchanged in 10/19 and worsened in 1/19. Intensity of orgasms was unchanged in 11/19, improved in 5/19 and worsened in 3/19. The mean pre-operative score was 2.3 versus mean post-operative score of 2.2.
Conclusion: In the vast majority, sexual function is unchanged or improved six months post-operatively.

P91
Outcomes following female urethral dilation – a single UK centre's experience
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Introduction: Historically, female urethral dilation (UD) has been advocated as a treatment for adult women with a variety of LUTS. Although reviewing the literature reveals little evidence supporting this practice, Urologists are still commonly performing UD. We conducted a study to establish our outcomes following female UD.
Patients and Methods: This is a retrospective observational study of female patients treated by three Consultant Urological surgeons at a single District General Hospital between January 2008 and December 2011. Data analysis was performed using two separate patient groups – group 1 (aged 16–49 years) and group 2 (aged 50 +).
Results: 183 female patients (16–89 years) underwent UD. 26.4% of patients in group 2 had evidence of urethral stenosis compared to 9.1% in group 1 (p value <0.05). In group 1, 87% of patients had no abnormality detected during their cystoscopy. This is compared to 57.5% in group 2 (p value <0.05). Our three month follow up rate post UD was 92.9%. 59 patients (76.6%) in group 1 and 79 patients (74.5%) in group 2 reported improvement in their symptoms following UD. 45 patients (24.6%) in total, reported no improvement in their symptoms and are currently trialling other treatment options.
Conclusion: UD appears to be an established, safe treatment option with good beneficial outcomes. We hope our results can optimise patient care and allow appropriate treatment to be instituted earlier. Prospective studies with measurable outcomes are needed to assess this further.

P92
Surgical approaches for female urethral stricture: A systematic review of the contemporary literature
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Introduction: Female urethral stricture is a rare clinical entity with no consensus on optimal management. We performed a systematic review of the existing literature to determine the evidence for current approaches.
Materials and Methods: MEDLINE was searched from 01/01/1985–01/12/2012 for keywords stricture, stenosis, female, urethra. Original reports in English describing interventions in women diagnosed with strictures and ≥1 month follow-up (f-u) were included. Series which did not allow differentiation of patients with stricture from other pathologies were excluded.
Results: Seventeen studies met the inclusion criteria with a total of 134 patients, age-range 17–91 years. Stricture aetiology was idiopathic (35), iatrogenic (29), traumatic (13), inflammatory/infectious (4) or not described (53). 15 patients underwent urethral dilatation, 60% required further intervention for recurrence (mean f-u 23.4 months). 66 patients underwent vaginal/vestibular/labial flap urethroplasty with 10.6% needing further intervention (mean f-u 34.1 months). 25 patients underwent vaginal/labial graft urethroplasty, 20% required further intervention. 30 patients had buccal/lingual graft urethroplasty, 6.7% needing further intervention (mean f-u 14.8 months). 1 patient underwent urethral mucosal flap urethroplasty was stricture-free at 36 months f-u. 1 patient experienced de-novo urgency incontinence with no incidences of de-novo stress incontinence.
Conclusion: The evidence base for managing female urethral strictures is small and heterogeneous. Urethral dilatation resulted in recurrence in over half the patients studied. The short to medium-term outcome of flap or graft based urethroplasty appears broadly comparable with minimal risk of de-novo incontinence. Further reporting of series from centers managing this problem will help define optimal approaches.

BJUI

Thursday 20 June 2013
Poster Session 8
10:30–12:00 Charter 2
LUTS AND BLADDER DYSFUNCTION
Chairs: Mr Chris Harding & Miss Tina Rashid
Posters P93–P103

P93

Efficacy of mirabegron in patients with overactive bladder (OAB): Pre-specified analysis of three randomized, double-blind, placebo-controlled, Phase III studies

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Introduction: Mirabegron is a β_3-adrenoceptor agonist for treatment of overactive bladder (OAB). A recent post hoc analysis from a phase III study supports the improved efficacy of mirabegron in patients who discontinued prior antimuscarinic agents due to inadequate efficacy/poor tolerability. The objective of this analysis was to examine the efficacy of mirabegron across three randomized, double-blind, placebo-controlled phase III OAB studies (NCT00689104, NCT00662909 and NCT00912964) including antimuscarinic-naïve patients, as well as patients who discontinued prior antimuscarinics due to insufficient efficacy/poor tolerability.
Patient and Methods: This is a pre-specified pooled analysis in which efficacy of mirabegron (50 or 100 mg) was compared with placebo for co-primary endpoints: change from Baseline to Final Visit in mean number of micturitions/24 h and incontinence episodes/24 h. Key secondary endpoints included change from Baseline to Week 4 for the co-primary endpoints, and change from Baseline to Final Visit for mean number of urgency incontinence episodes/24 h, mean volume voided/micturition, urgency episodes (Patient's Perception of Intensity and Urgency Scale [PPIUS] grade 3 or 4)/24 h, and level of urgency (based on PPIUS).
Results: Each mirabegron group demonstrated a statistically significant reduction from Baseline to Final Visit in co-primary endpoints (Table), significantly improved co-primary endpoints at Week4, and improved mean volume voided/24 h, mean level of urgency, mean number of urgency incontinence episodes/24 h, and urgency episodes (grade 3 or 4) versus placebo (Table).
Conclusion: In this large pool of OAB patients, mirabegron 50 mg and 100 mg demonstrated significant improvement in OAB symptoms versus placebo.

Table. Overview of co-primary and key secondary efficacy endpoints: adjusted mean* (standard error) change from Baseline*

	Placebo	mirabegron 50 mg	mirabegron 100 mg
Co-primary efficacy endpoints at Final Visit			
Number of Incontinence Episodes/24 h (FAS-I)	N = 878 −1.10 (0.07)	N = 862 −1.49 (0.07)†	N = 577 −1.50 (0.08)†
Number of Micturitions/24 h (FAS)	N = 1328 −1.20 (0.07)	N = 1324 −1.75 (0.07)†	N = 890 −1.74 (0.09)†
Key Secondary efficacy endpoints			
FAS population	*N = 1328*	*N = 1324*	*N = 890*
Volume Voided per Micturition at Final Visit	9.4 (1.29)	21.4 (1.30)†	21.7 (1.64)†
Number of Micturitions/24 h at Week 4	−0.77 (0.07)	−1.17 (0.07)†	−1.33 (0.08)†
Level of Urgency at Final Visit	−0.15 (0.02)	−0.26 (0.02)†	−0.26 (0.02)†
Number of Urgency Episodes (Grade 3 or 4)/24 h at Final Visit	−1.29 (0.09)	−1.93 (0.09)†	−1.89 (0.12)†
FAS-I population	*N = 878*	*N = 862*	*N = 577*
Number of Incontinence Episodes/24 h at Week 4	−0.67 (0.07)	−1.12 (0.07)†	−1.09 (0.09)†
Number of Urgency Incontinence Episodes/24 h at Final Visit	−0.98 (0.07)	−1.38 (0.06)†	−1.38 (0.08)†

*Estimates are based on an analysis of covariance (ANCOVA) model, which included treatment group, sex and study as fixed factors and baseline as a covariate.; †$p < 0.001$ versus placebo with multiplicity adjustment. P values for incontinence episode endpoints are from a stratified rank ANCOVA model and p-values for other efficacy endpoints are from the ANCOVA model
FAS = randomized patients who took ≥1 dose of study drug and who had a Baseline micturition measurement and ≥1 post-Baseline micturition measurement; FAS-I = FAS patients who also had ≥1 incontinence episode at Baseline

P94

Can detrusor after-contractions indicate latent detrusor overactivity?

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Introduction: Detrusor after-contractions (DAC) may be defined as an increase in detrusor pressure immediately after the cessation of urine flow. The clinical significance of DAC is unclear. Technically, DACs occur during or shortly after the voiding phase and therefore could be argued as an appropriate contraction. There is also some evidence the rise in detrusor pressure is due to a late dyssynergic urethral sphincter contraction (BJUI 2000 Feb;85(3):246–8). On the other hand, DACs may be indicators of latent detrusor overactivity (DO). The aim of this study is to evaluate if DACs can predict latent DO.
Patients, materials and methods: We analysed the ambulatory cystometrogram (ACMG) traces of 100 consecutive patients with symptoms of frequency and urgency in whom the previous video/standard cystometrogram (VCMG/CMG) was negative for DO. We determined the number of patients that demonstrated DACs in their CMG and DO in their ACMG and calculated the latent DO predictive value of DACs.
Results: DO was demonstrated in the ACMG of 71 patients. The prevalence of DAC in patients with latent DO is 39%. The positive and negative predictive value of DAC in testing for latent DO is 85% and 36% respectively.

		DO	
		+ ve	− ve
DAC	+ ve	28	5
	− ve	43	24
	Total	71	29

Conclusion: The results of this study suggest DACs on VCMG/CMG indicate a high likelihood of demonstrating DO on ACMG. However, the low negative predictive value of DACs implies a small percentage of true negatives i.e. the absence of DACs does not exclude latent DO.

P95

Withdrawal of Alpha Blocker Therapy Following Initial Combination Therapy with 5 Alpha-Reductase Inhibitor (5ARI) Dutasteride for Benign Prostatic Hyperplasia: A Randomised Controlled Trial on Efficacy

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Introduction: The objective was to compare the efficacy of withdrawing alpha blocker following initial combination therapy with dual 5 alpha-reductase inhibitor (Dutasteride) in benign prostate hyperplasia (BPH) patients.
Methods: 103 BPH patients, who had been on combination therapy for 52 weeks, were randomised to either continuation of alpha blocker and dutasteride (DT64) or withdrawal of alpha blocker for another 12 weeks (DT52+D12) from January 2010 to June 2011. Patients' assessment of symptoms based on International Prostate Symptom Score (IPSS) and peak urinary flow rate (Qmax) were evaluated at the end of 4, 8 and 12 weeks from baseline.
Results: 89% patients with an IPSS <20 who changed to dutasteride monotherapy at week 52, switched without a noticeable deterioration in their symptoms. In the 26% of men with severe baseline symptoms (IPSS?20) who had withdrawal of alpha-blocker therapy at week 52, 34% reported a worsening of their symptoms compared with 20% in the DT64 group. Peak urinary flow measurements (Qmax) among both DT52+D12 and DT64 groups showed significant improvements (72.5% and 89.2% respectively). Among the patients with improved IPSS, only 77% and 94% of patients in DT52+D12 and DT64 groups showed concurrent improvement in Qmax. There were no significant associations between both the groups in terms of clinical BPH progression as assessed by IPSS (moderate symptoms $p = 0.12$, severe symptoms $p = 0.33$) and Qmax (moderates symptoms $p = 0.45$, severe symptoms $p = 0.28$).
Conclusion: Alpha-blocker can be stopped safely after 52 weeks of combination therapy without any significant deterioration in symptoms and flow rate.

P96

Long term follow up of sacral neuromodulation for lower urinary tract dysfunction

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Introduction and Objectives: Very few studies have been reported on long term outcomes following sacral neuromodulation (SNM). We report our long term experience of SNM for various lower urinary tract dysfunction (LUTD) but with a focus on efficacy, safety, re-interventions and degree of success.
Patients and Methods: This is a retrospective single tertiary referral centre study which included 217 patients (86% female) who received an implantable neurostimulator (Interstim™, Medtronic, Minneapolis, USA) between 1996 and 2010. Success was considered if the initial 50 % or more improvement in any of primary voiding diary variables persisted compared to baseline, but was further stratified.
Results: Median length of follow-up was 46.88 months. Success and cure rates were approximately 70% and 20% for urgency incontinence, 68% and 33% for urgency frequency syndrome and 73% and 58% for idiopathic retention. In those patients with an unsuccessful therapy outcome, mean time to failure was 24.6 months after implantation. There were 88 (41%) patients who had at least 1 device or treatment related surgical re-intervention.
Re-intervention rate was 1.7 per patient with most of them (47%) occurring within 2 years of follow-up.
Conclusions: SNM appears efficacious in the long term with a success rates approximately 70% and complete cure rates ranging between 20–58% depending on indication. Patients with idiopathic retention appear to do best.
Re-intervention rate is high with the majority occurring within 2 years of implantation. It is likely that with the newer techniques employed, efficacy and re-intervention rates will improve.

P97

Sacral neuromodulation – does stimulating the S4 foramen give a satisfactory clinical response?

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Introduction: Sacral neuromodulation (SNM) is approved for patients with urge incontinence and is used to treat non-obstructive urinary retention. It's commonly described as S3 stimulation. We implant the foramen which gives the best pelvic floor response, this is often achieved by stimulating the S4 foramen. This report aims to compare outcomes between the two sites.
Material & Methods: A review was undertaken of 203 patients who underwent implantation from January 1996- March 2012. Indications, outcomes and revision rates were compared for S3 and S4 implants. A five-point Likert scale was used to assess function at six-monthly intervals (cured, to worse).
Results: 115 leads were implanted in the S3 foramen, 88 leads in the S4 foramen. Patient demographics and indications for insertion were matched.
Outcome scores >3 are described as successful modulation. At one year 88.7% of S3 were functioning with significant improvement in symptoms. This is similar for S4 stimulation where 84.1% were receiving benefit ($p = 0.243$, Fisher's test). At 5 years 60% of S3 and 70% S4 were providing symptomatic benefit ($p = 0.190$, Fisher's test). 23 S3 patients had 10 years follow up of these 39.1% were functioning. 3 S4 patients had follow up to 10 years, 2 were functioning well.
50 patients in the S3 group and 28 in the S4 group required surgical revision. Reason for complication revision surgery was comparable.
Conclusion: Our results suggest that stimulation of the S4 foramen provides similar outcomes to S3 stimulation, providing that this decision is made based on responses to test stimulation.

P98

Natural history of the large (≥100cc) prostate

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Introduction: This study examines patients with a prostate volume of 100cc or greater to determine their natural history.
Methods: A database of patients undergoing TRUS guided biopsy between 1994–1999 was analysed. Records of those with a prostate of 100cc or greater were obtained to determine outcomes to January 2012.
Results: 63 patients were studied with mean follow-up of 11.0 years. Initial TRUS guided biopsy yielded prostate cancer (CaP) in 6/63 (10%). 26/63 (41%) underwent repeat biopsies with CaP ultimately diagnosed in 13/63 (21%). CaP was cause of death in 6/63 (10%).
PSA density ranged from 0.04–0.39ng/ml2 in benign prostates, versus 0.07–6.28ng/ml2 in CaP. PSA velocity ranged from −4.53–4.08ng/ml/year in benign prostates, versus 0.51–7.75ng/ml/year in CaP. PSA coefficient of variation in benign prostates ranged from 5.7–48.6.
21/50 (42%) with benign prostates experienced acute urinary retention, 31/50 (62%) were investigated for haematuria, 43/50 (86%) received treatment for LUTS. 26/50 (52%) received 5-alpha reductase inhibitors (5ARI) and 11/50 (22%) alpha blockers. When 5ARI was stopped, 13/15 (87%) experienced further symptoms versus 5/16 (31%) receiving sustained treatment. 28/50 (56%) underwent surgery. Following TURP 13/25 (52%) required further treatment.
Conclusion: A significant proportion of patients with large prostates experienced symptoms requiring treatment and investigation. PSA monitoring in this group is difficult prompting repeat biopsies in benign prostates. Sustained treatment with a 5ARI should be considered to reduce symptomatic progression and retention. TURP may not adequately treat large prostates so open or newer endoscopic techniques such as holmium laser enucleation of the prostate should be considered.

P99

Why laser? Monopolar day case transuretheral resection of the prostate – a single centre experience

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Introduction: Patients undergoing TURP have traditionally been managed as inpatients, but usually require minimal medical intervention if haematuria is slight. We report our initial experience of performing monopolar day case TURPs.
Patients and Methods: 50 consecutive men underwent monopolar TURP as a day case procedure, between December 2009 and October 2012. All were scheduled to be discharged on the day of surgery with an indwelling catheter to be removed by the community nurses 48 hours post-op and to attend the urology specialist nurse clinic 56–60 hours post-op for assessment and bladder scan.
Result: 50 patients underwent day case TURP (mean age 69.3 years, range 39–89 years) for LUTS (n = 25) or retention (n = 25). General (n = 29) or spinal anaesthesia (n = 21) was employed. Resection weight ranged from 1–80g (mean 21g). 45 men (90%) were discharged on the day of surgery, 5 (10%) were admitted (frank haematuria (n = 3) and social reasons (n = 2). Catheters were removed after 2.5 days on average. 44 men (88%) successfully voided at the first TWOC. Of the 45 patients discharged, 3 men (6.7%) required re-admission for clot retention (n = 2) and bleeding post-traumatic catheter removal (n = 1). No patient required blood transfusion. All men surveyed post-operatively (n = 34) were satisfied or very satisfied with having ambulatory TURP.
Conclusion: We conclude that day case monopolar TURP can be conducted safely and successfully with acceptable admission rates for more complicated cases and low risk of re-admission.

P100

Prostatic Urethral Lift: A Multinational Study

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Introduction: Men with LUTS secondary to BPH often seek a less invasive alternative to TURP. The Prostatic Urethral Lift (PUL) is designed to offer rapid symptom relief and improved flow while preserving sexual function. We present the results of an international retrospective, consecutive series of patients across Europe and Australia.

Patients & Methods: The PUL opens the urethra through UroLift® implants that are placed transurethrally to retract the impinging lateral lobes. 102 men were treated at 7 centers across 5 countries and evaluated for a median of 1 year by IPSS, BPH Impact Index, Qmax, and adverse event reports, including sexual function. Average age, prostate size and baseline IPSS were 68 years, 48 cc, and 23, respectively.

Result: The average number of implants per patient was 4.5 (range 2–9, prostate range 16 to 148 cc). Patients experienced symptom relief and flow improvement by 2 weeks that was sustained to 12 months (Table 1). Adverse events were generally mild and transient. All patients were asked, and there was no deterioration of ejaculation. Four patients progressed to uneventful TURP.

Conclusion: The Prostatic Urethral Lift is a promising new therapy for BPH. It is minimally invasive, can be done under local anesthesia, can rapidly improve symptoms and does not appear to cause loss of antegrade ejaculation. This multi-national retrospective series corroborates findings from prior prospective studies. Large randomised studies are underway.

Table (for P100)

TABLE 1	2 Week	6 Week	3 Month	6 Month	12 Month
IPSS					
n (paired)	56	95	82	75	51
Baseline	22.7 ± 5.6	22.9 ± 6.1	23.3 ± 6.0	23.2 ± 5.9	23.9 ± 6.3
Follow-Up	14.5 ± 7.2	12.2 ± 6.6	10.7 ± 6.3	11.4 ± 6.0	11.6 ± 5.6
Change	−8.2	−10.7	−12.6	−11.8	−12.3
% Change	−36%	−47%	−54%	−51%	−52%
p-value	<0.001	<0.001	<0.001	<0.001	<0.001
QoL					
n (paired)	55	73	65	59	43
Baseline	4.9 ± 0.9	4.7 ± 1.0	4.8 ± 0.9	4.7 ± 1.0	4.8 ± 1.0
Follow-Up	3.0 ± 1.6	1.8 ± 1.3	2.0 ± 1.4	2.0 ± 1.3	2.3 ± 1.5
Change	−1.9	−2.9	−2.8	−2.7	−2.6
% Change	−39%	−62%	−59%	−58%	−53%
p-value	<0.001	<0.001	<0.001	<0.001	<0.001
BPHII					
n (paired)	48	68	65	64	47
Baseline	7.3 ± 2.5	7.7 ± 2.5	7.6 ± 2.5	7.6 ± 2.5	7.7 ± 2.6
Follow-Up	5.5 ± 3.6	3.4 ± 2.7	3.3 ± 2.8	3.4 ± 2.6	2.9 ± 2.8
Change	−1.8	−4.3	−4.3	−4.2	−4.7
% Change	−24%	−55%	−57%	−55%	−62%
p-value	0.005	<0.001	<0.001	<0.001	<0.001
Qmax (mL/sec)					
n (paired)	32	67	80	53	41
Baseline	9.6 ± 3.2	8.9 ± 3.5	8.6 ± 3.8	8.5 ± 3.9	7.8 ± 4.0
Follow-Up	13.3 ± 4.7	13.6 ± 5.3	12.9 ± 4.5	12.9 ± 5.0	11.9 ± 3.5
Change	3.7	4.7	4.3	4.4	4.0
% Change	38%	53%	50%	52%	51%
p-value	<0.001	<0.001	<0.001	<0.001	<0.001

P101

Prospective assessment of Patient Reported Outcome Measurements (PROMs) in male stress incontinence (MSI) surgery

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Objective: To determine whether PROMs can be used effectively in a prospective assessment of men referred for MSI surgery with Advance Male Sling (Advance) or Artificial Urinary Sphincter (AUS).

Method: ICIQ-UI and ICIQ-MLUTS were completed pre & post-op, results were analysed using Wilcoxon sign rank test.

Results: Over a two year period, 64 patients were referred. 17 had AUS, 19 had Advance, 25 await investigations/surgery and 3 declined treatment.

AUS: Mean pre-op scores were 16.28 and 33.7, post-op scores were 4.17 and 11.6, mean reduction in point scores were 11.6 and 16.5 (ICIQ-UI and ICIQ-MLUTS respectively), overall 'success rate' was 92.3%.

Advance: Mean pre-op scores were 15.23 and 24.37, post op scores were 6.2 and 21.05, mean reduction in scores were 8.8 and 6.78 respectively, overall 'success rate' was 63.2%.

There was a statistical difference in pre and post-op scores for both procedures ($p < 0.01$). There was no difference in post-op scores between procedures ($p = 0.09$). There was a greater score reduction with AUS post-op ($p = 0.03$) due to higher pre-op scores ($p = 0.04$) in the AUS group. Patients with pre-op scores of >30 had a greater score reduction with AUS ($p = 0.01$)

Discussion: PROMs are widely accepted as the most appropriate instruments to assess effectiveness of healthcare intervention, however, there is underutilization in surgical studies. We found PROMS are achievable and useful. We found significant differences in outcomes associated with the severity of

pre-operative score. In particular, we found that an ICIQ-MLUTs score threshold of 30 may be used as an indicator to guide patients.

P102
Early outcomes of a new male sling (Advance XP®) to treat stress urinary incontinence

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Introduction: Male slings have become commonplace in the management of mild to moderate post prostatectomy incontinence. The aim of the study is to assess a newly designed and modified transobturator male sling (AdVance XP®) with regards to complications and immediate continence outcomes compared to the conventional Advance® male sling.
Patients and Methods: This retrospective study compared a consecutive series of 77 patients treated with the AdVance® male sling with 34 patients treated with the AdVance® XP. Postoperative continence was evaluated using 24h pad test. Success was defined as being completely dry (0 pads per day).
Results: No significant difference was seen between the pad usage pre treatment between the 2 groups (p = 0.77, Chi-Square). At 6 weeks post-operatively 39% and 75% were dry (i.e. no pads) (p = 0.001, Chi Square), in the Advance® and Advance XP® groups, respectively. In the remainder, at the same time point those treated with Advance XP were using less pads (p = 0.03, Chi Square). The early retention rate in the advance XP group was 24%. One patient underwent early tape release, 1 had a successful early TWOC and the other 6 were commenced on intermittent self catheterisation, although all ultimately were able to stop and void satisfactorily.
Conclusion: The Advance XP® male sling has a significantly better early cure rate in the treatment of post prostatectomy male stress urinary incontinence compared to Advance®. Although early retention rates are high and intermittent self catheterisation may be needed, the vast majority begin to spontaneously void without further intervention.

P103
Do primary care practitioners comply with NICE guidelines?

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Introduction: In 2012 the National Institute for Health and Clinical Excellence published a guideline document concerning the management of lower urinary tract symptoms (LUTS) in men. Our aim was to investigate how well primary care practitioners comply with these guidelines by surveying men with LUTS referred into secondary care.
Patients and Methods: 87 consecutive patients who attended four local specialist prostate assessment centres were surveyed as to which tests they had received in primary care. Questionnaires were administered by the clinician, with an explanation of the test where necessary.
Result: The median age of the surveyed patients was 66 years, the median symptom duration was 6 months, and the median number of primary care visits was two. The table below shows the frequencies and percentages of men who received each test in primary care prior to referral into secondary care.

Assessment	Frequency	Percentage
PSA	59	68%
DRE*	49	56%
Serum creatinine	43	49%
Urine dipstick*	22	25%
Abdomen/ genital exam*	12	14%
Symptom score	5	6%
Renal ultrasound	5	6%
Voiding diary*	4	5%
Urine flow test/ post void residual	1	1%

*Recommended for initial assessment by NICE guidelines

Conclusion: There is large variation in the assessment of men with LUTS in primary care; many of the assessments recommended by NICE guidelines are only being carried out in a small percentage of cases.

BJUI

Thursday 20 June 2013
Poster Session 9
10:30–12:00 Charter 3
BASIC SCIENCE
Chairs: Mr Ravi Barod & Mr Rakesh Heer
Posters P104–P115

P104

Blocking expression of the tumour suppressor gene, p63 inhibits in-vivo carcinogenesis in prostate cancer

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Objectives: To examine the biological role of tumour suppressor, p63 in advanced prostate cancer. p63 is a member of the p53 family of transcription factors. It encodes several different transcripts with trans-activation or negative effects on the p53 reporter genes, which can result in either tumour suppression or oncogenic effects respectively.
Methods: Using both a small interfering RNA (SiRNA) and a short hairpin RNA (shRNA) system, p63 expression was knocked down in PC3 cells to obtain transient and stable PC3 TP63- cells. To test the effects on tumour induction: (i) 1x106 viable PC3 cells treated for 72 hours with TP63 SiRNA and scrambled SiRNA/ transfection controls were inoculated subcutaneously into immuno-compromised male mice.
(ii) PC3 TP63- and PC3–2V (a non-functional, scrambled shRNA) cells were also injected subcutaneously into n = 10 mice with increasing number of cells.
Results: (i) SiRNA knockdown of TP63 expression almost completely abrogated PC3 tumorigenicity (2/20 mice with small tumours after 70 days) compared to all controls.
(ii) The stable PC3 TP63- cells were viable but the cultures had a greatly reduced lifespan in vitro. The PC3 TP63- injected mice only developed tumours after a significant delay (90–105 days) compared to the PC3-2V group which formed tumours at the same rate as untransfected PC3 cells.
Conclusion: Inhibition of p63 related signaling coupled with standard therapies could result in a blockade of tumour progression, even in castrate resistant prostate cancer where only limited therapeutic options are available.

P105

Introducing novel toluidine sulfonamide EL102, a potential chemotherapeutic in prostate cancer

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Introduction: Taxanes are routinely used in prostate cancer treatment. There is mounting evidence to suggest taxotere's activity may be potentiated when given in conjunction with alternate therapeutic agents. EL102 developed by Elara Pharmaceuticals is a toluidine sulphonamide with dual activity, as an inducer of apoptosis and as an inhibitor of angiogenesis.
Materials and Methods: Toxicity assays in PC3, DU145, 22RV1 and CWR22, with EL102, taxotere and a combination of both treatments were used to determine IC50 values. Caspase-3 activity was used to measure apoptosis induction. We also analysed the effects on cell migration following EL102 treatments using the Roche xCELLigence system. Proteomic analysis was performed using ELISA and western blot. A mouse model was conducted to gain preliminary insight into the effect of EL102 treatment in vivo.
Results: Treatment EL102 and Taxotere in combination reduces cancer cell proliferation and migration in vitro. Of particular note, both androgen-responsive CWR22 and its androgen-unresponsive daughter cell line, 22RV1, observe an identical sensitivity to EL102. In addition, our in vivo CWR22 mouse models show a combination inhibitory effect on tumour growth for Taxotere and EL102, compared to either drug administered alone. Furthermore, we have shown that DLKP lung cancer cell lines and its drug resistant variant DLKPA which is 300-fold resistant to taxol, taxotrere and adriamycin, are equally sensitive to EL102.
Conclusions: EL102 is active against MDR1-driven drug-resistant variants and also that EL102 holds a mechanism of action that is distinct from that of Taxotere or adriamycin.

P106

Therapeutic fatty acid synthase inhibition in prostate cancer and the use of 11C-acetate to monitor therapeutic effects

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Introduction: Fatty acid synthase(FAS) is upregulated in prostate cancer at mRNA and protein levels. A preclinical understanding of the effects of inhibiting FAS will greatly assist the design of future clinical trials.
Methods: Prostate cancer C42b cell xenografts were generated in Nod-SCID-gamma mice. The mice were dosed daily by oral gavage with 3mg/kg GSK2194069, a novel FAS inhibitor or vehicle. Mice bearing xenografts were injected with 11C acetate and imaged using PET CT before and after oral administration of GSK2194069 3mg/kg. Similar animals were administered 14C acetate before and after GSK2194069 administration.
Results: Tumour growth was inhibited in those mice dosed with GSK2194069 Mean tumour size after 5 weeks growth was 595.0 ± 171.2mm3 (N = 6) in the vehicle group (and 106.2 ± 26.23mm3 (N = 5) in the GSK2194069 treated group ($p = 0.037$ two-tailed unpaired t-test). There was no significant weight loss in the GSK2194069 treated cohort and no adverse effects noted.
The effect of GSK2194069 in decreasing acetate uptake was seen with scintillation detection of 14C-acetate in the lipid phase of C42b xenograft tumours by 56% 2 hours after dosing with GSK2194069. Inhibition of FAS by GSK2194069 resulted in a decrease in acetate signal in all animals (n = 7) and by a median of 43 percent ($p < 0.05$, paired t-test).
Conclusion: PC xenograft growth can be inhibited with GSK2194069 a novel fatty acid synthase inhibitor. The effects of GSK2194069 on FAS activity can be monitored non-invasively by imaging with 11C acetate PET.

P107

Prostate Cancer Biomarkers in a Bubble

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Introduction: Urine-based tests for prostate cancer may allow sampling of nucleic acids from multiple prostate cancer foci in one assay. We analysed nucleic acids present in small membranous spheres (exosomes) that originate from prostate cancer cells harvested from urine. The aim is to discover a robust set of molecular markers that will be of both diagnostic and prognostic value.
Material and Methods: 20 mls of first catch urine were collected after digital rectal examination. RNA fractions were extracted for gene analysis by a 32-gene transcript quantitative RT-PCR assay. Samples were collected from 335 men over 12 months. Methods have been optimised by addressing 4 main issues, (urine pH, prostatic massage, extraction timing, and sample processing).
Results: Patients were divided into 4 groups: benign PSA < 1, cancer with PSA > 100, cancer substratified as per NICE criteria, and post prostatectomy. A literature search guided the development of a 32-gene assay for the detection of prostate cancer.

Table (for P107)

Candidate Gene	KLK2	PCA3	PXDN	ERG	UPK2	SPINK1	MKI67	TEAD1	TMPRSS2-ERG fusion	EZH2	EI24	HIF1A	E2F3	ETV1
P value	0.0001	0.0006	0.0011	0.0020	0.0022	0.0023	0.0030	0.0031	0.0062	0.0085	0.0158	0.0289	0.0386	0.0562

Preliminary data has shown significant differences in 14-gene expression between benign and low risk cancer patients:
Post radical prostatectomy gene analysis proved prostatic origin of the material.
Conclusion: Good yields of prostatic exosomal and cellular RNA can be harvested from urine. This allows multiple gene analysis for developing a potential urine test for prostate cancer.

P108

Making a bladder cancer model more relevant

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Introduction: Mouse models of cancer can both develop our understanding of the biology of cancer as well as be used to test novel therapeutic agents. We increasingly know more about tumours than just their TNM classification. The genetic changes which occur in human UCC are well understood and have been well characterised. Just as histologically, bladder cancers are divided into non-muscle invasive and muscle invasive – the genetic differences between these subsets of urothelial cell carcinoma are well defined. We have previously reported on a low grade mouse genetically engineered urothelial cell cancer model. In this study we report on the additional deletion of the retinoblastoma (Rb) gene from the mouse urothelium.
Materials: Mouse with an outbred genetic background were generated to have copies of the LKB1, PTEN and Rb genes flanked with a LoxP site. Using the AhCreER promoter transgene these three loci were deleted from the urothelium.
Methods: Mice were observed following gene knockout. At necropsy organs were harvested for immunohistochemistry, immunofluoresence, histology and frozen for q-PCR analysis.
Result: Adding in the retinoblastoma gene knockout to this model caused a much more aggressive urothelial cell carcinoma which was analogous to poorly differentiated human urothelial cell carcinoma with the presence of muscle invasion.
Conclusion: Retinoblastoma mutation is a poor prognostic marker in human UCC. In this report we show that a useful mouse model can be generated which has similar disease. This allows us to better understand the disease and gives us a platform with

which to test new treatment strategies in the future.

P109

DNA Methylation as a Biomarker to predict Neoadjuvant Cisplatin-based Chemotherapy Resistance in Bladder Cancer

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Introduction: Neoadjuvant cisplatin based chemotherapy is recommended for all patients with muscle invasive bladder cancer as it shown to improve overall survival by 16% % (HR: 0.84; CI: 0.72 to 0.99). However, only 30% of patients have a complete response to treatment. In vitro and in vivo studies have suggested that DNA hypermethylation is responsible for acquired and intrinsic cisplatin resistance in cancers. We hypothesise that DNA methylation may prove to be a potential biomarker to predict response to cisplatin-based chemotherapy in bladder cancer.
Materials and Methods: Genome-wide DNA methylation profiling was carried out using the Infinium HumanMethylation450 BeadChip in 48 patients who received neo-adjuvant chemotherapy. DNA methylation changes were also interrogated in two paired cisplatin resistant and sensitive cell lines.
Results: Hierarchical clustering of MVPs (Methylation Variable Positions) was defined as three clusters according to chemotherapy response: 1) chemo sensitive, 2) chemo resistant and 3) a mixed cluster with a hypomethylation phenotype.
Singular value decomposition (SVD) analysis revealed the strongest methylation signature to be associated with chemotherapy response ($p = <0.001$). MVPs associated with cisplatin resistance include the following genes: CHRM2, JAKMIP3, CACNA2D3 and KALRN. In concordance, gene expression of CHRM2 was downregulated in cisplatin resistant cell lines while gene expression of JAKMIP3, CACNA2D3 and KALRN were upregulated.
Conclusions: Our data suggest that DNA methylation of CHRM2, JAKMIP3, CACNA2D3 and KALRN is implicated in the cisplatin chemoresistance in bladder cancer. These genes are potential drivers of cisplatin resistance and should be further evaluated as biomarkers to predict response to treatment.

P110

Epigenetic deregulation of the Homoebox gene family in bladder cancer

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Introduction: Epigenetic deregulation of gene expression is a key event in the development and progression of malignant disease. DNA methylation controls the expression of genes vital for growth and differentiation, including the homeobox gene family, aberrant methylation of some members of this family has been suggested to contribute to malignant development. High-resolution epigenetic profiling revealed the coordinated hypermethylation of a significant proportion of the homeobox gene family in bladder cancer, suggesting these genes may be key drivers in the pathogenesis of this disease.
Materials and Methods: Methylation profiling of 81 primary bladder tumours and 26 normal urotehrlium was carried using the Infinium HumanMethylation 450K beadarray. Significant Methylation variable Positions (MVPs) were validated in an independent cohort of 96 bladder tumours and 18 normal urothelium. The functional consequence of aberrant methylation on gene expression was assessed by RNA-seq.
Results: Methylome analysis identified 9976 (2185 hypermethylated and 7791hypomethylated) significantly MVPs ($p < 0.001$, $\Delta\beta = +/-0.3$), representing 2271 genes. Gene set enrichment analysis showed a significant enrichment for hypermethylated homeobox genes ($p = 0.0001$, 72 / 238). Integration of epigenetic and gene expression data, allowed the identification of epigenetically regulated onco/tumour suppressor genes. These include the putative tumour suppressor & Homeobox gene, MEIS1, which is hypermethylated ($p = 1.72 \times 10 - 74$) in bladder cancer and also shows concomitant decrease in expression ($p = 2.22 \times 10 - 21$) when compared to normal urothelium.
Conclusions: These data indicated the aberrant methylation of the homeobox gene family may play a key role in the pathogenesis of bladder cancer, and may provide novel biomarkers and therapeutic targets.

P111

AXL in bladder cancer: A new biomarker for lymph node metastasis and promising therapeutic target

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Introduction: The receptor tyrosine kinase, AXL, is over-expressed in several human cancers. AXL expression has consistently been shown to confer an increased risk of invasion and metastasis. We have evaluated this, as yet untested, correlation in bladder cancer.
Methods: Tissue was collected at initial TURBT from 65 patients who subsequently underwent radical cystectomy and pelvic lymphadenectomy. Immunohistochemistry (IHC) was performed on paraffin-embedded, formalin-fixed tissue. Sections were assigned scores from 0 to 30 based on the extent of tumour cells demonstrating AXL immunopositivity. Scores >15 were considered positive.
Results: The study group consisted of 44 (68%) patents with muscle-invasive bladder cancer (MIBC) and 21 (32%) patients with high-risk non-muscle-invasive bladder cancer (NMIBC). 13 patients with MIBC were found to have pre-operatively undetected metastasis (11 lymph nodes, 2 visceral). IHC scores ranged from 0 to 29. 25 (57%) MIBCs and 2 (10%) NMIBCs were positive for AXL ($p < 0.05$). 14 patients had foci of CIS in their TURBT specimen, 11 (79%) of these exhibited AXL immunopositivity. In patients with MIBC, metastasis occurred in 11/24 (46%) with AXL positive tumours and 2/15 (13%) with AXL negative tumours ($p < 0.05$). Therefore, 85% of patients with metastasis had AXL positive primary bladder tumours. 7 (63%) lymph node metastases exhibited AXL immunopositivity.
Conclusions: This study provides early confirmatory evidence that AXL expression in bladder cancer is associated with pre-operatively undetected lymph node metastasis. As such, bladder cancer with a high risk of metastasis appears a valid tumour in which to test AXL inhibitors when they become available.

P112

Morphological and molecular heterogeneity in renal cell cancer is exacerbated by treatment with sunitinib

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Introduction: The aim of this study was to describe intratumoural heterogeneity in metastatic clear cell renal cell cancer (mccRCC) and the effect of sunitinib therapy on this process.
Patients and Methods: Fresh frozen primary renal cancer tissue was obtained at nephrectomy from 23 sunitinib naïve patients and 27 patients treated with neoadjuvant sunitinib. Each piece of tumour tissue was mapped, divided into 5 pieces and histologically analysed; protein and mRNA lysates then obtained. Reverse phase protein arrays (RPPA) were performed to assess expression of 55 proteins relevant to ccRCC pathogenesis. Illumina gene expression was performed. Appropriate statistical tests were used to examine molecular variance.
Result: Morphological analysis revealed only one grade of tumour present in 81.8% untreated mccRCC samples and for 18.2% there was both low and high grade tumour (heterogeneous). For the sunitinib treated samples there was 34.8% morphological homogeneity and 65.2% morphological heterogeneity ($P = 0.002$, chi-squared test). To assess molecular heterogeneity following sunitinib treatment, intratumoural variance was calculated for the untreated and treated samples. For 40 of the 55 proteins examined by RPPA, median intratumoural variance was greater in the treated group ($P = 0.001$, binomial-test). Gene expression analysis of the same 55 molecules demonstrated higher intratumoural variance in the treated group for 75% molecules ($P = 0.0002$).
Conclusion: These results illustrate the morphological/molecular heterogeneity present in mccRCC is exacerbated by sunitinib therapy. Treatment with targeted therapies may alter the biology of the tumour in an unpredictable fashion. Single biopsy of mccRCC may not provide adequate biological information to guide treatment choices.

P113

Primary renal cell cancer and metastases: differential protein expression

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Introduction & Objectives: Metastatic disease affects half of RCC patients. Molecular therapies are in common use in the treatment of metastatic RCC with many studies focusing on molecular changes in the primary renal tumour. However, little is known about the driving force of metastasis in RCC and molecular differences between the primary tumour and metastases. We aim to determine the extent of differential expression between primary and metastatic RCC.
Materials & Methods: Fresh frozen tissue was obtained from 20 primary RCCs and 6 metastatic sites. Protein lysate was extracted from up to four areas of each specimen. Reverse Phase Protein Array, using three technical replicates, was used to determine intra-tumoural variance and differential protein expression between the primary tumours and the metastases, using 55 validated antibodies important in RCC pathogenesis. Targets with significant differential protein expression were validated using Automated Quantitative Analysis of immunofluorescence on a tissue microarray of 67 patients with matched primary and metastatic RCC tissue in triplicate.
Results: There is significant differential expression of a number of key proteins between primary RCC tumours and metastatic deposits (CD10, Aurora A, EMA and BCL2).
Conclusion: There are significant differences in protein expression between primary renal tumours and their metastases, which may have implications for future work understanding the response to treatment in metastatic disease and overcoming resistance. Establishing the differences between primary tumours and their metastases may highlight the need for routine biopsy of metastases in clinical care, and have implications for treatment.

P114

The Dectin-1 Receptor in the Urogenital Tract

ML Lanz, A Ali, CL Townes, R Pickard, J Hall
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Introduction: Candidiasis is a common urogenital infection affecting up to 75% of women in fertile age. Toll-like-receptors in vaginal and bladder epithelia represent first-line defences against infection and recognise molecules present in C. albicans. However, in macrophages an alternative receptor, Dectin-1 provides the main mode of activation for fungal infection. We therefore investigated the role of Dectin-1 in urogenital epithelia using RT-4 and VK-2 E6/E7 cell-lines as models of bladder and vaginal epithelium respectively.
Methods: Dectin-1 mRNA expression was examined using RT-PCR and sequencing. Dectin-1 was localised on cells using immunocytochemistry. Reporter-gene assays were used to measure NF-κB activation by Dectin-1 and qRT-PCR was used to measure antimicrobial peptide (AMP) expression.
Results: Expression of Dectin-1 mRNA was seen in both cell-lines but immunocytochemistry revealed significant differences in localisation. In VK-2 vaginal cells, a monolayer of cells was seen and receptors expressed throughout the cell membrane. In RT-4 urothelial cells, multiple layers were visualised with receptors only expressed on the apical side. Zymosan, a β –1,3 glucan polysaccharide found in C. albicans' cell wall activated NF-κB in both cell-lines after 16-hours challenge as well as up-regulating Beta-Defensin-2 AMP expression.
Conclusion: Dectin-1 is expressed in genitourinary epithelium and its stimulation causes activation of proinflammatory transcription factors and AMPs including Beta-Defensin-2. As well as antifungal activity Beta-Defensin-2 has potent antibacterial activity. We postulate a role for Dectin-1 in innate antifungal immunity but also speculate that polysaccharide components of candida could be used therapeutically to induce AMP responses in bacterial urinary tract infection too.

P115

An ex vivo investigation into the viability of delivering α-blockers locally for ureteric stent-related discomfort

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Introduction: Ureteric stents are associated with a wide range of morbidities, with stent-related discomfort (SRD) being one of the most problematic. Effective management for SRD has remained elusive, however recently several trials found orally administered α-blockers beneficial. Intravesical drug delivery (IDD) allows prolonged exposure of high concentrations of therapeutics at their site of action, yet to date, the local administration of α-blockers has not been evaluated. We report the findings of a study that investigated the transurothelial transport of doxazosin, tamsulosin and terazosin.

Materials & Methods: Porcine bladder was mounted in Franz-type diffusion cells and drug applied to the urothelium. At pre-defined time points, tissue samples were excised and drug extracted from the tissue prior to HPLC analysis. Transurothelial permeability co-efficients (Kp) were calculated and drug distribution into different layers of the bladder wall determined.

Results: Using a viable and robust porcine bladder model, the permeability of three α-blockers has been determined. All three drugs were able to permeate the urothelium, however as expected they demonstrated different rates of transport. Kp values were calculated to be 7.8×10^{-06}, 8.4×10^{-07} and 1.52×10^{-06} cm s^{-1} for doxazosin, tamsulosin and terazosin respectively. After 90 minutes ~11%, 2.5% and 1.5% of the applied dose permeated the urothelium for doxazosin, tamsulosin and terazosin respectively.

Conclusions: These fundamental studies reveal crucial information about the urothelium's permeability to α-blockers and the viability of delivering these drugs locally. All agents showed transurothelial permeation and hence potential for local delivery to the bladder wall.

BJUI Thursday 20 June 2013 Poster Session 10 12:30–14:00 Charter 2 BLADDER CANCER Chairs: Mr Param Mariappan & Mr Rob Mills Posters P116–P126

P116

Development of a novel non-invasive diagnostic test for bladder cancer

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Introduction: The main diagnostic test for the detection and follow up of bladder cancer consists of cystoscopy, which is invasive and relatively expensive. Whilst urine cytology is relatively sensitive for high grade tumours it, and other urinary markers tests, lack sufficient clinical utility for general use. We describe the development of an alternative rapid, simple, non-invasive test in which bladder cancer specific NAD(P)H quinone oxidoreductase 1 (NQO1) activity is monitored in cells recovered from routine voided urine samples.
Patients and Methods: Following informed consent, voided urine samples were obtained from patients attending a rapid access Haematuria clinic with confirmed bladder cancer and from age-matched controls. Isolated urinary cells were tested for their ability to metabolise an NQO1-specific substrate to a fluorescent product, and fluorescence measured. Results were compared to those obtained by conventional cystoscopy.
Results: 46 of 48 bladder cancer-negative patients and 12 of 14 bladder cancer positive patients were correctly identified, giving a sensitivity of 85.7% and a specificity of 96%. The method had a positive predictive value of 85.7% and a negative predictive value of 96%.
Conclusions: The use of sensitive fluorescence methods to detect NQO1 activity shows exceptional promise in the development of rapid, non-invasive bladder cancer diagnostic tests.

P117

Initial experience with the 1470nm Diode Laser and Out-patient Transurethral Laser Ablation (TULA) of Urothelial Tumours

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Introduction: The management of recurrent low grade TCC necessitates multiple procedures, often in a cohort of patients with multiple co-morbidities and increasing age. We report our initial experience using the 1470nm Diode laser, in an outpatient setting.
Methods: All patients with recurrent low grade TCC or who were deemed high risk for general/regional anaesthesia underwent TULA using the Biolitec DIODE laser (1470nm), under local anaesthetic (LA) using Instillagel (2% lidocaine). 200, 400 or 600 micron fibres were used. Additionally patients who had declined intravesical therapy or cystectomy for high-risk disease underwent palliative ablation. Biopsies were performed using Radial Jaw biopsy forceps. Data was collected prospectively and included a bladder map, procedure times, laser usage, recurrences and patient reported satisfaction scores.
Results: Between November 2011 and December 2012, 51 patients had undergone 89 procedures. Median age was 75 (range 43–93). 70 procedures were for multifocal disease, 19 unifocal. Median procedure time was 10 minutes, mean energy 759J. 38 patients experienced no discomfort, 10 mild and 3 moderate pain. All patients would opt for repeat outpatient based LA TULA on questioning post procedure. No patients required admission. To date there have been 9 recurrences (10%) at new sites with a mean time of 6 months to recurrence.
Conclusions: Outpatient based TULA of TCC using the 1470nm Diode laser, provides a safe and effective alternative to theatre-based procedures with high patient satisfaction.

P118

Hyperthermic Mitomycin C in the treatment of high risk non muscle invasive bladder cancer – is it effective and safe? A regional centre's experience

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Introduction: High risk non muscle invasive bladder cancer (HRNMIBC) is commonly treated with intravesical BCG,

this fails in approximately 50% of patients after 5 years. Radical cystectomy is the current standard for BCG failure patients. Hyperthermic Mitomycin C (HTMMC) is now being considered for patients who failed BCG and wish to avoid cystectomy. Our prospective study was to investigate efficacy and tolerance of HTMMC and factors that influence success.
Patients and Methods: Patients with HRNMIBC who failed BCG or are immunocompromised were treated with HTMMC from June 2006 to June 2012. Induction HTMMC was given at 42+/–2°C through a Synergo device, weekly over 6 weeks, with two cycles of 40mg/50mls saline per sitting, followed by a 2 year maintenance regime. Every three months, cystoscopy and cytology was taken.
Results: Of 95 eligible patients, 75 completed at least one review. 68 of them had failed BCG.
77% of patients had a complete response with HTMMC. High grade cancer and CIS did not influence HTMMC initial response. Neither prior BCG nor cold MMC influenced initial response.
No Clavien score over 2 was reported.
Median follow up was 33 (3–78) months.
At 5 years, disease specific survival was 96.8%, overall survival was 82.3% and failure-free survival was 47.6%.
14 proceeded to cystectomy on HTMMC failure, with 11 performed locally. Of the 11, all had organ-confined disease.
Conclusion: HTMMC is well tolerated and a suitable treatment for patients who are unfit or do not wish cystectomy. On HTMCC failure, cystectomy is still a potentially curative option for medically fit patients.

P119
To Lamm Or Not To Lamm-Dare To Pose The Question?

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Introduction: The optimal number of instillations for BCG maintenance is unknown, so we have compared two regimes used at our institution.
Methods: We have obtained complete data for the 96 patients treated since 2005. Following induction, the patients received either Lamm protocol or abbreviated regime (one instillation every 3 months over 3 years) depending on preference of the physician.
The study has received approval from the audit department of the institution. The data was analysed using SPSS.
Results: The patient characteristics are shown in Table 1:

Table 1 (for P119)

Patient characteristics	Full maintenance regime Number/total (%)	Abbreviated maintenance regime Number/total (%)	P-value
Age	72	73	0.44
Gender			
Male	51/65 (78.5)	27/31 (87.1)	
Female	14/65 (21.5)	4/31 (12.9)	
Tumour Type			
Papillary tumour only	33/65 (50.8)	16/31 (51.6)	
Papillary tumour and CIS	22/65 (33.8)	10/31 (32.3)	0.83
CIS only	6/65 (9.2)	3/31 (9.7)	
Not specified	4/65 (6.2)	2/31 (6.5)	
Mortality			
Alive	56/65 (86.2)	23/31 (74.2)	
Died (unrelated to TCC)	6/65 (9.2)	7/31 (22.6)	0.05
Died (related to TCC)	2/65 (3.1)	0/31 (0)	
Unknown	1/65 (1.5)	1/31 (3.2)	
Duration of follow up	47.95	53.16	0.48
Progression/recurrence	20/65 (30.8)	2/31 (6.5)	0.01

The multivariate logistic regression analysis has shown that use of the abbreviated regime has resulted in less progression/recurrence and comparable tolerance of the regime.
Discussion: The abbreviated BCG maintenance regime appeared to be non-inferior. A prospective randomised study, which will change practice, will result in improved patient comfort and compliance, as well as significant cost savings.

P120
Assessing the Value of PET Scans in the Preoperative Staging of Bladder Cancer

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Introduction: Accurate preoperative staging of high risk bladder cancer is essential to prevent unnecessary surgery in patients with advanced local or metastatic disease. Current staging is inaccurate with 25–40% of patients upstaged post cystectomy. We assessed the utility of 18F-FDG PET scans to detect systemic and local disease in patients before radical cystectomy.
Patients and Methods: The study included 241 bladder cancer patients who underwent both conventional CT and PET scans for preoperative staging. Lesions identified on PET but not on conventional CT were recorded and investigated appropriately. In the 132 patients who underwent a radical cystectomy with adequate pelvic lymph node detection the sensitivity and specificity of the PET and CT to detect positive pelvic lymph nodes was determined by comparison to the histopathology.
Results: In 13 patients the PET scan detected new systemic disease missed by the conventional CT scan (5 metastatic disease, 3 positive lymph nodes and 5 synchronous primary tumours). In those who underwent a cystectomy, the CT scan had a sensitivity of 48% and a specificity of 95% for detecting positive lymph nodes. With the addition of PET the sensitivity increased to 65% whilst specificity fell to 93%.

Conclusions: Systemic disease detected only by the PET scans changed the management of 5% of patients in our study. In addition the PET scan also increased the sensitivity to detect pelvic lymphadenopathy by 16% which can help determine those patients who would benefit from neoadjuvant chemotherapy or an extended lymphadenectomy

P121

Impaired Cardiopulmonary Reserve in an elderly population is related to Postoperative Morbidity and hospital length of stay after Radical Cystectomy

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Aim: To determine the relationship of preoperatively measured cardiopulmonary function to postoperative complications and length-of-stay in a cohort of patients undergoing radical cystectomy(RC).
Patients and Methods: Eighty two consecutive patients were scheduled to undergo planned a RC and all patients underwent pre-operative cardiopulmonary exercise testing (CPET) to a standardised protocol. The results of the CPET were blinded from the clinicians involved in the care of the patients. Patients were prospectively monitored for the primary outcome of postoperative complications, as defined by a validated classification (Clavien Dindo).
Results: There was a significant difference in hospital length of stay between those patients who had a major perioperative complication (Clavien score 3+) to those that did not (15.5vs30 $p < 0.0001$ HR 3.6 95% CI 2.1–6.3). The anaerobic threshold remained as the only significant independent predictor variable for the presence or absence of major postoperative complications (coeff –0.30 Std error 0.14 $p = 0.03$ OR 0.74 95% CI 0.57–0.97). When the optimal value of At-12ml/min/kg, derived from the ROC curve was used as a cut value, analysis revealed a significant difference between cardiorespiratory fitness related risk groups with respect to length of hospital stay (Median Hospital LOS: Unfit 22 vs fit 16 days HR 0.47 95% CI 0.28–0.80 $p = 0.006$).
Conclusion: Impaired preoperative cardiopulmonary reserve was related to major morbidity, prolonged hospital stay and increased use of critical care resource after radical cystectomy. This has important health and economic implications for risk assessment, rationalization of postoperative resource and the potential for therapeutic preoperative intervention with exercise therapy.

P122

An ERCC1 and AIMP3 assay predicts response to radiotherapy and outperforms other response indicators. The personalised molecular strategy can be used to tailor treatment for patients with MIBC

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Introduction: The aim of this study was to test the predictive power for a novel DNA-damage-response (DDR) gene-set and to derive a personalized treatment algorithm that may enable organ-preservation in muscle-invasive-bladder-cancer (MIBC).
AIMP3, a novel tumour-suppressor and upstream-regulator of DDR, has reduced expression in bladder cancer and loss of expression in vitro, by siRNA-knockdown, is correlated to improved clonogenic-survival following irradiation1. Nuclear-translocation of AIMP3 following irradiation is the likely mechanism of response1, 2.
Materials & Methods: Mre11, AIMP3, ERCC1 and p53-expression were interrogated on a tissue-microarray (TMA) comprising 217 patients with MIBC treated with radiotherapy in the BCON trial (ISRCTN45938399). A separate TMA comprising 151 patients undergoing radical-cystectomy was used as control.
Results: ERCC1 (HR = 3.15; 95%CI: 2.05 to 4.85; $p < 0.001$), AIMP3 (HR = 0.53; 95%CI: 0.36 to 0.78; $p < 0.002$) and Mre11 (HR = 0.61; 95%CI: 0.39 to 0.96; $p = 0.03$) [not p53; $p = 0.10$] were predictive of Overall Survival following radiotherapy. The DDR genes were not prognostic for cystectomy survival.
Multivariate proportional-hazards modeling confirmed ERCC1 and AIMP3 as significant combined predictors for outcome. The two-gene combination was highly significant for a survival advantage ($p < 0.001$); the HR for cases unlikely to benefit from radiotherapy were HR = 6.1 (95%CI: 3.3 to 11.4; $p < 0.002$) [ERCC1+ve & AIMP3-ve] and HR = 3.1 (95%CI: 1.6 to 5.8; $p < 0.002$) [ERCC1+ve & AIMP3+ve].
Conclusion: An ERCC1 and AIMP3 assay predicts response to radiotherapy and outperforms other response indicators. The personalised molecular strategy can be used to tailor treatment for patients with MIBC.

P123

A pilot prospective single-centre 3-arm randomised controlled trial of open, robotic and laparoscopic (CORAL) radical cystectomy for bladder cancer

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Introduction: Laparoscopic and robotic approaches in radical cystectomy have become increasingly popular, but a high level of evidence comparing these to open radical cystectomy is lacking. We report results of a pilot 3-arm randomised controlled trial comparing open (ORC), robotic (RARC) and laparoscopic radical cystectomy (LRC) with extracorporeal urinary diversion.
Methods: From March 2009 to July 2012, 164 patients with muscle invasive or high risk bladder cancer were seen. 93 of these were suitable for trial inclusion; of which 60 (64.5%) agreed and 33 declined. Patients were equally divided into 3 trial arms, with one withdrawal for clinical reasons. Primary endpoint was 30 and 90 day complications, and secondary endpoints were peri-operative clinical and oncological outcomes, and quality of life analyses. Results were analysed by intention-to-treat.
Results: There were no significant differences in patient demographics between the 3 groups. Rarc and lrc were equivalent in peri-operative outcomes. ORC was associated with higher estimated blood loss, longer hospital stays and delayed bowel function, but shorter operating times compared to RARC and LRC. There were no significant differences in any of the other variables studied (table

1), nor in terms of physical, social, emotional, functional, and sexual wellbeing scores.
Conclusions: Radical cystectomy is a morbid procedure with high complication rates, whichever surgical approach is used. Randomisation into surgical trials is feasible, but recruitment from a single centre is slow and logistically challenging. We propose multicentre, multinational trials for such procedures.

rest underwent ileal conduit. The median hospital stay was 15 days (range 6 – 63 days). Fifty-four (38%) patients had pT3 disease or more and 18% had node positive disease. The five-year disease-specific and overall survival rates were 80% and 52% respectively. Major post-operative complications (Clavien 3 or more) were reported in 20% of the patients including 6 (4%) cases of mortality (Clavien 5). More complications were

to be performed. Perioperative variables and pathological outcomes were collected prospectively.
Results: The mean age was 71 years for LRC and 70 for ORC. Seven orthotopic bladder substitutes were performed in each group (9%) the remaining diversions were ileal conduits. The stage distribution was similar in each group (22% T0, 27% Tis-T1, 51% T2-4 for LRC and 31% T0, 16 % Tis- T1 and 53% T2-4 for ORC).

Table 1 (for P123). Clinical and pathological outcomes

	ORC	RARC	LRC	P value		
	(n = 20)	(n = 20)	(n = 19)	ORC vs RARC	ORC vs LRC	RARC vs LRC
Median op time, minutes	277.5 (270–300)	367.5 (345–431.3)	300 (270–330)	0.00*	0.39	0.00*
Median estimated blood loss, mL	650 (600–1050)	350 (137.5–850)	300 (200–525)	0.02*	0.00*	0.69
Median length of stay, days	13 (10–16)	10 (8–17)	9 (7.5–11)	0.07	0.002*	0.48
Median time to solids , days	7.5 (4–10)	4 (3.75–5.25)	4 (3–6)	0.049*	0.01*	0.61
Positive margin (%)	1/20 (5%)	2/20 (10%)	0/20 (0%)	1.00	1.00	0.49
Mean number of lymph nodes	18.8 ± 7.59	16.25 ± 8.02	16.33 ± 6.23	0.13	0.11	0.97
30D complications (%)	13/20 (65%)	11/20 (55%)	7/19 (36.8%)	0.52	0.08	0.26
Median 30D Clavien	2 (2–3)	2 (2–3)	2 (1.5–2)	0.42	0.58	0.17
90D complications (%)	3/20 (15%)	5/20 (25%)	2/19 (10.5%)	0.70	1.00	0.41
All cause death (%)	3/20 (15%)	2/20 (10%)	3/19 (15.8%)	1.00	1.00	0.66
Disease specific death (%)	3/20 (15%)	1/20 (5%)	2/19 (10.5%)	0.61	1.00	0.61

P124
Ten years experience of laparoscopic radical cystectomy

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Introduction: We report on our ten-year experience of laparoscopic radical cystectomy (LRC) in terms of oncological outcomes and early post-operative complications.
Method: Prospective data were collected on 143 consecutive patients who underwent LRC between September 2002 and November 2012. The procedure was performed using a 4-port trans-peritoneal approach, urinary diversion was carried out extracorporeally. Post-operative (within 90 days) complications were reported using the Clavien system.
Results: The average age of the patients was 68.6 years (range 42–85 years). Mean operative time was 5.3 hours (range 2.3 –9.5 hours) and mean blood loss was 550ml (range 50–5600 ml). Eight patients underwent orthotopic neobladder and the observed during the early phase of the learning curve.
Conclusions: Our experience suggests that LRC is feasible with satisfactory oncological outcome and acceptable complication rates. The results appear to improve with the increase in experience and technical refinements.

P125
A prospective single cancer centre comparison of open versus laparoscopic cystectomy

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Introduction: We compared perioperative and pathological outcomes in a consecutive series of patients undergoing radical cystectomy (RC) by the open (ORC) or laparoscopic (LRC) approach.
Methods: From January 2010 to December 2012, 157 patients underwent RC. Two surgeons introduced LRC (n = 79) while ORC (n = 78) continued

LRC had decreased blood loss (652 vs 1061mL, p = 0.0009) and transfusion rate (17% vs 28%, p = 0.007), but increased operative duration (297±42 vs 270±58min, p = 0.006). Median hospital stay (7.5 vs 10 days, p = 0.001) was shorter for LRC. The complication rate was lower for LRC (33% vs, 55%), with grade 3 or higher in 6.3% LRC and 14% ORC. One patient died in the ORC arm (1.2%) versus 2 in the LRC arm (2.5%).
The mean lymph node yield was similar in the open and laparoscopic cohorts (12.6 vs 13.0, p = ns) with one positive margin (1.2%) in the laparoscopic group.
Conclusion: LRC was safely introduced in this department. The operating time was prolonged, but there was decreased blood loss, transfusion rate, complications and length of hospital stay for LRC.

P126

Neoadjuvant chemotherapy or cystectomy for muscle-invasive bladder cancer – an analysis of survival outcomes at a UK tertiary referral centre

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Introduction: Neoadjuvant platinum combination chemotherapy has been shown to confer a survival benefit in patients with muscle invasive bladder cancer (MIBC) undergoing cystectomy. This survival benefit has to be nevertheless balanced against chemo-toxicity. We present our experience at a UK tertiary referral centre.
Methods: Patients undergoing cystectomy for MIBC between 2004–2011 were identified from a departmental database. Patients having neoadjuvant chemotherapy (gemcitibine/cisplatin) were identified by cross-checking with oncology records. Review of the records was carried out to identify demographic details, pathological findings at cystectomy and survival outcomes.
Results: We identified 192 patients with MIBC with complete datasets – 69 underwent neoadjuvant chemotherapy (NAC) and 123 underwent primary cystectomy (PC). The male:female ratio was 2.6:1 and median follow-up was 47 months. The overall median survival was 20 months. Kaplan Meier analysis showed an overall 5 year disease-specific survival of 45%. The mortality in the NAC and PC groups were 42% and 51% respectively. When comparing the NAC and PC group, patients in the NAC group had a better 5-year disease specific survival (61% vs 49%; $p = 0.006$). However, there was a 13% incidence of severe chemo-toxicity (neutopenic sepsis, renal failure) in the NAC group.
Conclusion: Patients with MIBC undergoing NAC prior to cystectomy have a clear survival benefit in our cohort. This may be skewed by selection of medically more fit patients to undergo NAC. We do note a high rate of chemo-toxicity (13%) and it is vital to have an informed discussion with patients and the multidisciplinary team.