JCU

Journal of Clinical Urology
2021, Vol. 14(1S) 4–95

DOI: 10.1177/20514158211013240
journals.sagepub.com/home/uro
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BAUS 2021 Abstracts

EPOSTER 1 - Prostate Cancer - Diagnosis

P1-1 The impact of a second confirmatory PSA before referring: a safety and cost-effective analysis

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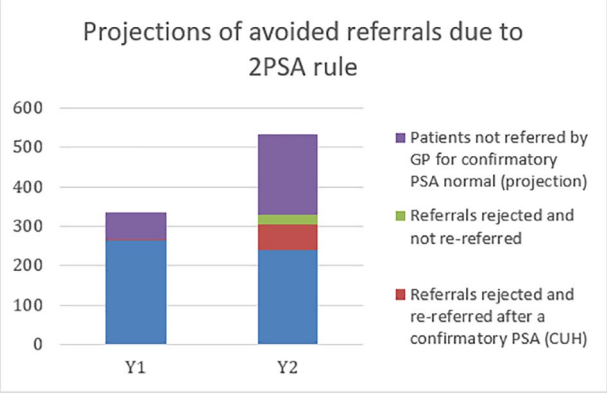
Introduction: Our study aims to establish the safety of using a second confirmatory PSA (2PSA) before referring patients with elevated PSA (<10ng/mL) and to assess potential savings derived from it.
Patients and Methods: In a major prostate diagnostic center (PDC), referrals for the year before (Y1) and after (Y2) the introduction of a confirmatory second PSA (2PSA) prior to referral were collected. Referrals with a single abnormal PSA (1PSA) or after a 2PSA were identified. In the largest associated primary care network, the results of all PSA tests were recorded and patients with elevated PSA identified. The actions taken for these patients and outcomes were recorded. Based on standard activity numbers, a cost per assessment was established and savings derived by 2PSA estimated.

Table 1

	Y1 (%)	Y2 (%)
Total Referrals	268	330
Accepted Referrals with 1PSA	218 (81%)	133 (40%)
CaP detected in 1PSA referrals	62 (28%)	43 (32%)
Accepted Referrals with 2PSA	48 (18%)	108 (33%)
CaP detection in 2PSA referrals	19 (40%)	37 (34%)
Rejected Referrals	2 (1%)	89 (27%)
Rejected and re-referred/accepted with 2PSA	2 (1%)	64 (19%)
Rejected and not re-referred	0 (0%)	25 (8%)

Figure 1



Results: 351 (218 in Y1; 133 in Y2) did not fullfil the 2PSA rule and 156 (48 in Y1; 108 in Y2) did (Table 1). Cancer detection rates were higher in 2PSA referrals (36% vs. 30%), and steady between Y1 and Y2 (30.5% and 33.2%), showing no statistically significant difference. In Y2, due to the 2PSA rule, 89 patients were rejected; of those, 28% were not re-referred (Figure 1). Using average investigation costs per patient, the estimated savings across of a population of 550,000 could have been £ 315,530 per year.
Conclusions: The use of 2PSA rule before a referral did not have a significant impact on CaP detection. The use of the 2PSA rule as referral criteria appears safe and should be considered as it allows significant economic savings.

P1-2 Is there any role for DRE in modern prostate cancer diagnostics: results from a Multi-tertiary centre collaboration?

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Introduction: Prostate cancer (PCA) diagnostics involve multiparametric MRI and digital rectal examination (DRE).

While the decision whether to proceed to biopsy is based primarily on MRI findings, PSA density (PSAD) and abnormal DREs also influence the decision-making process. South East London Cancer Alliance Guidelines utilise Prostate Imaging-Reporting And Data System (PI-RADS): PI-RADS 3-5 are routinely offered biopsies; PI-RADS 2 may also be offered biopsies if PSAD >0.12, DRE is abnormal or other risk factors are present.

Our objective is to assess the value of DREs in PCA diagnostics when MRI is normal.

Patients & Methods: Patients with normal MRI findings (PI-RADS 1-2) were selected from a multicentre database of prostate 2ww pathway patients (01/09/2019–30/06/2020). PCA detection in patients with abnormal DREs (abDRE) was compared to those with normal DREs (norDRE) using Fisher's exact test.

Table 1: Results of PCA diagnostics in patients with normal MRI (PI-RADS 1-2)

	norDRE	abDRE	All
n, number of patients	50	16	66
Age, y (median, IQR)	62 (56 – 66)	64 (59 – 70)	63 (56 – 68)
PSA, ng/mL (median, IQR)	6.9 (5.0 – 9.4)	7.3 (6.8 – 8.6)	7.1 (5.3 – 9.4)
Prostate volume, mL (median, IQR)	40 (27 – 50)	41 (32 – 55)	40 (30 – 50)
PSAD (median, IQR)	0.19 (0.13 – 0.25)	0.18 (0.14 – 0.30)	0.18 (0.13 – 0.27)
PCA, % (no of patients)	40% (20/50)	50% (8/16)	42% (28/66)
csPCA, % (no of patients)	22% (11/50)	25% (4/16)	23% (15/66)

norDRE = normal DRE, abDRE = abnormal DRE, PSAD = PSA density, PCA = prostate cancer, csPCA = clinically significant prostate cancer

Results: 569/1466 patients had normal MRI findings (median PSAD 0.11, 0.07-0.16). 66 patients proceeded to biopsy (median PSAD 0.18, 0.13-0.27). Results are summarised in Table 1.

Conclusions: Our data demonstrates that despite a normal MRI, PCA detection rate was 42%, with a 23% detection rate of csPCA. PCA detection rate in norDRE patients was equivalent to abDRE patients (40% vs 50%, p 0.338), as was csPCA detection rate (22% vs 25%, p 0.524). We recommend that prostate diagnostics can be undertaken safely in the remote setting, without requiring face-to-face consultations for DRE, if biopsies are routinely offered in PI-RADS 2 with PSAD >0.12.

P1-3 Magnetic resonance imaging of the prostate at 1.5T vs. 3.0T: A comparative analysis of day-to-day practice

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Introduction: Multiparametric MRI (mpMRI) has seen widespread adoption. There is unanimous agreement that a magnet strength of ⩾1.5T is essential for accurate prostate imaging due to the speed and imaging resolution improvements. Many now recommend 3.0T as the optimal platform. As part of a prostate cancer diagnostics service transformation programme, we investigated to what extent the adoption of 3.0T mpMRI improved clinically significant prostate cancer (csPCa) detection.

Methods: We performed a sensitivity analysis (sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV) and receiver operating curve characteristic (AUC)) of 1.5T and 3.0T mpMRI for csPCa (G3+4), using a positivity threshold of ⩾ PIRADS 4.

Results: Between 11/2016 and 02/2020, 265 and 120 consecutive men underwent 1.5 or 3.0T mpMRIs (T2, DWI, DCE) respectively followed by a template mapping biopsy. Median PSA, age, prostate volume and PSA densities were 6.0 ng/mL [IQR 4.6-8.7], 64 years [IQR 59-70], 51mL [IQR 35-72] and 0.11ng/mL/mL [IQR 0.08-0.17]. There were no significant differences in these parameters between the two groups (p>0.05). The sensitivity, specificity, PPV, NPV and AUC for 1.5T mpMRI detecting G3+4 cancer was 82.6 [72.9-89.0], 65.3 [57.4-72.3], 53.8 [48.2-59.3], 88.5 [69.9-80.5] and 0.79 [0.73-0.84]. For 3.0T mpMRI, the same parameters were 75.9 [62.8-86.1], 53.2 [40.1-66.0], 60.3 [52.9-67.3], 70.2 [58.5-79.7] and 0.67 [0.59-0.76].

Conclusions: This analysis suggests that 1.5T mpMRI has greater utility in detecting csPCa than 3.0T mpMRI. This may reflect the subtle differences in image attributes and learning curve in reporting them. A repeat analysis is planned for last quarter 2021.

P1-4 Antibiotic free Local Anaesthetic Transperineal Prostate (LATP) biopsies: a review of the first 750 cases

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Introduction: A predominantly nurse-performed LATP service using PrecisionPoint was newly started in July 2019. Initial indications were repeat biopsy, anterior lesions, and AS patients. Service was expanded in March 2020 to all prostate pathway patients according to BAUS COVID guidance.
Methods: All patients underwent prebiopsy MRI and dedicated image-review meetings. Biopsies were performed in PIRADS 3-5, or PSAD >0.15. PIRADS 3-5 lesions were targeted with ⩾3 cores (sent separately). Systematic Ginsburg protocol biopsies were also performed (each zone sent separately). Tamsulosin was started for BOO patients.
No antibiotics were used unless immunocompromised or previous sepsis. A prospective database at point of care was created detailing patient information, MRI and biopsy characteristics. Patient Reported Outcome Measures (PROMs) are collected. Histology and complications are also reported.
Results: 750 consecutive patients analysed. Detection of significant cancer (GI⩾3+4) in PIRAD1-2, 3, 4, 5 groups was 25%, 40%, 59%, 92% respectively. Systematic biopsy alone detected significant cancer in 36%, systematic plus targeted achieved 63%. Of AS patients; 40% with GI3+3 were upgraded, and 49% with GI3+4 were upgraded to GI⩾4+3. 5 experienced vasovagal episodes. Only 5 patients were readmitted (0.6%): 2 UTI, 2 AUR, 1 urosepsis.
PROMs demonstrated majority favourable results regarding pain (98%), discomfort (97%), embarrassment (96%) and further repeat biopsies (89%).
Conclusion: We have set up a safe, effective, antibiotic free LATP biopsy service, with high cancer detection rates and low complication rates. PROMs data suggests this is well tolerated by patients.

P1-5 The role of PSA density in decision making to perform transperineal prostate biopsy in men with multi-parametric MRI Likert 2 or 3 scores: A retrospective analysis from a multi-centre Cancer Network study

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Introduction: PSA density (PSAD) can be used when making decisions to avoid prostate biopsies in patients with negative or equivocal mpMRI (Likert1-3), however there is no consensus ideal 'cut-off' value.
Methods: Patients with suspected prostate cancer undergoing mpMRI in a multi-centre UK Cancer Network 2019-2020 were included. 3TMRI scans were reported by experienced uroradiologists. Six-sector systematic, target or combination transperineal prostate biopsies were performed (PrecisionPointTM system). Clinical data were collected retrospectively. Clinically significant disease (CSD) was defined as Gleason⩾3+4.
Results: 1440 men underwent mpMRI with median age 64 years, median PSA6.7. Prostate mpMRI were reported as Likert 1 in 3%(50/1440), 2 in 36%(524/1440), 3 in 25%(362/1440), 4-5 in 35%(504/1440).
Only 97/524(19%) Likert 2 patients underwent biopsy with overall CSD detected in 19%. CSD was detected in 25% with PSAD>0.12 rising to 33% when PSAD>0.2. If Likert 2 PSAD between 0.12 and 0.2 patients were not biopsied, CSD would have been missed in 7/33(17%).
222/362(62%) Likert 3 patients underwent biopsy with overall CSD in 44%. 196(54%) had a radiological lesion, but this was not associated with CSD (38% no lesion vs 47% lesion; p=0.2). PSAD>0.12 was associated with CSD on biopsy [51% PSAD>0.12 vs 29% PSAD<0.12; p=0.003]. However, CSD was found in 9(30%) of biopsied men with Likert 3, PSA<0.12 and no lesion.
Conclusion: Based on our large multi-center cohort, we recommend considering Likert 2 biopsy when PSAD>0.12 to reduce risk of undetected CSD. Our data does not support PSAD threshold below which omitting biopsy in Likert 3 patients is safe.

P1-6 Implementing European Randomised Study of Screening for Prostate Cancer Risk calculator 3 (ERSPC RC3): A comparative study of cognitive, fusion and template prostate biopsy in the UK

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Introduction: The use of risk calculators to improve the detection of prostate cancer has been recommended by EAU. ERSCP RC3 collates results from various diagnostic parameters to recommend whether a prostate biopsy is likely to yield clinically significant prostate cancer. To assess its value in the real-world setting, we applied the ERSCP RC3 in cognitive, fusion and template prostate biopsies across three NHS trusts in the West Midlands.

Patients (or Materials) and Methods: Data was collected non-sequentially over an 18-month period. Patients were allocated into low, medium and high risk based on ERSCP RC3 detectable cancer risk score. This was compared to clinically significant (Gleason score ⩾7) prostate cancer and benign histology on biopsy.

Table 1.

ERSCP Detectable cancer risk	Sensitivity	Specificity
Cognitive biopsy *N = 107*	0.930	0.500
Fusion biopsy *N = 212*	0.867	0.726
Template biopsy *N = 187*	0.526	0.692
Overall Sensitivity ***N= 506***	0.787	0.764

Results: 663 patients were initially identified, and 506 (76%) met the inclusion criteria for ERSCP RC3. In the low risk group across all three modalities, 66.5% (113/170) had benign histology. In the medium risk group across all three modalities, 49.3% (35/71) had benign histology. In the high risk group across all three modalities, 20.8% (55/265) had benign histology. As outlined in Table 1, the overall sensitivity and specificity was 0.787 and 0.764 respectively.
Conclusions: This study shows that the sensitivity and specificity of ERSCP RC3 was only adequate in cognitive and fusion biopsy. The use of ERSCP RC3 in our cohort would have prevented 113 unnecessary biopsies. We recommend using ERSCP RC3 as a screening tool for the diagnosis of prostate cancer.

P1-7 MRI and targeted biopsies compared to transperineal mapping biopsies for targeted ablation in recurrent prostate cancer after radiotherapy: primary outcomes of the FORECAST trial (FOcal RECurrent Assessment and Salvage Treatment)

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Background: Radiotherapy is a common and effective treatment for localised prostate cancer. However, recurrence can occur in 10-15% at 5-years. Accurately localising and ablating areas of recurrence within the prostate might be effective with fewer side-effects. The FORECAST trial assessed this diagnostic and treatment pathway (NCT01883128, REC_13/LO/1401).
Methods: We first compared, accuracy of multi-parametric MRI (mp-MRI) and MRI-targeted biopsy to a transperineal mapping (TTPM) in 181 with suspicion of recurrence after radiotherapy at 6 UK centres (Apr/2014-Jan/2018). We then assessed, functional and oncological outcomes of focal ablation in 93 men with localised or metastatic disease using cryotherapy or HIFU.

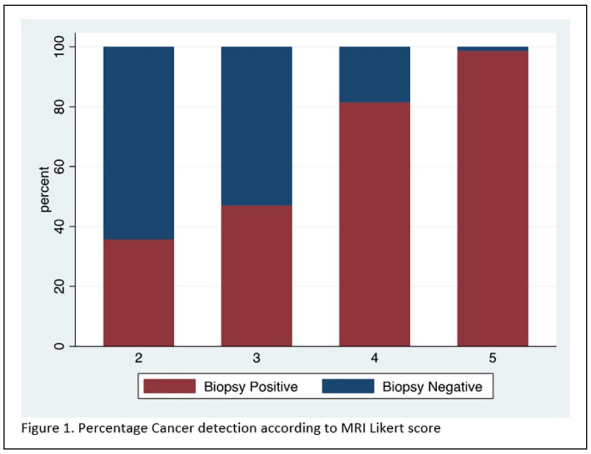

Figure 1. Percentage Cancer detection according to MRI Likert score

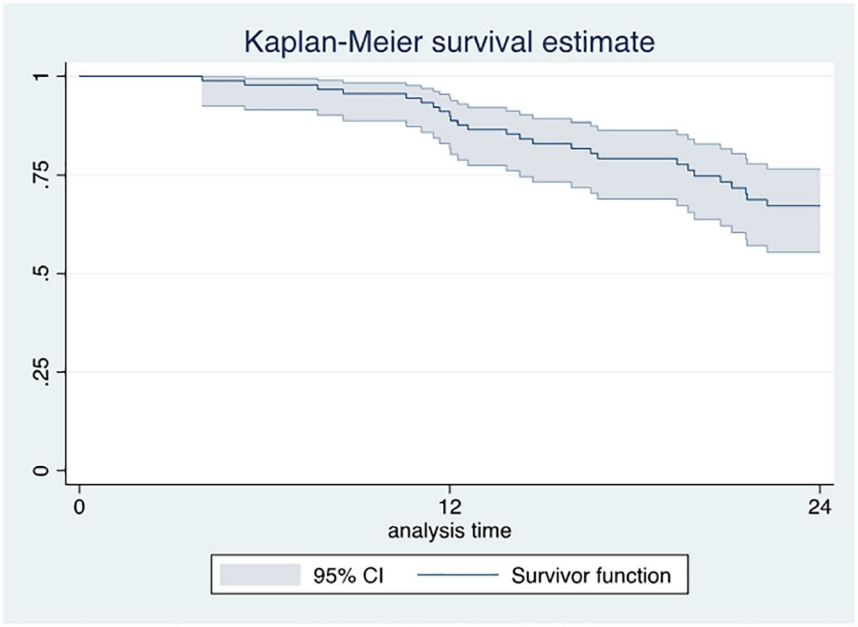

Figure 2. Progression Free Survival (PFS) after salvage focal ablation. Progression was defined as no new metastases or hormone use (localised group only), or chemotherapy or further local treatment.

Results: Re-staging imaging showed localised disease in 128 (71%), nodal in 13 (7%), and metastatic in 38 (21%). Cancer detection increased with Likert scores. Overall sensitivity of mpMRI was 81% (95%CI 73-88%) using Likert score 4-5 as a positive test. Specificity, positive and negative predictive values, were 88% (95%CI 73-98%), 96% (95%CI 90-99%) and 57% (95%CI 42-70%). Sensitivity of MRI-targeted biopsy was 92% (95%CI 83-97%). Specificity, positive and negative predictive values, were 75% (95%CI 45-92%), 94% (95%CI 86-98%) and 65% (95%CI 38-86%). 4/72 (6%) cancers were missed on TTPM-biopsy and 6/72 (8%) were missed on targeted-biopsies. 93 men underwent focal ablation, urinary continence was preserved in 78/93 (84%). At median follow-up of 27.8 [SD 1.3] months, progression-free-survival and metastases-free-survival (localised disease) were 66% [54-75] and 80% [95%CI 68–88] at 24-months.

Conclusion: Prostate mpMRI and MRI-targeted biopsies can accurately detect and localise recurrent cancer. Focal ablation preserves continence with good cancer control.

P1-8 Comparing cognitive-targeted versus fusion-guided and template-guided prostate biopsy modalities according to Prostate Imaging Reporting and Data System version 2 stratification for the detection of clinically significant prostate cancer

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Introduction: European Association of Urology recommends multiparametric magnetic resonance imaging (mpMRI) of the prostate, combined with standardised reporting using the Prostate Imaging and Data Reporting System version 2 (PI-RADSv2) to determine a need for biopsy in detecting prostate cancer (PCa). We report the use of PIRADSv2 to assess for PCa in a cohort of British men undergoing cognitive-targeted versus fusion-guided and template-guided prostate biopsies.

Materials and Methods: MRI PI-RADSv2 scores (⩾3 considered as positively predictive) and biopsy data was collected from 2017-2019 via electronic records across three major urological centres, with each offering a different modality of prostate biopsy. The primary outcome was diagnosis of clinically significant (Gleason score ⩾3+4=7) PCa.

Results: In total, 663 men met the inclusion criteria. 162 men had cognitive-targeted prostate biopsies: PI-RADSv2 ⩾3 correlated to a sensitivity of 0.985 and specificity of 0.391, with 80.2% of men having clinically significant PCa. 310 men had fusion-guided prostate biopsies: PI-RADSv2 ⩾3 correlated to a sensitivity of 0.994 and specificity of 0.474, with 92.9% having clinically significant PCa. 191 men had template-guided prostate biopsies: PI-RADSv2 ⩾3 correlated to a sensitivity of 0.980 and specificity of 0.439, with 76.4% of men having clinically significant PCa.

Conclusions: Cognitive-targeted biopsy yielded lower rates of clinically significant PCa in PI-RADSv2 score 4 and 5 lesions, compared to using fusion-guided biopsy. Our data shows PI-RADSv2 does not have adequate specificity rates to be used as a sole screening tool. The detection rate for clinically significant PCa was highest in the fusion-guided biopsy cohort.

P1-9 Clinical impact of the Predict Prostate risk communication tool in men newly diagnosed with non-metastatic prostate cancer: a multi-centre randomised controlled trial

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Introduction: Predict Prostate is a NICE-endorsed online personalised risk-communication tool for men diagnosed with non-metastatic prostate cancer (prostate.predict.nhs.uk). Its accuracy has been widely demonstrated but impact on patient decision-making had not previously been evaluated.

Patients and Methods: A multi-centre RCT was performed across 8 UK centres (ISRCTN 28468474). Newly diagnosed men considering either surveillance or radical treatment, were randomised to standard of care(SOC) or SOC and presentation of Predict Prostate. Validated questionnaires were completed assessing impact of the tool on decisional conflict, uncertainty, anxiety and perception of prognosis.

Measure	Standard of Care (n=75) Mean (95% CI)	Predict *Prostate* (n=81) Mean (95% CI)	P value
'Values Clarity' Subscale	21.06 (17.3-24.8)	13.92 (10.6-17.3)	0.0027
'Support' Subscale	15.88 (11.7-20.0)	10.44 (7.7-13.2)	0.0147
'Uncertainty' Subscale	32.42 (27.0-37.8)	24.18 (19.0-29.3)	0.0149
'Effective Decision' Subscale	23.27 (18.7-27.8)	17.6 (13.4-21.7)	0.033
'Informed' Subscale	16.22 (12.8-19.6)	13.23 (10.4-16.0)	0.089
Decisional Conflict Scale - Overall	**21.54 (17.9-25.2)**	**15.91 (12.7-19.1)**	**0.01**

Table 1: Decisional conflict scale and pre-defined subscale results for the Standard of Care and Predict *Prostate* randomisation groups.

Results: 156 patients were recruited; mean age 67 years (range 44-80) and PSA 6.9ng/ml. 81 were randomised to Predict Prostate, and 75 to SOC. Mean overall decisional conflict scores were 26% lower in the Predict Prostate group compared to SOC, and lower for most pre-defined subscales including 'uncertainty' (Table 1).

Patient perceptions of 15-year prostate cancer specific mortality (PCSM) and survival benefit from radical treatment were considerably lower in the Predict Prostate group ($p<0.0001$). For example, mean patient-perceived 15-year PCSM was 41.9% (95%CI:35.6-48.3) in the SOC group, compared to 21.7% (95%CI:16.9-26.4) in men who saw Predict Prostate ($p<0.001$).

58% reported the Predict Prostate estimates for PCSM were lower than expected, and 35% reported being less likely to select radical treatment having seen the tool. 92% and 94% found Predict useful and would recommend it to others respectively.

Conclusion: Predict Prostate reduces decisional conflict and uncertainty, and shifts patient perceptions around prognosis. Its use can inform the complex decision-making process in prostate cancer.

P1-10 Putting clinical assessment and patient experience at the centre of prostate cancer diagnostics: The superior prostate experience and efficient diagnostics (SPEED) pathway

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Background: A barrier to swift prostate cancer (PC) diagnosis is the high volume of referrals, many of which present with benign symptoms. Achieving pathway efficiency has popularised straight to test 'MRI', which although attractive is expensive and ultimately unnecessary for all.

Robust medical management of prostate patients requires a history, examination, urinary assessment and symptom management to mitigate for over-investigation and biopsy complications; infection, acute retention. We used Experience Based Co-Design to design a PC diagnostic service, combining clinical excellence with resource efficiency in the SPEED (Superior Prostate Experience and Efficient Diagnostics)Pathway.

Methods: We compared the RAPID (Rapid access prostate imaging and diagnosis) Pathway with SPEED. Comparison was made to; MRI usage, referral to MRI, and yield of clinically significant PC.

All SPEED patients were invited to complete a patient experience survey and thematic analysis was conducted.

	RAPID Pathway (April 17-July 19)	SPEED Pathway (Pilot) (September 19 - Dec 20)
No. of patients MRI'd	1719	211
Who gets an MRI	90% patients	75% patients
No. of patients undergoing biopsies	882/1719 (55%)	118/211 (56%)
No. of patients given a cancer diagnosis	456/1719 (27%)	91/211 (43%)
No. of patients given a diagnosis of significant cancer (PROMIS Trial)	456/1719 (27%)	65/211 (31%)
Mean time from referral to MRI	9 days [IQR 6-13]	5 days [IQR 3.5-8.5]

Table: RAPID vs SPEED pathway outcomes

Results: (See table)

Analysis of patient experiences identified key themes that enhanced patient experience; robust clinical review, pathway coordination and supportive care.

Conclusion: MRI pre-biopsy is poor corporate governance of a valuable resource. Effective clinical triage of patients makes most efficient use of MRI and enables assessment and management of presenting symptoms to run in parallel with a PC diagnosis. Patients appear highly satisfied with this approach.

EPOSTER 2 - Prostate Cancer: Management

P2-1 Diagnosis and treatment of men with prostate cancer during the COVID-19 pandemic: a national population based study in England

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Introduction: The COVID-19 pandemic has had a profound impact on cancer care. We evaluated the impact on the diagnosis and treatment of men with prostate cancer (PCa) in England.

Patients/Methods: Patients diagnosed with PCa in the English NHS between 1st January 2019 and 30th June 2020 (N=58,749) were identified in the Rapid Cancer Registration dataset. Patient-level linkage to the Cancer Waiting Times dataset provided information on radical surgery and radiotherapy within 12 months of diagnosis. Follow-up was available to 31st July 2020. Changes in monthly diagnoses and treatments following the start of

the UK lockdown on 23rd March 2020 were compared with the corresponding month in 2019.

Results: Overall, there was a 56% reduction in diagnoses compared with 2019 (55% in April, 62% in May and 51% in June). Radical surgery also declined (by 61% in April, 60% in May) with a relatively greater reduction in radiotherapy (by 75% in April, 69% in May) compared with 2019. Radical treatment activity increased from June with a one third reduction compared with 2019 in radical surgery (34%) and radiotherapy (33%) by July.

Conclusion: Diagnostic and radical treatment activity fell significantly following the UK lockdown. There was evidence of a recovery in surgical and radiotherapy activity in June although this was not complete by the end of July 2020. Follow-up to September 2020 and linkage to routine hospital datasets (HES, RTDS and SACT) will allow further exploration of treatment patterns and their recovery. These analyses will be completed by the time of presentation.

P2-2 Delayed Surgery for localised prostate cancer: A systematic review for the COVID-19 Pandemic

Mr Vinson Wai-Shun Chan[1], Mr. Wei Shen Tan[2], Mr. Alexander Ng[3], Miss Aqua Asif[4], Miss Jasmine Sze-Ern Koe[1], Miss Nicole Wang[3], Mr. Oliver Burton[5], Dr. Jeffrey Leow[6], Prof. Chi Fai Ng[7], Prof. Jeremy Yuen-Chun Teoh[7], et al.,

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Introduction: The risks of delaying cancer surgery and the best management for these patients during COVID-19 is unknown. This systematic review aims to compare outcomes of patients with localised prostate cancer (PCa) who experienced any delay of radical prostatectomy (RP) (including surgical waiting times and use of neoadjuvant hormone therapy [NHT]), compared to those who underwent immediate RP.

Methods: MEDLINE and Cochrane CENTRAL were searched for studies pertaining to the review question. Outcomes included (Biochemical) Recurrence-free survival, cancer-specific survival, overall survival and positive surgical margin (PSM).

Results: 4,120 studies were retrieved. 36 observational studies investigated the effects of delayed RP. A variety of PCa risks and delay periods contributed to considerable heterogeneity in the include studies. When stratifying by PCa risk groups, low risk PCa (Grade Group [GG] 1) can be delayed safely from at least 26 weeks to 2.6 years, without significant effects on all outcomes. Similarly, RP can be safely delayed for 6 to 9 months in intermediate risk patients (GG 2/3). In high-risk patients (GG 4/5), the delay of RP for 2 or more months tends to associate with worsen recurrences, hence NHT should be considered. Ten RCTs show 3-months of NHT is non-inferior for oncological outcomes and superior for PSM compared to immediate RP. The risk of biases of the included studies ranged from low to serious risk.

Conclusion: RP is safe to be delayed in low-risk and intermediate-risk PCa patients. High-risk patients should be offered NHT; there is no sufficient evidence extending NHT over 3-months.

P2-3 Development of the STRATified CANcer Surveillance protocol for men with favourable-risk prostate cancer

Dr Alexander Light[1,2], Ms Alexandra Keates[1,2], Ms Vineetha Thankappannair[1], Dr Anne Warren[3], Dr Tristan Barrett[4], Mr Vincent Gnanapragasam[1,2]

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Introduction: For men with favourable-risk prostate cancer on active surveillance (AS), there is little evidence to inform more personalised AS strategies. We previously reported a three-tier model for predicting progression to unfavourable-intermediate risk cancer (Table 1), denoted by Cambridge Prognostic Group 3 or higher (⩾CPG3). We aimed to validate and improve this model.

Patients & Methods: The STRAtified CANcer Surveillance (STRATCANS) model was retested in an AS cohort from a tertiary UK centre (Table 1). We studied the association between risk group and progression to ⩾CPG3 disease with Cox regression. Six further categorical variables were then fitted with STRATCANS groups using backward selection, and a new model (STRATCANS+) derived and retested. Discrimination was assessed using 5-year C-index.

Model	Model group	Criteria
STRATCANS	1	Grade Group 1 **AND** PSA <10 **AND** Stage T1-2 **AND** PSAd <0.15
	2	Grade Group 1 **AND** PSA 10-20 **AND** Stage T1-2 **AND** PSAd <0.15 **OR** Grade Group 1 **AND** PSA <10 **AND** Stage T1-2 **AND** PSAd ≥0.15 **OR** Grade Group 2 **AND** PSA <10 **AND** Stage T1-2 **AND** PSAd <0.15
	3	Grade Group 1 **AND** PSA 10-20 **AND** Stage T1-2 **AND** PSAd ≥0.15 **OR** Grade Group 2 **AND** PSA <10 **AND** Stage T1-2 **AND** PSAd ≥0.15
STRATCANS+	1	STRATCANS 1 **AND** PI-RADS 1-3 **AND** core positivity <13.3%
	2	STRATCANS 1 **AND** [PI-RADS 4-5 **OR** core positivity ≥13.3%] **OR** STRATCANS 2 **AND** PI-RADS 1-3 **AND** core positivity <13.3%
	3	STRATCANS 2 **AND** [PI-RADS 4-5 **OR** core positivity ≥13.3%]
	4	STRATCANS 3

Table 1: Criteria for the three-tier STRATCANS and four-tier STRATCANS+ models.

Results: 588 men were eligible. The 3-tier STRATCANS model had good discrimination (C-index 0.721, 95% confidence interval (CI) 0.666-0.776), and defined distinct risk groups (Group 2 hazard ratio (HR) 2.89, 95% CI 1.77-4.72, $p<0.001$; Group 3 HR 7.02, 95% CI 4.15-11.86, $p<0.001$; pairwise log rank all $p<0.001$). 5-year progression rates were 4.6%, 13.7%, and 30.9% for Groups 1-3, respectively. Next, PI-RADS score and core positivity were added to form a four-tier STRATCANS+ model (Table 1). Each new tier represented a distinct risk group (pairwise log rank all $p<0.004$; Fig.1), and STRATCANS+ improved discrimination (C-index 0.741, 95% CI 0.690-0.792). 5-year progression rates were 0.8%, 7.6%, 16.0% and 30.9% for Groups 1-4, respectively.

Conclusions: The STRATCANS model demonstrates good discrimination for predicting progression in men on AS, and performance improved with MRI and biopsy data.

P2-4 Determinants of variation in radical local treatment for men with high-risk localised or locally advanced prostate cancer in England

Dr Matthew Parry[1,2], Dr Julie Nossiter[1,2], Dr Melanie Morris[1,2], Dr Arunan Sujenthiran[2], Dr Brendan Berry[1,2], Dr Paul Cathcart[3], Dr Ajay Aggarwal[1,3], Professor Jan van der Meulen[1,2], Professor Heather Payne[4], Professor Noel Clarke[5]

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Introduction: Many factors are implicated in the potential 'under-treatment' of prostate cancer but little is known about the between-hospital variation.

Patients and Methods: The National Prostate Cancer Audit (NPCA) database was used to identify high-risk localised or locally advanced prostate cancer patients in England, between January 2014 and December 2017, and the treatments received. Hospital-level variation in radical local treatment was explored visually using funnel plots. The intra-class correlation coefficient (ICC) quantified the between-hospital variation in a random-intercept multivariable logistic regression model.

Results: 53,888 men, from 128 hospitals, were included and 35,034 (65.0%) received radical local treatment. The likelihood of receiving radical local treatment was increased in men who were younger (the strongest predictor), more affluent, those with fewer comorbidities, and in those with a non-Black ethnic background. There was more between-hospital variation ($P<0.001$) for patients aged ⩾80 years (ICC: 0.235) compared to patients aged 75-79 years (ICC: 0.070), 70-74 years (ICC: 0.041), and <70 years (ICC: 0.048). Comorbidity and socioeconomic deprivation did not influence the between-hospital variation.

Conclusions: Radical local treatment of high-risk localised or locally advanced prostate cancer depended strongly on age and comorbidity, but also on socioeconomic deprivation and ethnicity, with the between-hospital variation being highest in older patients. These findings demonstrate the need for a detailed review of treatment patterns in men with high-risk or locally advanced prostate cancer to reduce the risk of under-treatment related to age, ethnicity and socioeconomic deprivation.

P2-5 Learning curve for Retzius-Sparing Robot-Assisted Radical Prostatectomy (RS-RARP): Experience of two high volume UK surgeons

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Introduction: Retzius-Sparing Robot-Assisted Radical Prostatectomy (RS-RARP) is a novel robotic surgical technique that is considered more difficult than standard RARP due to limited surgical space and lack of surgical landmarks. We evaluated the learning curve of two UK surgeons performing RS-RARP.

Patients and Methods: An analysis of prospectively collected data for 260 consecutive private patients undergoing RS-RARP from April 2017 to November 2020, divided into tertiles temporally, was performed. Perioperative and pentafecta outcomes were analyzed by tertile and Patient-Reported Outcome Measures (PROMs) for urinary function, erectile function and Quality-of-Life (QoL) were reported at baseline and at 7 days, and 1,3,6,9 and 12 months postoperatively.

Results: Patient and tumor characteristics were similar across tertiles. The mean operative time was 147.00±36.31 minutes and the mean estimated blood loss was 196.46±123.34 milliliters, both of which significantly reduced as the number of cases increased ($p<0.001$). The mean length of stay was 2.19±1.41 days and 6% of patients had Clavien-Dindo ⩾2 complications, both of which were consistent across tertiles. The rates of Positive Surgical Margins (PSM) decreased significantly across tertiles (23.0% vs 19.5% vs 11.6%; p=0.053). Immediate potency rates improved significantly (9.3% vs 17.2% vs 27.9%; p=0.006) while immediate continence rate stayed similar across tertiles (overall, 76.9%). PROMs for urinary continence and QoL scores were also similar across tertiles.

Conclusion: The RS-RARP approach is safe and has excellent patient outcomes. There is improvement in operative time, blood loss, and margin rates with surgical experience, but importantly, surgeons are able to get excellent functional outcomes right from the outset.

P2-6 How do definitions affect outcomes for post-prostatectomy incontinence in a contemporary series of 1000 consecutive Robot-assisted Radical Prostatectomy?

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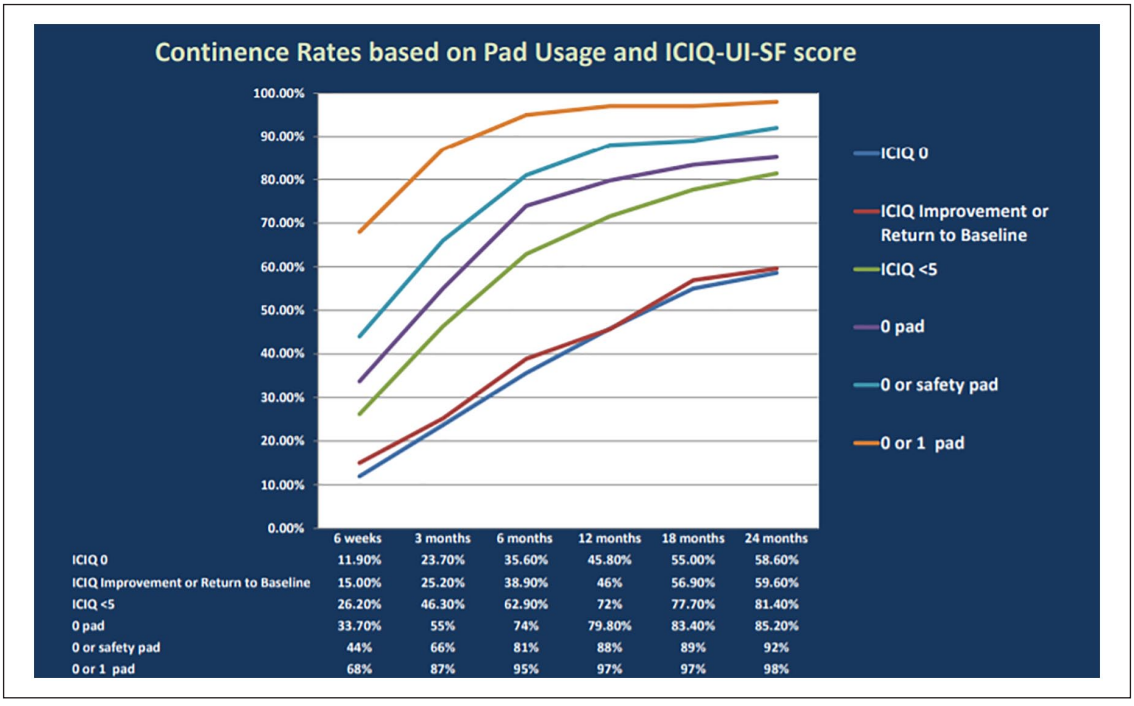
Introduction: A significant limitation in the outcome reporting of RARP is the inconsistency in definition used for post-prostatectomy incontinence(PPI) across the literature. The variability in continence rates post RARP is enormous, ranging from 13-97.5% at 12 months post-operatively. In our study, we highlight this variability in reporting by applying six different definitions of PPI to our analysis of outcomes in our prospective series of 1000 RARPs.

Patients & Methods: A prospective database of 1000 men who underwent RARP between 2011 and 2019 was analysed. All men completed the ICIQ-UI-SF and a question on pad usage at baseline, 6 weeks, 3, 6, 12, 18 and 24 months post-RARP. Six definitions of PPI were applied (1) ICIQ score 0 (2)ICIQ score <5 (3)ICIQ score improvement or return to baseline (4)no pad use (5)0 or safety pad use and (6)0 or 1 pad use.



	6 weeks	3 months	6 months	12 months	18 months	24 months
ICIQ 0	11.90%	23.70%	35.60%	45.80%	55.00%	58.60%
ICIQ Improvement or Return to Baseline	15.00%	25.20%	38.90%	46%	56.90%	59.60%
ICIQ <5	26.20%	46.30%	62.90%	72%	77.70%	81.40%
0 pad	33.70%	55%	74%	79.80%	83.40%	85.20%
0 or safety pad	44%	66%	81%	88%	89%	92%
0 or 1 pad	68%	87%	95%	97%	97%	98%

Results: Of the 1000 men included in the study, 76.6% reported pre-operative ICIQ-UI-SF score of 0. When continence is defined as "0 or 1 pad use", continence rate at 24 months was found to be 98%, however, when "ICIQ-UI-SF score 0" definition was applied, it dropped to 58.6%. Continence rates varied between 11.9%-68%, 23.7-86%, 35.6%-95%, 45.8%-97%, 55%-97% and 58.6%-98% at 6 weeks, 3, 6, 12, 18 and 24 months respectively depending on whether the most strict or most inclusive definition was applied.
Conclusion: The post-prostatectomy continence definition applied creates enormous variability in the reported continence outcomes. The findings of this study highlight the importance of formulating an internationally-agreed consensus definition of PPI.

P2-7 "Will I need radiotherapy after my surgery?" Working towards quantitative prediction of salvage radiotherapy post-robotic radical prostatectomy, using prospective clinical, radiological and pathological data

Mr John Withington[1], Ms Alice Russell[2], Mr Tom Cahill[3], Dr Julia Murray[1], Professor Chris Parker[1], Dr Simon Hughes[4], Dr Netty Kinsella[1], Mr Declan Cahill[1]

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Introduction: Robotic radical prostatectomy (RARP) is a standalone therapeutic modality with curative intent. Whereas salvage radiotherapy is often regarded as failure of surgery, in fact it functions as an added therapeutic factor. Its frequency can be determined in different patient groups using clinical, radiological and pathological data. We analysed prospectively collected data from a single surgeon series of RARPs.
Materials & Methods: Data from patients undergoing RARP between 2015 and 2020, with a minimum of 12 months' follow up were analysed. Descriptive statistical analysis was conducted, and relative risk was calculated for selected variables of interest.
(See table).

Disease variable			Proportion requiring salvage radiotherapy (n/N)
D'Amico	Low		2.2% (1/45)
	Intermediate		13.0% (69/531)
	High		31.5% (62/197)
Stage	Clinical (DRE)	T1	10.1% (33/327)
		T2	21.0% (78/388)
		T3	34.9% (23/66)
	MRI	T2	14.2% (85/599)
		T3	27.2% (47/173)
		T4	100.0% (1/1)
	Pathological	pT2	8.9% (36/406)
		pT3a	19.2% (59/307)
		pT3b	50.0% (4/8)
		pT3a/3b	56.5% (35/62)
Grade	Biopsy pathology	3+3	1.8% (1)/56
		3+4	11.3% (52/461)
		4+3	23.9% (37/155)
		8-10	38.4% (43/112)
	Surgical pathology	3+3	0.0% (0/15)
		3+4	9.2% (45/492)
		4+3	28.1% (52/185)
		8-10	42.1% (37/88)
Surgical margins	pT2	Positive	20.4% (10/49)
		Negative	7.3% (26/357)
	pT3	Positive	40.5% (36/89)
		Negative	21.5% (62/288)
Lymphovascular invasion	pT2	Present	8.9% (35/394)
		Absent	12.5% (1/8)
	pT3	Present	47.5% (47/99)
		Absent	18.5% (51/276)
Nerve sparing	pT2	None	11.6% 10/86)
		Unilateral	10.2% (19/186)
		Bilateral	7.0% (13/186)

Results: 802 cases were reviewed; 800 were included for analysis, minimum follow-up of 35 months. Median age at surgery 62.5; median PSA at presentation 7.0; at radiotherapy, 0.08. Overall, 17.1% (n = 134) required salvage radiotherapy, after a median interval of 14.5 months.
On surgical histopathology, positive margins were associated with a relative risk increase of 2.45 (95% CI 1.81, 3.33; $p<0.01$) and lymphovascular invasion with a relative risk increase of 3.50 (95% CI 2.62, 4.67; $p<0.01$).
Conclusion: Analysis of these data have allowed us to precisely advise our patients on the likelihood that they will need salvage radiotherapy after radical prostatectomy. This enables optimally informed conversations both before and after surgery, and appropriately personalised expectation setting and optimism for cure. As functions of disease, not surgery, it is reasonable to expect these results to be generalisable.

P2-8 Cancer control outcomes following focal therapy using HIFU in 1,829 men with non-metastatic prostate cancer treated over 15 years

Miss Deepika Reddy[1], Max Peters[2], Taimur Shah[1], Marieke van Son[2], Philipp Huber[3], Arnas Rakauskas[5], Derek Lomas[4], Saiful Miah[6], Stephanie Guillaumier[7], Tim Dudderidge[8]

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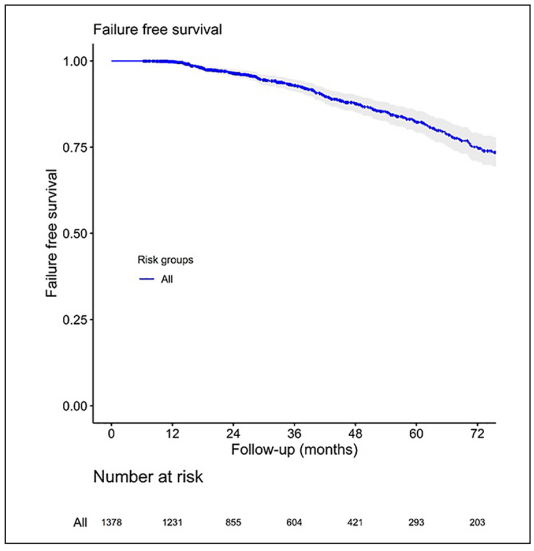
Introduction: Focal therapy aims to treat areas of cancer in order to confer oncological control whilst reducing treatment-related functional detriment. To report on oncological outcomes and adverse events following focal HIFU for treating non-metastatic prostate cancer.

Patients and Methods: An analysis of 1829 UK patients with non-metastatic prostate cancer prospectively recorded in the HEAT registry treated with Focal HIFU therapy (Sonablate500 and Sonablate 3G) at nine centres (17/11/2005-30/07/2020). Six months follow-up or greater was available in 1378 (75.3%). Failure-free survival (FFS) was primarily defined as avoidance of salvage whole-gland or systemic treatment, metastases or prostate cancer-specific mortality. Adverse events were reported using Clavien-Dindo classification.



Results: Of all patients treated median (IQR) age was 66 years (60-71) and PSA 6.8ng/ml (4.0-9.5) with D'amico intermediate in 63.0% (1153/1829) and high-risk in 26.0% (475/1829). Median follow-up for all 1829 patients was 27.5 (13.5-55.3) months and 32.1 (17.0-58.1) for those with >/=6 months follow-up. 252/1379 (18.3%) had a repeat focal ablation due to residual or recurrent cancer; overall 39/1379 (2.8%) had salvage radiotherapy or brachytherapy and 53/1379 (3.8%) salvage radical prostatectomy. Kaplan-Meier 3, 5 and 7 year FFS was 93% (91-95%), 82% (79-86%), and 69% (64-74%), respectively (Figure 1). There was no statistically significant difference in 7 year FFS between intermediate and high-risk disease (68% [95% CI 62-75] and 65% [95% CI 56-74%], p=0.30). Adverse events with Clavien-Dindo score >2 occurred in 0.5% (9/1829).

Conclusions: Focal HIFU in treating eligible patients with clinically significant prostate cancer has good cancer control in the medium term.

P2-9 A Matched Analysis of Salvage Robotic Assisted Radical Prostatectomy

Dr Seetharam Bhat[1], Dr Marcio Moschovas[1], Mr Jonathan Noël[1], Dr Sunil Reddy[1], Dr Travis Rogers[1], Professor Vipul Patel[1]

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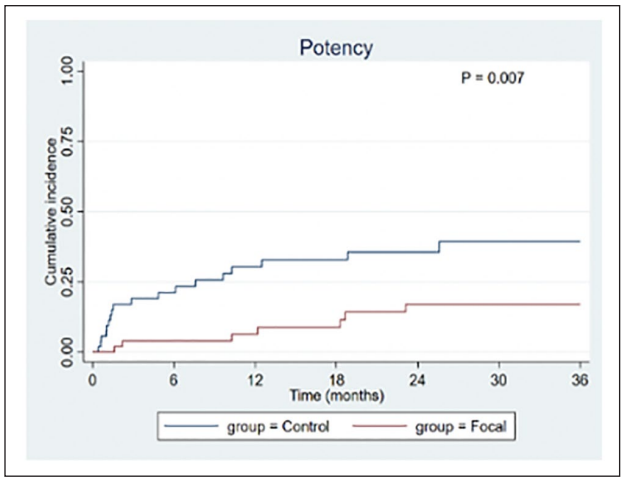
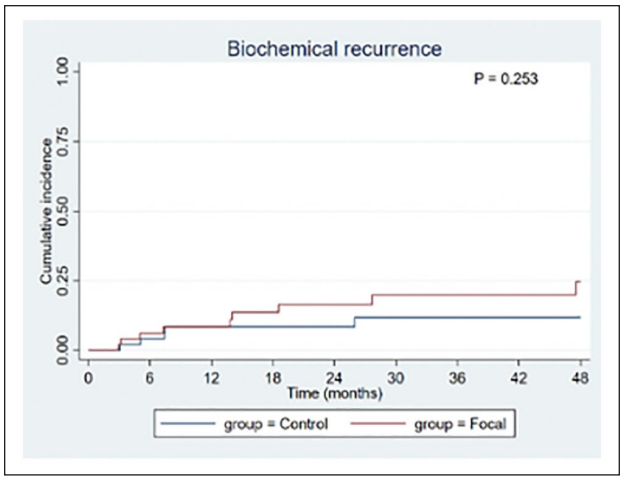
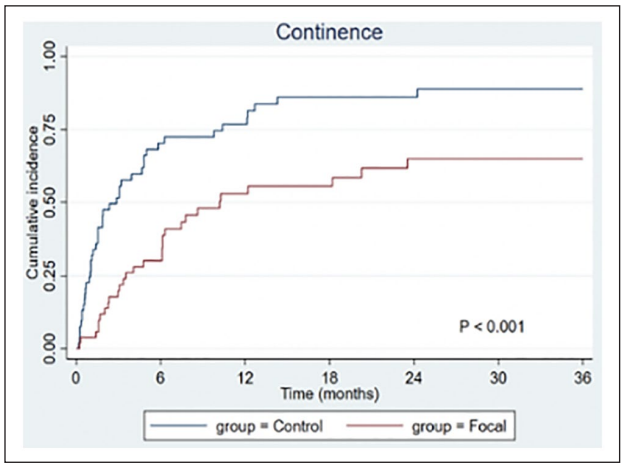
Focal therapy for prostate cancer has gained popularity given its relative noninvasiveness. We evaluated the impact of focal therapy on functional and oncological outcomes following robotic assisted radical prostatectomy (RARP)

Materials and methods: 53 patients who had prostatectomy following the failure of focal ablation were selected as the focal group. They were compared to a matched control sample of the ratio of 1:1 with the RARP cohort. Age, PSA, PSA density, BMI, SHIM, AUA, Charlson Comorbidity Index, Prostate weight, Preoperative Gleason score, and history of Smoking were used to perform matching. The oncological and functional outcomes between these groups were compared.







Results: No difference in EBL and OR time was noted between the focal and control group. More full NS and partial NS were performed in the control group compared to the focal group ($p<0.001$). The focal therapy group had a higher incidence of positive surgical margin (35.8% vs 15.1%, $p = 0.04$).Also, the focal therapy group had higher incidence of GS >= 8 (28.3% vs 17%, $p = 0.07$) and positive lymph node status (73.5% vs 9.4%, $p = 0.02$). The focal therapy group had a higher incidence of lymphocele drainage post-surgery (15.1 vs 0, $p = 0.006$). Fig 1 shows CIF comparing the continence, potency, and biochemical recurrence in 1:1.

Conclusions: Salvage robotic-assisted radical prostatectomy after focal therapy failure is feasible however, surgery following focal therapy leads to poorer oncological and functional outcomes. This scenario needs to be discussed with the patient's prior focal therapy counselling

P2-10 Focal ablative salvage therapy for radio-recurrent prostate cancer: 6 year oncological and safety outcomes

Miss Deepika Reddy[1], Max Peters[2], Taimur Shah[1], Marieke van Son[2], Feargus Hosking-Jervis[1], Saiful Miah[3], Mariana Bertoncelli-Tanaka[1], David Eldred-Evans[1], Stephanie Guillaumier[4], Philipp Huber[5], et al

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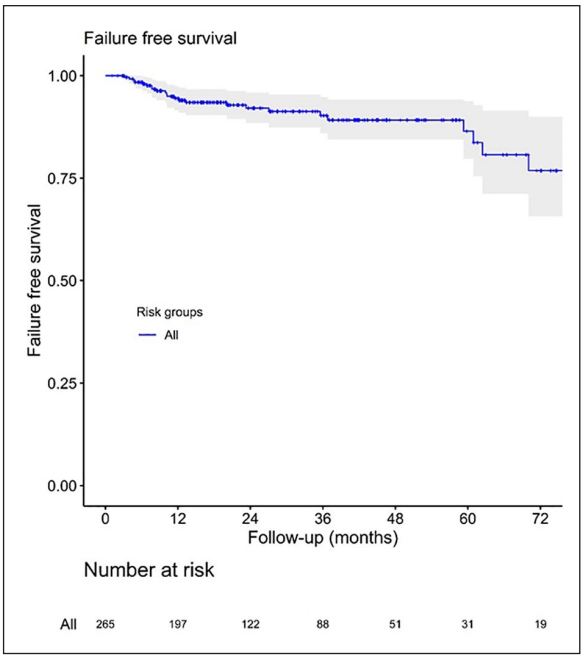
Introduction: Radiotherapy is effective in the treatment of non-metastatic prostate cancer. When recurrence occurs, patients are usually managed with watchful waiting and systemic therapy due to significant urinary and rectal morbidity resulting from salvage prostatectomy. Focal ablative salvage therapy (FAST) may provide oncological control with fewer adverse effects. We report on outcomes following FAST using high intensity focused ultrasound (HIFU) or cryotherapy.

Patients and Methods: Within the UK's HEAT and ICE prospective registries, 288 consecutive patients across 8 sites underwent FAST for recurrence after radiotherapy (11/2006-7/2020). 221 (76.5%) underwent HIFU and 67 (23.2%) underwent cryotherapy (for mostly anterior or T3b disease). Follow-up data was available in 265 cases. Primary outcome was failure-free survival (FFS) defined as avoidance of systemic therapy, whole-gland treatment, metastases or prostate cancer-specific death. Secondary outcomes were overall survival and adverse events.



Results: Median (IQR) age was 70 years (66-74) and PSA 5.3ng/ml (3.3-8.2). 188/288 (65.3%) had rT2 and 68 (23.6%) rT3 disease, 105 (36.5%), 89 (30/9%) and 62 (21.5%) had ISUP Grade Group 2, 3 and >3 respectively. Overall median (IQR) follow-up was 23.3 months (12.6-44.9). FFS (95%CI) at 3 and 6 years was 90% (86-95%) and 77% (66-90%), respectively (Figure1). Overall survival (95%CI) at 3 and 6 years was 97% (94-100%) and 82% (73-94%), respectively. Adverse events were reported in 7.3% (21/288) patients, with 3 developing a recto-urethral fistula.

Conclusions: Focal ablative salvage therapy for radio-recurrent prostate cancer has low rates of significant adverse events and provides good short to medium-term oncological control.

EPOSTER 3 - General Urology - BPH/ Male LUTS

P3-1 12 month outcomes of Prostatic Urethral Lift (PUL) in retention patients: Real-World and PULSAR

Mr Mark Rochester[1], Mr Neil Barber[2], Mr. Oliver Kayes[3], Mr. Nikesh Thiruchelvam[4], Mr. Kavia Rajesh[5], Mr. Toby Page[6], Dr. Gregg Eure[7], Dr. Douglas Grier[8]

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Introduction: Performance of MISTs for BPH subjects in acute urinary retention status should be assessed in both controlled and real-world settings. We report and compare outcomes of the minimally invasive PUL procedure in retention patients from real-world and controlled PULSAR studies.

Methods: The controlled PULSAR study assessed outcomes of 52 retention subjects with ⩾ 1 failed TWOC on alpha blocker. The international Real-World Retrospective (RWR) database included 512 subjects in urinary retention at baseline. Baseline demographics, symptom outcomes, and AE and catheterization rates were compared between RWR retention (RWR-r) and PULSAR subjects.

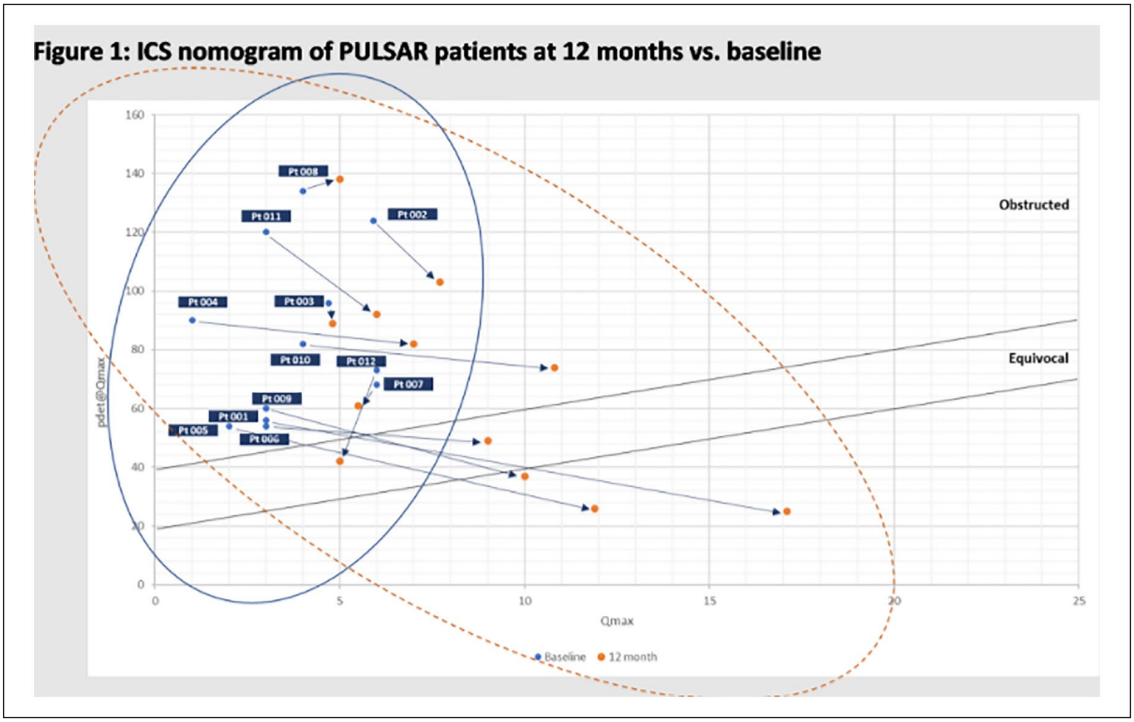

Table 1: 12 month PULSAR and RWR Retention outcomes

MEASUREMENT MEAN, SD (N)	PULSAR (N=52)	RWR RETENTION (N=512)	P-VALUE
IPSS	9.9, 7.3 (40)	10.4, 6.5 (81)	0.7
QOL	1.4, 1.5 (40)	2.1, 1.4 (67)	0.02
QMAX	11.7, 9.3 (34)	13.2, 7.0 (34)	0.5
PVR	130.4, 135.2 (36)	186.3, 219.6 (83)	0.2
CATHETER-INDEPENDENCE (%) AT:			
1 MONTH	60%	81%	<0.001
LONGEST AVAILABLE FOLLOW-UP	73%	84%	0.05
	PULSAR		
	Baseline	12 Month	
SHIM	16.0, 8.7 (22)	19.3, 7.0 (14)	
URODYNAMICS (PAIRED)			
PDET@QMAX	84.3, 28.8 (12)	68.2, 34.4 (12) *(-23% change)*	

Results: Baseline demographics of age and prostate size were similar between RWR-r and PULSAR subjects. PULSAR subjects were catheterized on average for 132 days prior to PUL; 60% of RWR-r subjects were catheterized for <30 days prior. SHIM erectile function was preserved. 90% of PULSAR subjects felt better and 88% would recommend PUL. Of the 12 PULSAR patients with UDS data, pdet@Qmax and BOOI improved from baseline, and 5 changed from obstructed to unobstructed or equivocal. Of those that remained obstructed, 86% were catheter-independent and 83% felt "very much better." PULSAR IPSS, Qmax, and PVR outcomes were equivalent to RWR-r; PULSAR QoL was significantly better. Catheter-independence rates were better for RWR subjects. Overall AE rate was not elevated in RWR-r subjects vs. PULSAR.

Conclusions: The large multicenter RWR and the controlled PULSAR study reveal stable outcomes at 12 months, indicating that PUL is effective in retention patients and may be a viable option for these BPH patients.

P3-2 Outcomes with prostatic urethral lift in urinary retention patients

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Introduction: The minimally invasive prostatic urethral lift (PUL) is approved for the treatment of LUTS arising from BPE. We have developed a protocol to perform PUL completely under local anaesthesia without the need for even sedation. In this study, we compared outcomes between patients with and without urinary retention at presentation.

Methods: We assessed outcomes of patients who underwent PUL from March 2019-February 2020, including men in urinary retention who had previously failed TWOC while taking alpha-blockers. Outcomes were compared between subgroups of patients with and without urinary retention for IPSS and QoL before and 3 months after PUL. Pain tolerability VAS scores and quality of recovery visual analogue scale scores (QoR-VAS) were also compared.

Table 1: Mean scores before and after PUL

Assessment	Baseline	After PUL[a]
Without urinary retention		
IPSS	31.8 ± 2.8 (range 27 to 35)	7.3 ± 2.9 (range 0 to 10)
Quality of life	5.5 ± 0.8 (range 4 to 6)	0.8 ± 0.8 (range 0 to 2)
Pelvic pain VAS	N/A	3.4 ± 1.1 (range 1 to 5)
QoR VAS (%)	N/A	87.9 ± 5.9 (range 71 to 96)
With urinary retention		
IPSS	N/A	6.6 ± 2.6 (range 3 to 9)
Quality of life	5.3 ± 0.5 (range 5 to 6)	0.6 ± 0.7 (range 0 to 2)
Pelvic pain VAS	N/A	3.9 ± 1.1 (range 2 to 5)
QoR VAS (%)	N/A	88.8 ± 4.1 (range 82 to 94)

[a]After PUL measurements were performed after 3 months, except for pain, which was assessed immediately after surgery. Abbreviation: PUL, prostatic urethral lift; IPSS. International Prostate Symptom Score; VAS, visual analogue scale; QoR, quality of recovery. N/A, not applicable.

Results: Results for 39 men included, eight of whom had urinary retention at the presentation – three chronic and five acute. Local anaesthesia without sedation was used in 38 patients. General anaesthesia was used during the first procedure during training and one non-retention patient required sedation for anxiety. All urinary retention patients had successful TWOC 3-5 days after PUL. Mean QoL scores were similar for patients with and without retention before PUL and improved similarly after PUL (Table 1). After surgery, IPSS, QoR-VAS, and pain tolerability were all similar in the two subgroups (Table 1).
Conclusions: PUL was associated with similar outcomes in patients with and without chronic or acute urinary retention at presentation. These cases should be considered for PUL, which our data shows can be successfully carried out under local anaesthetic without sedation.

P3-3 Tolerability of Rezūm steam ablation using transrectal ultrasound guided periprostatic nerve block

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Introduction: Rezūm is a widely adopted minimally invasive treatment for LUTS BPH. It is conventionally performed under GA, regional anaesthesia or heavy sedation. Performing it in a safe and tolerable way under local anaesthesia would be advantageous for treating high risk patients and allow administration in an outpatient setting.
Patients and Methods: Patients underwent LA Rezūm by a single surgeon between 30/07/2020 and 21/12/2020. Transperineal injection of 1% lidocaine and 0.5% levobupivacaine mix was administered in to the periprostatic neurovascular bundles via PrecisionPoint, using transrectal ultrasound. Additionally, cooled lidocaine gel was administered transurethrally. Patients completed a questionnaire using visual analogue scales (VAS), assessing tolerability. The same questionnaire had previously been used to compare TRUS vs LA transperineal biopsy (LATP) tolerability and these results acted as comparative control.
Results: 27 patients, median age 67 and median prostate volume 47cc. Overall median VAS (0-9) for TRUS probe insertion, LA injection and injection of steam were 5, 4 and 4 respectively.
On a VAS of 0-3, 94% described the procedure as either a 'minor (0)' or 'moderate (1)' procedure which was tolerable under LA. One patient was unable to tolerate the procedure (abandoned at TRUS insertion). Tolerance was not significantly affected by age. Fewer steam cycles improved tolerance score. Control group median VAS (0-9) for TRUS and LATP biopsy tolerance was 3 and 4.
Conclusions: Rezūm is a feasible approach for the management of obstructive lower urinary tract symptoms, in carefully selected patients, when performed under local anaesthetic.

P3-4 Preservation of sexual function following Rezum® therapy for LUTS/BPH too good to be true? Real world outcomes from 181 cases

Mr Martin John Connor[1], Mr Amar Rai[1], Mr Charlie C Khoo[2], Miss Mariana Bertonelli Tanaka[2], Mr Sanjiv Agarwal[2], Mr Ranan Dasgupta[2], Mr Mathias Winkler[2], Mr Hamid Abboudi[2], Mr Taimur El-Husseiny[2], Prof. Hashim U. Ahmed[1]
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Introduction: Preservation of sexual function whilst alleviating bothersome lower urinary tract symptoms secondary to benign prostatic hyperplasia is a major attraction for men consenting to transurethral water vapour treatment (Rezum®). There is limited understanding of this. We report on de novo erectile dysfunction, retrograde ejaculation (Rej), anejaculation (Anej), painful ejaculation (Pej), decreased volume of ejaculate (DVe) and patient-reported outcomes measures (PROMS) of erectile function.
Materials and Methods: Consecutive patients were identified at a single tertiary centre, who underwent Rezum® (Aug/2017-Dec/2019). Patients with a history of AUR, prior BPH-surgery, clinically significant prostate cancer, LTC or prostatitis were excluded. Paired-IIEF-5 at: Initial [4-6 months]; Early [7-12 months]; Medium [13-18 months]; or Late [> 18 months] follow-up. Wilcoxon signed-rank test (SPSS v26.0).
Results: 181 / 310 (58.4%) patients met inclusion. Pre-operative median age, PVol, QMax (ml/s) and PVR (ml) were 69 yrs (IQR 11.5), 55 cc (IQR 29), 9.4 (IQR 5.5), 137.5 (IQR 125), respectively. De novo erectile dysfunction was not reported (0/181). Ejaculatory function results: 3/181 Rej (1.7%), 5/181 Anej (2.8%), 2/181 Pej (1.1%), 2/181 DVe (1.1%), respectively. Pre-operative IIEF-5 was 14.9 points (SD 7.1). In 153/181 (84.5%) paired-IIEF-5 were available, at: Initial 20.2% (31/153), Early 43.7% (67/153), Medium 24.8% (38/153) and Late 11.1% (17/153) follow-up, respectively. No significant reduction in paired-IIEF-5 occurred at any follow-up ($p>0.05$). Four (2.2%; 4/181) Clavien-Dindo >/= Grade II complications.
Conclusion: These findings support previous trial data suggesting no evidence of post-operative de novo erectile dysfunction, whilst preservation of aspects of ejaculatory function in up to 97%.

P3-5 HoLEP for urinary retention: how effective is it?

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Introduction: No comparisons of catheter-free rates after holmium laser enucleation of the prostate (HoLEP) for acute vs non-neurogenic chronic urinary retention

(AUR and NNCUR) have been published previously. It is unclear whether long-term surveillance is indicated after HoLEP for high pressure chronic urinary retention (HPCUR) to monitor for deterioration in renal function.

Patients and Methods: A prospectively maintained database of the first 500 consecutive HoLEP cases performed under the care of a single surgeon was analysed retrospectively. Urodynamic studies did not play a role in the decision making process for those with AUR or NNCUR. NNCUR was defined as painless with PVR>300ml in those who could void and initial catheter drainage >1,000ml in those who could not void.

Results: 280/500 (56%) were in UR: AUR in 195 and NNCUR in 85, including 22 with HPCUR. Although only 58.8% with NNCUR passed first TWOC vs 84.6% with AUR, 98.8% vs 98.9% respectively were catheter-free at 3 months. No patient with HPCUR had clinically significant deterioration in serum creatinine after HoLEP for HPCUR at median follow-up of 60 months.

Conclusions: HoLEP has 3-month catheter-free rates > 98.5% for both AUR and NNCUR in patients not preselected by UDS. Those with AUR are more likely to pass first TWOC than those with NNCUR. HoLEP is a durable treatment for HPCUR and we found no evidence of recurrent HPCUR in the long term.

P3-6 Perioperative and functional outcomes following Holmium Enucleation of Prostate (HoLEP) in men with massive prostates (⩾150cc)

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Introduction: There is limited evidence on perioperative and functional outcomes in patients with massive prostates undergoing HoLEP. In this study we assess outcomes following HoLEP in men with a prostate volume of ⩾150cc and compared this to men with a prostate volume of ⩽150cc.

Patients & Methods: We analysed our prospective database of consecutive patients undergoing HoLEP in a single tertiary hospital between October 2016 and January 2019. Preoperative prostate volume was measured on MRI or ultrasonography. Follow-up was for a minimum of 18 months to enable longer term evaluation of complications.

Results: Of 304 HoLEPs performed, 104 were on patients with a prostate volume of ⩾150cc(150-400cc). Mean age was 71 years, prostate volume 194cc, pre-operative Qmax 9.9ml/s, IPSS 21 points and median PSA of 9.86ng/ml. Laser and morcellation duration were 84 minutes and 28 minutes, respectively. Enucleated weight was 123g. Two required blood transfusion and three required a return to theatre, with no perioperative mortalities.

Follow-up showed mean Qmax of 32.0ml/s, IPSS 6.3 points and median PSA of 1.22ng/ml. 97.1% are catheter free. Significant stress urinary incontinence was present in 5.7% (1.9% requiring surgical intervention).

There were no significant difference in postoperative Qmax (32.3 vs 28.2 ml/s; p=0.06), IPSS (6.3 vs 7.2; p=0.41), stricture incidence (1% vs 3%; p=0.08) or catheter-free status (97.1% vs 97.5%; p=1.0) between the two cohorts ((⩾150cc vs <150cc).

Conclusion: Our large series demonstrates that HoLEP is safe and effective in patients with massive prostates (⩾150cc), with similar outcomes compared to patients with smaller prostates.

P3-7 Outcomes of Prostate Artery Embolisation in catheterised patients

Mr Maximilian Johnston[1], Dr Agata Majkowska[1], Miss Frankie New[1], Dr Mobeen Ahmad[1], Dr Salma Kamaledeen[1], Dr David Beckett[1], Dr Clare Bent[1], Professor Kevin Turner[1], Mr Luke Hanna[1]

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Introduction: Prostate artery embolisation (PAE) is an approved treatment for men with lower urinary tract symptoms secondary to benign prostatic hyperplasia (BPH-LUTS). Whilst there is evidence for efficacy of resectional treatments in patients who are unable to void, evidence for efficacy of PAE in this group is scant. This series reports outcomes for PAE in catheterised patients.

Methods: The records of consecutive men with BPH-LUTS who required either an indwelling bladder catheter or clean intermittent self-catheterisation (CISC) and who subsequently underwent PAE were retrospectively reviewed. Basic demographics were collected along with information on the prostate volume and PAE procedure specifics. The primary outcome was catheter/CISC free rates at 3 months. Other reported outcomes include complications, ongoing use/new use of medications and the need for other surgical treatments post-PAE.

Results: 63 men underwent PAE for urinary retention between 2013 and 2020. Of these, 7 underwent a unilateral embolisation for aberrant anatomy. The mean prostate volume was 128ml. 61% of men were free from a catheter/CISC post-treatment. 3 patients subsequently underwent Transurethral Resection of the Prostate following PAE for failure to void. 13 men were free from BPH-LUTS medications.

Conclusions: PAE for catheterised men results in a similar catheter-free rate post procedure to several more invasive BPH treatments. It has a low side-effect profile and gives men with poor health an option to try to become

catheter free. PAE should be discussed with men with catheters as a treatment option to allow patient choice.

P3-8 Refractory Bladder Neck Contracture managed by Combination of Bladder Neck Resection with Ten Point Intralesional Mitomycin C Injection in Post TURP Status: A 3-Years Single-Center Experience

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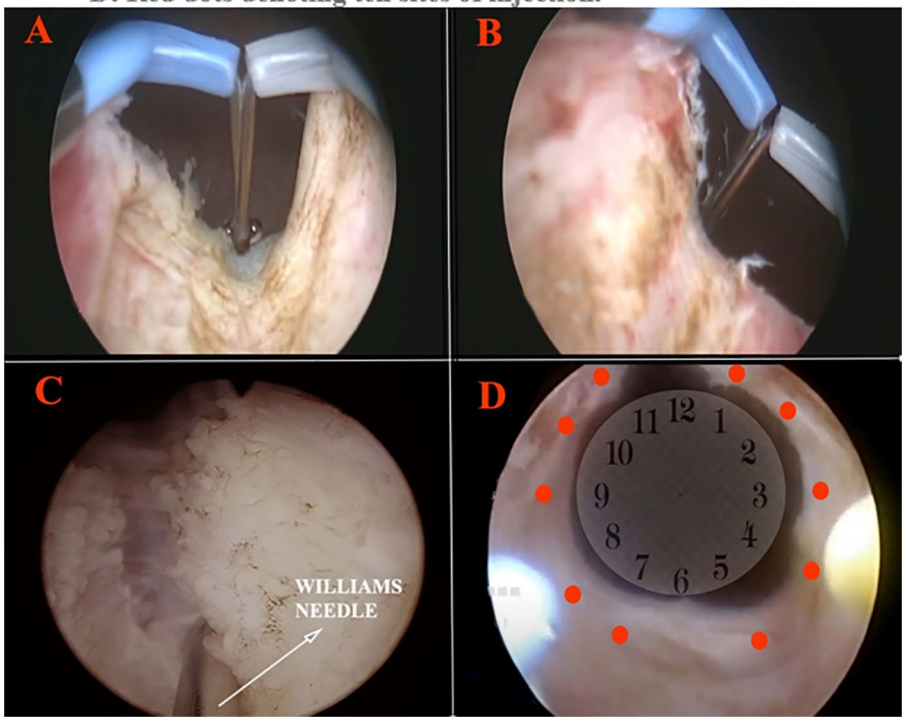
Introduction: Bladder neck contracture (BNC) is an annoying problem for patients and urologists. Recurrence still remains to be a common problem and associated with significant morbidity. This study evaluated the efficacy and side effects of mitomycin C (MMC) which has anti-collagen and anti-fibroblast properties in the prevention of BNC recurrence after transurethral bladder neck resection (TUBNR).

Materials and Methods:
23 patients between March 2017 and April 2019 with persistent BNCs who underwent failed endoscopic procedures (⩾ 3 times) were evaluated by using International Prostate Symptom Score (IPPS), uroflowmetry, quality of life (QOL) and post void residual urine (PVR) preoperatively. All patients underwent TUBNR followed by ten-point intraoperative MMC injection, not exceeding a total dose of 2 mg (0.2 mg/mL), which was given circumferentially at the resected site, using Williams cystoscopic needle (Figure 1). Patients were reviewed at 3 months, 6 months, 1 year, 2 years and 3 years postoperatively.

Figure 1.: Intraoperative images.
A and B: Bladder neck contracture Incisions
C: Injection of Mitomycin C using a Williams needle
D: Red dots denoting ten sites of injection.



Results: The median patient age was 66 years. The mean follow-up was 36 months. Overall 91% (21 of 23) of patients demonstrated resolution of BNCs and sufficient flow rate which was evaluated by uroflowmetry, PVR, IPPS and QoL postoperatively. One patient had detrusor underactivity. Relapse was seen in two patients. No patients experienced adverse effects related to MMC.
Conclusions: Ten-site injection of MMC after TUBNR can be considered as a efficient and safe technique with no major adverse event.

P3-9 Is flexible cystoscopy necessary in the investigation of non-visible haematuria

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Introduction: Historic data suggests ~5% of non-visible haematuria (NVH) referrals result in Urological cancer

diagnosis. The majority are bladder cancers, for which flexible cystoscopy is regarded the 'gold standard' diagnostic procedure. Recent changes to suspected cancer referral guidelines, public information campaigns, and reduced smoking prevalence may have changed this percentage. We retrospectively calculated cancer detection rates from NVH referrals to assess whether flexible cystoscopy, an invasive and morbid procedure, was necessary.

Patients and Methods: Clinical and demographic data were collected for all patients referred to our University teaching hospital on suspected cancer pathway with NVH over a ten-week period.

Results: 148 patients were referred (88 male, 60 female). Only seven (4.7%) had Urological cancers found (two renal and five bladder). Both renal, and three bladder cancers, were identified on imaging prior to flexible cystoscopy. Only two bladder cancers were detected by cystoscopy ("NNT" 74); one low-risk non-muscle invasive (patient has already been discharged) and one in a patient that was unfit for tumour resection (died of heart failure). Only seven (4.7%) of patients were offered the option of not undergoing flexible cystoscopy.

Conclusions: Our data indicate that flexible cystoscopy is rarely of benefit in patients with non-visible haematuria. We suggest that patients should be given an accurate risk of bladder cancer diagnosis during the consent process. We advocate that flexible cystoscopy can be avoided for the majority of NVH referrals, particularly in low risk patients, i.e. non-smokers, young, and with no family or occupational risk factors for urothelial cell carcinoma.

P3-10 Should prepuceplasty be offered to adults with phimosis?

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Introduction: Prepuceplasty is commonly utilised in the treatment of phimosis in children and is advocated in paediatric urology guidelines. However, its use is less established in the adult population. Circumcision is considered to be the mainstay of treatment in those with symptomatic phimosis resistant to conservative measures. Currently, in our centre, patients without evidence of BXO/lichen sclerosis are selectively offered a prepuceplasty whereby the narrowed preputial outlet is incised longitudinally and repaired transversely. Ideal patients are those who have a tight but retractable foreskin when flaccid.

Patients and Methods: Patients who underwent a prepuceplasty between 2012-2019 were identified by the coding department. Electronic records were searched to ascertain whether patients were re-referred seeking subsequent circumcision.

Results: 54 patients underwent prepuceplasty over a 7 year period (2012 and 2019). 6 patients (were re-referred and went on to have a circumcision. All re-referrals were made within 6 months of initial surgery (range 2-5 months).

Conclusions: Prepuceplasty is a reasonable alternative to circumcision in carefully selected patients. The rate of subsequent re-referral and circumcision is lower than that quoted by colleagues currently. Patients should be counselled regarding the need for a circumcision. This work is limited for the following reasons; patients may have been referred on to other departments without our knowledge, lack of re-referral does not equate to patient satisfaction. There is certainly scope to extend this work in future. It may be possible to explore long term outcomes via use of a patient satisfaction survey.

EPOSTER 4- Andrology - Penile Cancer/Reconstruction

P4-1 Surveillance of indeterminate small testis masses (STMs): A 10-year single centre experience and recommendations for excision

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Introduction: There is no standardised pathway for the management of indeterminate STMs. We analysed the imaging surveillance outcomes to propose a management pathway for STMs.

Methods: A retrospective analysis of STMs ($\leqslant$ 2cm) over a 10-year period was performed. Each case was discussed at a specialist Testis MDT. Parameters included lesions size, sonographic characteristics, imaging surveillance interval and excisional biopsy outcomes.

Results: A total of 161 patients with a median age of 38 years (range:17-76) and median lesion size of 4mm (range:1.5-20) were included. The median imaging interval was 3 months (range:0-12), the median number of scans was 3 (range:1-10) and the median surveillance time was 6 months (range:0-24).

91 patients (56.5%) were discharged, and none represented with malignancy. 37 (23%) were still under surveillance at the time of analysis and 33 (20.5%) proceeded to excisional biopsy of which 9 (27%) showed malignancy or ITGCN, 7 of which were seminomas. This gives an overall malignancy rate of 5.6%. Indications for biopsy included, change in lesion, patient choice and elevated tumour markers. All 7 malignant biopsies were in patients with change in lesion characteristics.

Conclusions: This study shows that imaging surveillance of STMs is safe and effective. It avoids unnecessary biopsy or orchidectomy and ensures that the lesions that change are biopsied. It is reassuring that only lesions with sonographic changes on serial scanning harboured malignancy. Based on our data, we recommend at least 3 surveillance scans, 3 to 6 months apart, and performing excisional biopsy of the lesions that change.

P4-2 Orchidectomy for Suspected Testicular Cancer: Can we predict benign pathology?

A real-life experience from a tertiary centre

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Introduction: Incidence of testicular cancer is increasing. Radical inguinal orchidectomy is the gold standard of care when there is suspicion of malignancy. The loss of testicle might result in long-term sequelae like reduced fertility and body dysmorphia. This study evaluates the rate of benign pathology in radical orchidectomy and identifies any predictive factors.

Patients and Methods: We conducted a retrospective single centre review of 113 consecutive patients who underwent radical inguinal orchidectomy for malignancy suspicion from April 2014 – June 2019. All our patients underwent a multidisciplinary team review before their operation. Pre-operative biochemical and radiological data items in addition to histology outcomes, were recorded. Univariable analysis (complete case and after multiple imputation) was performed to identify benign histology predictors.

Table 2: Predictors of Benign Histology

Complete Case	OR	Lower 95%-CI	Upper 95%-CI	p-value
Age	1.063	1.03	1.10	0.0004
LDH -ve (vs +ve)	1.44	0.54	4.34	0.48
Max tumour diameter	0.99	0.97	1.01	0.49
Avascularity	5.07	1.68	15.66	0.004
Hyperechogenic (vs hypo)	0.98	0.05	7.56	0.98
Heteroechogenic (vs hypo)	1.22	0.44	3.33	0.70
Multiple Imputation	**OR**	**Lower 95%-CI**	**Upper 95%-CI**	**p-value**
Age	1.06	1.03	1.10	<0.001
LDH -ve (vs +ve)	1.50	0.53	4.25	0.45
Max tumour diameter	1.00	0.97	1.03	0.77
Avascularity	5.01	1.62	15.53	0.01
Hyperechogenic (vs hypo)	0.95	0.09	9.66	0.97
Heteroechogenic (vs hypo)	1.14	0.43	3.06	0.79

Results: 113 patients were identified. Median age was 36 years (IQR: 30-46). 23% (26/113) returned benign histology. In patients with malignancy, 5.6% had positive spermatic cord margins (Table 1). Univariable analysis demonstrated increasing age and lack of vascularity on ultrasound to be significant predictors of benign histology (Table 2). No patients with benign histology had AFP or BHCG (hence ORs could not be calculated).

Conclusion: 23% of men undergoing radical orchidectomy for malignancy suspicion did not have cancer. Careful assessment (with particular emphasis on age and vascularity) may reduce unnecessary orchidectomy.

P4-3 Development of a predictive model utilising lesion size as a cutoff to predict testicular cancer in patients with small testicular masses

Mr Shafiullah Wardak[1], **Mr Fabio Castiglione**[1], **Mr Jamie Lindsay**[1], **Dr Miles Walkden**[1], **Mr Hussain Alnajjar**[1], **Mr Asif Muneer**[1]
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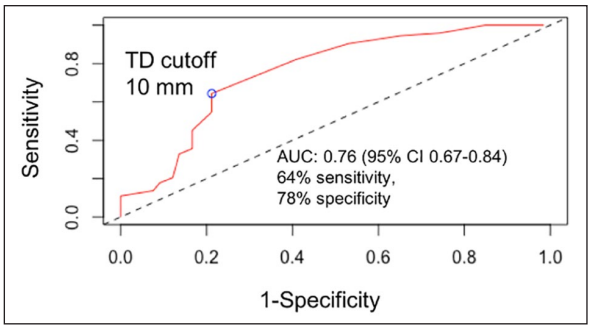
Introduction: In this study we evaluated predictive markers for testicular cancer (TC) in patients with indeterminate small testicular masses (STM) often found on routine ultrasound.

Patients & Methods: We retrospectively analysed the records of patients who underwent testicular biopsy or orchidectomy for STMs. All patients with testicular lesions smaller than 2 cm on ultrasound were included in the study. ROC curve was used to evaluate the area under the curve (AUC) using tumour dimension (TD) as a single marker to predict TC. We searched for the TD cutoff value with the highest combined sensitivity and specificity predicting TC. Univariate and multivariate logistic regression analysis were performed. Internal validation (bootstrap; N=1000 samples)) was performed.



Results: A total of 144 patients were included. No patient had elevated pre-operative tumour markers. Overall, 74 of the 144 men (51.4%) were diagnosed with TC. On ROC analysis, the lesion diameter had an AUC of 0.76 (95% CI 0.67-0.84, p=0.01) to predict TC. At the best cutoff of 10 mm the diameter of the lesion had 64% sensitivity, 78% specificity (Figure1). The Multivariate-analysis, including age, clinical presentation, TD cutoff, and the number of lesions, showed that the age (OR 0.45;95%;CI:0.007–0.13;p=0.048), the TD-cutoff (OR 1.84;95%CI:0.504–3.83;p=0.01) and presence of vascularisation within the lesion on ultrasound imaging (OR:2.73;95%;CI0.857–17.53;p=0.01) were predictors of malignancy.
Conclusions: Our study confirms that the majority of STMs are benign. TD is an independent predictor of TC. Patients with a TD exceeding the cutoff of 10 mm are more likely to be diagnosed with TC.

P4-4 Long term functional and oncological outcomes of urethral reconstruction for invasive and non-invasive squamous carcinoma of the male urethra

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Introduction: Squamous carcinoma involving the male urethra (SCC-MU) is a rare condition requiring specialist multi-disciplinary management. Tumours present as primary urethral carcinoma or intra-urethral extension of penile carcinoma. Using techniques developed for benign stricture disease, we have extended the role of two stage buccal graft substitution urethroplasty to manage this disease.
Patients and Methods: Patients with primary urethral carcinoma, intra-urethral extension of penile carcinoma or intraepithelial neoplasia were prospectively recruited following discussion at a supra-regional multi-disciplinary meeting. Patients were offered staged substitution urethroplasty with buccal mucosal graft. Primary outcome measure was recurrence free survival. Secondary outcome measures included recurrent stricture rate, complication rate and patient-reported satisfaction using a validated questionnaire specific to urethral surgery.
Results: 51 patients were suitable for distal urethroplasty and 47 have completed surgery. Median patient age was 62. Median follow up is 2 years 3 months (range from 1 to 121 months). 39% had over 3 years follow up. Postoperative histology confirmed 24 primary urethral cancers, 12 penile cancers involving the urethra and 15 cases of intraepithelial neoplasia. 8 patients were node positive. Recurrence free survival was 96%. One patient developed a more proximal second urethral cancer and one patient a new penile cancer. Recurrent stricture rate was 5.9%. No cancer related deaths were observed.
Conclusion: We report the first series prospectively analysing urethral-preserving surgery for male distal urethral neoplasia. Our results show that this technique is feasible and oncologically effective, offering patients good functional outcomes.

P4-5 Long term outcomes of Dynamic Sentinel Lymph Node Biopsy (DSNB) for clinically impalpable (cN0) penile cancer patients- an eUROGEN study

Dr Edoardo Pozzi[1], Mr Omer Onur Cakir[1], Dr Fabio Castiglione[1], Dr Nicolo' Schifano[1], Mr Paul Hadway[1], Mr Raj Nigam[1], Mr Rowland Rees[1], Dr Maarten Albersen[2], Mr Arie Parnham[3], Mr Maurice Lau[3], Mr Hussain M Alnajjar[1], Mr Vijay Sangar[3], Mr Asif Muneer[1]
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Introduction: We aimed to assess the diagnostic accuracy of DSNB, cancer specific survival (CSS) and recurrence free survival after positive DSNB.
Materials: An eUROGEN retrospective study of 509 penile cancer patients undergoing DSNB. Age, type of primary surgery, complications after DSNB, tumour stage, tumour grade were all reported. False negative was defined as inguinal lymph node recurrence within 12 months from a previous negative DSNB. Sensitivity and specificity of DSNB were calculated. Kaplan-Meier analysis estimated the 5-years CSS and recurrence free-survival rates among patients with positive DNSB and RLND.

Figure 2. Kaplan-Meier analysis for recurrence free survival (cumulative hazard)

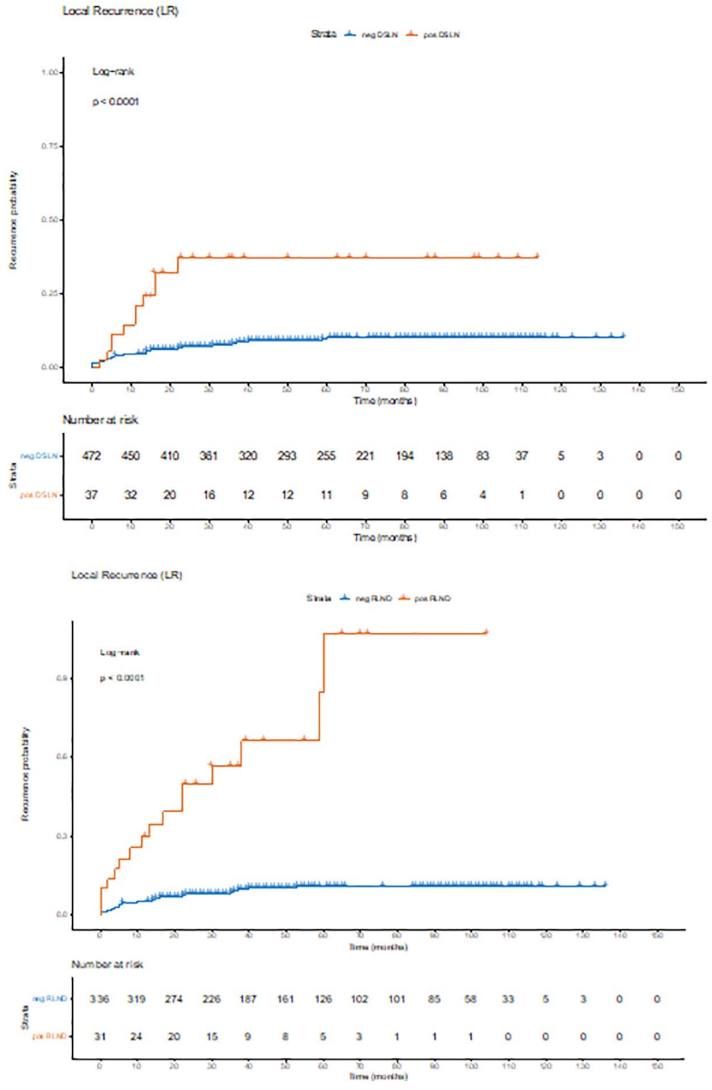
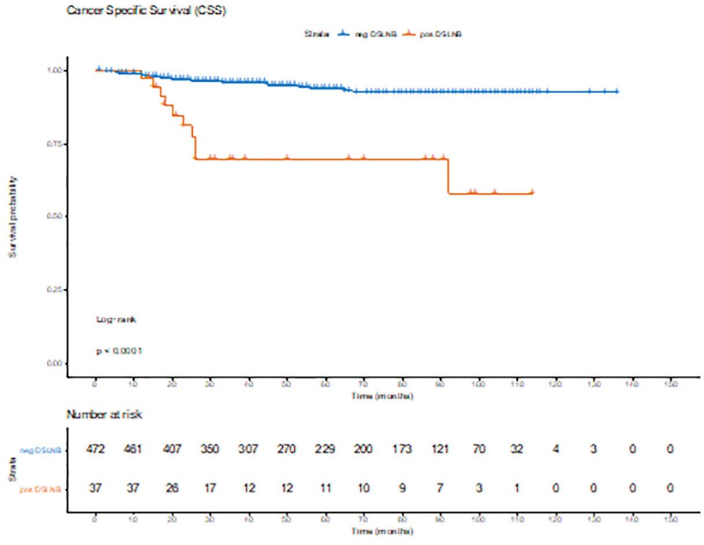
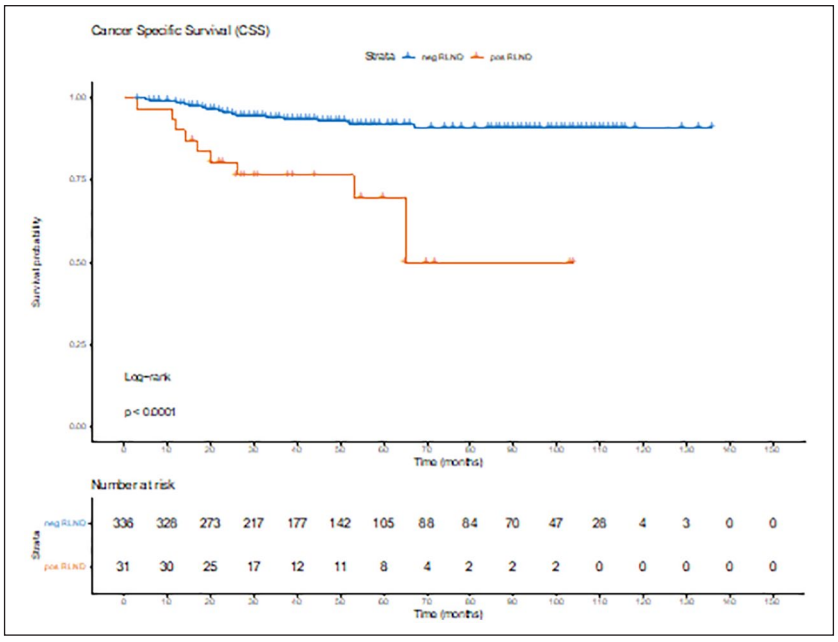


Figure 1. Kaplan-Meier analysis for Cancer specific survival (CSS)





Results: 509 patients with cN0 penile cancer were identified. Median follow-up for local recurrence and CSS were 62.5 months (IQR 28.5-91) and 63.5 months (IQR 26.5-90) respectively. 993 groins were studied. 37 patients had positive histology at DSNB. 37 patients underwent further RLND with 34 of them having positive histology at RLND. At DSNB true positives were 37 (7.27%), false negatives 3 (0.59). Sensitivity and specificity were 92.5% and 100% respectively. Multivariable Cox regression analysis identified positive LN histology both at DSNB and at RLND as predictors for reduced CSS (HR 4.59, CI: 2.35-8.95, $p<0.0001$) and (HR 5.64, $p = 0.0004$). Positive LN histology at DSNB and RLND was a predictor for reduced recurrence free survival HR 4.04 and HR 6.98 all $p<0.0001$. The 5-years CSS for positive LN histology at DSNB/RLND were 69.7% and 69.6% respectively.

Conclusions: DSNB shows a sensitivity of 92.5%. Positive histology after DSNB is a predictor of reduced CSS and recurrence free survival.

P4-6 The influence of the COVID-19 pandemic on stage migration and management of patients presenting to a penile cancer supra-network

Dr Vidhya Lingamanaicker[1], Mr Hack Jae Lee[1], Miss Marta Skrodzka[1], Miss Sylvia Yan[1], Miss Eleni Anastasiadis[2], Mr Ben Ayres[1], Mr Nicholas Watkin[1]

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Introduction: COVID-19 has had potential impact on presentation and outcome of patients to cancer services. The objective of this study was to analyse pandemic effects on patients with penile SCC by comparison with previous years within a stable 10 million population referral base.

Patients and Methods: All patients referred to the penile supranetwork MDT (snMDT), 1st January 2020 to 31st December 2020 identified (COVID-19 Group A). Prospectively collated data from previous 3 years (2017-19) referrals analysed to create a service year mean dataset (Non-COVID-19 Group B). Variables compared: (i) overall demographics, (ii) pathological stage (TNM 8), (iii) time from presentation to first treatment. Chi-squared test to evaluate the pathological stage (TNM 8) and Mann-Whitney U Test to assess time from presentation to first treatment.

Results: Group A, 123 new referrals. Group B mean referrals 129 (118 - 147). Primary stage Group A, 45.4% pT1, 30.2% pT2, 24.4% pT3/pT4 vs Group B, 48.6% pT1, 38.2% pT2, 13.2% pT3/pT4 ($p=0.01$). Nodal stage pN0 Group A 62% vs 70% Group B, (NS $p = 0.08$). Median time (days) presentation to first treatment Group A, 22 (IQ 15 - 36) vs Group B, 26 (13 – 36.5).

Conclusion: No. of referrals were statistically similar in COVID-19 and Non-COVID-19 years and managed within similar time frame. However, there was a statistically higher pT disease stage in the COVID-19 group but no significant difference in pN stage (although trend towards higher nodal stage). Data is not yet mature to determine an effect on cancer specific survival.

P4-7 Does bilateral inguinal node involvement confer a worse prognosis than unilateral disease in penile cancer?

Mr Hack Jae Lee[1], Miss Sylvia Yan[1], Miss Marta Skrodzka[1], Miss Eleni Anastasiadis[2], Mr Wayne Lam[3], Mr Benjamin Ayres[1], Professor Nicholas Watkin[1]

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Introduction: The TMN classification for nodal staging in penile squamous carcinoma (SCCp), classifies unilateral disease without extracapsular extension in one or two inguinal nodes as N1 and bilateral disease in one or more nodes as N2. To our knowledge, there is no good quality evidence to confirm this categorisation.
Patients and Methods: Analysis of the prospective dynamic sentinel node (DSNB) database identified all SCCp patients with cN0 node positive disease 2003-2019. Exclusions were N3 disease (to avoid additional confounding factors such as neo/adjuvant therapy and pelvic node involvement), incomplete staging of inguinal basins, non-penile SCC, false negative sentinel node study. All patients were managed by the same MDT and treatment standardised over the period.
Statistical analysis: Kaplan Meier used to calculate 5-year cancer specific survival (CSS) for patients with unilateral and bilateral N1/2 disease. Pearson Chi square used to confirm groups evenly matched for independent prognostic markers (Primary Tumour Grade and LVI)
Results: 899 patients with SCCp underwent DSNB with 189 (21%) positive. After exclusions, 53 had unilateral disease and 11 bilateral with one or two nodes positive. Both groups statistically similar prognostic risk factors. 5-year CSS for unilateral (N1/2) was 86% (95% CI 73% - 93%) and 70% for bilateral (95% CI 32%-89%) with no statistically significant difference (p=0.28).
Conclusions: There is no significant difference in survival between unilateral and bilateral early metastatic disease. Rarity of SCCp precludes a tighter confidence interval and a larger study is required to detect if there is a small significant difference.

P4-8 Long-term outcomes of Penile Squamous Cell Carcinoma (SCC) patients with Sarcomatoid variant compared to non-sarcomatoid group- An eUROGEN study

Mr Hussain Alnajjar[1], Mr Matthew Rewhorn[1], Dr Fabio Castiglione[1], Dr Axe Cayetano Alcaraz[1], Dr Nicolo Schifano[1], Ms Clare Akers[1], Dr Aiman Haider[2], Dr Alex Freeman[2], Mr Paul Hadway[1], Mr Raj Nigam[1], Mr Rowland Rees[1], Dr Anita Mitra[3], Dr Constantine Alifrangis[3], Mr Asif Muneer[1]
[1]Institute of Andrology, University College London Hospital, London, United Kingdom, [2]Department of Pathology, University College London Hospital, London, United Kingdom, [3]Department of Oncology, University College London Hospital, London, United Kingdom

Introduction: Sarcomatoid penile SCC has an aggressive behaviour with poor prognosis, and often associated with early haematogenous spread. Reports in the literature focusing on outcomes of this group of patients is sparse. The aim of this study was to review the management and outcomes of sarcomatoid SCC patients in a specialist centre.
Materials and Methods: A retrospective study using an institutional database consisting of patients treated for sarcomatoid penile SCC over a 10-year period. Patient demographics, recurrence rates, TNM staging, adjuvant treatments, type of primary surgery were recorded. CS survival was compared to non-sarcomatoid group. 5- year CS survival rates were calculated using KM curves ($p < 0.05$ statistically significant).

Figure 1

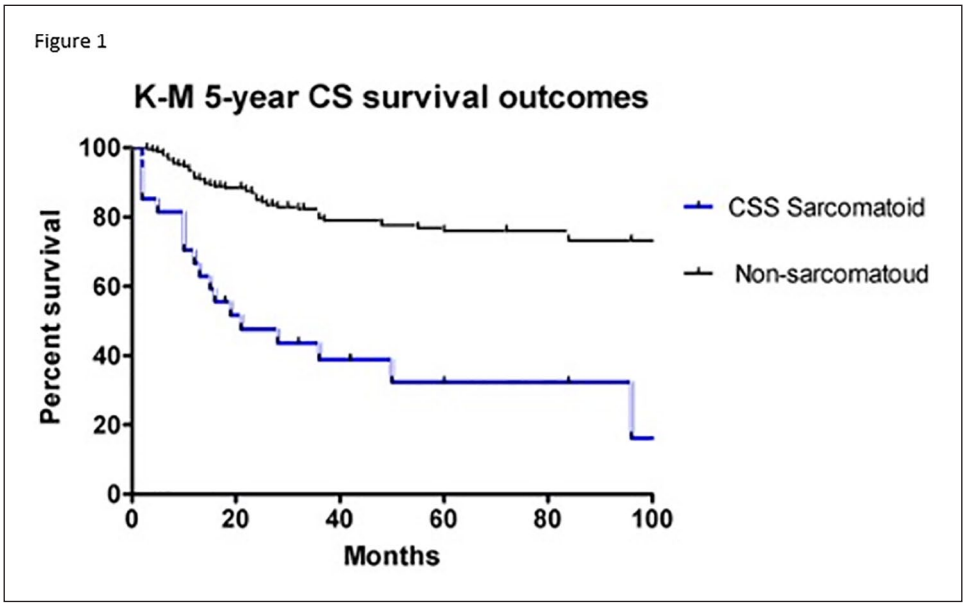

Table 1- TNM staging at presentation for sarcomatoid patients

Grade	G1	G2	G3	G4
No. of patients	-	-	-	27 (100%)
T Stage	pT1b	pT2	pT3	pT4
No. of patients	4 (14.8%)	9 (33.3%)	14 (51.9%)	0
Nodal Stage	N0	N1	N2	N3
No. of patients	13 (48.2%)	4 (14.8)	1 (3.7%)	9 (33.3%)
Metastasis	M1			
No. of patients	2 (7.4%)			

Results: 27 patients with sarcomatoid SCC were identified. Mean age was 69 years [range 43-96].
A total of 12 recurrences (3 localised and 9 nodal or distant metastases) with a mean time to recurrence of 12 months [1-60 months]. 11 (41%) patients underwent adjuvant chemoradiotherapy. 18/27 patients died (70%) with an average of 18 months from diagnosis [2 – 96 months].
244 non-sarcomatoid penile cancer were treated in the same time period. 5-year CSS was 32% vs. 76% for the sarcomatoid and the non-sarcomatoid groups respectively ($p<0.0001$).
Conclusions: This group of patients should be treated aggressively at an early stage in their diagnosis by a combination of surgical and adjuvant chemoradiotherapy. Patients presenting with advanced disease are more likely to benefit from neoadjuvant chemoradiation followed by surgery. Despite multidisciplinary efforts, survival and prognosis remain very poor.

P4-9 Primary penile mucosal melanoma: a case series from UK tertiary referral centre

Mr Omer Onur Cakir[1], Dr Edoardo Pozzi[1], Dr Fabio Castiglione[1], Mr Alex Freeman[2], Miss Aiman Haider[2], Mr Rowland Rees[3], Mr Hussain M. Alnajjar[1], Mr Asif Muneer[1]
[1]University College London Hospital Institute of Andrology, London, United Kingdom, [2]University College London Hospital Department of Pathology, London, United Kingdom, [3]University Hospital Southampton Department of Urology, Southampton, United Kingdom

Introduction: We aimed to review and compare the management and outcomes for men with penile mucosal melanoma treated in a UK tertiary referral centre.
Methods: A single centre retrospective study identified patients treated for penile mucosal melanoma over a 10 year-period. Patients were managed according to modified EAU Penile Cancer guidelines for SCC. . Grading, Breslow's thickness, Clark's staging, number of mitoses, ulceration, lymph node involvement, distant metastasis, local/distant recurrence (LR), LVI, PNI, immunohistochemistry (S100, HMB-45, Melan-A, BRAF, NRAS, Ki-67 and c-kit), type of primary surgery, post-operative complications and adjuvant treatments were evaluated.
Results: Ten patients were included in the study. Median follow up (IQR) was 17 (7-33) months. Cancer specific survival (CSS) at 1, 2 and 5 years after primary surgery was 33%, 16.7% and 0% respectively. 6 patients died of penile melanoma. 4 developed LR in 5 months from primary diagnosis. 3 patients with palpable inguinal lymphadenopathy at first assessment underwent radical inguinal lymphadenectomy. In 2 patients dynamic sentinel lymph node biopsy (DSNB) was negative. All patients with metastatic disease and/or groin lymph node invasion died within 25 months from primary diagnosis. Molecular testing, penile preserving surgery and brain MRI was offered to all patients. Adjuvant treatment was offered to 4 patients.
Conclusion: The current series confirms that the prognosis is poor. The EAU guidelines follow the same recommendations for surgery although the mucosal melanoma guidelines provide additional guidance for molecular testing/staging and management of inguinal lymph nodes as well as novel systemic treatment.

P4-10 Penile preserving Surgery vs partial amputation of penis: functional assessment of sexual and urinary function using patient reported outcomes measures

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[1]St James's University Hospital, Leeds, United Kingdom

Introduction: Penile Preserving Surgery (PPS) provide comparable oncological outcomes to penile Partial Amputation (PA) for penile carcinoma. Functional outcomes especially related to voiding function are poorly

documented. Aim of this study was to assess whether PPS provide better sexual and urinary function compared to PA.

Methods: We prospectively reviewed patients after PPS and PA. The PPS techniques: Glansectomy with a Split Skin Graft (G+ SSG), Glans Resurfacing with SSG (GR + SSG), Wide Local Excision +/- SSG. Functional outcomes were recorded using a Patient Reported Outcomes Measure (PROMS) questionnaire. Penile length was recorded.

	PA	PPS
Surgical technique	Partial Penectomy	20 G +SSG 6 GR +SSG 2 WLE +SSG 1 WLE
Average BMI	29.2	28.9
Stretched penile length (cm)	5.4	10.3
Flaccid dorsal length (cm)	3.4	6.8
Flaccid ventral length (cm)	2.1	5.3

	PA	PPS
Sexual function (SF)		
Sexually active last 4 weeks	2 (6%)	16 (55%)
Achieved erection half the time or more	3 (10%)	19 (66%)
Achieved erection to penetration and completion half the time or more	2 (6%)	17 (59%)
High/very high confidence in achieving erection	1 (3%)	14 (48%)
Satisfied/very satisfied with SF	1 (3%)	9 (31%)
Urinary function (UF)		
Able to stand almost all the time/ always stand	10 (32%)	18 (62%)
Always sit to urinate	14 (45%)	5 (17%)
Never spray/ very occasionally spray	18 (58%)	17 (59%)

Results: 60 patients included, 29 following PPS, 31 following PA. Mean age was 61 and 69 in the PPS and PA group. Mean follow-up similar for both groups (29 months). Table 1 summarises techniques, BMI and penile lengths

In the PPS group, 19 patients (66%) stated that were able to achieve an erection half the time or more and 17 (59%) stated that they were able to achieve penetrative intercourse to completion. This compares to 3 (10%) patients and 2 (6%) patients in the PA group respectively.

In the PPS group, 18 patients (62%) were able to almost/always stand to urinate vs 10 patients (32%) in the PA group. 17 (59%) patients reported minimal/never spraying whilst urinating following PPS vs 18 (58%) following PA. Table 2 summarises PROMS.

Conclusions: PPS provides better long-term sexual function when compared to PA. Far more patients were able to pass urine while standing with PPS, although the spraying rates were similar.

EPOSTER 5 - Female Urology and Bladder Dysfunction

P5-1 Sublingual vaccination with Uromune (MV140) prevents recurrent urinary tract infections in women

Preliminary results from a multicentre, Spanish-UK randomized, double-blind, placebo-controlled phase III trial

Dr María Fernanda Lorenzo-Gómez[2], Mr Steve Foley[1], Dr J. Curtis Nickel[3], Dr Bárbara Yolanda Padilla-Fernández[4], Dr Ignacio González-Casado[5], Dr Misericordia Martínez-Huélamo[6], Mr Bob Yang[1], Dr Paula Saz-Leal[7], Miguel Casanovas[7], Dr María Begoña García-Cenador[8]

[1]Royal Berkshire Hospital, Reading, United Kingdom, [2]Urology Service of the University Hospital of Salamanca, Salamanca, Spain, [3]Queen's University, Kingston, Canada, [4]Urology Section of the Department of Surgery, University of La Laguna, Tenerife, Spain, [5]Primary Care Center "Carbajosa de la Sagrada", Spain, [6]Primary Care Center "Ledesma", Spain, [7]Inmunotek S. L. Alcalá de Henares, Spain, [8]Urology Section, Department of Surgery, University of Salamanca, Spain

Introduction: Antibiotic prophylaxis for recurrent urinary tract infections (rUTI) in women and the rise in antibiotic resistance has resulted in tremendous costs, treatment

failure and patient morbidity. MV140 (Uromune) is a polybacterial sublingual vaccine consisting of whole-cell inactivated bacteria (E. coli, K. pneumoniae, E. faecalis and P. vulgaris) that has shown clinical benefit in previous observational studies. Results from a randomized placebo-controlled trial (RCT) were awaited to confirm its clinical efficacy.

Patients and Methods: A phase III multicentre, double-blind, parallel-group RCT, enrolled 240 women aged 18-75 with rUTI from Spain and UK. They were randomly allocated to receive placebo for 6 months or MV140 (active) for 3 or 6 months, in a 1:1:1 ratio. Primary and major secondary endpoints were the number of UTIs and UTI-free rate in the 9-month efficacy period, respectively.

Results: The median number of UTI episodes was 3.0 [interquartile range, IQR, 0.5-6.0] for placebo group compared to 0.0 [IQR, 0.0-1.0] in both groups receiving MV140 ($P \leq 0.001$). A significant increase (over 2-fold) in the UTI-free rate was observed in the treatment groups ($P \leq 0.001$) compared to the placebo group (25.0%). Only 5 subjects reported non-serious adverse reactions, 2 in the placebo group and 3 in the MV140 3-month group.

Conclusions: The preliminary late-breaking analysis of this first MV140 RCT shows clinical efficacy and safety in reducing the incidence and preventing recurrence of UTIs. Clinical utilisation of this novel sublingual bacterial vaccine may offer women an effective evidence-based alternative to antibiotic prophylaxis in the management of rUTI.

P5-2 Medical-Grade Manuka Honey (Medihoney®) Potential Efficacy in the Management of Interstitial Cystitis/Bladder Pain Syndrome: An In Vitro Model of Urothelial Inflammation

Mr Muhammadbakhoree Yusuh[1], Dr Laurie Lau[2], Mr Omar Abdelwahab[1], Mr Kamaluddeen Garba[1], Miss Prapussara Sirikhansaeng[1], Mr Brian Birch[2,3], Professor Bashir Lwaleed[1]

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Introduction and objectives: Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) refers to "spontaneous" conditions of varied aetiologies. It is characterised by bladder wall inflammation, defective bladder urothelium, and increased levels of TNF-α in the bladder tissue. The release of TNF-α further aggravates the inflammatory response in IC/BPS patients. Medical grade Manuka honey (Medihoney® (MH)) possesses strong pro-angiogenic and anti-microbial properties. Our recent findings have highlighted its anti-inflammatory effects through the inhibition of mast cell degranulation and well tolerated by the rat urothelial cells where it was cytoprotective against acid damage.

In the present study, we investigated the cytotoxic and anti-inflammatory effects of MH using an in vitro model of primary human urothelial cells (HUCs).

Materials & Methods: Cytotoxic effect of various concentrations of MH on HUCs at 1, 24, 48 and 72 hours was evaluated using MTT assay. In addition, pro-inflammatory cytokines IL-6 and IL-8 release in the HUCs after 24-hour incubation with TNF-α (10 ng/ml) with/without pre-treatment with 4% MH was assessed using ELISA assays.

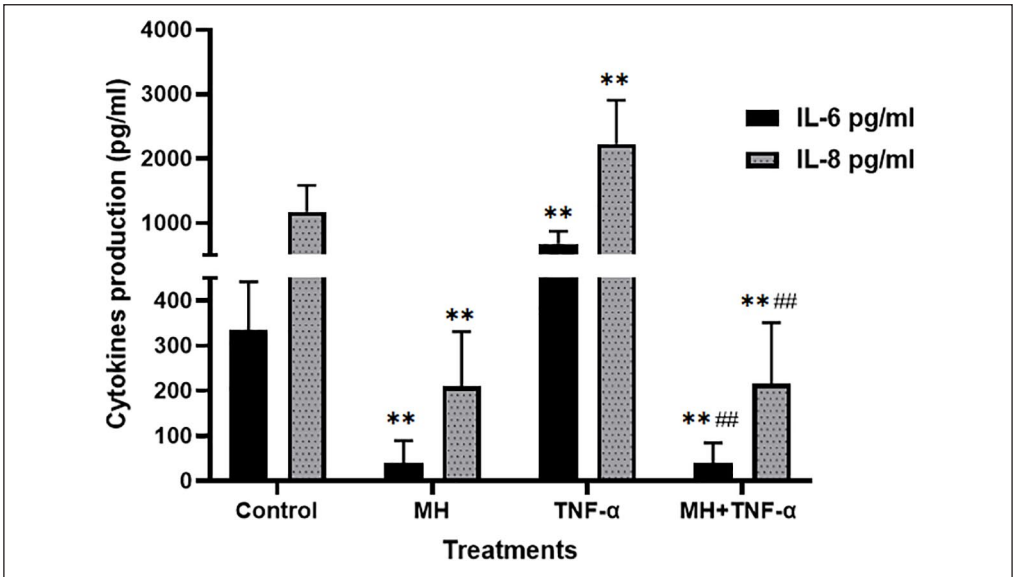

Figure 2. Representative 4% w/v Manuka honey effects on IL-6 and IL-8 protein levels (pg/ml) in the primary human urothelial cell after a TNF-α (10 ng/ml) challenge. Data are the means±SEM of triplicate assays. Statistical significance of ** $p < 0.01$ compared to control and ## $p < 0.01$ compared to TNF-α.

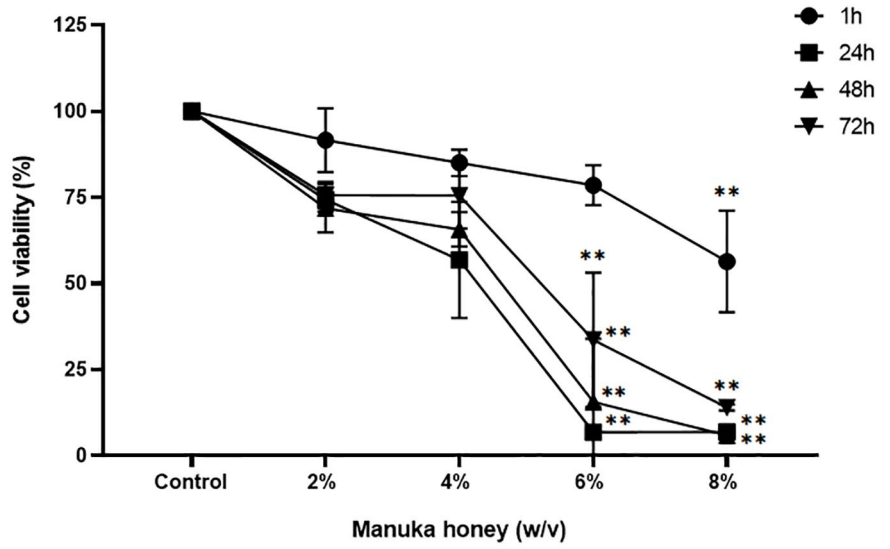

Figure 1. Effects of Manuka honey on primary human urothelial cell viability and cytotoxicity after exposure at 1, 24, 48 and 72h. Data are the means±SEM of triplicate assays. Statistical significance of ** $p < 0.01$ compared to control.

Results: One hour incubation with MH did not induce significant cytotoxic effects on the HUCs. However, when the cells were incubated with MH for longer periods, we observed an incremental cytotoxic effect, especially at 6% and 8% (Figure 1). In addition, 4% MH significantly decreased the TNF-α induced release of IL-6 and IL-8 (Figure 2).
Conclusions: Our results indicate that MH is not cytotoxic to urothelial cells and has potential use as an intravesical therapeutic agent for the management for bladder inflammatory conditions such as IC/BPS.

P5-3 Outcomes of Onabotulinumtoxin A injection into the external urethral sphincter for voiding dysfunction in females

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Objective: To assess the functional outcomes of onabotulinumtoxin A(Botox A) injection into the external urethral sphincter(EUS) for voiding dysfunction(VD) due to detrusor underactivity(DU), detrusor acontractility(DA) or high-tone non-relaxing sphincter(HTNRS) in females.

Material and Methods: A retrospective analysis of a prospectively maintained database was performed assessing all 34 women of mean age 37.6(18-72) years with HTNRS (maximal urethral closure pressure(MUCP) $>$ 92 – age in years), DU or DA receiving their first EUS Botox A injection between Jan 2015 and Nov 2019. All were evaluated with pre-operative videourodynamics (VUDS) and urethral pressure profilometry(UPP) and all received 100U Botox A. All had maximum free flow(QMax), post void residual (PVR) and PGI-I (Patient global impression of improvement) Scale measurement at 3 months post-injection. Median follow up was 18 months.

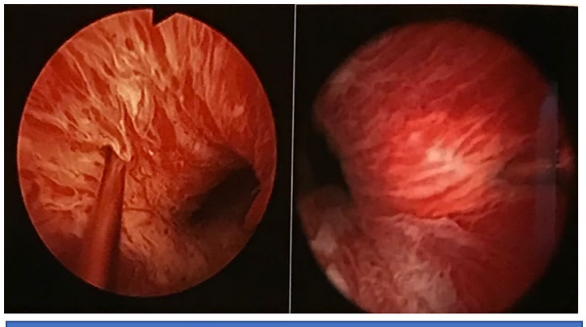

Figure: EUS Botox A injection

	Pre EUS Botox A N(%)	Post EUS Botox A N (%)
Intermittent self catheterization N (%)	24 (71)	18 (53)*
Voiding Perurethrally N (%)	7 (21)	14 (41)*
Suprapubic catheter dependent N (%)	3 (9)	2 (6)
PGI-I 5 (Good Improvement) (%)		12 (35)
PGI-I 4 (Some Improvement) (%)		12 (35)
PGI-I 3 (No Change) (%)		10 (30)
Repeat Intraurethral Botox A X1 (%)		15 (44)
Repeat Intraurethral Botox A > 2 (%)		3 (9)
	Pre EUS Botox A	Post EUS Botox A
Median Q Max (ml/s)	7	9
Median PVR (mls)	179	140
	Expected MUCP	Actual MUCP
Mean MUCP cm H2O	56 (24-75)	97.1 (48-146)*

*P<0.05

Results: Outcomes are detailed in the table.
On multivariate analysis patients with high pre-operative MUCP (> 100 cmH2O) were more likely to have improved Q Max (P= 0.0054), reduction in the need to CISC (P= 0.047), and reduction in PVR (P= 0.006). However, MUCP value cannot predict the likelihood of subjective improvement (p-value= 0.11).
Conclusion: Botox A injection to the EUS in women with VD due to HTNS or DA is a valid treatment option considering therapeutic options are limited with a 70% response rate and a significant reduction in the need to CISC. However due to the short duration of benefit and the need for repeat treatments long-term continuation occurs in only 9%.

P5-4 Robotic colposuspension for female stress urinary incontinence: a prospective series

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[1]St Georges Hospital, London, United Kingdom, [2]Epsom and St Helier Hospital, London, United Kingdom, [3]Frimley Park Hospital, London, United Kingdom

Introduction: Open and Laparoscopic Colposuspension are well recognised treatment modalities for female urodynamic SUI. We report on the outcomes of a new service of Robotic-assisted laparoscopic colposuspension at a London Tertiary Hospital.

Patients and Methods: A prospective review of all patients was conducted from April 2019 to November 2020 at a tertiary London hospital. Prospective data on demographic details, pre-operative and post-operative pad usage, and urinary incontinence short form and over-active bladder questionnaires (ICIQ-UI-SF) and (ICIQ-OAB) were gathered to assess symptom severity and impact on quality of life. Information on patient satisfaction was acquired through PG-II scores.
Results: 24 patients were identified, with a mean age and BMI of 49 years and 28kg/m2 respectively. The Mean follow-up period was 10 months(range 1-18 months). 16(66.7%) patients had pure SUI, while 8(33.3%) patients had mixed urinary incontinence (MUI). 8(33%) were recurrent SUI after previous SUI treatment.
Mean 24hour pad use reduced from 4.9 pre-procedure to 1.3 pads post-procedure whilst mean ICIQ-UI-SF scores improved from 17.6 pre-operatively to 9.6. These were significant changes using paired t-tests for ICIQ-UI-SF scores (p=0.001) and pad usage (p=0.001). There was no significant change in the mean ICIQ-OAB scores from 6.0 pre-procedure to 5.0 post-procedure. Mean Length of stay was 2 nights.
Conclusions: This report is the largest UK series to date of its kind. There was significant improvement in pad usage and quality-of-life scores. Robotic Colposuspension is a feasible treatment option for female SUI, and will need a longer term evaluation with a larger volume of patients.

P5-5 Transobturator (TOT) mesh tape removal: Functional and quality of life outcomes

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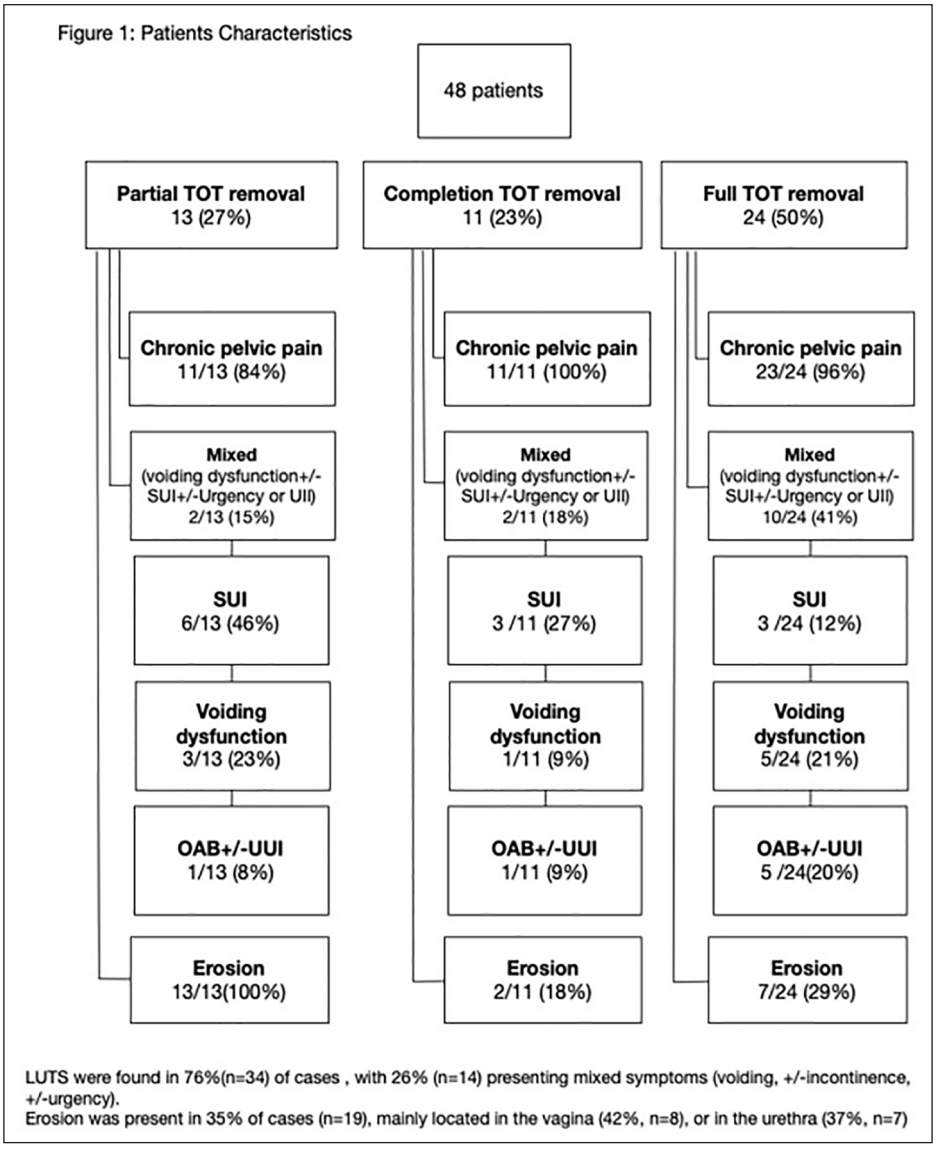
Introduction: To assess short-term functional and quality of life outcomes after TOT removal surgeries.
Patients and methods: A retrospective analysis was conducted of all women who had full, partial or completion removal of their TOT in a tertiary referral centre from 2013 to 2020. Functional outcomes and quality of life using a dedicated composite questionnaire (UDI-6, EQ-5D-5L, ICIQ-S) with additional questions on sexual life was undertaken by telephone and post. R-Software has been used for statistical analyses.

Table 1-Questionnaire

Questionnaire	
UDI-6 For each question, circle the number that best describes this problem for you over the past month. 0=not at all, 1=a little bit, 2=moderately, 3=greatly **Do you experience and, if so, how much are you bothered by:**	**n with score ≥ 2 (%)**
Frequent urination ?	20(67%)
Urine leakage related to urgency?	16 (53%)
Urine leakage related to physical activity?	14(47%)
Small amount of leakage?	16 (53%)
Difficulty emptying your bladder od difficulty urinating?	14(47%)
Pain or discomfort in your lower abdominal, pelvic or genital area?	12 (40%)
UDI 6 score (median, IQR)	**11(10)**
EQ-5D-5L How bad/good is your heath today on a scale between 0 (worst) and 100 (best) **Score (median, IQR)**	**75 (28)**
ICIQ-S	
How would you rate the outcomes of the surgery? 0= very unsuccessful, 1=a little successful, 2= neither successful, nor unsuccessful, 3= somewhat successful, 3= very successful	**22(73%) with score ≥ 2**
Compared to how you felt before the surgery, how is your condition now? 0=much worse, 1= a bit worse, 2= about the same, 3=a bit better, 4=much better	20(67%)with score ≥ 3
Would you say you have been able to return to normal life after the surgery? 0=strongly disagree, 1= disagree, 2= agree, 3= strongly agree	11 (37%) with score ≥ 2
If you were in the same situation again, would you still have the surgery? 0 =no, definitely not, 1= no, probably not, 2 =not sure, 3 =yes, probably, 4 =yes, definitely	26 (87%) with score ≥ 3
Would you recommend this surgery to friends or relevants with similar problems? 0 =no, definitely not, 1= no , probably not, 2 =not sure, 3 =yes, probably, 4 =yes, definitely	**27 (90%) with score ≥ 3**
If you had to spend the rest of your life with your symptoms as they are now, how would you feel? 0 =desperate, 1=very unhappy, 2= somewhat unhappy, 3=mixed feelings, 4 =somewhat happy, 5=perfectly happy	7 (23%)with score ≥ 4
Sum Score Score (median, IQR)	17 (8)
Overall how satisfied were you with the surgery? (not satisfied) 0 – 10 (very satisfied)	**24 (80%) with score ≥ 5**
Compared to how you were before the surgery, how is your sexual life? 0=much worse, 1= a bit worse, 2= about the same, 3=a bit better, 4=much better	14 (47%) with score ≥ 2
Do you experience any symptoms related to sexual dysfunction, such as pain during intercourse, reduced sexual desire or difficulties reaching climax? 0=not at all, 1=a little bit, 2=moderatly-3=greatly	10(33%) with score ≥ 2



Results: 48 patients were enrolled in the study. Patient's characteristics are detailed in Fig1. Median interval between tape insertion and its removal was 9 years (IQR 5-10).

Chronic pelvic pain was the main indication for tape revision (93%, n=45). A complete full removal including vaginal and bilateral groin/paralabial incisions was performed in 50% of cases (n=24).

Concomitant autologous fascial sling was performed in 6 patients (12%), in whom bothersome urodynamically-proven recurrent stress urinary incontinence was identified prior to mesh removal. Length of catheterisation was $\leqslant$3 days in 50% of cases, and length of stay was $<$5 days in 77% of cases. Complications rate was 19% (n=9), including 100% being minor (Clavien $\leqslant$2). Post-operative data were available for 30 patients, with a median follow up of 5 months (IQR 12) (Table 1). 73% of the patients considered the mesh removal surgery successful, 80% were satisfied, and 90% would recommend it.

Conclusion: Despite a high rate of SUI recurrence, TOT removal improves patients' pain, and is associated with a high rate of overall satisfaction.

P5-6 Mindfulness Based Interventions for Functional Urological Conditions

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Introduction: Mindfulness-based interventions (MBIs) may be an appropriate treatment for functional urological conditions. In addition to helping individuals increase perceptual distance from their symptoms, MBIs specifically contain meditations which reduce stress responses driving these symptoms.

We present our case series on the utility of mindfulness for treating functional urological disorders.

Patients and Methods: 10 patients (M:F = 1:1, mean age 35y) with functional urological symptom complexes (chronic pelvic/genital pain, voiding dysfunction [including Fowlers' Syndrome], erectile dysfunction, female sexual dysfunction) agreed to engage with MBIs. At the time of study recruitment, all patients remained only partly responsive to standard therapeutic intervention (pharmacotherapy, behavioural adjustments). All patients underwent treatment utilizing an MBI (Mindfulness Meditation and Compassion Training [MMCT]).

Symptom severity was measured before and after MMCT by quantitative questionnaires (Urogenital Distress Inventory, I-PSS, Incontinence Impact, Female Sexual Function, IIEF-5) and qualitative (thematic and phenomenological analysis) methods.

Results: There was a statistically significant ($p < 0.05$) improvement in all domains of functional evaluation (both urinary and sexual), together with a concomitant, significant ($p<0.05$) improvement in psychological and psychosocial domains such as anxiety and resilience. Qualitative improvements were significant and aligned with quantitative response.

Conclusions: MBIs appear to be an effective addition to the therapeutic armamentarium in the management of refractory functional urological conditions, including urinary and sexual complaints. This study extends the literature exploring the applications of mindfulness for treating functional urological disorders and our findings warrant further clinical investigation into the role of MBIs in this arena.

P5-7 The AdVance™ male sling: does it stand the test of time?

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Introduction: There is minimal data published on the longevity of the the transobturator retrobulbar male sling (AdVance™). We aimed to determine the efficacy, the complication rate and need for salvage SUI surgery in the medium to long term for male sling insertion.

Patients and Methods: We performed a retrospective review of all patients undergoing male sling insertion at a single centre between 2009 to 2018. Data on patient demographics, pre and post-operative ICIQ-UI(SF) scores and 24h pad usage were collected. Success was deemed as 0-1 security pad use (also the cured rate) or a >50% reduction in pad usage (also the improved rate). Data was also collected on complications, patient satisfaction as well as need for further SUI surgery.

Results: 91 patients underwent male sling insertion in the period specified; median follow up was 69 months. Success rates at 3 months in mild SUI, moderate SUI and severe SUI groups were 96%, 86% and 80% respectively. In the medium to long term, this drops to 65%, 62% and 47% respectively. The overall rate of AUS implantation was 15%. Common complications included groin pain (3%), infection (3%), urinary retention (10%) and de novo OAB (11%). The only factor predicting success or failure was pre-operative ICIQ-UI(SF) score.

Conclusions: AdVance™ male sling success rates deteriorate from 89% at 3 months to 61% at 5 years. The risk of complications is low and, for the most part, transient. Sling insertion remains a reasonable treatment option for male patients suffering with stress urinary incontinence.

P5-8 Prevalence of chronic pain following suburethral mesh sling implantation for post-prostatectomy incontinence

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Purpose: To evaluate post-operative pain and complications following AdvanceTM / AdvanceXPTM male sling implantation.

Materials and Methods: A multi-centre retrospective medical notes review of patients implanted for bothersome post-prostatecomy incontinence was conducted. All patients were telephoned to provide further information on pain or further complications related to their surgery. Statistical evaluation utilised logistical regression analysis. Additionally, a literature review was conducted reviewing pain outcomes following AdvanceTM / AdvanceXPTM implantation.

Results: One-hundred and eighteen men were reviewed over an 8-year period. The mean age was 70 years, with mean follow up 52 months. Of those with mild stress urinary incontinence, 45 (79%) had a successful outcome compared to 42 (72%) in the moderate group. Twenty-nine (23%) men reported post-operative pain, with a mean maximal pain score of 6 (range 0-10). The majority of pain resolved within 4 weeks (19/29 men). A further 7 patients resolved by 3 months. Only 3 men (2.5%) had chronic pain greater than 3 months, which all resolved by 1 year. Men <65 years were more likely to suffer pain ($p = 0.009$). Acute urinary retention occurred in 23 (18%) men and correlated significantly with post-operative pain ($p = 0.04$). Overactive bladder symptoms, severity of incontinence or radiotherapy were not correlated with post-operative pain. In our cohort, there were no extrusions, divisions or explanations.

Conclusions: Approximately a quarter of men experience pain in the early post-operative period. However, the severity and rates of chronic pain (>3 months) are low (2.5%) but all settle within a year.

P5-9 Membranous urethral length (MUL) in patients who have had male sling or artificial urinary sphincter surgery for bothersome post prostatectomy stress incontinence

Mr Nicholas Faure Walker[1], Miss Priyanka Oza[2], Dr Giles Rottenberg[3], Mr Sachin Malde[3], Mr Findlay MacAskill[3], Miss Claire Taylor[1,3], Dr Eskinder Solomon[3], Mr Arun Sahai[1,2]

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Introduction & objectives: Post-prostatectomy incontinence (PPI) is reported by 6.6-17% at one year after radical prostatectomy (RP). Membranous urethral length (MUL) is predictive of PPI. Whether MUL predicts PPI necessitating surgical intervention (male sling (MS) or artificial urinary sphincter (AUS) is unknown. We compare MUL in MS or AUS patients in a tertiary referral centre to controls who were continent at 12 months after RP.

Materials & methods: Men who underwent MS or AUS were prospectively identified. Baseline demographic and oncological data were recorded. MUL in sagittal and coronal planes (prostatic apex to penile bulb), urethral width and height, on T2 MRI were measured. Membranous urethral volume was estimated as an elipsoid cylinder. Means, standard deviations (SD) were calculated for normally distributed data; medians and ranges for non-normally distributed data.

		Sagittal length / mm	Coronal Length / mm	Height /mm	Width / mm	Volume / ml
Surgery for PPI						
	d	11.31	11.43	10.49	11.21	1.03
	StDev	2.6	2.94	1.77	1.94	0.48
	Range	6-17	5-17	6.5-17	7-18	0.00-3.00
Continent controls						
	d	15.23	15.75	11.28	11.59	1.57
	StDev	4.2	4.1	1.58	1.7	0.53
	Range	8.5-25	8-24	8-16.5	9-17	0.75-3.02
	p	0.00	0.00	0.01	0.24	0.00

Results: 95 patients (31 MS & 64 AUS) of which 26 had salvage radiotherapy, 4 were salvage RP's and 60 continent matched controls were identified. Median age, PSA & prostate volume (ml) of the AUS, MS and control groups were 65.4, 64.0 & 60.2 y (p=0.07); 8.6, 7.6 & 8.7 ng/ml (p=0.94); 33, 34.5 & 36ml (p=0.346). Distribution of T2,3&4 disease was similar between groups. MRI measurements are shown in the table.

Conclusions: The MUL and sphincter volumes of patients who had undergone MS & AUS were significantly smaller than in continent controls. None of the surgical group had MUL's over 17mm. This study shows smaller MUL length and volume puts patients at risk of PPI that requires surgery.

P5-10 Long term continence rates in patients undergoing augmentation cystoplasty with 30 year follow up

Dr Anastasia Frost[1], Ms Joanna Olphert[1], Miss Nicola Jeffery[1], Miss Mariya Dragova[1], Mrs Angelica Lomiteng[1], Mr Simon Bugeja[1], Miss Stella Ivaz[1], Miss Daniela Andrich[1], Prof. Anthony Mundy[1]

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Introduction: The aim of this study is to evaluate long term continence rate for patients up to 30 years after undergoing augmentation cystoplasty (AC) surgery.

Patients and Methods: We retrospectively reviewed 183 patients (104 male, 79 female) with mean age at time of surgery of 23.6 years (3.7 – 73 years). They underwent AC between January 1981 and December 2009 by a single surgeon for a variety of benign bladder disorders. Median follow up was 17 years.

Results: In 45 patients with an AC alone there is a continence rate of 90% at 1 year. 44% voiding spontaneously vs. 46% performing clean intermittent self-catheterisation (CISC). At 20 years 42% were dry with CISC, and 37%

were able to void spontaneously giving a continence rate of 79%. 20.5% had an ileal conduit or Mitrofanoff. In 138 patients with an AUS, 80% had a working AUS at 1 year. 44% voided by straining and 36% performed CISC. In those who had the AUS removed 15% were dry with CISC and 1.6% had a Mitrofanoff. At 30 years 45% still maintained continence by way of an AUS (13% spontaneous voiding vs. 32% CISC), 13% were dry with CISC alone and 23% had a Mitrofanoff or ileal conduit.
Conclusion: Patients undergoing AC alone can expect a continence rate of 79% at 20 years post op. Those with an AUS have a continence rate of 58% at 30 years. In all patients with AC there is 20% chance of needing a Mitrofanoff or ileal conduit.

EPOSTER 6 - Stones/Imaging/Upper Tract Disorders 1

P6-1 Can the combination of urinary cystine crystals and cystine levels act as biomarkers for predicting the severity of cystinuria?

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Introduction: Despite advances in genotyping, the phenotype of cystinuria remains difficult to predict, risking under/over treatment. Urinary cystine levels do not provide sufficient prediction of disease severity. We studied whether presence/absence of urinary cystine crystals and urinary cystine levels could determine disease severity.
Methods: 30 adult cystinuric patients with >5 years follow up were categorised into three different severity groups(least to most respectively),10 patients in each group; A-recurrent stone formers(no interventional treatment), B-previous URS, C-previous PCNL. Each group was subdivided into 2 categories depending on presence/absence of cystine crystals. Urinary cystine levels for each patient visit were recorded.
Results: male:female patients were equal. Overall average age of patients was 45(range 21-73 years). Median age tended to decrease as disease severity increased Group A-49yrs(age range 26-73), Group B-45yrs(29-65), Group C-35yrs(21-63). 11/30 (36.6%) patients had cystine crystals, almost half 5/11(45.5%) were most severe group. Positive correlation between disease severity, presence of crystals(A=2/10, B=4/10), C=5/10) and concentration of urinary cystine(178.2 vs 204.4 vs 211.7 uM/mMC). Average level of urinary cystine for the crystals present group was statistically significantly higher 1488.0umol/L compared to crystals absent: 705.5umol/L($p<0.0001$).
Conclusion: Our results suggest that there is potential for the combination of cystine crystalluria and urinary cystine levels as prognostic biomarkers for the severity of cystinuria. Further work is needed to evaluate if this combination of the presence of crystals and elevated urinary cystine levels will also be predictive of patients at risk of stone formation that may require invasive intervention.

P6-2 Biased calcium-sensing receptor signalling in the pathogenesis of kidney stone disease

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Introduction: Nephrolithiasis is a major clinical and economic health burden with a poorly understood pathogenesis. We conducted a genome-wide association study in British and Japanese populations identifying twenty nephrolithiasis-associated loci. Mutations in the calcium-sensing receptor (CaSR) cause disorders of calcium homeostasis and five loci identified at GWAS (DGKD, DGKH, WDR72, GPIC1 and BCR) were predicted to influence CaSR signalling. We demonstrated that genotype at the DGKD-associated locus correlated with urinary calcium excretion but not serum calcium concentration in a cohort of stone forming patients.
Methods: To define the effects of altered DGKD-expression on CaSR-signalling, in vitro studies were undertaken using HEK293 cells stably transfected with the CaSR.
Results: Transfection of HEK293-CaSR cells with DGKD-targetted siRNA resulted in decreased intracellular responses to alterations in extracellular calcium concentration as assessed by SRE-reporter and ERK-phosphorylation (pERK) assays when compared to cells transfected with scrambled siRNA. However, no alterations in intracellular responses as assessed by NFAT-reporter and Fluo-4 calcium assays were detected. In contrast, DGKD-overexpression increased intracellular responses as assessed by SRE-reporter assays and decreased intracellular responses as assessed by NFAT-reporter assays but without alteration in intracellular responses as assessed by pERK and Fluo-4 calcium assays.
Conclusions: Our results demonstrate that alterations in DGKD expression cause biased CaSR-signalling. This biased signalling may provide an explanation for the correlation of genotype at the DGKD-associated locus with urinary calcium excretion but not serum calcium concentration. Our findings suggest that biased CaSR-signalling may be a common cause of nephrolithiasis that represents a potential target for novel therapeutics.

P6-3 24 – Hour Urine Analysis: Is Much Gained?

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Introduction: Metabolic work up of recurrent stone formers has traditionally included a 24-hour urinalysis (24HU) along with blood biochemistry and stone analysis. Being a laborious test with suboptimal patient compliance and significant cost implications, 24HU has divided opinion among Urologists. Recent NICE guidelines have not included 24HU in essential steps of metabolic stone work-up quoting lack of strong evidence.
Patients and methods: A retrospective analysis of 745 patients who had their urinary calculi analysed in our institution during the time period of January 2013 to November 2018 checking if a 24HU added any extra information resulting in actual change in patient management than what stone analysis report alone could provide along with serum biochemistry.
Results: Metabolic work-up with 24HU had been performed only on 192 patients (40.42%), their mean age was 50.01±14.51 years and 71 were women. Average urine volume collected was 2158.68 mls. Of the stones analysed, 108 (56.54%) were CaOx, 61 (31.94%) CaPO4, 21 (10.99%) uric acid and 1 struvite. All 12 hyperthyroid patients had calcium stones, 7 of them had hypercalciuria and 5 had hypercalcemia. Sub-analysis of 24HU values based on their stone analysis showed higher total calcium and total urate values in calcium and uric acid stone formers respectively as expected but total oxalate values were higher in uric acid stone formers. Only 41% of CaOx stone formers and 28% of CaPO4 stone formers showed hypercalciuria.
Conclusion: 24HU adds critical information that stone analysis and serum biochemistry by themselves can't provide in managing recurrent stone formers.

P6-4 Routine urinary biochemistry does not accurately predict stone type nor recurrence in kidney stone formers: A multi-centre, multi-model, externally validated machine-learning study

Mr Robert Geraghty[1], Dr Ian Wilson[2], Dr Eric Olinger[2], Dr Paul Cook[3], Mr Alistair Rogers[1], Mr Matthew Shaw[1], Professor Bhaskar Somani[3], Dr Nasser Dhayat[4], Professor Daniel Fuster[4], Professor John Sayer[2]
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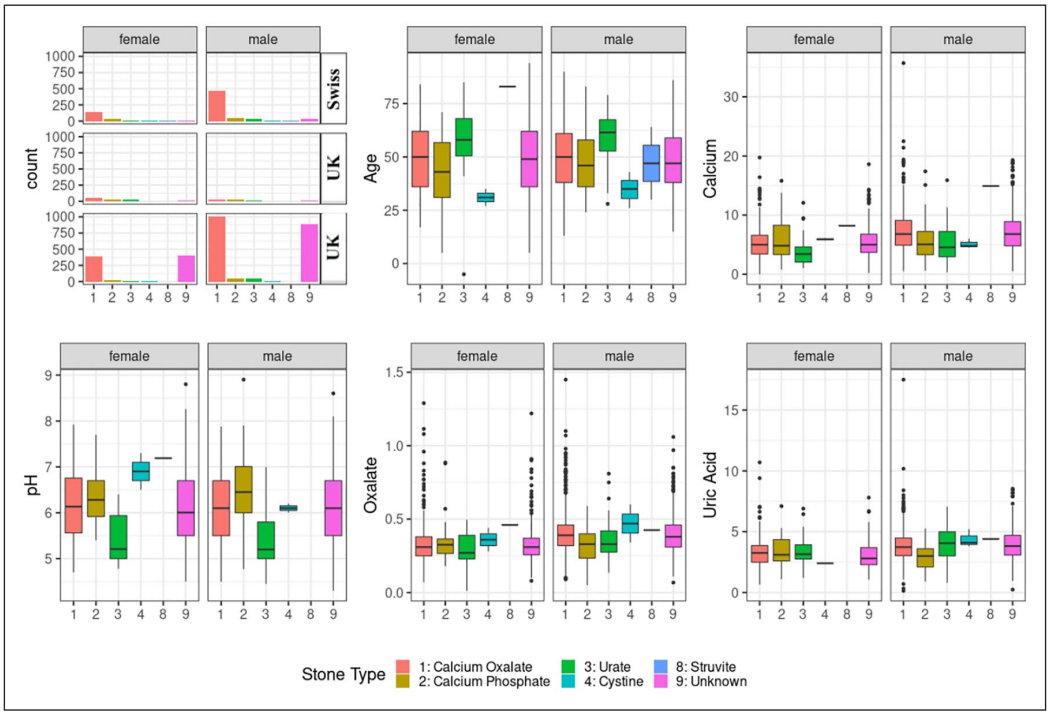
Introduction: Urinary biochemistry is used to detect and monitor conditions associated with recurrent kidney stones. There are no predictive machine learning (ML) tools for kidney stone type or recurrence. We therefore aimed to build and validate ML models for these outcomes using age, gender, 24-hour urine biochemistry and stone composition.
Materials and Methods: Patient data from 3 large tertiary referral centres were used (n=9791), from the UK and Switzerland. Of these 3130 had available 24-hour urine biochemistry measurements (calcium, oxalate, urate, pH, volume), and 1684 had clinical data on kidney stone recurrence. Predictive models were constructed using two ML techniques (Partitioning and Random Forests [RF]) and validated with internal/external datasets.



Results: See figure for demographics of included patients. For kidney stone type, on external validation accuracy of UK RF model=0.79 (95% CI: 0.73-0.84), sensitivity: calcium oxalate=0.99 and calcium phosphate/urate=0.00. Specificity: calcium oxalate=0.00 and calcium phosphate/urate=0.99. For the Swiss RF model accuracy=0.87 (95% CI:0.83-0.89), sensitivity: calcium oxalate=0.99 and calcium phosphate/urate=0.00. Specificity: calcium oxalate=0.00, calcium phosphate=0.00 and urate=1.00.

For stone recurrence, on external validation accuracy of UK RF model=0.22 (95% CI: 0.19-0.25).

sensitivity=0.93 and specificity=0.09. Swiss RF model accuracy=0.42 (95% CI: 0.39-0.47), sensitivity=0.03 and specificity=0.97.

Conclusion: Neither kidney stone type nor kidney stone recurrence can be accurately predicted using modelling tools built using specific 24-hour urinary biochemistry values alone. Further studies to delineate accurate predictive tools should be undertaken using both known and novel risk factors.

P6-5 Do over-the-counter digital pH meters maintain accuracy over time for patient home pH urine monitoring?

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Introduction: We previously found over-the-counter digital pH meters(OTCM) were more accurate than pH strips but required regular calibration. We now assess different OTCM that patients might purchase for home testing to assess if they maintain accuracy following calibration.

Methods: We selected 4 digital pH meters that were available online at varying costs(£10-£100). The accuracy was compared with those of a gold-standard laboratory meter(GSLM). All were used weekly for four weeks on 20 fresh clinic urine samples. OTCM were calibrated once at the start of the project; The GSLM was calibrated before each use. Student's t-test and linear regression analysis was performed.

Results: OTCM were significantly less accurate than the GSLM and develop alkaline bias over time. All OTCM showed significant initial negative bias (largest -0.26 (p=0.0003)). No significance was found in week 2, as the mean readings crossed the zero-difference threshold. By week 4 mean readings of all OTCM's had become significantly more alkaline than the mean GSLM readings with the most positive error +0.34(p=1.9×10^(-11)). Positive correlations were identified when readings were stratified into acidic/neutral/alkaline urines, suggesting that the accuracy of OTCM may be dependent on the pH range they are measuring.

Conclusion: OTCM demonstrate consistent and statistically significant differences which changes over time from calibration. Patients and clinicians should be aware of these differences although as most reagent strips only measure to +/-0.5, OTCM still offer better accuracy and removes the subjective judgement of colour from reagent strips. Our study suggests that calibration can be deferred to a minimum of every 4 weeks.

P6-6 Evidence for the genetic influence of waist-hip ratio on risk of kidney stone disease

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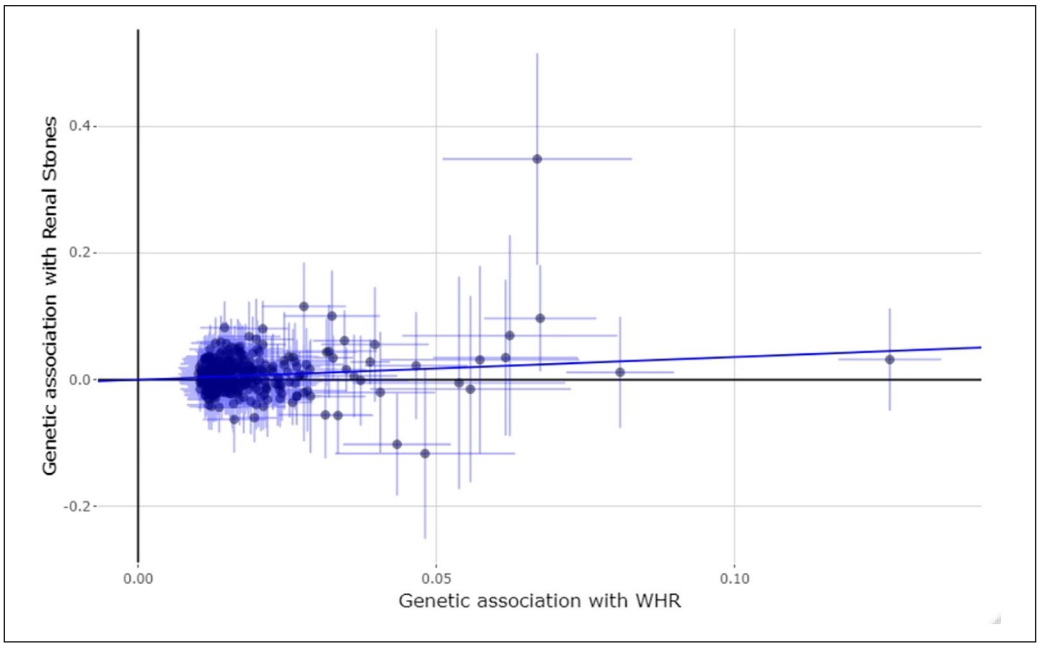
Introduction: Kidney stone disease (KSD) is a common condition with a poorly understood pathogenesis. Stones are associated with hypertension, cardiovascular disease, and diabetes, all of which have been linked to central adiposity. To increase understanding of the pathophysiological mechanisms underlying this condition we explored the relationship of waist:hip ratio (WHR), as a marker of central adiposity, with risk of KSD using conventional and genetic epidemiological analyses.

Patients and Methods: Data from 492,380 UK Biobank participants were examined for associations of WHR with incident KSD using multivariate Cox-proportional hazard models. To explore causal relationships between higher WHR and KSD, Mendelian randomisation (MR) was undertaken using 380 genetic variants associated with increased WHR as instrumental variables.



Results: After adjustment for age, sex, activity, deprivation, smoking status and diet, WHR was significantly associated with risk of incident nephrolithiasis. In overweight patients, high WHR (men >0.9, women >0.85) conferred >40% increased risk of stone formation. MR demonstrated that one standard deviation increase in genetically instrumented WHR was associated with 43% increased risk of KSD (OR 1.43, 95% CI 1.25-1.64, P=3.57x10^-7, Figure 1). This causal relationship persisted in sensitivity analyses, including adjustment for BMI.

Conclusion: Central adiposity is associated with increased risk of kidney stone formation. Our genetic analyses indicate that central adiposity is an important cause of kidney stones. These findings motivate weight management as an adjunctive therapeutic approach in the treatment and prevention of nephrolithiasis and will facilitate future work investigating the mechanisms whereby central adiposity cause an increased risk of stone formation.

P6-7 Utilization of Dual-Energy CT versus non contrast CT KUB for planning of Oral Dissolution Therapy for radiolucent stones

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Introduction: Dual-energy CT (DECT) was introduced to differentiate stones on the basis of chemical composition. The aim of our review is to assess the value of DECT and conventional CT KUB prior to Oral Dissolution Therapy (ODT) with sodium bicarbonate.

Methods: An analysis was undertaken of radiolucent stones treated using our standardized ODT protocol (2017-2020). Stones were stratified according to the pre-treatment imaging modality used. Group 1 stones were assessed by with non-contrast CT (CT KUB) using Hounsfield Units (HU) to assess suitability for treatment (HU <600). Group 2 stones were assessed by DECT to confirm uric acid composition before treatment. Response after treatment was assessed with CT KUB. Stones were measured at their maximum dimension pre- and post-treatment. Mann Whitney and Fisher's exact test were employed to compare the reduction in stone size and stone clearance rates, respectively.

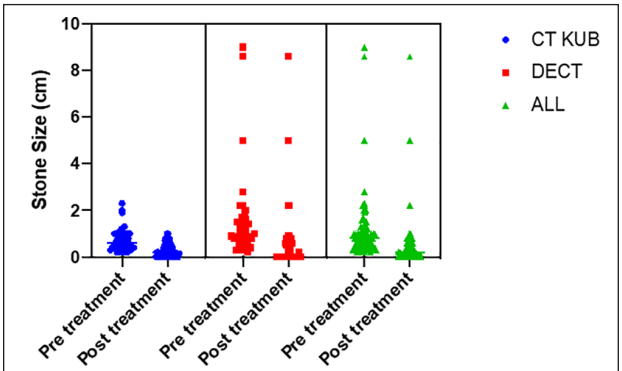

Figure 1: Stone size reduction after stone dissolution therapy treatment.

	Group 1 CT KUB	Group 2 DECT	All stones
Number of stones	46	36	82
Age of patients	70.28 ± 15.15	66.97 ± 11.97	68.83 ± 13.87
Male : Female	33 : 13	15 : 21	48 : 34
HU of stones	493.21 ± 275.52	434.11 ± 157.89	467.27 ± 231.98
Pre-treatment Stone size	0.72 ± 0.46	1.62 ± 1.98	1.12 ± 1.42
Post-treatment Stone size	0.28 ± 0.29	0.71 ± 1.65	0.47 ± 1.13
Reduction in stone size %	44.78 ± 46.99	55.58 ± 48.49	49.52 ± 47.66
Stone clearance rate: Cleared Partial response No response	 18/46 (39.13%) 5/46 (10.87%) 23/46 (50%)	 20/36 (55.55%) 1/36 (2.78%) 15/36 (41.67%)	 38/82 (46.34%) 6/82 (7.32%) 38/82 (46.34%)
Baseline PH	5.84 ± 0.62	5.59 ± 0.71	5.69 ± 0.69
Max PH	7.57 ± 0.64	7.85 ± 0.50	7.75 ± 0.57
Urate	429.42 ± 134.63	358.92 ± 91.33	374.84 ± 104.5

Table 1: Summary of results. Significant reduction in stone size is achieved after treatment in each group (<0.001).

Results: 82 stones were analyzed, Group1 n = 46 and Group2 n= 36. A significant reduction in stone size was seen after treatment in each group ($P<0.001$) (table 1). Reduction in stone size was comparable between CT and DECT groups ($P>0.05$). Stone clearance rates were higher in the DECT group 55.55% (vs 39.13% for CT group), though not statistically significant (p= 0.3).
Conclusions: ODT is an effective treatment for radiolucent stones. Assessment with either CT KUB or DECT before treatment produced comparable outcomes. Although not statistically different there was a higher stone clearance rate in the DECT group. The role of DECT in this context is worthy of further debate.

P6-8 Is Non-Contrast Computed Tomography Necessary in Younger Patients with Haematuria Enabling Stone Disease Diagnosis?: A 3-year Review of >12,000 CT Scans

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Introduction: Non-contrast Computed Tomography (NCCT) is the diagnostic benchmark for urinary stones. This study evaluates the diagnostic accuracy in detecting kidney/ureteric stones, including those patients presenting with haematuria.
Materials Methods: Over 3 years; all CT scans of abdomen, pelvis, and urinary tract were reviewed. Clinical indications, radiological reports, patient demographics, diagnosis, and stone parameters were reviewed.
Results: 12,048 CT scans from 9,853 patients were reviewed. Median age was 56.4 years (range 16-96 years). >50% of the scans were undertaken for suspected renal colic. Only 41% of the patients suspected to have stones were confirmed on CT.
595 patients had incidental diagnosis of stone disease; more than 66.7% of these inpatients investigated for haematuria. In 2,651 patients with stone disease, 53% were renal stones and thrice more likely to be in the lower pole calyx. Half of the stone patients had multiple stones.
42% had ureteric stones. 66.7% of these patients had stone in the lower ureter and 25% in the upper ureter. Hydronephrosis was absent in 25% of the patients and mild renal pelvis dilatation reported in half of the group.
Conclusions: NCCT remains the gold standard in diagnosing renal and ureteric stones. Positive predictive value for clinical diagnosis was 41%. 16% of stone patients had haematuria.
Half the stone patients had ureteric stones. Ultrasound would have failed to diagnose stones in 25% of patients and in half with only mild dilatation of the renal pelvis, suggesting the need for NCCT in patients <50 years with abdominal pain and haematuria.

P6-9 Making Waves: A comparison of radiation exposure in rigid ureteroscopy and lithotripsy

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Introduction: Renal and ureteric calculi are a common presentation to urology. Calculi can lead to pain, ureteric obstruction and infection. For the management of stones there are operative and non-operative options in the form of rigid ureteroscopy (RURS) and extracorporeal

shockwave lithotripsy (ESWL). Both involve exposure to radiation, which has potentially deleterious health effects, and come with their own limitations. Here we compare time and dose of radiation exposure of RURS and ESWL for ureteric calculi.

Patients and Methods: Retrospective review of RURS and ESWL for ureteric calculi was conducted at a single site over 3-years. Data on radiation exposure was compiled from the Image Intensifier from theatre and lithotripsy. Differences in the time (seconds) and dose (mGycm2) of radiation exposure between RURS and ESWL were compared using Mann-Whitney U test. Data analysis was conducted using SPSS Version 25.

FIGURE 1:

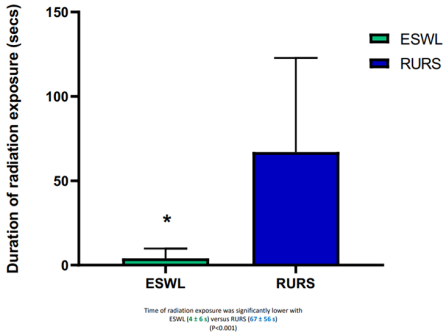
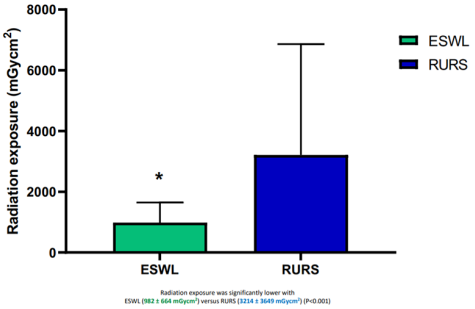


FIGURE 2:



Results: 131 patients (55 RURS and 76 ESWL) were compiled. Mean radiation exposure time was 67s for RURS and 4s for ESWL. Mean radiation dose was 3214mGycm2 for RURS and 982mGycm2 for ESWL. Time of radiation exposure was significantly lower for ESWL compared with RURS (4±6 vs. 67±56s; $P<0.001$). Similarly, total radiation dose was significantly lower for ESWL compared with RURS (982±664 vs. 3214±3649mGycm2; $P<0.001$).

Conclusions: These data demonstrate that the time and dose of radiation exposure is significantly lower for ESWL compared with RURS. This might have long term health effects on patients undergoing repeat treatments and should be taken into account when considering treatment options on an individual level.

P6-10 Ocular Radiation Exposure in Endourology

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Introduction: There is widespread recognition of the risk of laser and splash injury to the eye during endourological procedures. Despite the lens being one the most radiosensitive tissues, the risk of radiation induced cataract is not widely recognised. The aim of this study was to evaluate ocular radiation exposure to the Endourologist, during routine endourological surgery.

Patients and Methods: A prospective study was performed over an 8-month period at a single large District General Hospital. Three procedures were included – ureteric stent insertion, ureteroscopy, and percutaneous nephrolithotomy. Each surgeon was issued a dosimeter, worn on the glabella. Fluoroscopy Time (FT) and Dose Area Product (DAP) were recorded for each case.

Results: A total of 404 procedures were included (247 ureteroscopies (URS), 150 ureteric stent insertions and 7 percutaneous nephrolithotomy (PCNL)). Dosimeters were worn by 10 surgeons. Mean fluoroscopy times (URS 20.56 s; ureteric stent 18.96 s; PCNL 360.67 s) and mean DAP (URS 100.82 cGy.m2, ureteric stent 119.82 cGy.m2 and PCNL 1121.62 cGy.m2) were identified with large inter-surgeon variability. No surgeon had a total dosimeter dose >0.00mSv.

Conclusions: The International Commission on Radiological Protection (ICRP) recently reduced the yearly eye dose limit from 150 to 20 mSv. Cataractogenesis is no longer considered a typical deterministic effect, with a threshold level below which no effect occurs. Even in higher volume centres, these annual limits are unlikely to be reached. Lead glasses may be considered for surgeons and radiologists with the highest exposure, but for the majority, ocular radiation exposure is negligible.

EPOSTER 7 - History of Urology

P7-1 Albucasis (930–1013 AD): Innovations in Stone Surgery

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Introduction: Albucasis (Ibn Abbas Alzahrawi, 930–1013 AD) from Andalucia, the "father of operative surgery", recorded his prolific contributions to surgery in his 30th Volume of Al Tasrif; widely recognised as the first illustrative textbook in surgery. Herein we explore his innovations in stone surgery.

Materials and Methods: Non-systematic review of books, journals and online archives, including Al Tasrif, pertaining to Albucasis' developments in Urological stone treatment.

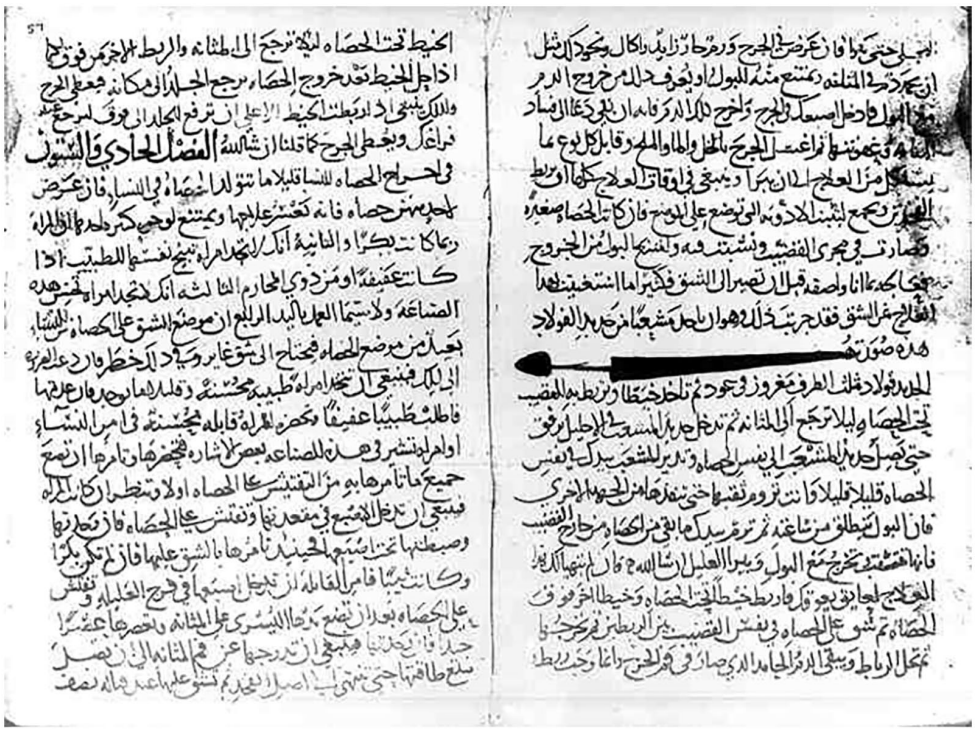

Figure 1: An excerpt from Al Tasrif illustrating the Al-Mishaab, a tool used for drilling impacted urethral stones. (Image from Lithotripsy: a historical review, 2010, Rabie E. Abdel-Halim, Hektoin International https://hekint.org/2017/01/29/lithotripsy-a-historical-review)

Results: Albucasis is considered the first to use a metal probe, Al-Mirwed, to identify the presence of bladder calculus prior to cystolithotomy. He designed a new lithotomy scalpel with two cutting edges, the Al-Nashl scalpel. He detailed the lateral perineal cystolithotomy technique for bladder calculi with an emphasis on avoiding the midline that was not seen in Greco-Roman texts before him. He was the first to describe the procedure in women and used forceps to extract the stone instead of a spoon-like tool.

To reduce morbidity and mortality, he recommended a 2-stage bladder operation for complex cases and for large calculi he condemned the use of larger incisions due to the risk of incontinence. Instead, he developed specialised forceps, Al-Kalaleeb, to crush the calculi inside the bladder before extraction. To treat impacted urethral calculi he developed a drill, Al-Mishaab, which was gently rotated on the stone until it was pierced and could be disintegrated (Figure 1).

Conclusion: Albucasis' pioneering innovations were the foundation of lithotripsy and were still vividly influencing the practice of European lithotomist in the 18th century.

P7-2 Beyond a sommelier: Thomas Willis and the birth of urine chemical analysis

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Thomas Willis, famous for describing the anatomical arterial brain circle, became Professor of Natural Philosophy at Oxford in 1666. Eight years after his death his lesser known work 'De Urinis dissertation epistolica' was published, where he described his method for the distillation of urine and its chemical analysis.

Prior to this, the spagyrists's work aimed to reform the complex transformation of the simple uroscopy of Galen and Hippocrates which they felt had become complicated and meaningless. Fernal (1497-1558), for example, thought it undignified for a physician to smell urine 'which becomes foul when garlic or rotten cheese are eaten, as it also does when the patient is suffering from ulcer of the kidneys. . .'. However he too reverted to traditional teachings describing a semicircle of bubbles at the top of the urine denoting migraine as the primary cause of illness. Progress towards early chemical analysis as proposed by Paracelsus was limited.

Willis did still recommend tasting the urine, and is credited as the first Western doctor to describe diabetic urine as 'wonderfully sweet, like sugar or honey'. His emphasis on the distillation of urine allowed 'a method more precise. . .which allows one to ascertain the quantity of salt

and sulphur'. This allowed him to make remarkable conclusions for the time, listing subsiding odoema, nervousness, fevers after crisis and diuretics as causes of polyuria. In doing so, Willis the famous anatomist also gave medicine the foundations for the chemical analysis of urine we rely on today.

P7-3 Thomas Brian and the Discrediting of Uroscopy

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Introduction: Uroscopy, the practice of examining a patient's urine for diagnostic purposes, was common throughout antiquity and universally adopted by ancient civilisations from Mesopotamia to the Medieval period. Physicians who performed uroscopy enjoyed much popularity and status from the public, who often demanded that their diseases be diagnosed solely from observation of their urine samples. Despite the widespread praise of uroscopy as a definitive investigation tool, critics such as Thomas Brian attempted to discredit this practice.
Materials and Methods: A literature search relating to the critics of uroscopy was undertaken, including reading Thomas Brian's published work.
Results: Thomas Brian, a physician, was perhaps the most famous of uroscopy critics who published a book entitled 'The Pisse-Prophet' in 1637. This was a tongue-in-cheek attempt to highlight the bizarre practice of what he claimed to be 'uromancy', that is the mystical examination of urine without any empirical evidence. Brian used the term 'Pisse-Prophet' to discredit physicians who engaged in this act and 'confessed' that this practice lacked evidence-base. He stated that physicians, when presented with a urine sample, tried to fabricate knowledge about the patient's disease in vague terms, sometimes exaggerating the severity so that they would be correct if the patient died or a saviour if the patient lived. If physicians refused to perform uroscopy then patients would simply take their sample elsewhere until they received a suitable diagnosis.
Conclusion: Thomas Brian was a fierce critic of uroscopy and contributed to its decline in Medieval times.

P7-4 The History of Circumcision in Sub-Saharan Africa: From Ritual to Evidenced Based Care

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Introduction: In Sub-Saharan Africa, one of the world's least urbanised regions, circumcision practice has evolved throughout time. We aim to evaluate the history in this diverse region, its controversies and the development of non-surgical techniques.
Materials: We reviewed historical articles related to "Circumcision in Sub-Saharan Africa" using appropriate web-searches.
Results: For two millennia, the timing of circumcision varied amongst religion and culture; some tribes performed it at birth as a religious ritual, whilst in others during early-adulthood as a mark of "manhood".
The practicing "surgeon" has evolved from mothers, to mohels, to priests. In accordance, the surgical technique has adapted from its early roots involving a "knife" incision with bleeding controlled by iodine to the modern-day circumcision pioneered in 1903 by Frederick Treves.
Medical circumcision in Sub-Saharan Africa was introduced in the 1990s, but there was little interest due to poor education and its perceived cost. Uptake increased after a 2007 WHO-led report demonstrating a 60% risk-reduction of HIV with circumcised men. In response, strategies were implemented to increase voluntary circumcision such as the "Rapid Results Initiative".
Recently, non-surgical techniques including "Shang Ring Device" are being practiced in developing countries by health professionals. This cost-effective procedure has been performed on 700,000 men in Uganda and is implemented as a HIV prevention strategy.
Conclusion: The role of circumcision as a ritual ceremony remains, however, its medical indications in Sub-Saharan Africa have evolved. Non-surgical circumcision techniques are currently aimed at a specific "niche"; nonetheless it may have other future significant roles.

P7-5 Penile subincision – a historic coming of age ritual practice in Western and Central Australian indigenous communities

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Penile subincision is a form of urethrotomy where an incision of the ventral aspect of the penis is performed dividing the corpus spongiosum and urethra from the meatus, usually for two to three centimeters, toward the base of the penis. The practice, termed burra, is described in historical journals as a coming of age ritual in young men in indigenous Australian communities in Western and Central Australia. Some reports describe repeated ceremonial blood-letting where the incision is gradually extended by making further small cuts toward the base of the penis. The blood from these cuts was described as sacred, and used to anoint pieces of wood or stones during ceremonies, or to anoint other initiates prior to their subincision. The cultural practice and reasoning behind this ritual tradition is not well understood or published. There is speculation as to whether the subincised penis was thought to resemble the grooved kangaroo penis – a sacred animal and major food resource with prolonged copulation ability.

There are in fact many marsupials that are mentioned in Walbiri (central Australian tribe) stories featuring the burra, and interestingly most of these animals have either a bifid or grooved penis. Others argue the sub-incised penis resembles female genitalia, and 'blood-letting' symbolises menstruation and fertility.
The origin of penile subincision has somehow remained a mystery, and despite lacking data on current trends including incidence and prevalence, is a presumed diminishing or even extinct practice.

P7-6 There and back again: A history of sentinel lymph node biopsy in penile cancer

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Introduction: Lymph node staging is central to the management of penile cancer. Although the concept of sentinel lymph node biopsy (SLNB) has been applied to penile cancer for the last 3 decades, the history of our understanding of the lymphatic system originates in ancient Greece.
Methods: A PubMed, ClinicalKey and Google Scholar literature search was carried out.
Results: The association between cancer and lymph nodes was first described by Hippocrates, however, it was not until the 1600s that our modern understanding of lymphatics emerged, with European anatomists such as Asellius and Bartholin.
In 1844, Pancoast published a report on lymphadenectomy and in 1895 Halsted presented the idea that cancer may spread to lymph nodes prior to visceral organs.
The idea of SLNB was applied to penile cancer by Cabanas in 1977, who carried out lymphangiography followed by inguinal sentinel node biopsy.
In 1992, this work was applied outside of urology, with the addition of blue dye and the use of a radiotracer.
The technique was reintroduced to penile cancer by Horenblas in 1994; it now forms part of the gold standard protocol for inguinal lymph node staging for men with clinically impalpable lymph nodes and intermediate or high risk disease.
Conclusions: The discovery of lymph node involvement in cancer extends as far back as Hippocrates, however the modern day idea of SLNB was importantly first applied in the management of penile cancer. The technique was then refined before being reapplied to penile cancer and a number of other diseases.

P7-7 From the ridiculous to the sublime- how the rejuvenation movement inspired Nobel-prize winner Charles Huggins

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Introduction: One of only two Urologists to win a Nobel-prize, Charles Huggins (along with medical student Clarence Hodges) in 1941 published his work on the effects of orchidectomy and oestrogen on metastatic prostate cancer, which informs the mainstay of treatment 80 years later. However, the focus of work on hormones in the preceding decades was vastly different from the disease area he was studying.
Materials and Methods: Primary and secondary sources have been examined to understand the social and scientific milieu in the 1930s and early 1940s in which Huggins' discovery took place.
Results: Given the impact that his work has had, it is surprising how little celebrated (especially in the United States) that Huggins is, with no definitive biography seemingly written. However, in a 1962 interview, he gives a captivating account of his discovery at a time when, "People in Cleveland were giving bulls' testis by mouth. Others were giving testosterone. Everything was wonderful". This was a period when Europe and the States were gripped by rejuvenation fever when the rich and famous (such as W.B. Yeats and Sigmund Freud) would either have "monkey-gland" transplants or Steinach's operation (essentially a unilateral vasectomy). The sexology movement had also gathered pace (partially driven by Freud), and, indeed, Huggins' research was approved by the Committee for Research in Problems of Sex (who also sponsored Alfred Kinsey).
Conclusion: Within a few years, hormonal research altered focus from an area that Urologists would now consider comedic to that which dominates our contemporary practice.

P7-8 Benjamin Franklin: Created A Stronger Constitution from Improved Catheter Design

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Immortalised as a Founding Father and the United States' first Postmaster General, Benjamin Franklin(1706-1790) was also a printer, diplomat and scientist. Furthermore, his curious nature coupled with shrewd observations led to medical achievements. He co-founded the nation's first hospital(Pennsylvania hospital; 1751), advocated smallpox inoculation, described psoriasis before Willan, recognised the placebo effect, and invented bifocal spectacles(1784) and a flexible catheter.
Catheters in the 18th-century were invariably rigid and generated pain when passed. In 1752, Franklin's older brother, John, was diagnosed with bladder calculi secondary to incomplete emptying and required daily drainage with a stiff metal catheter. Upon hearing of his brother's affliction and toil with catheterisation Benjamin

designed a slim flexible silver catheter. The segments hinged together over an enclosed wire to provide rigidity during insertion. Holes bored into the tip allowed drainage. A local silversmith fashioned the catheter and Franklin used tallow 'to fill the joints' and aide with insertion. His fathers' occupation as tallow-chandler undoubtedly influenced its use.
The correspondence enclosed with the catheter revealed Franklin's delight: 'It is as flexible as would be expected in a thing of the kind, and I imagine it will readily comply with the turns of the passage.' Afflicted by "Gravel&Gout" in his later years, Franklin also used the catheter, as at 82-years old a cystolithotomy was deemed too high-risk(1787).
Whilst the flexible catheter, by Franklin's own admission, may be credited to Francesco Roncelli-Pardino(1720), this should not detract from his contribution to urology and his standing as one of the great polymaths.

P7-9 History of endorectal imaging of the prostate

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Introduction: Prostate imaging has evolved over the last four decades to facilitate earlier diagnosis and accurate staging of prostate cancer. We aim to explore the early development of endorectal prostate imaging that informs our modern diagnostic criteria.
Materials and Methods: A literature search was performed on PubMed for endorectal prostate imaging.
Results: Watanabe et al. obtained the first clinically useful transrectal ultrasound (TRUS) of the prostate in 1967. However in the lithotomy position, air bubbles in the balloon, interfered with the ultrasound projection. To resolve this, a chair was designed in 1974 to scan patients in the upright sitting position, with a vertical probe inserted into the patient's rectum, so that bubbles no longer interfered with the images. Professor Brian Peeling, a visionary in Newport, took delivery of the first 'Chair of urology' in the UK to conduct early trials in Wales. Further technological advances in the 1980s enabled TRUS to be used as a handheld device which improved the accuracy of biopsies. Richard Clements and Peeling published a series on articles on PSA density, biopsy strategies and tumour characteristics which were the models for subsequent MRI trials and informed the EORTC prostate screening trial. They were also early proponents of MRI of the prostate using an endorectal surface coil developed by Schnall in 1989, which provided better images of the prostate compared to using a body coil.
Conclusions: Without these early enthusiasts, who often bravely experimented on themselves, early diagnosis of prostate cancer would not have progressed at pace.

P7-10 Guy Leroy Hunner: A Urological Contribution of Gynaecological Proportions

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Born in Alma, Guy Leroy Hunner(1868-1957) graduated from the University of Wisconsin in 1893. He moved to Baltimore to study at John Hopkins and in 1897 was in the first graduating class at the School of Medicine. He served residency under Howard A.Kelly and soon achieved chief resident in the Gynaecology department. Charged with the department's urological division, Hunner held this position along with adjunct Professor until his retirement(1938).
Although Gross(1876), Skene(1878) and Nitze('cystitis parenchymatosa';1907) introduced the concept of interstitial cystitis, it was Hunner who described a distinct symptom complex of bladder pain associated with the cystoscopic finding of "elusive ulcers"(1915). The term "elusive" was coined due to the difficulty in locating the ulcer part of the lesions. Hunner appreciated that the ulcers differed from Fenwick's simple solitary ulcers and became synonymous with them(Hunner's ulcers). In addition, despite his detailed description of the ulcers Hunner acknowledged that he had failed"to describe adequately the widespread character of the chronic inflammatory involvement of the bladder walls". Hunner also recognised that the symptom complex could occur with normal urinalysis and negative cystoscopic findings and termed this condition"neurosis of the bladder"(1930).
He also emphasized the need for drainage in the management of renal and lower urinary tract infection and described the radial method of cauterisation for chronic inflammation of the cervix. He had an interest in ureteral strictures(1924) and the management of ureteroceles(1935). In 1950, Hunner received the Southern Medical Association's Gold Research Medal; a fitting accolade to a gynaecologist who contributed so extensively.

EPOSTER 8 - General Urology - Emergency & TraumaEnhanced

P8-1 Enhanced Acute Stone Service pathway for patients with renal colic: A 2 year review

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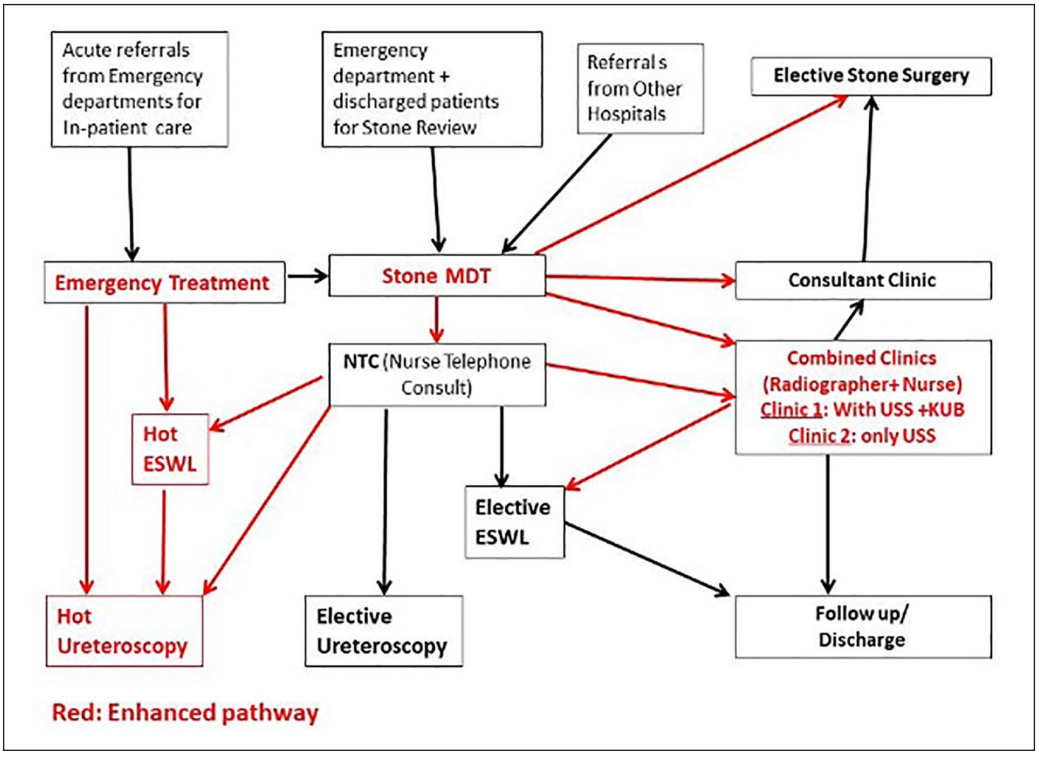
Introduction: Patients with stone-induced renal colic are at a higher risk of obstruction, acute kidney injury and sepsis. Early intervention avoids re-admissions, ancillary

procedures and quality of life issues. For Emergency Department (ED) discharged patients (stable kidney function, no sepsis and controlled pain), referral to a stone clinic can be delayed. A unique 'hub and spoke' acute stone service (ASSc) pathway enabling accelerated care is reviewed.

Patients: Patients with CT-diagnosed stone from two hospital EDs were referred to the Stone multi-disciplinary team meeting (sMDT). Data included demographic characteristics, laboratory tests, imaging, patient contact dates and treatment plans. A 3-point ASSc pathway includes: (a) sMDT, (b) Nurse telephone clinic (NTC; <1 week) to evaluate symptoms, adequacy of pain relief and explain treatment plan, (c) and Combined Nurse & Radiographer clinic (CNRc) at 6 weeks with ultrasound & X-rays [Figure]. Patients were evaluated for symptom improvement, stone passage and renal function. Patient care could be enhanced at each patient contact.



Results: Over 2 years 1363 patients were reviewed. Average time to NTC was 5.2 days. Target follow-up was less than 6 weeks; the mean was 5.6 weeks. 52% patients were managed conservatively; 20% were discharged; 35% had shock wave lithotripsy; and 9% ureteroscopy. Only 31% required a Consultant review for complex renal stones.

Conclusion: ASSc provides enhanced care for acute stone patients, evaluating 93% of patients within 2 weeks, treating 85% of patients in less than 6 weeks. 69% of patients completed their care pathway without requiring direct Urologist consultation.

P8-2 Acute management of ureteric colic in a large tertiary centre; a re-audit and comparison to BAUS guidelines

Mr Ahmed Abroaf[1], Dr Yasmine Wilczek[1], Dr James Barry[1], Mr Ishtiakul Rizvi[1], Mr Alistair Rogers[1], Mr Matthew Shaw[1], Mr Rajan Veeratterapillay[1], Mr John Fitzpatrick[1]

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Introduction: Considerable pressure exists to deliver timely treatment for patients with acute ureteric colic. We conducted a re-audit of our practice measured against BAUS guidelines to determine an improvement in our stone service.

Patients and Methods: A prospective analysis of 130 patients admitted over 3 months (October to December 2019) with acute ureteric colic. Data was collected from records and outcomes compared to our previous audit (from 2018).

Results: Patient demographics were comparable: admissions 43/month, average age 54 years, median stone size 6mm, stone location (45 % distal-, 36 % proximal-,19% mid-ureteric). Sepsis rates were identical (17%) and managed with stent insertion. For non-septic patients, 51 % (previously 59%) underwent primary treatment (36 ureteroscopy/stent, 18 ESWL) and 49 % (previously 41%) conservative management. In theatre, primary ureteroscopy was attempted in 75% cases (previously 62%) and successful in 81%. Median time to primary ureteroscopy/stent

insertion remained ⩽24 hours; primary ESWL improved to ⩽48 hours (previously ⩽72 hours). Median time from stent insertion to definitive ureteroscopy was 8.9 weeks (previously 6.6 weeks). For patients managed conservatively, median time to outpatient review was 6.7 weeks (previously 5.4 weeks). For ureteric stents, 100 % were removed <2 weeks post-ureteroscopy (previously 89%).
Conclusions: Increasing emergency slots for acute onsite ESWL, rates of emergency primary ureteroscopy and introducing nurse-specialist stent removal (Isiris system) have enabled us to achieve primary intervention ⩽48 hours and stent removal <2 weeks. Prolonged waiting times for definitive ureteroscopy and outpatient review remain challenging to address, particularly in the era of COVID-19.

P8-3 Serious incidents in testicular torsion management in England, 2007-2019: Optimising individual and training factors are the key to improved outcomes

Mr Richard Menzies-wilson[1], Mr Samuel S Folkard[2], Mr David Winter[3], Professor Nick Sevdalis[4], Mr James Green[3]
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Objectives: To establish the healthcare factors that contribute to testicular torsion adverse events (orchidectomies) and near misses.
Materials and Methods: This was a retrospective record review and analysis. We applied the well-validated London Protocol patient safety incident analysis framework to all eligible serious incidents related to testicular torsion submitted by English NHS Trusts over a 12 year period to the Strategic Executive Information System' (StEIS) database. The Protocol was used to theme the contributing factors linked to adverse events (orchidectomies) and near-misses.

Table 1: Analytical Framework for the Study, based on the validated London Protocol

THEMES & SUBTHEMES	EXAMPLE SERIOUS INCIDENT REPORT (summarised and anonymised)
Individual staff/Training Factors	
Misdiagnosis of Symptomatic Testicle	*Patient presented to A&E with 18 hour history of testicular pain. Diagnosed as epididymo-orchitis by emergency staff and discharged on antibiotics. Returned a week later with unresolved pain and exploration revealed torsion of right testes resulting in orchidectomy.*
Acute scrotum not recognised as urgent	*Patient with classic symptoms of testicular torsion for 4 hours. The Urology doctor asked ED doctor to organise blood analysis and then call him back once the results were ready.*
Not examining scrotum in lower abdominal pain	*Patient was admitted under general surgery for 72 hours with suspected appendicitis. None of the admitting team examined the patient's scrotum. This turned out to be a testicular torsion requiring orchidectomy.*
Delay to surgery due to requesting ultrasound	*A junior surgical doctor requested an ultrasound for patient with a 4 hour history suspicious of torsion rather than going straight to theatre. The ultrasound was performed 3 hours later delaying surgery.*
Other	
Team Factors	
Inadequate Handover	*Patient was seen by a urology doctor with suspected testicular torsion. He was put on the emergency list and the anaesthetist and operating theatre team were informed. Despite available operating theatre space, the patient was only sent for 90 minutes later as it had been handed over to the night team staff that the patient had already been sent for.*
Difficulty contacting specialists	*After seeing a patient with acute scrotal pain the ED doctor immediately tried to contact the Urology doctor, who was in the operating theatre. After a total of 3 telephone calls the patient was eventually reviewed 2 hours later.*
Other	

Work Environment Factors	
Lack of operating theatre staff	*Patient admitted with 5 hour history of suspected testicular torsion. There was no operating theatre team available to do an immediate scrotal exploration as the on-duty team was already involved with other emergency cases. There was no back-up staff. The patient was transferred to another hospital with a subsequent delay of 2 hours.*
Lack of Emergency Department staff	*There was a delay in assessment of a patient with acute scrotal pain due to lack of capacity in the ED. A patient with testicular torsion case was triaged correctly as very urgent but not assessed for 4hrs.*
Lack of on-site specialists	*A patient presented with symptoms suggestive of testicular torsion at midnight, was assessed and booked for operating theatre. However the urology doctor was off-site at a different hospital and the operation was delayed by a couple of hours.*
Other	
Task and Technology Factors	
Unclear referral pathway	*A patient with suspected Testicular Torsion was discussed with on-site Urology and Surgical doctors who both declined as the patient was under 16 years old.* *The patient was then discussed with a Paediatric Surgical doctor at a nearby tertiary care hospital who declined as the patient was over 14 year olds.* *After discussion with the medical director, resulting in a 2 hour delay, the patient was eventually transferred to the tertiary care hospital under the care of the paediatric surgeons.*
Institutional Context Factors	
Delays in ambulance transfer	*A patient with suspected torsion requiring immediate transfer to a tertiary hospital with paediatric surgeons. An immediate ambulance was requested but despite numerous calls took 90 minutes to arrive*
Availability of beds at receiving hospital	*A patient was seen with a likely testicular torsion in a hospital with no paediatric operating theatre facilities. The team contacted three teaching hospitals nearby to arrange transfer, but none had beds available.* *After 2 hours one of the teaching hospitals phoned back to confirm they had made a bed available and the patient was transferred by ambulance.*

Results: Our search returned 992 serious incidents, of which 732 were eligible for study inclusion and analysis. Of those, 137 resulted in orchidectomies, equivalent to one serious incident resulting in orchidectomy per month, and 595 were 'near misses'. Factors contributing to all incidents were: Individual staff/Training (38%); Team (18%); Work Environment (16%); Task & technology (14%); Institutional Context (13%). Subgroup analysis of incidents resulting in orchidectomies showed that 88% were due to individual/training factors.

Conclusion: This is the first study to our knowledge to systematically analyse and classify factors that are associated with loss of a testicle and related near miss incidents in patients presenting with testicular torsion. In England

there are a significant number of orchidectomies occurring annually as a consequence of healthcare serious incidents. In order to improve outcomes, we propose clinical support to aid the diagnosis of torsion, improved national clinical guidelines, development of specific standard operating procedures and more exposure of trainees and medical students to urology to improve testicular salvage rate.

P8-4 Scrotal exploration for acute testicular pain: a contemporary study

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Introduction & Objectives Guidelines from the Royal College of Surgeons England on the management of acute testicular pain (ATP) state all patients with suspected testicular torsion (TT) should undergo surgery within 3 hours of decision to operate. The aim of this study was to identify challenges in contemporary management and outcomes for ATP.

Patients & Methods: Patients undergoing emergency scrotal exploration were identified from 2015 until 2020 in a single centre retrospective case review. Statistical analysis; SPSS(V.27); Fisher's exact test; Mann-Whitney U Test ($p<0.05$)

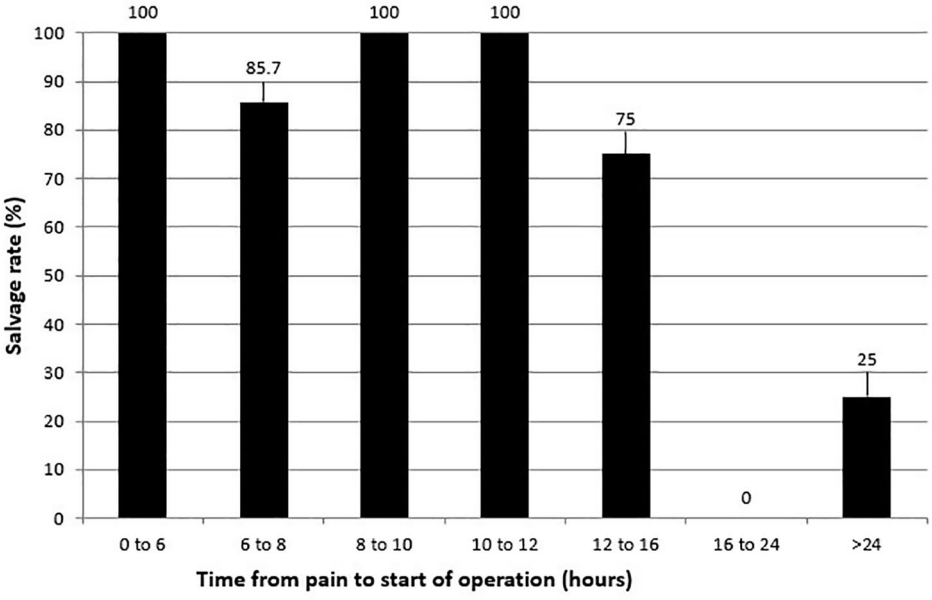

Figure 1: Testicular salvage rate versus time from onset of pain to surgery. 0 to 6 hours n= 13, 6 to 8 hours n= 7, 8 to 10 hours n=5, 10 to 12 hours n=1, 12 to 16 hours n= 4, 16 to 24 hours n=2, >24 hours n =8

Results: 140 consecutive patients underwent surgical exploration, median age 16 years (range 5–50 years). Time to theatre from decision to operate was <3 hours in 85.2%. Ultrasound testis (US) occurred in 23 patients, US delayed time to theatre by median 59 minutes (p=0.03). TT was the most frequent diagnosis (30%); more frequent in patients 13-16 years (62%). TT presented earlier than other causes of ATP, median 4:00 vs 8:50 hours (p=0.036). Contralateral fixation was performed in 89.7% of TT; surgical technique was highly variable in non-TT. Overall testicular salvage was 74.4% (figure 1). Follow up occurred in 42.5% TT patients, 30% who underwent orchidectomy were offered a prosthesis.

Conclusions: This study raises important concerns regarding the contemporary management of ATP; there is no uniformity of practice in surgical technique and follow up. Clinicians should have a high suspicion of TT in patients 13-16 years presenting <4 hours. We propose a management algorithm for ATP patients and propose guidance on management of TT should be updated.

P8-5 In-patient management of visible haematuria: a common urological emergency with a high mortality

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Introduction: Visible haematuria (VH) is a common urological presentation often requiring overnight hospital admissions. There has been a lack of consensus on managing this urological emergency as it differs from hospital to hospital. Our study's objective was to review the in-hospital management patterns and 30-day outcomes of patients admitted with VH over a period of 1-year in a single institution, aiming to clarify management for such cases in the future.

Material and methods: A retrospective cohort study was conducted on all patients admitted with VH in a single-center over 1-year, excluding patients who did not require an overnight stay. A case note review was performed for patient demographics, VH investigations, and management.

Table 1. Demographic data for patients admitted with visible haematuria

Patient Demographics	*All patients (n=120)*	
Age (yr)	Mean (SD)	78 (11.6)
	Range	36-97
Sex	Male	107 (89%)
	Female	13 (11%)
Length of stay (days)	Mean(SD)	5 (2.8)
	Range	1-31
ASA Grade	Mean	3
	Range	1-5

Results: A total of 120 patients (demographic data as reported in Table.1) were admitted with VH over a span of 1-year. 62% (74/120) required bladder irrigation for a mean duration of 3 days (1-16days). 10% (12/120) required an emergency cystoscopy washout to manage the bleeding, malignancy was recorded in 42% (5/12) cases. Over 8% (10/120) patients discharged had unplanned readmissions within 30 days. The 1-year mortality for this cohort was 23% (28/120) of which 21% (6/28) died within 30 days from discharge.

Conclusion: In-patient VH is a commonly encountered urological emergency that affects a vulnerable patient cohort. There is no specific pathway guiding the in-patient management of VH, therefore future research is required to produce standardized pathways for managing this condition, considering the high-risk patient cohort, the long length of stay, and the high one-year mortality rate.

P8-6 HEmaturia After Transurethral resection of bladder Tumour (HEATT) - a multicentre, regional, collaborative analysis of factors associated with emergency re-admission with haematuria following TURBT

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Introduction: Many patients undergoing transurethral resection of bladder tumour (TURBT) for bladder cancer possess significant co-morbidities, including prescription of antithrombotic agents (ATAs). The aim of this study was to identify the risk of post-operative haematuria with such drugs.

Methods: This was a multicentre, retrospective audit. All adult patients over the age of 16 who underwent elective TURBT between 1st September – 30th November 2019 were identified. Data was collected from medical records and operation notes on patient demographics including ATAs and peri-operative management. Primary outcomes were re-admission and re-operation rates for haematuria within 30 days of TURBT. Secondary outcome was acute thrombotic event (TE) within 30 days post-operatively.

Results: 443 patients from 10 centres were included. Median age was 75 years (range 17-99). 147 patients (33.2%) were on pre-existing ATAs (86 excluding Aspirin). 15 patients (3.4%) overall were re-admitted with haematuria within 30 days of TURBT. Subgroup analysis demonstrated higher rate of re-admission for pre-existing ATAs (2.0% vs 6.1%, Fisher exact test p=0.046), increased for non-Aspirin ATAs (10.5%, Fisher exact test p=0.0015). 52% of non-Aspirin ATAs were restarted within 48 hours of surgery; post-operative plan for restarting was not documented in 22.1%.

No patient re-admitted with haematuria required a further operation to resolve this, although 1 patient did so during their index admission. 1 patient (0023%) developed an acute TE (pulmonary embolus) within 30 days of TURBT.

Conclusions: Pre-existing use of non-Aspirin ATAs is associated with an increased risk of haematuria following TURBT, with variable practice in restarting these post-operatively.

P8-7 Anticoagulants contributing to haematuria referral to secondary care and their outcomes

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Introduction: The purpose of our study is to find out how many patients, referred onto the haematuria pathway in secondary care, are on anticoagulants and is there any difference in urothelial cancer detection rates among these.
Patients and Methods: We reviewed 825 patients referred to haematuria clinic; male to female ratio 2.1:1, mean age 70.8 years, VH-585 (70.1%), NVH-240 (29.9%). All patients were categorised into groups of: anti-platelets, warfarin, NOACs, dual anti-platelet therapy (DAPT), aspirin and patients not on anticoagulants. Patients were investigated as per protocol: for NVH-flexible cystoscopy, US KUB and CTU if history of risk factors, and for VH-flexible cystoscopy and CTU. Patients with abnormal findings on flexible cystoscopy were further investigated with rigid cystoscopy +/- biopsies.
Results: 24.4% of haematuria clinical referrals were on anticoagulants (excluding aspirin), mean age 72.75 years (NVH- 22%; VH-78%). Mean age was 73.9 years and 62.8 years in aspirin and not on anticoagulant groups, respectively. Among anticoagulants, NOACs made up 14.1% of all referrals, followed by anti-platelets-7.9%, warfarin-4.7%, DAPT-2.7% and enoxaparin-0.12%. Aspirin contributed to 13% of all referrals. Urothelial TCC was found as: warfarin -4/39 (10.2%); anti-platelets-6/65 (9.2%); DAPT-2/22 (9%); aspirin-10/108 (9.2%) and in NOACs 8/117(6.8%).
Conclusion: Patients on anticoagulants present late when compared to patients not on anticoagulants. The NOACs was the most common group that contributed to haematuria pathway. Urothelial tumours were most commonly found in patients on warfarin. The prevalence of TCC in patients not on anti-coagulant is 5.8%.

P8-8 A review of techniques for difficult catheterisation and their costs

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Introduction: Awareness of departmental expenditure gives surgeons the ability to make cost-effective decisions. We aim to review the available techniques for difficult catheterisation and assess the cost of each method.
Materials and Methods: A literature search was undertaken using EMBASE and medline databases. 7 techniques for difficult catheterisation were identified and a cost analysis was performed. All items required for a technique were costed per unit including VAT and can be referenced to the NHS supply chain.
Results: Techniques were divided into 3 broad categories. Simple urethral techniques; increased lubrication with different catheter sizes (£5.05) or types (£8.83 Tiemann tip, £10.65 Coude tip). Complex urethral techniques; blind hydrophilic guidewire (£27.31), s-dilators (£244.62), flexible cystoscopy (£38.78). Percutaneous techniques; suprapubic catheterisation (£117.38).
Conclusion: We demonstrate a progression in cost and specialist input required when moving from simple urethral techniques to complex and percutaneous techniques. It is clear that clinicians should consider these cost implications and exhaust all simple techniques before moving to the more complex. We would advocate the use of a national evidence based difficult catheter algorithm to guide management based on both effectiveness and cost.

P8-9 Methenamine use in recurrent urinary tract infection

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Introduction: Recurrent urinary tract infection (UTI) represents a significant burden to the national health service. 25-30% of women who have an initial UTI will go on to have recurrent infections which significantly impact their quality of life. This study aims to review the use of Methenamine, a urinary anti-septic and non-antibiotic treatment for recurrent UTI.
Patients and Methods: All patients from a district general hospital prescribed Methenamine between January 2019 and June 2020 had their electronic records reviewed including clinic letters, urine culture and urinalysis results.
Results: 36 patients were included, 31 female and 5 male. E-coli was the most commonly cultured bacteria. 56% of patients had previously trialled low dose prophylactic antibiotics. Only 25% of patients had a recorded pH <5.5 prior to commencing Methenamine while 36% had no urinalysis result recorded. 47% have had no positive urine cultures since starting this treatment and 64% of the 28 patients who had been followed up in clinic by the time of this review claimed benefit.
Conclusion: This study supports the current evidence that Methenamine may be beneficial in treatment of recurrent UTI. It offers a good alternative to long term antibiotic prophylaxis. However, understanding its mechanism of action and ensuring patients have acidic urine while taking Methenamine is essential to optimise its benefits.

P8-10 Allium Ureteric Stent in the Management of Iatrogenic Ureteric Injuries Causing Urine Leakage

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Introduction: Iatrogenic ureteric injury is an uncommon but devastating injury that can occur in pelvic and abdominal operations. Urine leakage causes fistula formation and life-threatening infection. The Allium stent (AS) is a polymer-covered metallic stent. This makes it water-tight and offers the potential to occlude the defect while ureteric healing takes place. Placement of an AS is a simple endoluminal procedure.

Patients and Methods: Patients undergoing placement of AS were recorded in a prospective database. We identified patients treated between 2015 and 2020 who had an iatrogenic ureteric injury, resulting in urine leakage identified on CT scan.

Results: Fourteen patients were identified with a mean age of 63.6 years (44-78) of whom 11 were female. Aetiology of the leak was colorectal surgery (7), Gynaecology (4), renal transplant (2) and ureteroileal anastomotic leak (1). The injury was a mean 2.8cm in length (range 1-10cm). In 6 patients the AS was placed after failure of JJ stent, in 6 after failure of nephrostomy and in 2 Allium was the primary diversion mechanism. One patient suffered an adverse event within 30 days of placement of the stent, that patient died from progression of cancer.

The Allium stent remained for a mean 9 months (1 – 23). In all patients the leak stopped (100%). In 7 patients a stricture was identified at the site of the ureteric injury upon removal of the stent.

Conclusion: AS provide a safe and effective means of excluding a urine leak, allowing ureteric healing.

EPOSTER 9 - Innovations Following COVID-19

P9-1 The counterintuitive impact of COVID 19 on the urological workforce. Should urologists be deployed differently?

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Introduction: The medical professional at a direct clinical interface with COVID 19 has been under enormous strain. But how has the pandemic impacted urologists whose skills may have been under-utilized?

Materials and Methods: An online survey was emailed to BAUS trainee and consultant members between the first and second pandemic lockdowns. Data were sought regarding individuals' views on work/life balance (WLB) before and after the lockdown on a 10-point Visual Analogue Scale (VAS); 0 was biased towards "work" and 10 towards "life". Mean scores were analyzed for trainees and then in quinquennials from consultant appointment, up to 20 years. Data were also sought regarding the impact of lockdown on consultants' views of retirement in the same groupings.

	Trainee	Consultant (years in post)				
		<5	6-10	11-15	16-20	>20
Pre COVID WLB (mean)	3.72	3.6	3.4	3.2	3.9	3.6
Range	0-9	1-7	1-6	0-8	0-8	0-5
Post COVID WLB (mean)	3.9	3.8	4.2	4	4.4	4.6
Range	0-9	0-8	0-8	0-8	0-8	0-10
Responses (before/after lockdown)	60/59	53/49	65/59	73/67	42/41	51/45

Table 1. Work/Life balance (WLB) scores, on a 10 point visual analogue scale before and after first COVID 19 lockdowns, by grade of employment.

	Consultant (years in post)				
	<5	6-10	11-15	16-20	>20
Considering early retirement	6%	8%	12%	16%	13%
Responses	64	74	82	49	55

Table 2. Proportion of respondents more likely to consider earlier retirement as a consequence of experiences during first lockdown stratified by years in the consultant grade.

Results: 59 trainees and 261 consultants responded to the pre- and post-lockdown WLB questions and 324 consultants to the question about retirement intentions. Work/Life balance was positively influenced across all groups during the first lockdown (table 1), whilst consultants in post for >11 years considered their lockdown experiences an influence to consider earlier retirement (table 2).
Conclusions: Urologists' WLB improved during lockdown but more senior consultants questioned their desire to continue working. This data concurs with the GMC's. 'The state of medical education and practice in the UK 2020' report which demonstrates that specialist doctors were poorly re-deployed, possibly with underemployment, during lockdown. Deployment to a protected elective treatment environment would appear to be the best way of utilizing a specialist surgical workforce during emergency crises and, maybe, for the long-term.

P9-2 COVID19: Adapting to Challenges in Delivering Research Posed by the Global Pandemic

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[1]Imperial Prostate, Imperial College London, London, United Kingdom, [2]Imperial Clinical Trials Unit, Imperial College London, London, United Kingdom

Introduction: The global COVID19 pandemic presents unique circumstances, in which delivering clinical research is clearly more challenging than usual. In efforts to keep patients away from hospitals, telephone or virtual clinics quickly became standard. Many patients themselves preferred to eschew journeys to hospital, avoiding untoward infection risk. Hospital research staff were redeployed en masse to aid regional COVID19 efforts. It was clear that rapid development of remote research processes such as recruitment; consent and data collection would be needed to facilitate continuation of clinical trials.
Methods: Our trials group developed a comprehensive electronic clinical trials platform, using the RedCap database software package. The design incorporated multiple features. First, remote access to the trial participant information sheet accompanied by an explanatory information video. Second, an electronic consent system. Third, electronic collection of patient related outcome measure (PROM) questionnaires, automated for each visit. The platform was reviewed by trial stakeholders, including patient representatives investigators and other site staff through the trial management group.
Results: After review of each of the platform features by the trial stakeholders, the initial site adopted the platform. Three further sites opened to recruitment during the pandemic due in part to the efficiency of the platform.
Conclusions: The adoption of the electronic trial platform by participating sites demonstrates its acceptability. Further research is required to demonstrate the efficacy of the platform features, as measured by participant engagement with each process, and their feedback.

P9-3 Utilising 360 live streaming to deliver immersive urology education in the COVID-19 era with Virtual Reality in Medicine and Surgery (VRiMS)

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Introduction: COVID-19 has disrupted traditional training and education, requiring a shift to remote learning. Videoconferencing has limitations in surgical education, but more immersive techniques, such as 360 Virtual Reality (360VR), may have a greater role in demonstrating surgical anatomy and techniques.
In person cadaveric courses and online VR resources have independently been proven to be effective educational tools. By combining both elements, we ran the first live VR cadaveric course in Urology which aimed to bridge the current educational gaps.
Methods: Urological operations were recorded using multiple cameras superimposed onto 360VR view. The candidates watch using headsets that hold their smartphones.
The course, run for regional trainees, covered procedures including ureteric reimplantation, glansectomy, penile fracture and open cystostomy.
Feedback was sent to candidates via an online survey.

Figure 1. Foldable cardboard VR headset

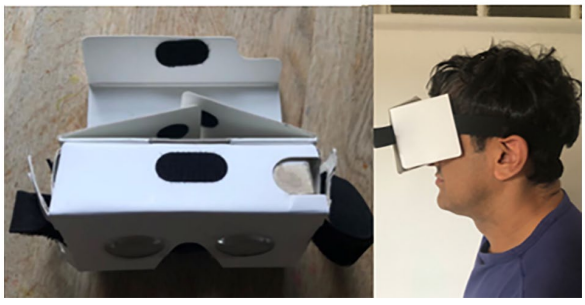

Figure 2. Camera set up and multiple live stream feeds giving different perspectives of the anatomy model.

Results: 15 people attended, with 100% survey completion rate.
Of the attendees, 72% had little or no prior VR experience, 100% thought VR was valuable with 91% saying it was very or extremely useful. 55% have attended postgraduate cadaveric courses, with 100% reporting it would be useful. 100% would attend again.
Qualitative feedback highlighted 70% benefited specifically from observing procedures that they would otherwise not experience. Improvements include obtaining higher quality VR headsets and more live stream sessions.
Conclusion: Utilising VR technology in the context of live cadaveric teaching allows an innovative immersive experience which is easily accessible, low cost to participants and integrates the fundamentals of education. A national course with further live content is being planned for later this year.

P9-4 Virtual Urology Clinics: Impact on Patients, Clinicians, Environment and Economy

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Objectives: The SARS-CoV-2 pandemic necessitated restructuring of outpatient services with increased reliance on telemedicine. Greater use of virtual clinics (VCs) is expected to continue; However, patient and clinician satisfaction with these are poorly understood, as are their environmental and fiscal impact.
Methods: The first, middle and last patients from various Urological subspeciality VC lists over a 30-day period at the peak of the pandemic were contacted. Healthcare professionals independent of initial care evaluated patient satisfaction using a custom questionnaire. Environmental and fiscal cost analyses were calculated using patient addresses, NHS tariff data and Gross Value Added (GVA) per head. Simultaneously, an online survey exploring changes to outpatient practices and clinician satisfaction with VC was distributed to UK Urologists.
Results: 1146 patients underwent VC (30th March – 30th April 2020). 99 patients were contacted. 55 (56%) completed all survey questions (male: 78%, age >65: 60%, follow up: 78%). 49 (89%) were satisfied/very satisfied, with reduced time and travel having the strongest influence on responses. Approximately 5.31 tonnes of C02 emissions were avoided. Estimated cost-savings were £42,714.55 to the NHS and £62,078.82 to the economy.
86 Urologists completed the clinician survey. 83 (97%) switched some/all outpatient activity to virtual, with 69 (80%) using telephone. 24 (28%) felt satisfied/very satisfied for new referrals. 81% (70) felt satisfied/very satisfied for follow up consultations. 61 (71%) would use VC regularly. There were notable variations by subspeciality.
Conclusions: VC use should be strongly considered beyond the pandemic, but may not suitable for every patient or subspeciality.

P9-5 Developing an Experience Based Co-Designed Video Information Resource to Inform and Reassure Urology Patients Through the COVID-19 Pandemic

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Introduction: One of the biggest challenges of the last 12 months has been the practical continuation of cancer diagnostic services and changes in health-seeking behaviour. Our diagnostic service saw a 60% decrease in referrals and an appointment cancellation rate of 50% in the 4 weeks following national lockdown. To address these concerns we developed and evaluated a patient video and information leaflet.
Patients and Methods: We identified patients that had previously undergone prostate cancer diagnostics to undergo two 90-minute focus groups. Sessions analysed using thematic content analysis techniques.
A 3-minute patient video was developed based on the themes highlighted. A link to the video was emailed to

patients alongside a Patient Information Sheet (PIS) before appointments.
Impact was evaluated using a survey developed through a clinician and patient discussion group. A 7 point scale of agreement (1-strongly disagree – 7-strongly agree) was presented to participants in block-randomisation format. The survey was administered through a GDPR-compliant survey website.

Item	Agree / Strongly agree n/N (%)
Understanding the safety precautions implemented in the diagnostic pathway was reassuring	53/61(87%)
Understanding the investigations to be done during their consultation and the timeline to diagnosis was reassuring	54/61(89%)
The video made them feel safer to come to the diagnostic centre	42/61(69%)
The PIS made them feel safer to come to the diagnostic centre	19/61(31%)

Results: Focus Groups
Key themes:investigations required for, and timeline to diagnosis and COVID-safe communication/consultations.
Survey Results
May 4th-June 6th, 43/61 completed the survey. Mean age was 66 years.
See table.
48/61(79%) preferred the video to the PIS.
Conclusion: Digital information was effectively used to deliver important messages through the peaks and troughs of the COVID-19 pandemic, and should be considered to reassure during any future pandemic waves.

P9-6 Improving post-operative care during COVID-19 pandemic: Wearable sensors identify clinical deterioration in patients monitored at home following radical cystectomy

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Introduction: Radical cystectomy (RC) has 30-day and 90-day re-admission rates of 15% and 20% respectively. Majority of complications such as infective and bowel-related are frequently associated with changes in vital signs. The primary aim was to compliance and feasibility of using remote monitoring in patients discharged following RC. Secondary endpoints included monitoring for adverse events.
Materials & Methods: Patients consented to a 30-day monitoring period commencing on discharge (Day 1). A wearable sensor was worn continuously, intermittent monitoring and a PROM (quality-of-recovery-15 questionnaire (QoR15) was also completed using a bespoke app. Data was collected in real-time to a secure server (Ethera.health) was assessed in the DREAMPath study (ISRCTN62293620). Readmission and complications (CD grades I-V) were recorded.
Results: Compliance with the wearable device and interaction with the app and PROM was high. In 16% of cases a significant adverse event necessitating readmission was recorded. On average 5,687 data points were collected for each case over 30 days. A measure of physiological performance status derived from the wearable device alone was applied across the study cohort and identified clinical deterioration in 75% of cases at least 48 hrs before readmission. A combination of performance measurement and the QoR15 identified clinical deterioration in all cases prior to admission.
Conclusions: Remote monitoring is feasible, and patients can engage with it with minimal effort. In the COVID era, this is invaluable as this data can be used to triage patients remotely and treat complications early.

P9-7 Development of an adult circumcision service under local anaesthetic driven by the CoVID-19 pandemic-outcomes and lessons learned

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Introduction: The CoVID-19 pandemic has caused severe disruption to elective surgery, and patients with benign conditions have experienced long delays. We identified that adult circumcision could be performed under local anaesthetic (LA) and reviewed the outcome of this change in practice.
Methods: In April 2020, all men on our waiting list for circumcision were contacted and the option of LA circumcision in an out-patient setting explained by the surgeon. A penile block was performed (10ml 1% Lignocaine/10ml 0.5% Marcaine) 5-10 minutes prior to surgery. The sleeve technique was used. A post-operative questionnaire assessed patient experience and pain scores, and EPR records were reviewed for any complications.

Results: A total of 50 circumcisions were attempted by a single surgeon. 47 were completed under LA, while 3 were not started due to high patient anxiety/ongoing penile sensation. The mean age of men who had surgery was 52 vs 26 years (19, 24 & 34) for the 3 in whom the surgeon could not proceed. Pain experienced was inversely proportional to patient age. 34/50 men stated they would recommend LA but 4 would have preferred GA, retrospectively. 3 men had post-op wound issues requiring topical therapies.
Conclusions: LA circumcision can be performed safely in an out-patient setting. Early recognition of the most anxious patients may help to optimise case selection. From our experience to date, it may be that LA circumcision is better suited to older men.

P9-8 A multicentre analysis of safety of focal therapy for non-metastatic prostate cancer during the COVID-19 pandemic

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Clinicians and patients must weigh the risk of treatment of prostate cancer during a global pandemic with the risk of cancer treatment delays. With the possibility of another peak, public confidence in cancer treatments requiring general anaesthetic will be critical. We report on the safety of performing focal therapy in the UK during the initial Covid-19 peak.
Patients and Methods: Consecutive patients treated in 8 centres (23/3/20-23/7/20) were contacted at least 2 weeks after receiving focal ablative therapy. Treatment modalities included high intensity focused ultrasound (HIFU, n=90), cryotherapy (n=32) or irreversible electroporation (IRE, n=6).

Table 1: Description of complications and classification per Clavien- Dindo score

Clavien Dindo Score	Frequency, n (%)
I	24 (18.8)
II	12 (9.4)
IIIa/IIIb	1 (0.8)
4	0 (0.0)
Complication Description	**Frequency, n (%)**
MSU proven Urinary Tract Infection	16 (12.5)
Epididymo-orchitis	7 (5.5)
Sepsis	1 (0.8)
Bleeding requiring admission	1 (0.8)
Retention	16 (12.5)
Recto-urethral Fistula	0 (0.0)
Ambulance/ A&E Attendance	9 (0.7)
Readmission secondary to COVID-19	0 (0.0)
Readmission independent of COVID-19	3 (2.3)

Results: 128/129 patients treated during the study period were successfully contacted. 107/ 128 (83.5%) underwent primary focal treatment, all had D'Amico intermediate or high-risk disease. National guidelines varied throughout the period. Treating sites requested formal shielding from May 2020 and done in 48/128 (37.5%). 20/128 (15.6%) underwent pre-operative swab tests and 5/128 (3.9%) pre-operative chest imaging. Two (1.6%) had intra-operative complications secondary to catheterisation, but none required overnight admission. No COVID-19 related post-treatment admissions were reported; 2 (1.6%) had Covid-19 related symptoms but were not tested as symptoms spontaneously resolved. 3 were admitted for non-COVID-19 issues and one was directly due to treatment related clot retention resulting in the only reported Clavien-Dindo score >2 complication [Table 1].
Conclusions: Focal therapy for non-metastatic prostate cancer was a safe treatment option during a COVID-19

pandemic when appropriate precautions are taken and should be discussed with eligible patients.

P9-9 Change of practice due to COVID-19. Is Flexible and Rigid Ureteroscopy for renal and ureteric surgery achievable under spinal anaesthesia?

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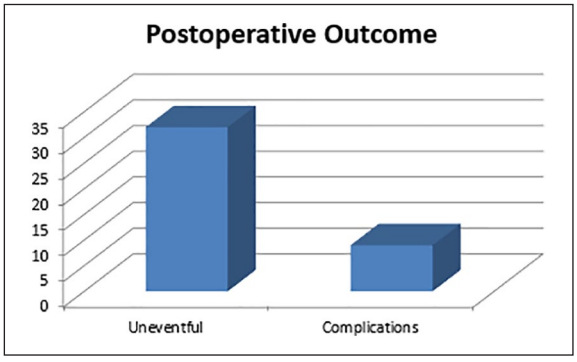
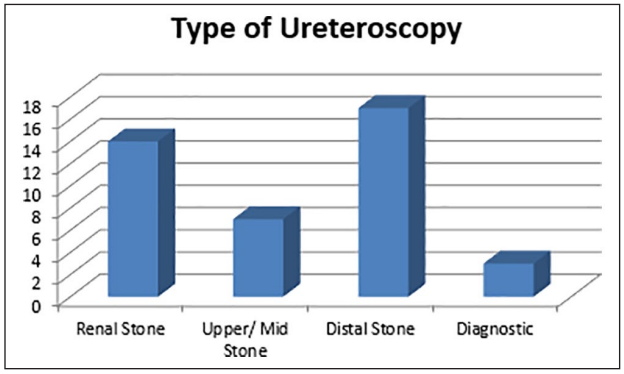
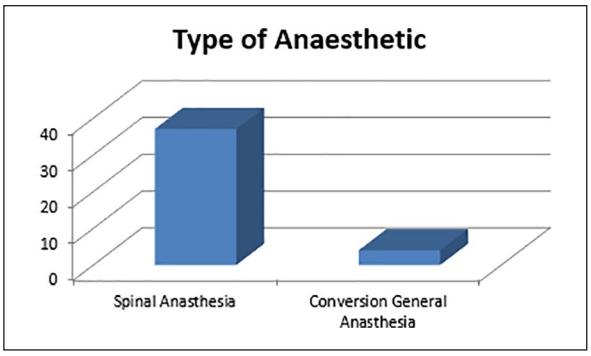
Introduction: During the COVID-19 pandemic our center moved elective operating to an alternative day-case facility where the team performed predominantly spinal anaesthesia (SA).
General anaesthetic (GA) is traditionally preferred to SA for patients undergoing flexible and rigid ureteroscopy as it is difficult to achieve a suitably high block.
SA was deemed a safer form of anaesthetic under COVID conditions due to the risk of aerosol transmission. The anaesthetic team was confident their technique could achieve adequate analgesia.
We trialed SA for all ureteroscopic procedures with the option of converting to GA if surgery could not be achieved safely and comfortably for the patient.
Methods: Over a 3 month period, SA was used as the 1st line anaesthetic option for ureteroscopy cases. We carried out a retrospective observational study of outcomes.







Results:
- 41 patients were treated with a conversion rate to GA of 10%(n=4);
- Reasons for conversion – 2 anatomical/ patient factors, 2 inadequate patient analgesia.
- Procedures: Renal Stones 34%(n=14), Upper/ Mid-Ureteric Stones 17%(n= 7), Distal-Ureteric Stones 41%(n=17); Diagnostic 7%(n=3).
- Postoperative complication rate of 22%(n=9) ;
- 4 partial procedures, 4 readmission for sepsis/ residual fragments, 1 overnight admission.
- Average anaesthetic time was 25 minutes (9-44mins)

Conclusion: The global COVID-19 pandemic has led to changes in practice and we have demonstrated that SA is a valuable alternative to GA in the majority of ureteroscopy cases. It does not add significantly to procedure time and the complication rate is comparable to our previous practice.

P9-10 Ureteric stent on string patient self-extraction: an effective and safe method of stent removal during and after the Covid-19 pandemic

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Introduction: Traditional ureteric stent practice involves patients attending the hospital for stent removal. Our aim was to empower patients to remove their stent at home, obviating the need for a hospital visit and flexible cystoscopy, thereby reducing the risk of contracting Covid-19 for both staff and patients.
Patients and Methods: Between March 2020 and January 2021 all patients undergoing ureteroscopic procedures were consented for a possible stent on string (SOS) if clinically appropriate. Verbal and written instructions were provided to enable patients to remove their stent at home. Prospective records were collected including patient and stone demographics, stent dwell time, complications and patient reported outcome measures including pain scores, satisfaction and whether they would consider a SOS in future.

Results: 45 patients had a SOS inserted. 40/45 (89%) had stone disease: 27% renal, 20% proximal, 9% mid- and 33% distal ureter. 17/45 (38%) were pre-stented. Mean stent dwell time was 4 days (range 1-6 days). 30/45 (66%) patients removed their own stent at home without complication. The remainder were removed by healthcare professionals for a variety of reasons: 7 patient anxiety, 3 in-patients, 3 attended A&E with stent symptoms, 2 complete migration. Median pain score was 3.5/10, with 50% reporting it was better than a cystoscopic removal and 89% rating removal as easy.

Conclusions: Empowering patients to self-extract their own stent is effective and safe for the majority of patients. Clear written and verbal communication and telephone follow-up on the day of stent removal are paramount to facilitate this.

EPOSTER 10 - Bladder Cancer

P10-1 Variation in global transurethral resection of bladder tumour practice: early results from the RESECT study

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Introduction: The aim of this study was to describe differences in hospital-level TURBT practice across the world.

Patients & Methods: The RESECT study (transurethral REsection and Single-instillation intravesical chemotherapy Evaluation (SI-IVC) in bladder Cancer Treatment) is an international observational study. In the first phase of the study, lead collaborators at registered hospitals were asked to complete a web-based questionnaire about usual practice at their hospital.

Table 1. Example regional differences in TURBT practice.

Region	Total hospitals registered (% of total)	No (%) Hospitals that "usually" performed en-bloc resection	No (%) Use laser resection at least "sometimes"	No (%) Hospitals that have a system of audit and feedback for TURBT	No (%) hospitals where SI-IVC is "usually" given "when indicated"	No (%) hospitals using dedicated TURBT surgical lists
All who answered	182	20/177 (11.3)	39/177 (22.0)	23/175 (13.1)	119/173 (68.8)	58/179 (32.4)
United Kingdom	69 (38)	4/67 (6.0)	8/67 (11.9)	12/65 (18.5)	54/63 (85.7)	18/68 (26.5)
Mainland Europe	43 (24)	4/43 (9.3)	10/43 (23.3)	3/43 (7.0)	28/43 (65.1)	17/43 (39.5)
North America	23 (13)	2/23 (8.7)	3/23 (13.0)	0/23	13/23 (56.5)	6/23 (26.1)
Asia	22 (12)	6/21 (28.6)	6/21 (28.6)	5/21 (23.8)	18/21 (85.7)	7/22 (31.8)
Africa	11 (6)	1/9 (11.1)	4/9 (44.4)	2/9 (22.2)	5/9 (55.6)	5/9 (55.6)
South America	12 (7)	3/12 (25%)	8/12 (66.7)	1/12 (8.3)	1/12 (8.3)	5/12 (41.7)
Australia	2 (1)	0/2	0/2	0/2	0/2	0/2

Results: The survey was completed in 182 hospitals from 40 countries (Table 1). The median number of urologists routinely performing TURBT per hospital was 6.5 (25th, 75th: 4-9). The median number of weekly TURBTs performed for "first" bladder tumours, per hospital was 3 (25th, 75th: 2-5). In all, 58/179 (32.4%) hospitals utilised dedicated TURBT surgical lists.

Given the option of "usually" "sometimes" or "never", 78/176 (44.3%) usually used bipolar, and 106/176 (60.2%) monopolar, resecting loop for TURBT. 38/176 (22%) hospitals used holmium and 9/176 (5.1%) used thulium laser "usually" or "sometimes". Fractionated resection was performed "usually" in most hospitals (118/176 (67%)), whilst 20/176 (11.4%) "usually" performed en-bloc resection. Photodynamic Diagnosis assisted resection and narrow band imaging were used for first tumour resections in 36/176 (20.5%) and 45/176 (25.6%) respectively.

Regional trends were observed, examples of these are summarised in table 1.

Conclusions: There is observed variation in the organisation of services, technical performance and audit systems related to TURBT surgery across the world. It is not known how these differences impact outcomes, and this will be explored in the next phase of the RESECT study.

P10-2 Day-case Transurethral Resection of Bladder Tumour (TURBT): a feasible approach in selected patients

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Introduction: Day-case Transurethral Resection of Bladder Tumour (TURBT) is currently only performed in 18% cases across the United Kingdom.
Aim: To determine 30-day readmission rate and morbidity after day-case TURBT in a district general hospital (DGH) and to report patient demographics, quality of TURBT and early recurrence rate as well as patient feedback after day-case TURBT.
Patients and Methods: A retrospective audit of day-case TURBTs over a three-year pre-COVID19 (2017-20) was performed. We only included patients who underwent a TURBT and excluded any cystoscopy and biopsy or fulguration. A day-case TURBT pathway is in place in this centre. Feedback was obtained using hospital patient feedback forms.

Table 1. Comparison of Re-admission and Failed Discharge TURBTs with Day-case TURBTs and no-readmission

		Re-admission + Failed Discharge N (%)	Day case TURBT with no re-admission N (%)	P-value
		13 (13/77, 16%)	69 (69/77, 90%)	
Baseline characteristics and demographics	*Gender*	M = 10 (77%) F = 3 (23%)	M = 52 (75%) F = 17 (25%)	0.94
	Age average (range)years	78 (61-94)	70 (34-94)	0.01
	Median ASA score (range)	3 (1-3)	2	0.07
	Anticoagulation or antiplatelet agents	6 (46%)	19 (27%)	0.22
Tumour characteristics at flexible cystoscopy	*Average tumour size (mm)range*	20 (10-30)	20 (1-50)	0.93
	New diagnosis	6 (46%)	32 (47%)	0.99
	Recurrence	5 (39%)	25 (36%)	
	Re-resection	2 (15%)	12 (17%)	
	Operative time median (range) min	29 (12-179)	20 (7-166)	0.003
Final histology	*Benign*	1 (7.5%)	19 (27%)	0.26
	NMIBC	11 (85%)	44 (64%)	
	MIBC	1 (7.5%)	6 (9%)	
	Low risk	2/12 (17%)	3/50 (6%)	0.03
	Intermediate risk	1/12 (8%)	25/50 (50%)	
	High risk	9/12 (75%)	22/50 (44%)	
	Presence of DM in specimen	8 (61%)	43 (62%)	0.19
	Mitomycin C	5/6 (83%)	29/32 (91%)	
	Blood transfusion	1 (8%)	0	

Note: ASA, American Society of Anaesthesiologists; NMIBC, Non muscle-invasive bladder cancer; MIBC, muscle-invasive bladder cancer; DM, detrusor muscle

Table 2: Feedback from patients who underwent new tumour TURBT in the last year

Rate	Overall	Day of Surgery	After Discharge
	10	10	10
Very good	8 (80%)	9 (90%)	7 (70%)
Good	2 (20%)	1 (10%)	2 (20%)
Neither good nor poor	0	0	0
Poor	0	0	1 (10%)
Very Poor	0	0	0

Results: We included 77 patients who underwent TURBT in the day-case theatre, of these 5 patients required in-patient stay after the surgery. Of the remaining 72 discharged on the same day, 8 were re-admitted (11%) for Clavien-Dindo 1 complications (Table1). The readmission/failed discharge group had a higher rate of older patients, with higher ASA scores and longer operative times, however resection quality and tumour characteristics were not different from the day-case TURBTs. All patients reported an overall positive experience (good or very good) (Table 2).
Conclusion: In the first of its kind audit reporting patient feedback after day-case TURBT, the data obtained can provide us and other centres adopting day-case TURBTs guidance to employ better patient selection to reduce readmission rates. Hence, day-case TURBT can be a feasible option in appropriately selected patients, with a suitable pathway in place.

P10-3 How and what to counsel patients with normal haematuria investigations?

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Introduction: Pathologies diagnosed among those evaluated for haematuria is well below 40%. We performed a study in those with normal investigations to evaluate long term outcomes.
Materials and Methods: We analysed patients who had normal investigations (Ultrasound, Flexible Cystoscopy) in haematuria clinic between Jan 2012 to Dec 2013. Reference date was 31st January 2021, ensuring at least 7 year follow up. We recorded demographics, haematuria type, additional investigations, re-referral pattern & mortality.
Results: The study population was 573 patients (M:F of 1.3:1). Ratio of Visible Haematuria (VH) and Non visible haematuria (NVH) was 2.74:1. More than two thirds had additional upper tract imaging but no additional urothelial malignancies were detected at this time. Among the 96.5% that were discharged, re-referral at 5 years and 7 years were at 18% & 24.9% respectively.
51% of re-referral was for haematuria. At 5 years, 3 new urothelial malignancies had been detected and none after the 5-year period. All these presented with VH at initial presentation and at least 2/3 at re-referral. Mortality went up from 12.9% at 5 years to 18.5% at 7 years with death due to urothelial malignancy was less than 0.2% over both time periods.
Conclusion: Urology specific mortality remains low even at 7 years after a normal HC investigation. Once a NVH is evaluated, there is no need to reinvestigate for NVH, at least for another 7 years even if it is persistent.
With longer follow up, likelihood of re-referral increases but detection of urothelial malignancy goes down.

P10-4 Histopathological and Clinical Characteristics of Young Patients with Bladder Cancer

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Introduction: Urothelial bladder cancer is rare in younger patients and hence there is sparse data regarding pathology, clinical progression and prognosis in this cohort. We present our experience with such patients.
Patients and Methods: Patients aged 50 years and younger at date of diagnosis were included. They were identified via a retrospective review of pathology samples collected between 2016 and 2020. Demographic data, symptoms, stage and grade at initial transurethral resection, risk stratification, recurrence and progression were included.
Results: 61 patients with an average age of 42, were included. 77% of patients had visible haematuria and 72% were referred via the 2WW pathway.
At presentation 11 patients (18%) had intermediate and 29 (48%) low risk disease. 13 patients (21%) presented with high-risk disease. 4 went on to have a cystectomy. 7 patients (11%) presented with muscle invasive disease, of

which 4 had metastasis. 1 patient (2%) was found to have a metastatic deposit from gastric adenocarcinoma
49 patients with superficial disease were followed up for an average of 4 years and 1 month. 55% experienced on average 1 recurrence (range 0-8) and 2 patients moved up the risk stratification.
Conclusions: The majority of patients (66%) presented with low or intermediate risk non muscle invasive disease, which rarely progressed or recurred. Rates of muscle invasive and high-risk disease were comparable to the literature. Presentation, progression and outcomes appear to mimic older populations and the management of young patients should follow well established pathways.

P10-5 Safety and efficacy of transurethral resection of bladder tumour comparing spinal anaesthesia to spinal anaesthesia with an obturator nerve block: a systematic review and meta-analysis

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[1]Walsall Manor Hospital, Walsall, United Kingdom, [2]King Hamad University Hospital, Bahrain, [3]University Hospitals Birmingham, Birmingham, United Kingdom

Introduction: To investigate whether spinal anaesthesia with an obturator nerve block (SA+ONB) can be effectively employed for transurethral resection of bladder tumours (TURBT) during the COVID-19 pandemic to improve patient outcomes whilst also avoiding aerosol-generating procedures (AGPs). We aimed to compare outcomes of TURBT using spinal anaesthesia (SA) alone versus SA+ONB in terms of rates of obturator reflex, bladder perforation, incomplete tumour resection, tumour recurrence and local anaesthetic toxicity.
Methods: We conducted a comprehensive search of electronic databases, identifying studies comparing the outcomes of TURBT using SA versus SA+ONB. The Cochrane risk-of-bias tool for RCTs and the Newcastle-Ottawa scale for observational studies were used to assess the studies. Random effects modelling was used to calculate pooled outcome data.
Results: Four randomised control trials (RCTs) and three cohort studies were identified, enrolling a total of 448 patients. The use of SA+ONB was associated with a significantly reduced risk of obturator reflex($P<0.00001$), bladder perforation($P=0.02$), incomplete resection($P<0.0001$) and 12-month tumour recurrence($P=0.005$). Obturator nerve block was not associated with an increased risk of local anaesthetic toxicity(0/159).
Conclusions: Our meta-analysis suggests that TURBT employing SA+ONB is superior to the use of SA alone. During the COVID-19 pandemic, where avoidance of AGPs such as general anaesthesia is paramount, the use of SA+ONB is essential for the safety of both patients and staff without compromising care. Further high-quality RCTs with adequate sample sizes are required to compare the different techniques of obturator nerve block as well as comparing this method to general anaesthesia with complete neuromuscular blockade.

P10-6 Assessing the impact of the COVID-19 pandemic on the diagnosis and management of bladder cancer in the United Kingdom

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Introduction: The British Association of Urological Surgeons (BAUS) issued an interim strategy for the management of bladder cancer as a contingency measure during the COVID-19 pandemic. We aim to assess the implementation of these recommendations and deviation from the standard of care in the West Midlands region.
Materials & Methods: A questionnaire was devised and sent to bladder cancer leads for each NHS Trust in the region in June 2020. Responses were analysed and compared with the BAUS COVID-19 strategy.
Results: 11 out of 12 centres were aware of the BAUS COVID-19 strategy. 2 centres were offering tele-consultations only for 2-week-wait referrals and 6 centres had changed their practice for non-visible haematuria. All centres were offering transurethral resection of bladder tumours (TURBTs) for new and high-risk tumours. 10 centres were also documenting any changes in treatment in response to COVID-19. Only 7 centres continued to give intravesical BCG to newly diagnosed non-muscle invasive bladder cancer. All centres continued with staging CT scans for newly diagnosed muscle invasive bladder cancer. Patients were still being referred for cystectomy, while radiation for curative and palliative intent continued. Of the 5 regional centres: only 1 continued with cystectomies as normal, whereas 2 performed the procedure on a case-by-case basis, and the procedure was delayed or deferred in the other 2 centres.
Conclusions: Diagnostics and definitive management of bladder cancer has been severely affected by COVID-19. Deferred intravesical BCG and delayed radical treatment may have a dire impact on the long-term outcomes of these patients.

P10-7 Establishing a transurethral LASER ablation (TULA) service during the Covid-19 pandemic: A safe, cost-effective outpatient procedure for the treatment of bladder tumours up to 4cm

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Introduction: Traditionally the management of non-muscle invasive bladder cancer (NMIBC) involves rigid cystoscopy and bladder biopsies/tumour resection under general/regional anaesthesia. The COVID-19 pandemic forced hospitals to reduce operating lists and increase bed availability. An outpatient TULA service was recently started at our trust. TULA is performed via a flexible cystoscopy without the need for anaesthetic. Anticoagulation/anti-platelets can continue and antibiotics are not routinely administered. We present a case series of our first 4 months data.
Patients and Methods: All TULA cases (n=39) performed between Aug-Dec 2020 were included. Data was gathered prospectively including: patient demographics, co-morbidities, medications, initial cancer diagnosis grading/staging and number of subsequent recurrences, histopathological data, post-procedural complications and patient procedural satisfaction.
Results: Median age was 82 years (range 34-96) and median Charleston score was 7 (range 2-12). Previous bladder cancer diagnosis was present for 85% with the most common initial stage G2pTa (n=11). Median number of recurrences was 1 (range 1-5). Median patient perceived pain score was 3 (range 1-7) with 100% of patients preferring TULA over TURBT. Reasons included reduced procedural time (n=18) and enhanced recovery (n=15). One grade-1 Clavien-Dindo classification complication was noted.
Conclusion: TULA is safe for all low risk NMIBC, particularly for frail patients. It is well tolerated and facilitates improved patient experience. It also alleviates demand on theatre capacity and inpatient beds, allowing these patients to continue to be treated despite the pressures exerted on the NHS during the pandemic. Further audit of clinical outcomes should continue as recommended by NICE.

P10-8 ADXBLADDER test results demonstrate an anticipatory effect in the follow-up of cystoscopy negative non muscle invasive bladder cancer patients in a large multicentric European cohort

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Introduction: Urinary biomarkers frequently demonstrate positive results where there is no tumour detected by cystoscopy. Previous studies have shown a significant proportion of these false positives will manifest tumours within 1 year, suggesting an anticipatory positive effect. This study reports an anticipatory effect of ADXBLADDER in the follow-up of patients negative for recurrence in a large European multicentre study.
Patients & Methods: Patients were previously enrolled in a large multicentre prospective study (Research Ethics committee approval reference-17/NE/0174), based upon a previous diagnosis of NMIBC and provided urine for ADXBLADDER testing prior to undergoing their routine cystoscopic surveillance. Results were compared to outcomes of cystoscopy and pathological results of TURBT/biopsy. 12 months following completion of the study a follow-up of all patients negative for recurrence was conducted, collecting data on subsequent cystoscopy and pathological findings in comparison to their original ADXBLADDER results.
Results: 1 year follow-up data was available for 1136 patients negative for recurrence in the previous study. Significantly more patient who previously tested positive for ADXBLADDER were found to have recurrent bladder tumours within the 12 month follow-up period (p=0.02), with high-grade recurrences more prevalent in ADXBLADDER positive patients (p=0.01). Only 0.6% of ADXBLADDER negative patients went on to recur with a non-pTa tumour, versus 4.7% of ADXBLADDER positive patients demonstrating an NPV of 99.4% for up to 12 months.
Conclusions: Significantly more patients with a positive ADXBLADDER test will recur within 12 months, with ADXBLADDER negative patients continuing to demonstrate a high NPV for up to 12 months.

P10-9 Does Urine Cytology have any role in bladder cancer diagnosis?

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Introduction: Despite NICE guidelines suggesting the use of urine cytology (UC) for diagnosis of bladder cancer, it is infrequently performed due to sub-optimal sensitivity, cost, and uncertainty with results interpretation, particularly atypical UC. Nevertheless, anecdotally, suspicious/malignant UC when other investigations are normal, occasionally leads to cancer diagnosis. We retrospectively assessed our haematuria patients to determine the clinical

significance of atypical UC, and the number of cancer cancers identified by UC that may have been missed by standard haematuria investigations.

Patients and Methods: We identified a random sample of 500 two-week wait haematuria cases presenting to our teaching hospital/tertiary cancer centre between 2010-2016. Clinical outcome data were collected.

Results: Median follow-up was 32 months. Urological malignancy was diagnosed in 92/500 patients (bladder, renal and prostate). All bladder cancers were identified by cystoscopy or routine imaging, i.e. irrespective of UC. 0/54 atypical UC cases re-presented with a 'missed' cancer within a two-year period following initial investigation. 44 of 46 suspicious and malignant cytology cases were associated with high-grade/aggressive tumours or subsequent tumour recurrence.

Conclusion: Atypical UC in the presence of negative haematuria investigations does not appear to be associated with malignancy, and therefore should not alter patient management nor prompt further investigation. Suspicious and malignant UC was associated with higher risk cancers and could therefore be used to prioritise waiting lists for TURBT. However, it did not identify any cancers that were not already found by imaging or cystoscopy; therefore, we conclude that UC has no role in bladder cancer diagnosis.

P10-10 The utilisation of ADXBLADDER to reduce the frequency of follow up cystoscopies for recurrence in low grade, low stage non muscle invasive bladder cancer

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Introduction: Frequent follow-up cystoscopies are required in patients diagnosed with non-muscle invasive bladder cancer (NMIBC) to detect recurrence/progression. Recently it was reported that lower intensity follow-up schedules demonstrate no risk of progression/death, therefore it may be possible to reduce cystoscopic surveillance. Our aim was to determine how a less intensive surveillance schedule, utilising ADXBLADDER in a predictive tool, could enable a reduction in unnecessary follow-up cystoscopies.

Materials & Methods: A secondary analysis of 1416 NMIBC patients in follow-up was conducted. Uni and multivariable logistic regression models were fit for all recurrences and HG/CIS recurrences. Using multivariate logistic regression models, nomograms estimating probability of recurrence and HG/CIS recurrence were generated. Decision curve analyses (DCA) examined the net benefit of the models and calculated the net reduction in unnecessary cystoscopies.

Results: ADXBLADDER status was the only significant variable in the multivariable analysis for HG/CIS recurrence. The probability of an ADXBLADDER negative patient having a HG/CIS recurrence is 0.7%(NPV 99.3%) versus 4.8% in ADXBLADDER positive patients. DCA determined that for HG/CIS recurrence threshold probabilities between 0-0.048, there is a net benefit for using ADXBLADDER in deciding to do a cystoscopy during follow-up (vs. cystoscopy in all patients), leading to a net reduction of 19-60 cystoscopies per 100 patients.

Conclusions: Where risk of HG/CiS recurrence is low (i.e. pTaLG patients (no CIS) at the previous visit) incorporation of ADXBLADDER into the follow-up surveillance schedule could lead to a reduction of up to 60% of unnecessary cystoscopies during follow-up, improving patient quality-of-life and decreasing costs.

P10-11 Uptake and utility of urine cytology for surveillance in high-risk non-muscle invasive bladder cancer

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Introduction: EAU guidelines recommend urine cytology as part of surveillance following diagnosis of high-risk non-muscle-invasive bladder cancer (NMIBC). However, controversy remains regarding the diagnostic utility of urine cytology in this setting. We aimed to evaluate use of urine cytology as part of surveillance for NMIBC in our tertiary urology centre, and assess its impact on management.

Materials and methods: We retrospectively studied all NMIBC patients undergoing surveillance flexible cystoscopy over 3 months. Patients were risk stratified according to EAU guidelines. Use of urine cytology was assessed and compared with EAU guidance, focusing on high-risk patients.

Results: 327 patients were eligible for inclusion. 151 classified as high-risk. Urine cytology was performed in 75 (49%) high-risk patients. Nine had abnormal cytology with normal upper tract imaging. Six of these patients underwent bladder biopsy, all of whom had abnormal cystoscopic findings. Recurrent NMIBC was confirmed in 4 cases.

Of high-risk patients without urine cytology, 19 underwent bladder biopsy due to abnormal cystoscopy, 14 of whom had confirmed recurrence. There were no high-risk patients with 'normal' cystoscopy who were biopsied based on abnormal urine cytology.

Conclusion: Urine cytology did not provide benefit in identifying NMIBC recurrences which would have otherwise been missed as all patients with recurrence had abnormal cystoscopy. Despite EAU guidelines, utility of urine cytology in high-risk NMIBC follow-up remains uncertain, which may account for our findings. We propose larger multi-centre studies to further investigate the benefit of performing urine cytology as part of surveillance in patients with previous high-risk NMIBC.

P10-12 A cost consequence analysis for utilising intermittent ADXBLADDER testing in the follow up of patients with non-muscle invasive bladder cancer, compared to standard care

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Introduction: Non-muscle invasive bladder cancer is one of the most expensive cancers to manage, with a high recurrence rate and high costs associated with surveillance. We present an economic analysis for introducing an ADXBLADDER-based surveillance strategy, performed in place of flexible cystoscopy at alternating visits, to elucidate cumulative associated costs compared to the current standard practice.

Materials & Methods: Analysis included 1431 patients from a large prospective study previously carried out. A Markov model, utilizing 4 health states and 3 risk groups, was constructed to determine the average 5-year costs of 2 strategies: a conventional strategy (flexible cystoscopy at every follow-up visit) and an intervention (ADXBLADDER testing instead of cystoscopy at alternate follow-up visits). An NHS perspective was adopted in the analysis, in-line with NICE recommendations in the cost-consequence analysis (CCA), reporting average cost per patient and commissioning perspective in budget impact model reporting total costs of the 2 strategies.

Results: The major driver of costs was disease progression, frequent cystoscopic surveillance, and costs associated with an undetected progression. There was no statistically significant difference in the probability of moving between disease states between the 2 surveillance strategies. Performance characteristics for ADXBLADDER compared to flexible cystoscopy improved with NMIBC disease severity. The cumulative costs of care differed significantly dependent on NMIBC risk.

Conclusion: Differential healthcare costs of the 2 strategies were demonstrated. The data from the modelling supports a strategy which could enable an improvement in quality of care and economic outcomes for NMIBC, including cost-savings by reducing unnecessary procedures.

P10-13 Hyperthermic-Intravesical-Chemotherapy (HIVEC) with Mitomycin for recurrent Urothelial Cell Carcinoma (UCC) in patients pre-treated for non-muscle invasive bladder cancer (NMIBC): a single institution study

Miss Samantha Conroy[1], Mr Karl Pang[1], Prof Derek Rosario[1], Prof James Catto[1], Mr Aidan Noon[1]

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Introduction: There are limited evidence-based treatments for patients with recurrent NMIBC after intravesical BCG; particularly in those unsuitable or unwilling to accept primary cystectomy. Here, we report the safety and efficacy of HIVEC with mitomycin, using COMBAT BRS, for patients with pre-treated, recurrent NMIBC.

Patients and Methods: High-risk (6+3+3) and intermediate-risk (6+3) HIVEC protocols are displayed in Figure 1. Re-induction is offered to patients with recurrence who are unwilling or unable to undergo cystectomy. Demographics, histopathology, instillation dates, safety and tolerability data were collected prospectively through a dedicated clinic (9/8/17-14/10/19). Retrospective case note review was completed to evaluate clinical outcomes (1/9/20-8/12/20).

Figure 1: Proposed HIVEC treatment protocol for patients referred with intermediate-risk and high-risk NMIBC

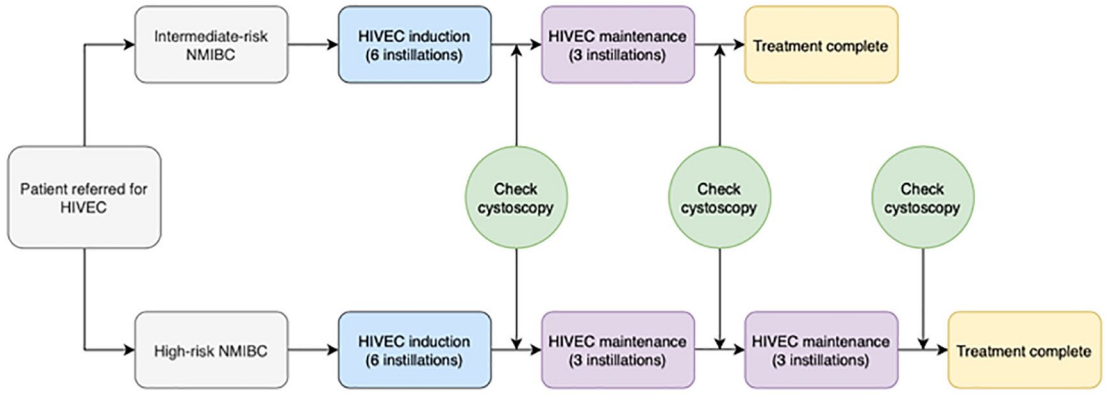

Table 1: Patient and Tumour Characteristics in Patients Referred for HIVEC MMC therapy

Cohort characteristics	Number of patients	Male	Female	Median age (IQR)
	42	30 (71%)	12 (29%)	78 (74-84) yrs
Grade at time of referral	LG	HG	No histology	
	8 (19%)	32 (76%)	2 (5%)	
Stage at time of referral	pTa	pT1	pTis	pTx
	28 (67%)	6 (14%)	5 (12%)	1 (2%)
CIS present at time of referral	Yes	No		
	12 (28%)	28 (67%)		
Risk category	Intermediate	High	Unknown	
	2 (5%)	38 (90%)	2 (5%)	

Results: 42 pre-treated patients received HIVEC. Table 1 describes patient and tumour characteristics. Median(IQR) follow-up was 19months(13-27). 35(83%) patients had received prior BCG, 12(29%) ambient MMC, and 4(9.5%) epirubicin. 28(80%) patients who received prior BCG, were BCG failures. 12(29%) completed the recommended protocol. Only 10(24%) experienced treatment-limiting side-effects.

19(45%) patients developed recurrence (median time to recurrence: 9months); 10(24%) progressed despite HIVEC treatment (median time to progression: 9 months), and 5(12%) required radical treatment. 12-month recurrence-free survival (RFS), progression-free survival (PFS), and overall survival (OS) rates in this cohort were 73.5%, 79.2% and 94.6%, respectively. Disease specific mortality was 7% and overall mortality was 17% across a median 19-month follow-up period.

Conclusions: Intravesical HIVEC with mitomycin is safe and well-tolerated. 12-month RFS, PFS, and OS rates, in this predominantly high-risk cohort are promising, and HIVEC salvage therapy may be useful in patients unfit or unwilling to undergo radical treatment.

P10-14 A single institution experience of the safety and efficacy of using Hyperthermic Intravesical Chemotherapy (HIVEC) with Mitomycin C treatment for patients with intermediate and high-risk non-muscle-invasive bladder cancer (NMIBC)

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Introduction: Hyperthermic Intravesical Chemotherapy (HIVEC) with Mitomycin C is a novel adjuvant treatment in non-muscle-invasive bladder cancer (NMIBC). Here, we discuss our preliminary experience using adjuvant HIVEC in patients with intermediate-risk (IR-NMIBC) and high-risk (HR-NMIBC) NMIBC.

Patients and Methods: Patient and outcome data were collected prospectively in a dedicated clinic (9/8/17-28/10/19). Risk-stratified HIVEC protocols were utilised. The HR-NMIBC protocol (6+3+3) consists of induction (6 instillations) then check cystoscopy;

patients clear of disease have 2 further maintenance cycles (3 instillations each), with interval cystoscopy. The IR-NMIBC protocol (6+3) consists of induction and 1 maintenance cycle, with interval cystoscopy. Patients not willing or unable to undergo cystectomy for recurrence are offered re-induction. Retrospective case note review was completed to evaluate clinical outcomes (1/9/20-8/12/20).

Table 1: HIVEC Therapy - Patient and Tumour Characteristics

Cohort characteristics	Number	Male	Female	Age (median, IQR)
	100	73 (73%)	27 (27%)	77.5 (70-84) yrs
Grade	LG	HG	No histology	
	35 (35%)	59 (59%)	6 (6%)	

Stage	pTa	pTa+cis	pT1	pT1+cis	pTis	pTx	No histology
	65 (65%)	11 (11%)	9 (9%)	2 (2%)	6 (6%)	1 (2%)	6 (6%)

CIS present	Yes	No
	19 (19%)	81 (81%)
Risk classification	IR-NMIBC	HR-NMIBC
Number of patients	24	70
Pre-treated	2 (8%)	38 (54%)
New/recurrent	New: 4 (17%) Recurrent: 20(83%)	New: 21 (30%) Recurrent: 49 (70%)

Table 2: Protocol and Treatment Outcomes for Patients Treated with HIVEC

Risk	IR-NMIBC	HR-NMIBC
Number of patients	24	70
Protocol completed	14 (58%)	21 (30%)
Recurrence	10 (42%) Median time to recurrence: 7months	27 (39%) Median time to recurrence: 8months
12-month RFS	71%	73%
Progression	3 (12.5%) Median time to progression: 17months	12 (17%) Median time to recurrence: 9months
12-month PFS	96%	84%
T2 progression	0 (0%)	3 (4%)
12-month OS	96%	97%

RFS - recurrence-free survival; PFS - progression-free survival; OS - overall survival.

Results: 100 patients received HIVEC therapy (9/8/17-28/10/19). Table 1 describes patient and tumour characteristics. Median follow-up was 20months. 70% had HR-NMIBC. 42 patients had received prior intravesical therapy (35 BCG, 12 ambient MMC, 4 epirubicin). 28/35(80%) who received prior BCG, were BCG failures. Table 2 shows protocol and treatment outcomes. 8(8%) patients required radical treatment: 5 radical cystectomy; 3 radiotherapy. 12-month recurrence-free survival (RFS), progression-free survival (PFS), disease-specific survival (DSS), and overall survival (OS) were 71%, 96%, 100%, and 96% for IR-NMIBC, and 73%, 84%, 100%, and 97% for HR-NMIBC.

Conclusions: Here we present a risk-stratified NMIBC HIVEC treatment protocol that is safe and well-tolerated. In our cohort, with a large proportion of HR-NMIBC patients (70%), 12-month RFS, PFS, DSS, and OS rates in our cohort are promising.

P10-15 Does delaying cystectomy for an attempt at Radiofrequency-Induced Thermochemotherapy treatment following BCG failure result in significant disease progression?

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Introduction: NICE guidelines recommend cystectomy or further intravesical treatments, such as Radiofrequency-Induced Thermochemotherapy (RITE), for high-risk non-muscle invasive bladder cancer (HRNMIBC) patients who fail bacillus Calmette-Guerin (BCG). What is the risk of disease progression during RITE, and can any subsequent recurrence be effectively treated with cystectomy?

Methods: Prospective database of BCG failure patients who received RITE with mitomycin-C or epirubicin between 2007-2020 was reviewed. Electronic patient records confirmed outcomes. Development of muscle invasion, prostatic stroma infiltration or metastasis defined disease progression.

Results: 206 patients who had failed BCG received ⩾5 RITE sessions. 83% were male (n=171) with median age 75 years (IQR 68-81). 67% (n=138) had carcinoma in situ +/- papillary disease. Median follow-up was 36 months (IQR 18-60).

Complete response rate at 3 months was 93% (n=192). 2 of the 14 patients that recurred during induction, developed disease progression. The remaining 12 had persistent HRNMIBC, of whom 7 underwent cystectomy.

Following complete response, 96 patients (50%) had disease recurrence or progression, 43 patients (22%) within 12 months. 41 patients underwent cystectomy for recurrence; histology confirmed disease progression in 16 patients. 62 patients with recurrence were not fit, or declined cystectomy; 27 of them subsequently progressed. 90 patients (43.6%) never recurred or progressed.

Conclusion: RITE resulted in sustained disease-free survival in >40% of BCG failures. The risk of disease progression during induction is low. Salvage cystectomies were performed in 23%; two-thirds had no progression. Progression eventually occurs in 1-in-5 patients, however >60% of these patients were never candidates for cystectomy.

P10-16 Preliminary experience of ex-vivo high-throughput drug screening in muscle invasive bladder cancer: moving towards improved patient selection and treatment personalisation

Miss Samantha Conroy[1], Dr Greg Wells[2], Mr Richard Allen[2], Dr Juha Rantala[2], Prof Thomas Helleday[3], Prof James Catto[1]

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Introduction: Despite increased understanding of complex tumour biology and advances in drug discovery, outcomes in muscle-invasive bladder cancer (MIBC) have not significantly improved in 30 years. Ex-vivo high-throughput drug screening – a novel pre-clinical model – may improve patient selection, treatment personalisation, and expedite novel drug discovery.

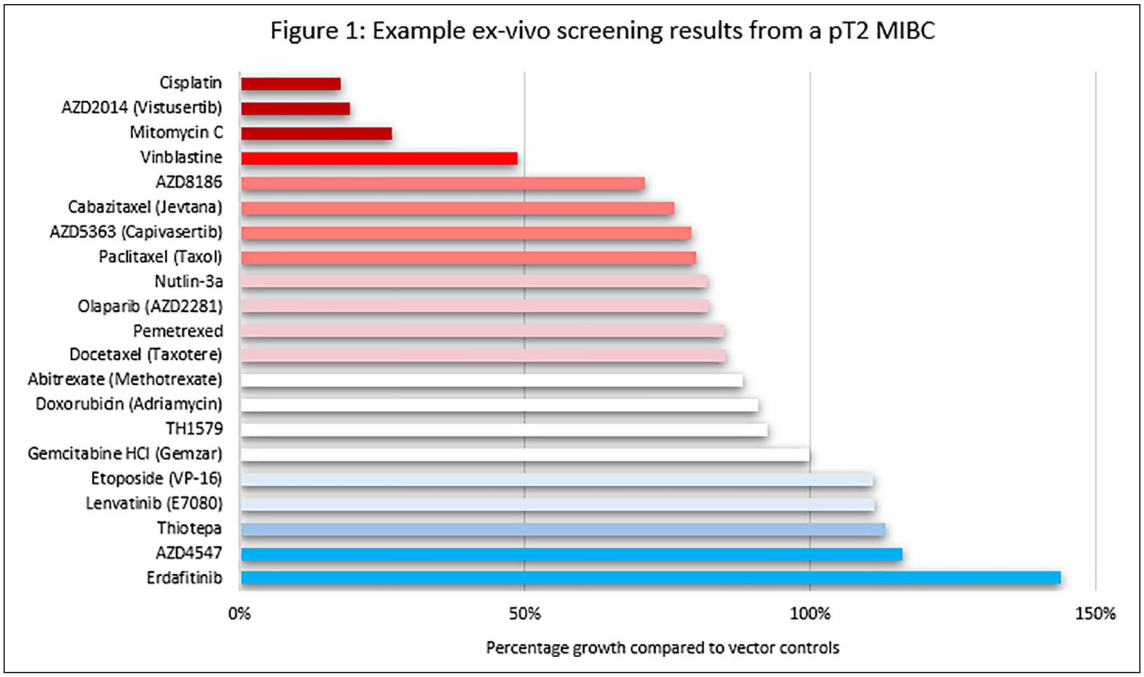
Patients and Methods: 15 patients with MIBC provided informed consent (09/2020-01/2021)(Ethics:10/H1310/73). Each tumour sample was dissociated into a composite cellular suspension (tumour/stromal/immune) and seeded onto drug plates containing standard-of-care, novel and repurposed agents. Two plates were ran for each sample to generate enzymatic and immunofluorescence end-point data. Drug responses were determined by comparing drug wells with vehicle controls; responses were categorised as partial response (PR:51-75% growth), good response (GR:26-50% growth), and complete response (CR:0-25% growth) at highest drug concentrations.

Preliminary experience of ex-vivo high-throughput drug screening in muscle invasive bladder cancer: moving towards improved patient selection and treatment personalisation
Miss S Conroy, Dr G Wells, Mr R Allen, Dr J Rantala, Prof T Helleday, Prof J Catto

Table 1: A summary of clinical features of TURBT specimens received, ex-vivo seeding density, and clinical management.

Patient number	Histopathological Grade/Stage	Procedure	Histopathological Subtype	Clinical Outcome	Seeding density
1	G3pT2	TURBT	UCC	NAC and RC	6000
2	G3pT2	TURBT	UCC	NAC and RC	8000
3	G3pT2	TURBT	UCC	NAC and RC	6000
4	G3pT2	TURBT	UCC	DXT	4500
5	G3pT2	TURBT	UCC	RC	8000
6	pT4 (radiological)	TURBT	SCC	RC	10000
7	G3pT1/2	TURBT	UCC with squamous differentiation	BSC	10000
8	G3pT2	TURBT	UCC with extensive squamous differentiation	DXT	4000
9	G3pT2	TURBT	UCC with squamous and granular differentiation	Awaited	6000
10	pT2 at least with CIS	TURBT	Poorly differentiated UCC with extensive squamous differentiation	Chemo-radiotherapy	8000

TURBT – transurethral resection of bladder tumour; CIS – carcinoma in situ; UCC – urothelial cell carcinoma; SCC – squamous cell carcinoma; NAC – neoadjuvant chemotherapy; RC – radical cystectomy; DXT – radiotherapy; BSC – best supportive care.



Results: 10 patients had end-point enzymatic data available for inclusion. Table 1 describes clinical features and ex-vivo seeding densities. Figure 1 depicts an example of end-point results. All tumours had CR to Cisplatin, but only 40% had GR/PR to Gemcitabine. Ex-vivo screening identified additional effective (at least GR) standard-of-care treatments (could be added immediately) for all tumours eg. Vinblastine; and identified effective (at least GR) novel agents in all tumours eg. mTOR, PI3K, EGFR, and FRFR inhibitors.

Conclusions: Preliminary experiences using ex-vivo screening to determine patient-specific drug sensitivities in MIBC is promising. Future work includes: immunofluorescence-based cell-type specific sensitivities and cell-on-cell interaction analysis; genetic analysis to explore implicated molecular pathways; clinical follow-up correlation; and expansion of plates to include combination treatments.

P10-17 Robot-Assisted Radical Cystectomy: A Complete Audit Cycle of Our First 120 Cases

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Introduction: There are 10,200 new cases of bladder cancer diagnosed every year in the UK accounting for 3% of all new cancer diagnoses. Robot-assisted radical cystectomy (RARC) is a minimal invasive treatment option for muscle invasive and high risk bladder cancer with a rising uptake. Between 2017 and 2019, RARC accounted for 40.7% of all cystectomies performed in the UK. We compared our outcomes with the best practice of RARC set by the Pasadena consensus panel in 2015.

Materials and Methods: A review of the prospectively maintained database of all RARC performed in our Centre by two surgeons between May 2013 and October 2020 was conducted. Operative and oncological outcome data were collected from Clinical Web Portal and Somerset cancer Register and analysed using Microsoft Excel.

Results: A total of 120 RARC were performed in the study period, 50 cases were analysed in the first audit loop and 70 cases in the second loop. The mean age was 69 years (44 – 82), 84% were men and 70% were ASA grade 2 or less. The median operating time was 378 minutes and the median blood loss was 250mls. 80% of the urinary diversion was intra-corporeal and 85% was Ileal conduit diversion. The median length of stay was 8 days; complication rate with Clavien Dindo score of III or higher was 12.5%. 87% of our patients are still alive.

Conclusion: RARC is a safe option for the radical management of bladder cancer. Our outcomes are consistent with the Pasadena consensus recommendations.

P10-18 The learning curve for intra-corporal ileal conduit reconstruction in robotic assisted radical cystectomy: How steep does it go?

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Introduction: Robotic assisted radical cystectomy (RARC) is being gradually adopted as the preferred surgical approach

for radical cystectomy. Intra-corporal conduit re-construction (ICCR) presents challenges even in experienced hands. We document our experience and learning curve by studying the incidence of uretero-enteric stricture (UES) rates.

Patients and Methods: Retrospective analysis of all (n=148) ICCR during RARC in our centre over 51 months by two surgeons experienced in open and robotic pelvic surgery. UES was identified by delayed excretion on CT Urography. Multiple operating and patient factors were studied. ICCR were sub-divided into cohorts of up to 50 patients in chronological order of operation date.

strictures and complication in ICCR

	cohort 1 (n=50) case 1-50	cohort 2 (n=50) case 51-100	cohort 3 (n=48) case 101-148	All intracorp (n=148)
operating time	300	245	240	260
console time (min)	245	240	240	240
conduit time (min)	87.5	62.5	60	62.5
blood loss (ml) median	200	150	100	150
length of stay (days)	7	7	7.5	7
Anastamotic stricture rate	(18%) 9	(16%) 8	(8%) 4	(14.1%) 21
days to stricture DX (median)	196	97	131	140
Left	3	6	2	11
Right	1	1	0	2
bilateral	5	1	2	8
Stricture at 6 months				(10%) 15
Stricture at 12 months				(14%) 21
Anastamotic Leak	(10%) 5	6% 3	(8.3%) 4	(8.1%) 12
CD2	(14%) 7	(24%)12	(25%)12	(21%)31
CD3	(18%) 9	(16%)8	(10.4%) 5	(14.8%)22
CD4	0	0	(2%) 1	(0.7%)1
cd5	0	0	0	0
bricker technique	11	37	48	96
wallace technique	39	13	0	52

Possible Factors in benign stricture development

	Stricture n 21	non strictured n 127	proportion developing stricture
T stage			
A/CIS	2	7	22%
1	7	25	21.80%
2	4	46	8%
3	6	43	12.20%
4	2	6	25%
Positive Lymph nodes	5	26	16%
CIS	9	65	12%
BCG	7	20	30%
Neoadjuvant chemo	6	26	18.70%
Pelvic radiotherapy	1	2	33%
pelvic surgery	3	8	27.70%
Brickers	8	88	8.30%
wallace	13	39	25.00%
console time (median)	250	240	

Results: In 148 patients, 52 underwent Wallace and 96 Bricker's anastomoses. UES rate was 18%, 16% and 8% in the respective cohorts. Of patients with EUS, 52% had isolated left side and 9.5% right, with 38% bilateral. Median time to stricture diagnosis was 196, 97 and 131 days in the 3 cohorts (overall 140 days). Overall UES rate was 10% at 6 months and 14% at 12 months. 25% of patients with Wallace and 8% with Bricker's technique developed UES. Wallace was primarily utilised in earlier cases.

Other potential identified factors include neoadjuvant chemotherapy (18%), prior pelvic surgery (27.7%) and radiotherapy (33%) however numbers are small.

Conclusions: ICCR after RARC requires significant technical expertise with a steep learning curve of at least 50 cases to decrease the UES rates to 8%. Bricker technique was noted to have a significantly lower rate of UES in our experience.

P10-19 Charlson comorbidity index assists in outcome prediction after Robotic Assisted Radical Cystectomy (RARC) and intracorporeal reconstruction for bladder cancer

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Introduction: Robotic assisted radical cystectomy and intra-corporeal urinary diversion (RARC-ICUD) can be associated with significant morbidity. The objective of this study was to investigate whether pre-operative comorbidity status measured by the Charlson Comorbidity Index (CCI) predicts for postoperative complications and length of stay (LOS) in patients undergoing RARC-ICUD.

Materials & Methods: A retrospective study of a prospectively maintained database of consecutive patients who underwent RARC-ICUD at a tertiary referral centre between 2011-2019 was performed. CCI was analysed in relationship to peri-operative outcomes including: post-operative length of stay, Clavien-Dindo complications and survival.

Results: 428 patients underwent RARC-ICUD over the study period; of these 78 were excluded from the analysis as a CCI score was not calculated. In the cohort analysed (n=350), median age was 69 years (R 18- 89), 33% underwent neo-adjuvant chemotherapy and median length of stay after surgery was 7 days (Range 3- 77). Multivariate analysis demonstrated a higher CCI pre-operative score was associated with a higher rate of complications at 30 and 90 days post-surgery, (IRR 1.151, p=0.022). Multivariate analysis demonstrated that a higher CCI score was associated with a longer length of stay, Incident Rate Ratio (IRR) 1.047, p=0.05. CCI did not predicted readmission or mortality rates after surgery.

Conclusions: This study shows the CCI score is a simple, reliable and cost-effective way of identifying patients at increased risk of complication and prolonged length of stay after RARC-ICUD. Surgeons performing Radical Cystectomy should consider utilising it to improve pre-operative patient risk stratification prior to RARC-ICUD.

P10-20 Super-Selective Trans-Catheter Arterial Embolization (TAE) of the Vesical Arteries in the Management of Intractable Hematuria Secondary to Advanced Bladder and Prostate Cancers

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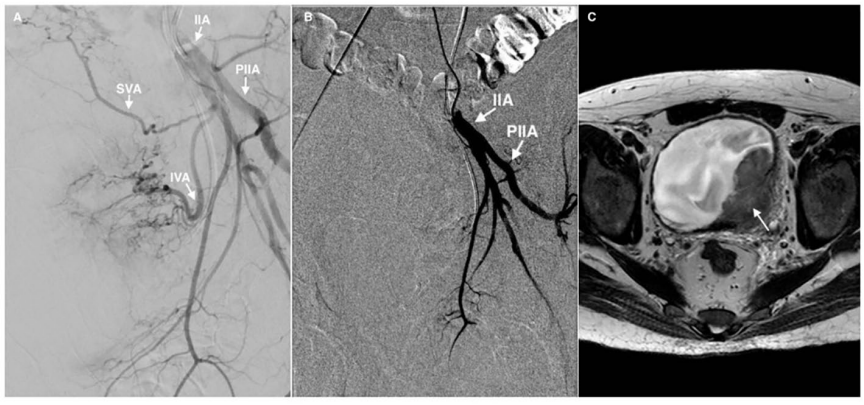
Introduction: In frail patients intractable haematuria secondary to advanced malignancies is a clinical challenge. Super-selective TAE of the vesical arteries is a suitable minimally invasive option. We present our experience in this patient cohort.

Patients and Methods: All patients who underwent TAE from January 2014 to December 2019 were included. Super-selective TAE of the superior and inferior vesical arteries was done using 300-500μ PVA particles. Demographic data, cancer stage, pre-embolization palliative treatment, chemotherapy and radiotherapy were recorded. Technical and clinical success, time to cessation of haematuria, recurrence of haematuria and complications were recorded. Data are presented as mean±standard deviation, and statistical significance is set at $p < 0.05$.



Patient 1 (A) Left angiogram showing hypervascularity. (B) Left angiogram post-embolization showing reduction in blood flow to the vesical arteries. (C) Magnetic Resonance Imaging (MRI) with a large tumor involving the posterolateral bladder wall with peri-vescial fat invasion.

Abbreviation Key: IIA: Internal Iliac Artery, PIIA: Posterior Branch of Internal Iliac Artery, SVA: Superior Vesical Artery, IVA: Inferior Vesical Artery.

Results: From 2014-2019, 7 patients underwent 8 procedures. The average patients' age was 60.6±10.3 years. All presented with gross haematuria, 6 due to bladder cancer and 1 due to prostate cancer. The average time of haematuria clearance was 60 hours. The average haemoglobin levels at the time of the procedure, 1 month and 6 months post-embolization were 9.6±1.7g/dL, 10.6±1.5g/dL ($p < 0.05$), and 9.6±0.9g/dL, respectively ($p > 0.05$).

Packed red blood cell requirements decreased from 7.3±2 units to 5±3.3 units after the procedure ($p>0.05$). The patients were followed up for an average of 13.6 months and 4 had a recurrence at an average of four months post-embolization.

Conclusion: Super-selective TAE is an effective method in controlling intractable haematuria. The risks of major surgery and anaesthesia are omitted, and the procedure can be repeated as needed. Furthermore, post-embolization complications, using this technique, are minor and manageable.

EPOSTER 11 - Management/ Governance/Education/Quality Improvement

P11-1 Urological litigation trends and successful claims in the National Health Service (NHS): An analysis of 20 years of claims in Urology from United Kingdom

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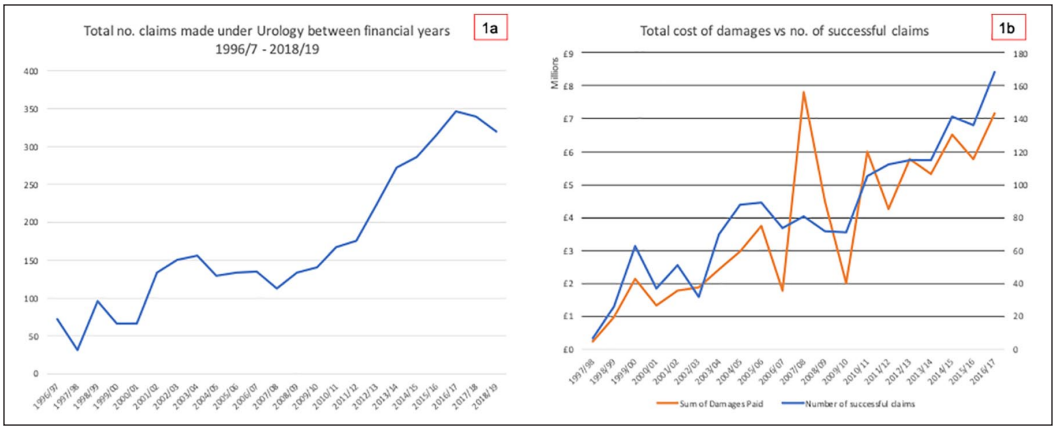
Introduction: Surgical specialities accrue some of the highest litigation claims and costs due to their invasive nature. Although urology continues to have some of the fewest claims, their associated costs are still rising. We present the urology litigation trends and successful claims in the National Health Service (NHS) over the last 20 years.

Methods: Data was acquired from NHS resolutions. This included the number of claims dating from 1996-2019, the total sum of damages paid out each year for urology 1997-2017 and the causes for our claims dating from 2009- 2019.



Results: In total, urology received 2585 claims in 20 years. Over this time, yearly claims have increased almost 7-fold. The total cost of these claims was £74.4 million (range: £0.2m-£7.8m/annum). Our research highlights where the majority of these claims reside, and we have analysed the micro-trends within the data.

Conclusion: Whilst human factors and unpreventable damage can be tolerated, there is still the need for continual improvement to patient care, surgical training, counselling, informed consent and early management of complications. The evidence suggests that the best approach to improve these areas combines rigid adherence to and re-enforcement of common surgical guidelines, supported by low-level initiatives to combat local trends.

P11-2 LEARNing Urology in Medical School: a National Multicentre Cross-Sectional Study

Mr Alexander Ng[1,2], Mr Vinson Wai-Shun Chan[2,3], Miss Aqua Asif[2,4], Mr Chon Meng Lam[2,5], Mr Alexander Light[2,6], Miss Keerthanaa Jayaraajan[2,7], Mr William Cambridge[2,8], Miss Nikita Bhatt[2,10], Mr Sinan Khadhouri[2,11], Mr Veeru Kasivisvanathan[2,12], The BURST/LEARN Study Collaborators

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Introduction: Urology is a common rotation for Foundation Year (FY) doctors, and accounts for 15% of general practitioner appointments and >25% of acute surgical referrals. The LEARN study aims to evaluate the current status of UK undergraduate urology teaching.

Method: LEARN is a national multicentre cross-sectional study of undergraduate urology teaching. Year 2-5 medical students and FY1 doctors were invited to complete a survey between 3rd October-20th December 2020. The primary objective was to compare current undergraduate urology teaching against the BAUS Undergraduate Syllabus for Urology. Secondary objectives were to investigate the type and quantity of teaching provided, the reported performance rate of General Medical Council (GMC) mandated urological procedures, and the proportion of those considering urology as a career.

	% of FY1 doctors
Teaching topics received	
Urinary tract infection	96.5
Acute kidney injury	95.9
Haematuria	94.4
Male lower urinary tract symptoms	92.9
Acute renal tract stone disease	92.4
Urological cancer	89.4
Female lower urinary tract symptoms	89.0
Female urinary incontinence	85.6
Scrotal swelling and pain	84.2
Paediatric urology conditions	80.6
Abdominal pain referable to the urinary tract	77.4
Male urinary incontinence	59.4
Male infertility	52.4
Erectile dysfunction	43.8
None	0.8
Clinical skills observed or performed	
Digital rectal examination	
Observed	96.8
Performed on model	92.5
Performed on patient	94.3
Male catheterisation	
Observed	96.6
Performed on model	96.2
Performed on patient	92.1
Female catheterisation	
Observed	87.0
Performed on model	85.0
Performed on patient	73.1
Urological exposure and career	
Considered a career in urology	16.9
Felt there was sufficient urology teaching	50.3
Felt there was enough career exposure/information on the pathways to a career in urology	29.2

Table 1. A summary of teaching topics received; clinical skills observed or performed; and urological exposure and career reported by FY1 doctors.

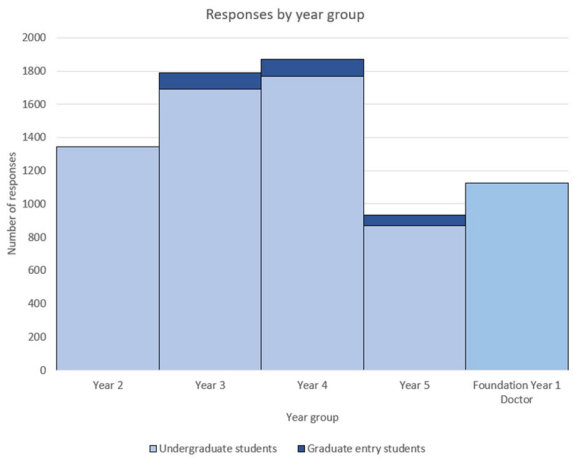

Figure 1. Distribution of responses by year group.

Results: 7,063/8,346 (84.6%) responses from all 39 medical schools were eligible for inclusion. 16.0% of responses were from FY1 doctors (Figure 1), and in their undergraduate training, the most commonly taught topics were urinary tract infection (96.5%), acute kidney injury (95.9%) and haematuria (94.4%); the least taught topics were male urinary incontinence (59.4%), male infertility (52.4%) and erectile dysfunction (43.8%). 92.1% and 73.1% had reported performing catheterisation as undergraduates on male and female patients respectively, and 16.% had considered a career in urology (Table 1).

Conclusion: LEARN is the largest evaluation of undergraduate urology teaching ever performed. Nationally, exposure to and teaching of urology is good, but improvements are required in the delivery of education regarding essential skills such as catheterisation, where experience on real patients is a GMC requirement.

P11-3 Medical Students Perception of a Career in Urology

Dr Garm Chi Ho[1], Dr Yi Chuen Tan[2], Dr Thomas Newman[3], Mr Christopher Khoo[4], Mr Richard Menzies-Wilson[1]

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Introduction: There is increasing demand for Urology consultants in the United Kingdom (UK) with a predicted shortfall of 149 by 2030. Applications for Urology specialty recruitment have remained static. Early perception of a speciality may influence recruitment. We explored perception of a career in Urology among medical students.

Patients and Methods: A specially designed data collection tool exploring medical student perception of a career in Urology was distributed to five UK medical schools between October 2019 to January 2020. Outcomes were recorded utilising a five-point Likert scale. All responses were anonymous, and no enticements were offered as part of the study.

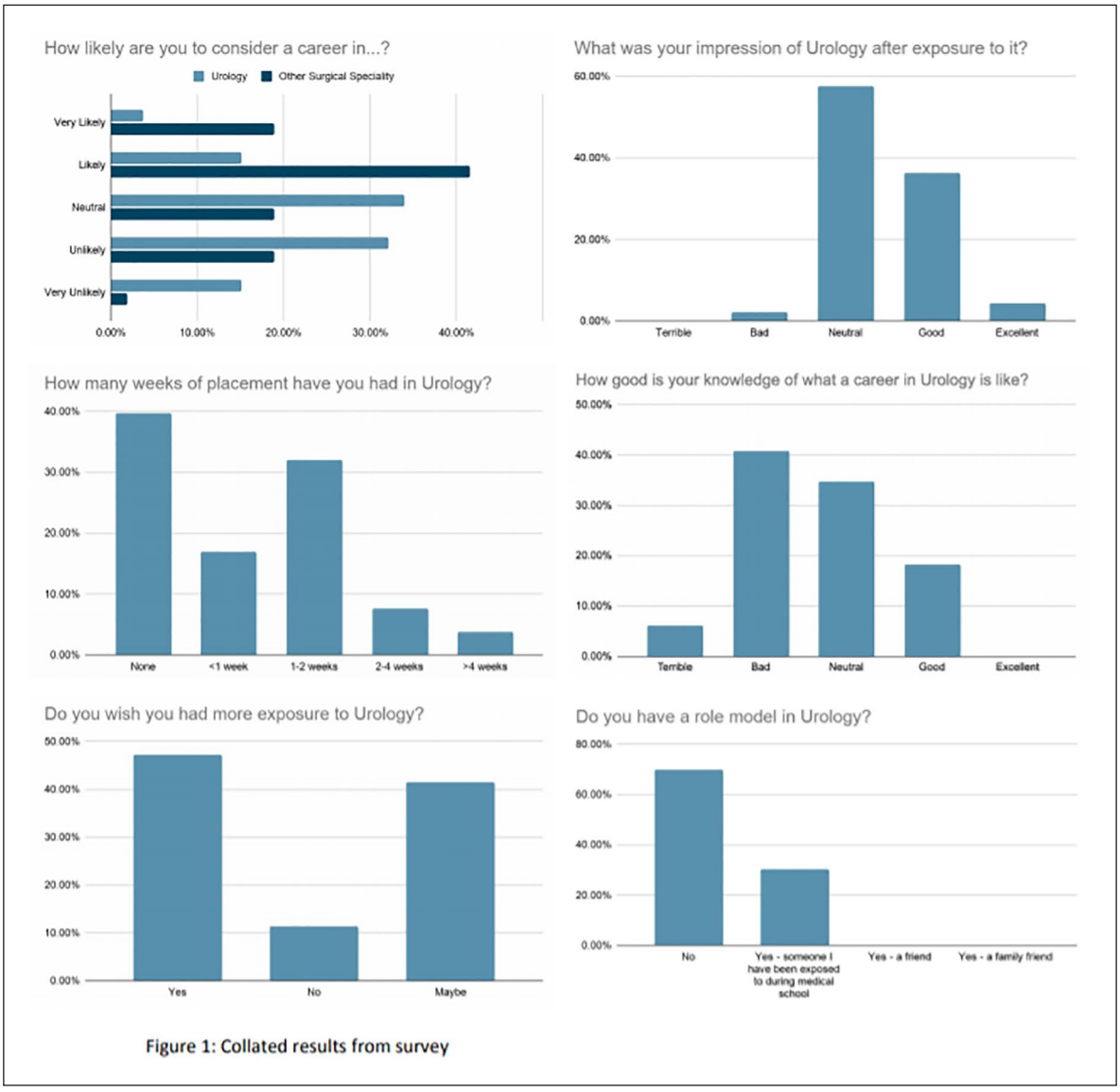

Figure 1: Collated results from survey

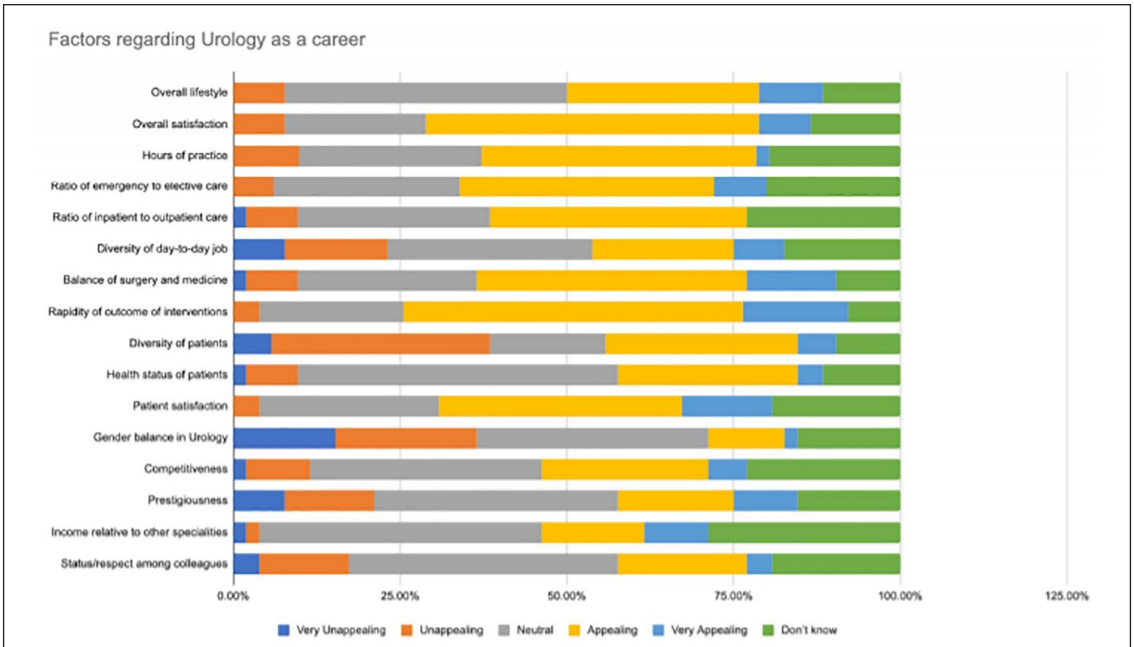

Figure 2: Factors regarding Urology as a career

Results: 53 responses were received. Only 18% of students felt they had 'good' or 'excellent' knowledge of what a career in Urology might entail. Of 32 students who had completed their Urology rotation, 81% had had less than 2 weeks experience. 70% felt they did not have a role model in Urology. After completing their placement, only one student had an overall negative impression of Urology. 19% (10 students) of participants felt 'likely' or 'very likely' to pursue a career in Urology, compared to 60% (32 students) in another surgical speciality (figure 1).

The most appealing aspects of Urology as a career were 'patient satisfaction' and 'rapidity of outcomes'. The least appealing were 'diversity of patients' and 'gender balance' (figure 2).

Conclusions: Exposure to Urology during medical school is lacking; however, impression after exposure is rarely negative. Gaps during early training must be addressed to safeguard future speciality recruitment.

P11-4 The impact of a universal, streamlined diagnostic pathway on socioeconomic health inequality in prostate cancer

Mr Edward Bass[1], Miss Mariana Bertoncelli Tanaka[2], Mr Martin J. Connor[1], Miss Uma Walters[2], Mr David Eldred-Evans[1], Mr Stuart McCracken[5], Mr Hasan Qazi[3], Mr Steve Gordon[4], Mr Mathias Winkler[2], Professor Hashim U. Ahmed[1]

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Introduction: Health outcome disparities in prostate cancer can be attributed in particular to ethnicity and socioeconomic status. We assess the impact of a standardised regional diagnostic pathway on cancer diagnostic outcome equality.

Methods: 1439 consecutive men were referred for investigation of possible prostate cancer (04/2017-07/2020), with men undergoing multiparametric MRI and, if required, transperineal targeted and systematic biopsy. Age, presenting PSA and Gleason grade group (GG) at biopsy was recorded. Men were sorted by the index of multiple deprivation rank (IMD) of their lower layer super output area, (specific geographical location in which they live) and the percent white population in their political constituency. Equality of disease burden, defined by diagnosis with high-risk disease (PSA >/=20 and Gleason GG >/=4+3) by ethnicity and deprivation was assessed by the Gini coefficient (Perfect equality=0.00; complete inequality=1.00)).

Results: Median age was 69 [IQR 62-74] years and median PSA 7.0 [IQR 5.1-10.3] ng/ml. 74 had a PSA >/= 20ng/dL and 142 diagnosed with Gleason GG >/=4+3. Gini coefficient for IMD correlation with PSA was 0.03; it was 0.08 for IMD and Gleason GG >/=4+3. Gini coefficient for percent white population correlation with PSA was 0.01 and 0.05 for GG >/=4+3.

Conclusions: The establishment of a standardised regional diagnostic pathway within a universal healthcare

system such as the NHS contributes to a high degree of health equality.

P11-5 ReIMAGINE: A prostate cancer research consortium with impact due to its patient and public involvement and engagement

Miss Saran Green[1], Mr Steve Tuck[3], Miss Anna Haire[1], Miss Charlotte Moss[1], Mr Neil McCartan[2], Miss Teresa Marsden[2], Prof Caroline Moore[2], Prof Mark Emberton[2], Professor Mieke Van Hemelrijck[1], Consortium ReIMAGINE[2]

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Introduction: ReIMAGINE aims to improve current PSA/biopsy risk stratification for prostate cancer (PCa) and develop a new image-based method for diagnosing high/low risk PCa. Here, we describe how active involvement/engagement with patients and the general public from study inception led to impactful evidence-based clinical research outputs for ReIMAGINE.

Patients & Methods: We began with a series of discussion groups, whereby patients and their family members, as well as men without PCa (i.e. the general public) provided insight into participant preferences with respect to study design and management, data collection and analysis, and dissemination of findings.

Results: Our consultation phase confirmed research need for less invasive PCa diagnostic strategies and generated study design recommendations. In addition to various outreach activities, our Twitter account (@reimagine_pca) is at the heart of our engagement strategy as it allows us to participate in many other relevant PPI activities. Most recently, our PPI-Subcommittee has worked collaboratively with our Trials team to reopen consortium studies following a pause in recruitment because of COVID-19. They developed information videos in which members played the parts of patients providing a "walk-through" of COVID-secure clinical pathways encountered by study participants.

Conclusion: ReIMAGINE has incorporated structures and funding for inclusion and engagement of the patient and public voice in the study design, monitoring and ongoing processes. The appointment of a funded PPI co-ordinator and a patient chair of the PPI sub-committee has led to further work outside the study remit, particularly in the establishment of a BAME PPI committee for prostate cancer.

P11-6 Virtual interactive surgical skills classroom – a single-blinded, randomised control trial (VIRTUAL)

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Introduction: High costs and inaccessibility are significant barriers to face-to-face (F2F) basic surgical skills (BSS) training. We aim to evaluate the efficacy of virtual (VC) BSS classroom training compared to both non-interactive video and face-to-face teaching.

Patients and Methods: 72 UK medical students underwent stratified block randomisation into CBL, VC and F2F arms based on previous surgical skill experience and confidence. They were assessed pre- and post-intervention using the Objective Structured Assessment of Technical Skills (OSATS) scores developed by the Royal College of Surgeons and marked by independent expert, blinded examiners. The task was to place three interrupted sutures with hand-tied knots.

Results: Mean OSAT score improved significantly after VC training (8.88/16 to 14.17/16). VC (+5.29) improved significantly greater than CBL (+4.75) and similar to F2F (+5.38). VC and F2F were scored similarly in time to completion but both scored significantly better than CBL. Suturing confidence improved in all three groups. Cost per participant was significantly lower for VC (£8) than F2F (£30) and time spent travelling was also significantly lower for VC (0mins) compared to F2F (50mins).

Conclusion: This is the largest randomised control trial investigating virtual BSS classroom training. VC is an effective method of delivering basic surgical skill training. VC is more effective than non-interactive CBL and just as effective as F2F teaching. VC is cheaper and more accessible than F2F. The VC is a safe and effective training method during the COVID-19 pandemic and can be used in the future to improve accessibility of surgical training.

P11-7 A well run nurse-led UTI service provides consistent care and reduces pressure on consultant clinics

Mr Mustafa Rashid[1], Miss Coral Seymour[1], Miss Paulette Hussain[1], Miss Kathleen Connor-Middleton[1], Mr Abdel Hamed[1], Miss Maike Eylert[1]

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Introduction: Recurrent urinary tract infections (UTI) in female patients are a common referral to urology, yet much of the investigation and advice follow a standard protocol. Our intention was to standardise and streamline treatment. We established a nurse-led UTI clinic in 2014, which sees increasing patient numbers every year. The clinic is overseen by a consultant, specialising in Female, Neurological and Urodynamic Urology. This re-audit assesses the investigations requested and the overall outcomes of the UTI clinic.

Patients and Methods: We re-audited all patients seen in the clinic from 2017 to 2019 (n=836), looking at per-protocol investigations requested, particularly flexible cystoscopy (n=256) and ultrasonography (n=813). We

also audited the rate of referral to consultant clinics and discharge rate at 6 months.

Results: The median wait from referral time was 19 weeks. Ultrasound scans were positive for any pathology in 15% of patients, and cystoscopy positive in 12.5%. At 6 months, around 75% of patients were discharged, with only 11% of patients requiring referral to consultant urology clinics. 2 cancers were picked up, but much quicker (both less than 3 months) than if they had waited for general consultant clinics at point of referral. Unfortunately, both patients had advanced cancers at diagnosis.

Conclusions: A well-run, protocol driven nurse-led UTI clinic provides consistent care to patients and reduces pressure on consultant clinics. It also allows for additional investigations based on history taking to ensure appropriate use of cystoscopy and imaging. Regular re-audit allows evidence-based protocol adjustments to continually improve use of resources.

P11-8 Development of an in-house electronic ureteric stent register- highlighting benefits to patients and the urology service

Dr Rotimi David[1], Dr Nikos Tteralli[1], Dr Mohammed Ali[1], Mike Ellson[1], Ms Nikki Lench[1], Ms Teena Stafford[1], Ms Clare Bent[1], Ms Emma Bromwich[1], Mr Joshua Phillips[1]

[1]Royal Bournemouth Hospital, University Hospitals Dorset NHS Foundation Trust, Bournemouth, United Kingdom

Introduction: Ureteric stenting is common among urologists, interventional radiologists (IR) and transplant surgeons. 'Forgotten stents' could result in encrustation, sepsis and kidney loss; hence justification for ureteric stent registers. The few existing registers are limited by data protection issues or heavy reliance on paper trails, emails or SMS. We therefore developed an electronic ureteric stent register locally and aim to share our experience and highlight benefits of this innovation.

Materials and Methods: Our IT department collaborated with urology and IR departments to develop the register using the 'ImageNow software'. There are no running costs, and it links directly into our hospital's clinical information system. Clinicians enter stents on the register at time of placement while our nurse practitioner team micro-manage and update the register.

Results: About 1800 stents have been entered on the register from April 2015 till date, with all fully accounted for. Patients at high risk of a 'forgotten stent' from our experience are those with multiple comorbidities and difficulty fitting stent appointments around many other ongoing treatments; those with poor compliance from self-neglect or mental health issues; individuals who relocate away from the region and those who choose to leave the NHS for private medical care without proper documentation.

Conclusions: An in-house electronic register is a feasible and effective means of tracking ureteric stents while avoiding data protection problems and other concerns. IT-units in other UK Trusts could replicate similar platforms especially with ongoing pressures on the NHS such as from the COVID-19 pandemic.

P11-9 The First UK Experience with Single-use Disposable Flexible Cystoscopes: An In-depth Cost Analysis, Service Delivery and Patient Satisfaction Rate with Ambu® aScope™ 4 Cysto

Mr Anton Wong[1], Mr Yih Chyn Phan[1], Miss Helen Thursby[1], Mr Wasim Mahmalji[1]

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Introduction: Ambu® aScope™ 4 Cysto is a single-use disposable flexible cystoscope that allows clinicians to perform the procedure at any time and place. It simplifies workflow, frees up resources and allows clinicians to treat more patients. Our trust became the first in the UK and Europe to utilise these cystoscopes. An in-depth evaluation was performed to test its practicality, cost analysis and patient satisfaction against traditional reusable flexible cystoscopes.

Patients and Methods: We compared the cost of using Ambu® aScope™ 4 Cysto to perform flexible cystoscopies in 20 patients prospectively against traditional flexible cystoscopes in 20 patients retrospectively. The cost of the equipment, reprocessing, cleaning supplies and maintenance were consulted from relevant departments and companies. All prospective patients were also given a patient satisfaction questionnaire to complete. An unpaired t-test was used to analyse the data.

Figure 1: Patient experience and satisfaction score

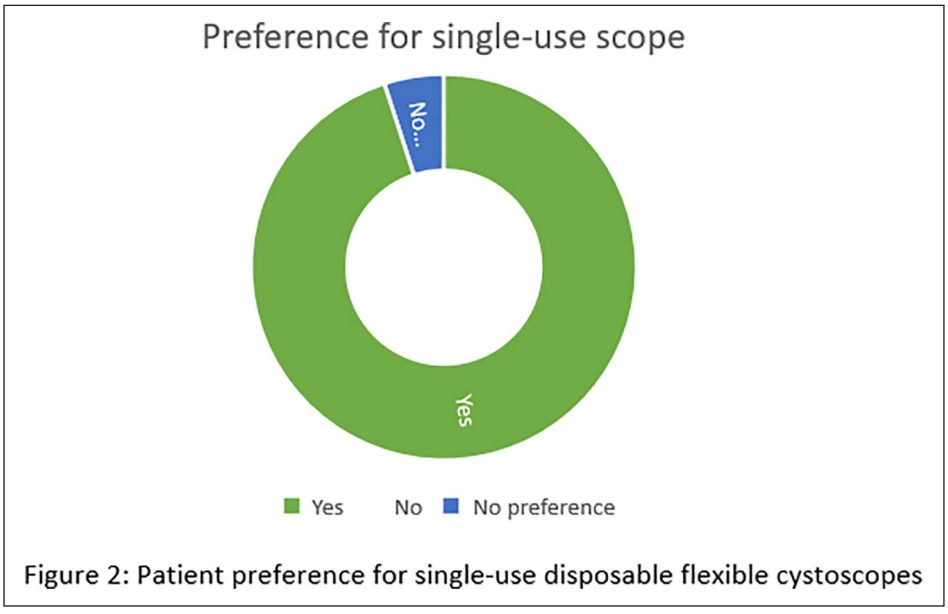

Figure 2: Patient preference for single-use disposable flexible cystoscopes

Results: Our study revealed that it costs £135.15 and £166.25 on average to perform a flexible cystoscopy using Ambu® aScope™ 4 Cysto and the traditional flexible cystoscopes respectively. Our patient survey revealed that there was a statistical significance between the patient experience using the single-use disposable scopes compared to the traditional reusable flexible cystoscopes (p=0.0455). 95% of patients also preferred a single-use disposable cystoscope over traditional reusable ones, given the option.

Conclusions: Single-use disposable flexible cystoscopes are a safe and cost efficient method of performing the procedure. It is portable and proves to be a simple, efficient and practical way of performing a flexible cystoscopy in an inpatient, outpatient or emergency setting.

P11-10 Optimising Emergency Urological Care in the Older Patient – Impact of a Dedicated Perioperative Care for Older People undergoing Surgery (POPS) Platform

Mr Mark Yao[1], Dr Edita Carolan[1], Mr Sam Folkard[1], Mr Mahmoud Abuelnaga[1], Mr Adrian Simoes[1], Mr Milan Thomas[1], Ms Lizzie Forsyth[2], Mr Sashi Kommu[1], Mr Ben Eddy[1], Mr Edward Streeter[1], Dr Catherine Meilak[2]

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Introduction: The number of older urology patients admitted in the acute setting continues to increase. These

patients have multiple co-morbidities, concomitant frailty and are at risk of poor health outcomes and experience. We present our experience of a dedicated consultant led Perioperative care for Older People undergoing Surgery (POPS) Platform in the acute urology setting.

Patients and methods: Prospective data was collected over 3months following introduction of the POPS Platform (PP) and compared to 3months' retrospective data of the previous standard of no POPS Platform (NPP). Staff questionnaires were analysed.

Results: We assessed 197 patients [PP(n=141)/NPP(n=56)]. Mean age NPP=78yrs Vs. PP 84yrs. Range of length of stay (LOS) decreased from NPP(1-80days) to PP(1-25days). Thirty day readmission rates for "medical reasons" were NPP[41% (17/41)] and PP[0% (0/15)] and "urological reasons" NPP[59% (24/41)] to PP[100% (15/15)], p=0.002. Mortality rates on readmission improved from NPP[20%(8/41)] to PP[0% (0/15)]. Patients transferred to other speciality teams were halved. This cohort had mean Rockwood (frailty) score 6 (moderately frail), and mean of 7 co-morbidities. Increase in prevalence of fast-track, hospice discharge, and patients achieving end of life at-home was seen. 69% (42/61) of PP cohort returned to usual residence. Recognition and management of delirium and anaemia improved. Questionnaires revealed 100% approval by staff.

Conclusion: A dedicated POPS team optimises emergency urological care in the older patient with improved recognition and management of medical complications, end of life care/discharge planning, 30-day readmission rates, LOS and in-hospital mortality. Introduction of similar platforms in urology departments is recommended.

EPOSTER 12 - Renal Cancer/Sarcoma

P12-1 Characterisation of Renal Cancer by Prostate Specific Membrane Antigen (PSMA) PET/CT in comparison to standard of care imaging: a multi-institutional series

Dr Arsalan Tariq[1,2], Dr Adam Pearce[1,2,4], Dr Handoo Rhee[2,3], A/Prof Paul Thomas[2,5], A/Prof David Pattison[2,5], Dr Samuel Kyle[5,6], Dr Anojan Navaratnam[1,2], Dr Rachel Esler[1,2,4], A/Prof John Yaxley[1,2,4], Dr Matthew Roberts[1,2,7]

[1]Department of Urology, The Royal Brisbane & Women's Hospital, Brisbane, Australia, [2]Faculty of Medicine, The University of Queensland, Brisbane, Australia, [3]Department of Urology, Princess Alexandra Hospital, Brisbane, Australia, [4]Wesley Urology Clinic, The Wesley Hospital, Brisbane, Australia, [5]Department of Nuclear Medicine & Molecular Imaging, Royal Brisbane & Women's Hospital, Brisbane, Australia, [6]Department of Diagnostic Radiology, Princess Alexandra Hospital, Brisbane, Australia, [7]Centre for Clinical Research, The University of Queensland, Brisbane, Australia

Introduction: Accurate characterisation of renal tumours is an ongoing challenge. Given the novel implications of PSMA in non-prostatic malignancies, we sought to further define the role of PSMA-based Imaging in renal cancer. The objective of this study was to determine diagnostic accuracy of primary lesions, nodal & distant metastasis with PSMA PET/CT compared to standard of care (SOC) imaging and histopathology.

Material & Methods: A retrospective cohort study was undertaken of all PSMA PET/CT scans performed for primary or recurrent staging of renal cell carcinoma (RCC) and incidental renal lesions at 3 sites in Brisbane, Australia between June 2015 to June 2020. Clinical characteristics, imaging findings, and histopathology were reviewed.

Results: 113 PSMA PET/CT scans were reviewed (53 staging, 47 re-staging & 13 incidental) of mostly men (75%) with a median age of 65 years (IQR 14 years). From histopathology for 55 primary lesions, 50 were PSMA avid (90.91%). Clear Cell RCC represented 42 of these primary lesions (94% PSMA Avid). PSMA identified a greater number of nodal or metastatic lesions than SOC imaging for 37% of patients and refuted SOC imaging findings for 12%. PSMA had a Positive Predictive Value of 91% (SOC imaging 53%) and Negative Predictive Value of 76% (SOC Imaging 29%) in lymph nodes. Overall, 38% of patients had their treatment modified due to PSMA PET/CT.

Conclusions: Most (91%) primary tumours were PSMA avid, leading to improved diagnostic accuracy for PSMA PET/CT compared to SOC imaging and treatment modification. Further assessment in prospective studies is warranted.

P12-2 Accurate differentiation of pathological subtypes of renal tumour by applying a machine learning model to epigenetic markers

Miss Sabrina H. Rossi[1], Miss Izzy Newsham[1], Miss Sara Pita[1], Dr Christopher Smith[1], Dr Kevin Brennan[2], Ass Prof John Leppert[2], Prof Olivier Gevaert[2], Prof Grant D. Stewart[1], Dr Charlie Massie[1], Dr Shamith Samarajiwa[1]

[1]University Of Cambridge, Cambridge, United Kingdom, [2]Stanford University, Stanford, United States of America

Introduction: Small renal masses (SRMs) represent a diagnostic challenge, with 20% of SRMs found to be benign post-operatively. We developed and validated a machine learning (ML) model, leveraging DNA methylation analysis in >1500 patient samples, to classify pathological subtypes of renal tumours and improve diagnosis.

Methods: Methylation was evaluated using the Illumina 450k microarray and EPIC Methyl Capture sequencing platforms. We combined our own dataset and TCGA data (N=approx 158000 markers). This dataset was divided into training and testing sets, using 4-fold cross validation, and used to train an XGBoost model to classify samples into one of five pathological subtypes. External validation

was performed on two independent datasets (Brennan et al and Chopra et al).
Results: The integrated dataset consisted of 1234 samples, including: 463 ccRCC, 303 pRCC, 93 chRCC, 61 oncocytomas and 314 normal kidney. The prediction accuracy in the testing set was 0.954; with high class-wise ROC AUCs: 0.995 (ccRCC), 0.995 (pRCC), 0.986 (chRCC), 0.999 (oncocytoma), 0.999 (adjacent normal). This model was externally validated on 245 ex-vivo tissue biopsies from 100 renal tumours. The accuracy was 0.829 and average class-wise ROC AUCs were: 0.978 (ccRCC), 0.945 (pRCC), 0.993 (chRCC), 0.917 (oncocytoma), 0.971 (adjacent normal). The impact of methylation heterogeneity on our classifier was assessed by evaluating 97 multi-region samples from 18 ccRCC patients.
Conclusion: A ML model based on DNA methylation can differentiate renal tumours with excellent accuracy, including external validation. The model was applied to renal biopsies and has the potential to improve the diagnostic pathway.

P12-3 Video-assisted informed consent for kidney cancer surgery - a potential solution for the new GMC consent guidance?

Mr Ryan Bellman[1], Mr Nicholas Campain[1], Ms Marta Marchetti[1], Mr David Cullen[1], Mr Faiz Mumtaz[1], Mr Prasad Patki[1], Ms Maxine Tran[1], Prof Axel Bex[1], Mr Dimitris Reissis[1], Mr Ravi Barod[1]
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Introduction: The General Medical Council (GMC) published new guidance on informed consent, including that patients should be given information needed to make a decision, and time and support to understand it. We provided patients with an animated video during the consent process for kidney cancer surgery. We assessed whether this improved patient understanding and satisfaction.
Methods: We developed an animated video describing the patient's treatment journey for minimally invasive kidney cancer surgery, including potential risks and complications. Scripts were co-designed with a multi-disciplinary team including patients with kidney cancer. The video was presented on a web platform for patients to view in their preferred time and location. Each video chapter was time and date stamped when watched. After 1 week, patients completed a questionnaire on their consent process experience.
Results: 37 patients completed questionnaires (16 watched video, 21 had not). Overall 80% preferred to watch an animated video than read a patient information leaflet, although only 40% patients accessed the platform. Reasons for not accessing included difficulty with technology and lack of family support. More patients in the video group were satisfied with the consent process and rated "strongly agree" in domains regarding procedural understanding.
Conclusions: Patients undergoing minimally invasive kidney cancer surgery preferred video to written procedural information. Consent process satisfaction was higher amongst patients who viewed the video. If implemented, consideration should be given to optimising access (patient support and enabling technology). Video assistance may enable compliance with new GMC consent guidance without disruption of clinical pathways.

P12-4 The use of 3D-printing in the development of a low-cost, perfused model for robot-assisted laparoscopic partial nephrectomy training

Miss Flora Rodger[1], Miss Lisa Ferrie[2], Mr Alvaro Sanchez-Rubio[2], Mr Matthieu Poyade[2], Mr Paul Rea[2], Mr Grenville Oades[1]
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Introduction: According to BAUS, simulation training should be integrated into the robotic surgical curriculum. However, virtual reality simulators are not universally available due to cost. The aim of this study was to increase accessibility to training in robot-assisted laparoscopic partial nephrectomy (RALPN) by producing a low-cost model.
Materials and methods: Using image segmentation and 3D-modelling software, anatomically accurate 3D-printed moulds were created from a CT scan of a renal tumour. The moulds were injected with hydrogel and fitted with an artificial renal artery. The face validity and content validity were evaluated using a 5-point Likert-style questionnaire by urology surgeons who performed a RALPN on the prototype. Qualitative data regarding perceptions of the usefulness of the model was also collected.
Results: The final cost of the prototype was £1.72 for single-use materials and £4.02 in total. Within this sample population the prototype achieved good face validity with both the overall appearance and overall feel of the model scoring between 3-5. The prototype also demonstrated content validity within responses ranging from 3-5 and the highest performing measures were in "needle driving" and "suture holding". Qualitative feedback suggested the potential significant benefits of such a training model.
Conclusion: We describe a low-cost method for producing a physical model for RALPN training. The prototype developed was considered to be an effective training tool. Through further development of this prototype, urology training programmes could have access to a cost-effective and simple means of widening access to RALPN training and implementing it at an earlier stage.

P12-5 Is it time to include CT brain scans in high-risk renal cell carcinoma follow-up?

Mr Peter Smith[1], Mr Craig Jones[1], Dr Hannah Musgrave[1], Miss Svetlana Tishkovskaya[2], Dr Natalie Charnley[1], Mr Bachar Zelhof[1]
[1]Royal Preston Hospital, Preston, United Kingdom, [2]University of Central Lancashire, Preston, United Kingdom

Introduction: Follow-up imaging post nephrectomy in renal cell carcinoma (RCC) is determined by risk-group. Despite the estimated incidence of brain metastases for RCC being 6%, neither European Association of Urology (EAU) nor American Urological Association (AUA) advocate routine computed tomography brain scan (CTBS) as part of follow up surveillance. We investigated the incidence of brain metastases specific to high-risk RCC.
Materials and Methods: All nephrectomies performed in a single centre high-volume unit were retrospectively analysed over a five-year period (2013-18) and those deemed high-risk using SSIGN criteria identified. Each high-risk patient had their follow-up imaging reviewed to estimate the incidence of brain metastases.
Results: 82 patients were identified as high-risk RCC with median follow-up of 3 years, (range 6-72 months). 33 of the 82 patients (40%) had CTBS throughout their follow-up with 14 (16.5%) demonstrating brain metastases. 11 of 14 patients with brain metastases were symptomatic. Of those identified with brain metastases, 2 had isolated disease, 6 had other single site recurrences and 6 had multiple truncal recurrences. 12 of the 14 brain metastases were identified within 3 years of nephrectomy with 10 within the first 24 months.
Conclusions: The incidence of brain metastases in high-risk RCC in our cohort is 16.5% and 42% of patients undergoing CTBS. There is a proportion with solitary brain or single other site metastases which may benefit from further specific treatment or change their oncological treatment plans if metastases identified. We hypothesise that guidance specific to high-risk RCC follow-up should include routine yearly CTBS.

P12-6 Prognostic factors for tumour recurrence in patients with localised T3a renal cancer following radical nephrectomy

Mr Alarick Picardo[1], Dr Luke Stroman[1], Dr Zhi Yang Low[1], Dr Luis Ribeiro[1], Dr Jin Quan Nataniel Tan[1], Dr Anna Walsh[1], Mr Pieter Le Roux[1], Dr Mehran Afshar[1], Mr Christopher J Anderson[1]
[1]St George's Hospital, London, United Kingdom

Introduction and Objectives: The advancement in systemic therapies for renal cancer is remarkable, but selecting patients with high recurrence risk who might benefit from adjuvant treatment is challenging. We investigate prognostic factors for disease recurrence in patients with pT3aN0M0 renal cancer following radical nephrectomy.
Patients and Methods: A retrospective review of 240 T3aN0M0 radical nephrectomy patients between 1995 and 2020 at a single tertiary hospital was conducted. Data was extracted from a prospectively collated renal cancer database: Histopathologic subtypes, tumour diameter and number, margin status, patterns of extrarenal extension, and haematological and biochemical blood parameters were evaluated on univariable and multivariable analysis using Cox proportional hazards regression.
Results: Recurrence rates at 1 and 5 years were 24.6% and 37.8% respectively: the most common sites being lung, liver and regional nodes respectively. Only ISUP grade, presence of necrosis and positive margins were identified as significant independent predictors of disease recurrence on multivariate analysis. Individually, T3a manifestations (perinephric fat, sinus fat, segmental vein, renal vein invasion) conferred no significant increase in recurrence risk: this increased with statistical significance when more than one factor was present, rising most when all four were present (HR 3.0, 95%CI 1.46-6.16, $p<0.005$)
Conclusion: Pathological T3a renal cancer represents a heterogenous group, the majority of whom will not have disease recurrence, will not benefit from, and can avoid the toxicity of adjuvant treatment. This study identifies high risk patients who may be more likely to benefit from adjuvant treatment and should be considered for trials.

P12-7 Growth and renal function of renal oncocytomas on active surveillance

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Introduction: We aimed to study the natural history of renal oncocytomas and determine how growth associates with renal function over time, and disease-specific survival.
Patients and Methods: Retrospective cohort of consecutive patients with renal oncocytoma on active surveillance reviewed at a large volume UK tertiary referral centre (2012 to 2019). Comparison between groups was tested using the Mann-Whitney U and the Chi-square tests. A mixed-effects model with a random intercept for patient was used to study the longitudinal association between tumour size and estimated glomerular filtration rate (eGFR).
Results: Data from 99 patients with 102 lesions was analysed. Most patients were male (70.7%), median age was 69 years (IQR 13). The median follow-up was 29 months (IQR 26). Most lesions were small renal masses, 23.5% measured over 4 cm. Over half (64.7%) grew at a median rate of 3 mm per year (IQR 4). No association was observed between tumour size and eGFR over time ($p=0.871$). Ten lesions (9.8%) were subsequently treated. Two deaths were reported, none related to the diagnosis of renal oncocytoma.

Conclusions: Natural history data from the largest active surveillance cohort of renal oncocytomas to date show that renal function is not negatively impacted by growing oncocytomas. Clinical outcomes are excellent after a median follow up of over 2 years.

P12-8 Achieving 1 day Length of Stay (LOS) for Kidney Surgery at a High-Volume District General Hospital

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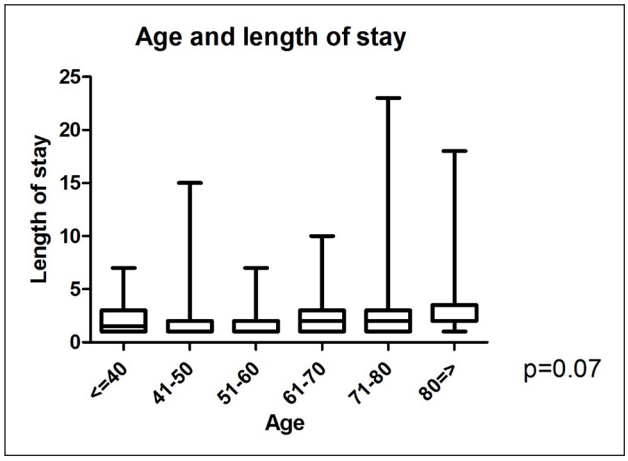
Introduction: Renal cancer surgery has a tendency towards longer inpatient length of stay (LOS) due to post-operative pain and the age of patients in comparison to, for example, radical prostatectomy. Our centre has recorded short length of stays compared to national outcomes.

Patients & Methods: All patients undergoing renal surgery with a single surgeon 2016-2021 (n=336) were assessed. This included nephrectomy (radical and benign), nephroureterectomy and partial nephrectomy. We aimed to ascertain predictors of shorter length of stay, with comparisons between multiple groups made by ANOVA with appropriate Bonferroni correction.



Results: The median LOS was 1.5 days (range 1-23), with a mode of 1 day LOS (40.5%, n=136). Predictors of shorter length of stay were: ASA grade (p=0.0005), with mean LOS for ASA-1 patients 1.6 days; and surgical approach (p=0.0009), with longer LOS for open procedures with a mean of 4.4 days. Males were more likely to be in the one-day LOS group in comparison to females (0.03). Age range was independent of LOS (p=0.07). 61% of all ASA-1 patients who had a laparoscopic or robotic operation were discharged the following day.

Conclusions: Short lengths of stay independent of age can be achieved with minimally invasive surgery at a high-volume centre. A one-day LOS can be the expectation for partial nephrectomy and nephroureterectomy with appropriate utilisation of enhanced recovery after surgery principles, especially in ASA-1 patients undergoing minimally invasive surgery.

P12-9 Not so simple nephrectomy: Comparative analysis of radical and simple nephrectomy in a high-volume tertiary referral centre

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Introduction: The term "simple" nephrectomy is controversial as surgery for benign pathology is technically challenging and may be associated with higher complication rates. We compared patient characteristics, intraoperative and postoperative outcomes between simple (SN) and radical nephrectomy (RN) in a single, high volume tertiary referral center.

Patients & methods: A prospective patient database was interrogated for RN and SN patient demographics, intra and post-operative outcomes and complications (January 2016-October 2020). RN were classified as: Group-1(cT1), Group-2(cT2a) and Group-3(tumour size $>$ 10 cm) and compared to SN. Subgroup analysis was performed for minimally invasive (MI), open approach and infected vs. non infected SN pathology utilizing Mann Whitney U, Chi-squared and Mantel-Haenszel test.

Results: 344 RN and 130 SN were included. Patients in the SN group experienced a longer operative time(p=0.023) and more postoperative complications(P=0.006). MI SN(125/131) entailed significantly higher operative time(P=0.010), length of stay(P=0.028) and post-op complications($P<0.001$) than MI RN. SN had significantly higher operative time($P<0.001$), length of stay(P=0.014), and post-operative morbidity($P<0.001$) than cT1 RN and significantly more Clavien 1-2 complications than cT2a RN(P=0.001). Infected SN(50/130) required longer operative time($P<0.001$), length of stay(P=0.005) and intensive care unit admissions(P=0.019) than non-infected SN.

Conclusion: SN carry significant morbidity (complications, readmissions, longer inpatient stay) compared to RN regardless of surgical experience. Despite robotic interphase use, operative time and overall complications are significantly higher in SN. SN relates to higher morbidity compared to RN even in tumours up to 7-10 cm. These outcomes favor change of the designation from "simple nephrectomy" to benign nephrectomy.

P12-10 Percutaneous Image-Guided Cryoablation and Radio-frequency Ablation versus Partial Nephrectomy for small renal cell carcinomas: a ten-years, single-center observational study

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Introduction: There is a lack of long-term evidence to support the benefit of cryoablation (CRYO) and radio-frequency ablation (RFA) compared to partial nephrectomy (PN) when managing small renal cell carcinomas (RCCs). This study aims to provide long-term evidence for the management of small RCCs using image-guided CRYO or RFA.

Materials and Methods: All patients in a prospective registry (2004-2015) with a solitary, biopsy- or histology-proven T1N0M0 sporadic RCCs had RFA, CRYO or PN were included in this retrospective analysis. The primary outcome is 10-years cancer-specific survival (CSS). Secondary outcomes include overall survival (OS), local recurrence-free survival (LRFS), metastatic-free survival (MFS), complication rates and change in renal function pre-operatively and post-operatively.

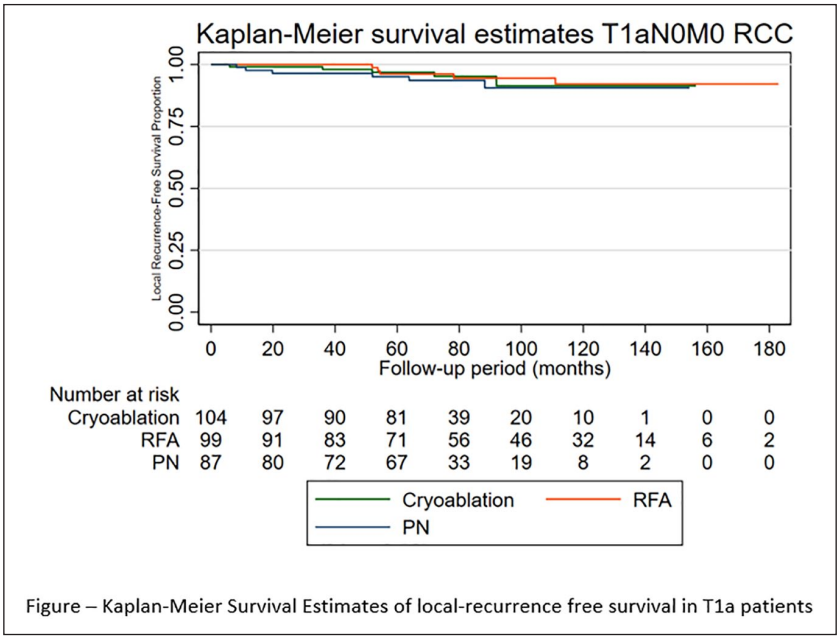

Figure – Kaplan-Meier Survival Estimates of local-recurrence free survival in T1a patients

Outcome	Modality	T-stage	HR (95% CI)	p-value	10-year rate
Cancer-Specific Survival	CRYO	T1a	Not estimated[a]		100%
	RFA		0.94 (0.06 – 15.02)	0.965	98.8%
	PN		Ref.		98.7%
	CRYO	T1b	Not estimated[a]		96.4%
	RFA				91.7%
	PN				100%
Overall Survival	CRYO	T1a	1.87 (0.80-4.31)	0.145	72.8%
	RFA		0.86 (0.34-2.18)	0.753	89.0%
	PN		Ref.		87.5%
	CRYO	T1b	2.26 (0.76-6.75)	0.143	41.0%
	RFA		2.24 (0.64- 7.82)	0.207	52.8%
	PN		Ref.		68.1%
Local Recurrence-Free Survival	CRYO	T1a	0.70 (0.11- 4.21)	0.697	92.3%
	RFA		1.14 (0.26-4.85)	0.858	91.4%
	PN		Ref.		93.3%
	CRYO	T1b	0.41 (0.08-2.05)	0.279	86.4%
	RFA		0.37 (0.04-3.57)	0.390	87.5%
	PN		Ref.		74.6%
Metastatic-Free Survival	CRYO	T1a	Not estimated[a]		100%
	RFA		0.53 (0.09-3.19)	0.487	97.32%
	PN		Ref.		93.3%
	CRYO	T1b	Not estimated[a]		96.7%
	RFA				91.7%
	PN				100%

[a] Not estimated because of zero events in the baseline or intervention group

Table – Summary of Hazard Ratios for CRYO and RFA versus PN

Results: A total of 296 patients (187 males, 109 females) were included. 239 patients (81%) had T1a disease, and 57 (19%) had T1b disease. The median follow-up period is 77.4 [45] months. A total of 104 (35%), 99 (34%) and 93 (31%) of patients had CRYO, RFA and PN, respectively. CRYO and RFA has similar oncological outcomes to PN (Table). Both the rates and severity of complications did not differ between the three groups. Using linear regression model, the predicted renal function reduction is smaller in CRYO (8.3%) and RFA (12.3%) patients when compared to PN patients ($p<0.01$).

Conclusion: Our long-term experience found CRYO and RFA have similar oncological durability and better perioperative outcomes compared to PN in T1a patients; and should be considered as a first-line treatment. More data is needed to evaluate CRYO and RFA for T1b tumours.

EPOSTER 13 - Benign Andrology, Genitourethral Reconstruction and Male Infertility

P13-1 Final Validation of a Patient Reported Outcome Measure (PROM) for Penile Curvature Surgery

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Introduction and Objectives: We have previously reported on the development of a PROM for penile curvature surgery. Here we report the final validation of the cohort.

Methods: All men assessed for curvature surgery were included. The PROM utilised a 4-domain structure on penile appearance, subjective pain/and anxiety, erectile function and overall bother. Cronbach's alpha used to verify that domains reliably measured the same latent variable. Wilcoxon Signed Rank test used to assess consistency of test/retest scores and responsiveness to change between pre- and post-op scores. Variability and bias assessed using a Bland Altman plot.

Results: 202 men prospectively recruited. Pre-op questionnaires administered at first appointment and day of surgery. Post-op PROM at first followup. All completed baseline/retest pre-op PROM, with 130 men to date completing post-op PROM. Question response rates >90%. Cronbach's alpha for Penile Appearance was 0.34 rising to 0.65 post-op. Coefficients for pain subjectivity were 0.35. Cronbach's alpha coefficient for ED and bother scores were 0.87 and 0.77 respectively. Wilcoxon Signed Rank test for penile appearance and bother domains showed significant improvements post-op. (Penile appearance P= <0.00001, bother P= <0.00001) and pain pre-operatively (P=0.0006) with pain scores post operatively unaffected (P= >0.06). Variability remained consistent for increasing PA scores.

Conclusions: The final validated PROM shows content validity, construct validity and reliability for penile appearance, subjective pain, erectile function and overall subjective bother of penile curvature, with robust responsiveness to treatment. It is an effective adjunct to assessment of patients with penile curvature both before and after treatment.

P13-2 Prospective evaluation of erectile dysfunction with a Validated Patient Reported Outcome Measure in patients with Peyronie's disease requiring Nesbit's type surgery

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Introduction: There are few prospective studies of outcomes of Peyronie's surgery. In studies reporting erectile dysfunction (ED), established tools (SHIM and IIEF) are not validated for Peyronie's disease. We have previously published development of a validated PROM for Nesbit's surgery. In this study we determined the rate and severity of ED pre- and post-operatively.

Patients and Methods: 5year prospective study of patients recruited into Peyronie's PROM development. After a RAND consensus group and pilot PROM, a 4question, 5point (0-4) domain for ED was validated. Scores 0 (no ED) to 16 (very severe ED) were recorded and stratified (mild ED – 5-8, moderate ED – 9-12, severe ED – 13-16) pre- and post-op. Exclusions: Surgery for congenital curvature and grafts. Patients completed the PROM at time of decision for surgery, within a week pre-op, and 12 weeks post-surgery.

Results: 130 men. Median age 57 (25-73). 12 patients excluded for starting ED treatment pre-surgery. Pre-op rates for no-, mild-, moderate- severe ED were 47 (39.8%), 45 (38.1%), 23 (19.5%) and 3 (2.5%). Post op, rates were 56 (47.5%), 43 (36.4%), 19 (16.1%) and 0 men. 93 men (78.8%) were ED treatment naïve pre-op and 79 (66.9%) required no treatment post-op. 24 men (20.3%) had PDE5I treatment prior to presentation and 38 (32.2%) had PDE5I post-op.

Conclusion: We report the first prospective validated PROM assessment of ED in Nesbit's surgery. Surgery did not result in deterioration of erectile function. High rates of pre-existing ED should be managed alongside surgery for satisfactory patient outcome.

P13-3 Intracavernosal aviptadil with phentolamine mesylate should be offered for treatment of refractory erectile dysfunction

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Introduction: The combination of aviptadil with phentolamine mesylate (Invicorp) was first approved for use in 1998. The advent of oral phosphodiesterase-5 inhibitors and the availability of intracavernosal alprostadil injections (ICAI) compounded by regulatory issues for Invicorp have limited its use and availability. Invicorp causes less pain on injection and may have a role following failure of ICAI.
Methods: Single centre retrospective review of all men trialling Invicorp after failing ICAI due to pain or poor efficacy following titration to 40mcg. The first injection was performed in clinic with either a half (12.5mcg aviptadil/1mg phentolamine) or full (25mcg aviptadil/2mg phentolamine) dose. Efficacy was assessed after 3 months.

Table 1: Efficacy of Invicorp in men who have failed intracavernosal alprostadil injections

Dose of Invicorp	n	Percentage of cohort
12.5μg aviptadil/1mg phentolamine	16	9.72%
25μg aviptadil/2mg phentolamine	73	44.79%
Combination*	12	7.36%
1/3 dose of 25μg aviptadil/2mg phentolamine	1	0.7%
1/4 dose of 25μg aviptadil/2mg phentolamine	1	0.7%
Not effective	60	36.73%

*Combination=25μg aviptadil/2mg phentolamine + either phosphodiesterase-5 inhibitor, intraurethral alprostadil or vacuum erection device

Results: 163 men with a median age of 60 years (IQR 53-67) were referred after failing median ICAI dose of 20mcg (IQR 10-40). Aetiology of ED was post radical prostatectomy in 49% and diabetes in 31.9%. All men had failed oral phosphodiesterase-5 inhibitors and 75% found vacuum erection devices inadequate. Sixty-one percent found ICAI too painful while the others reported poor erectile response. Almost two-thirds (63.2%) found Invicorp effective and allowed sexual activity to resume. 15% (n=24) stopped Invicorp because they wanted to stop using injectables or experienced improvement in their erectile function. Fifty-three (32.5%) men developed adverse reactions (facial flushing 92%).
Conclusions: In the largest study to date, Invicorp offers an effective and acceptable third line option for men who have failed most non-surgical treatment for ED. Many men (63%) were given an alternative to penile prosthesis insertion by being offered Invicorp.

P13-4 Long term consequences of bilateral cavernous crush injury in normal and diabetic rats: a functional study

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Introduction: A recent statement from the European Society for Sexual Medicine has highlighted the limits of the rat model for nerve sparing radical prostatectomy like the use of young rats without comorbidities and the early evaluation of the erectile function (EF).
The aim of this study is to evaluate the long-term consequences in EF of bilateral cavernous crush-injury (BNCI) type-1 diabetic (DM) rats compared to normal rats.
Material and Methods: 40 rats were divided in four groups: Sham, BNCI, DM and BNCI+DM. Sham rats underwent intraperitoneal injection (IP) of saline and after 1-month proceeded to a sham laparotomy. BNCI rats underwent to IP of saline and after 1-month to BNCI. DM rats underwent to IP of 60mg/kg-1 streptozotocin and after 1-month to a sham-laparotomy. BNCI +DM underwent to IP of 60mg/kg-1 STZ and after 1-month to BNCI. Blood glucose level (BGL) and weight were measured monthly. After 5-months from diabetes induction, all rats underwent to measurement of intracorporeal pressure (ICP) during CN-electrostimulation.
Results: BGL was higher ($p<0.05$) in DM and CCN+DM (>600mg/dl). After 5-months, DM and BNCI+DM rats showed lower weight compared to sham and BNCI rats ($p<0.05$). No significant difference was noted in ICP/MAP at all voltage between the sham and BNCI group. BNCI +DM showed lower ICP/MAP compared to all groups ($p<0.05$). DM Showed lower ICP/MAP compared to Sham and BNCI ($p<0.05$).
Conclusion: Normal Rats did not show any Erectile dysfunction 4-months after BNCI suggesting a spontaneous recovery of EF. BNCI in diabetic rats induced long-term erectile dysfunction.

P13-5 Network Meta-analysis of Stem cell therapy for Erectile dysfunction secondary to cavernous nerve injury in rats and humans

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Introduction: We carried out systemic review and network meta-analysis to investigate role of stem cell therapy (SCT) in management of erectile dysfunction (ED) secondary to cavernous nerve injury in rats and humans.

Patients and Methods: After registration with PROSPERO database, we searched studies analyzing efficacy of SCT for ED due to bilateral cavernous nerve injury (BCNI) in rats using HDAS Export software (Medline, EMBASE, Scopus) from inception to September 2020. Twenty nine animal studies were included with outcome measurements being; Intracavernosal pressure (ICP), ICP/MAP (Mean arterial pressure) ratio and histological changes. All available human trials evaluating SCT in post prostatectomy patients were also assessed for International Index for erectile function (IIEF Score) and Erection Hardness Score (EHS).

Table 1: Summary of Network Meta-analysis results using ADSC and BMSC studies

Study Group	Group 1	Group 2	Direct comparisons			Network meta-analysis	
			Difference (95% CI) (*)	P-value	I^2	Difference (95% CI) (*)	P-value
ADSC	Sham	BCNI	-71 (-84, -58)	**<0.001**	99%	-73 (-86, -59)	**<0.001**
		Vehicle	-68 (-85, -52)	**<0.001**	99%	-69 (-85, -53)	**<0.001**
		Stem Cell	-44 (-54, -34)	**<0.001**	99%	-44 (-57, -32)	**<0.001**
		Co-intervention	-42 (-55, -28)	**<0.001**	99%	-42 (-57, 28)	**<0.001**
		Combined	-21 (-33, -9)	**0.001**	99%	-23 (-39, -7)	**0.006**
	BCNI(Bilateral cavernous nerve injury)	Vehicle	17 (-4, 38)	0.12	99%	3 (-15, 21)	0.73
		Stem Cell	27 (15, 39)	**<0.001**	99%	28 (15, 42)	**<0.001**
		Co-intervention	31 (20, 50)	**<0.001**	99%	30 (15, 45)	**<0.001**
		Combined	48 (32, 65)	**<0.001**	99%	49 (33, 66)	**<0.001**
	Vehicle (BCNI+Vehicle)	Stem Cell	30 (13, 48)	**0.001**	99%	24 (7, 40)	**0.005**
		Co-intervention	10 (-5, 24)	0.21	97%	25 (6, 44)	**0.008**
		Combined	15 (2, 27)	**0.03**	97%	44 (25, 65)	**<0.001**
	Stem Cell (BCNI+ Stem cells)	Co-intervention	5 (-4, 13)	0.28	98%	2 (-13, 16)	0.83
		Combined	22 (7, 36)	**0.003**	99%	21 (5, 37)	**0.01**
	Co-intervention (BCNI+Stem cells+ Other interventions)	Combined	25 (11, 39)	**<0.001**	99%	20 (3, 37)	**0.02**
BMSC	Sham	BNCI	-42 (-45, -39)	**<0.001**	(+)	-48 (-67, -31)	**<0.001**
		Vehicle	-72 (-92, -51)	**<0.001**	99%	-71 (-82, -60)	**<0.001**
		Stem Cell	-27 (-39, -16)	**<0.001**	98%	-27 (-38, -16)	**<0.001**
		Co-intervention	-32 (-37, -27)	**<0.001**	83%	-36 (-48, -24)	**<0.001**
		Combined	-7 (-16, 1)	0.10	96%	-16 (-32, 0)	0.05
	BNCI(Bilateral cavernous nerve injury)	Vehicle	(#)	-	-	-22 (-41, -4)	**0.02**
		Stem Cell	23 (11, 36)	**<0.001**	98%	21 (5, 38)	**0.01**
		Co-intervention	8 (6, 10)	**<0.001**	(+)	13 (-5, 31)	0.17
		Combined	30 (28, 32)	**<0.001**	(+)	32 (12, 53)	**0.002**
	Vehicle (BCNI+ Vehicle)	Stem Cell	43 (33, 52)	**<0.001**	96%	44 (32, 55)	**<0.001**
		Co-intervention	30 (12, 48)	**0.001**	98%	35 (22, 48)	**<0.001**
		Combined	37 (35, 39)	**<0.001**	(+)	54 (38, 71)	**<0.001**
	Stem Cell (BCNI+ Stem cells)	Co-intervention	-7 (-18, 4)	0.23	98%	-9 (-21, 4)	0.17
		Combined	10 (4, 16)	**0.001**	94%	10 (-5, 26)	0.18
	Co-intervention (BCNI+Stem cells+ Other interventions)	Combined	22 (20, 24)	**<0.001**	0%	19 (3, 36)	**0.02**

(*) Differences reported as Group 2 minus Group 1
(#) No studies making a direct comparison between these treatments
(+) Data from only one study. Insufficient number of studies to calculate heterogeneity between studies

Table 2: Results from stem cell therapy in Post Prostatectomy Patients (Human Trials)

	BASE LINE	1 MONTH	3 MONTH	6 MONTH	1 YEAR
1. Yiou et al., 2016					
IEFF-15 Score (Max 75)	25.3	28.3	39.7	43.5	44.4
EHS	1.3	1.7	2.3	2.6	3.0
Penile length (cm)	12.4	13.5	13.3	12.9	N/A
2.Yiou et al., 2017					
IEFF-15 Score (Max 75)	18.7	33.2	47.4	46.6	
EHS	1.8	2.2	2.7	3.3	
3. Haahr et al., 2016/2018					
IEFF -5 (SHIM Score)					
• Continent group (14 pat)	6	6	11	16	9
• Incontinent group (7 pat)	5	5	5	5	5
EHS					
• Continent group (14 pat)	1	2	2	3	2
• Incontinent group (7 pat)	1	1	1	1	1

Results: For ICP measurement, studies were divided into Adipose derived stem cells (ADSC) subgroup and Bone marrow derived stem cells (BMSC) subgroup. Pooled analysis of these studies showed a beneficial effect of SCT in improving erectile function in rats with BCNI using network meta-analysis (95% CI, $p<0.001$). There was increase in ICP/MAP ratio in stem cell groups (including co-intervention) compared to control BCNI group. Histological evaluation of penile tissue revealed an increase in neuronal nitric oxide synthase (nNOS), smooth muscle content and anti-apoptotic activity. Human trials revealed improved IIEF and EHS.
Conclusions: Our results confirm that stem cell therapy does improve the erectile function in rats having cavernous nerve injury. Further, co-interventions and specific modifications do improve efficacy of stem cell therapy. Similarly, early human results have shown promising results.

P13-6 Radiological leak after Urorectal Fistula (URF) repair – Success or Failure?

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Introduction: This study evaluates the clinical significance of radiological leaks on pericatheter urethrogram after URF repair as a predictor of surgical success or failure.
Patients/Methods: 138 URF repairs, mostly complicating prostate or rectal cancer treatment, were performed between January2006 and June2020 in a single reconstructive urology unit. Data were available on 113 for analysis.
Results: 71 cases(63%) were performed transperineally(TP) with a gracilis flap in 27(38%). 42(37%) required additional abdominal exposure. 60(54%) were in irradiated patients. 20(18%) were redo procedures.
All had a pericatheter urethrogram at a mean 31days (range21-70d) post-op. 43(38%) showed no leak and the catheter removed. 30(27%) demonstrated contrast tracking directly into the rectum or onto the perineum. Only 4 of these healed by conservative management. The other 26 recurred.
In a further 40(35%), contrast leaked into a blind-ending track(n=24) or contained cavity(n=16). A second urethrogram was performed on average 24 days later(range7-93d). In 19, the leak was no longer evident and the catheter removed. The remaining 21 had a third urethrogram at a mean 32 days later(range 13-91d) and in 14 the leak had resolved. The rest(n=7) had their catheters removed on average 111 days post-op (range88-180d). Of all 40 patients with a contained leak on initial urethrogram managed conservatively, only 3 fistulae recurred after catheter removal; all after abdomino-perineal repairs in irradiated patients.
Conclusions: Radiological leak from the urinary side into a contained cavity or blind-ending track after URF repair is relatively common. Usually this can be managed successfully conservatively without compromising the final outcome.

P13-7 Three-year outcomes after treatment with the Optilume Drug Coated Balloon: The ROBUST I study

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Introduction: This study investigates the safety and efficacy of the Optilume drug coated balloon (DCB) for the treatment of recurrent anterior strictures.
Methods: Men with recurrent bulbar strictures $\leqslant$ 2cm with 1-4 prior endoscopic treatments were treated with

the Optilume DCB. The primary safety endpoint was freedom from serious treatment related adverse events. The primary efficacy endpoint was the proportion of subjects with ⩾ 50% improvement in International Prostate Symptom Score (IPSS) at 3 years. Secondary outcomes included quality of life, freedom from repeat intervention, erectile function, flow rate, and post-void residual urine volume.

Results: A total of 53 subjects were enrolled; 43 were evaluable at the 3-year follow-up for the primary endpoint. 43% of men had undergone ⩾2 previous dilations, with a mean of 1.7 prior dilations. There were no serious adverse events related to treatment at 3 years. Success was achieved in 29/43 (67%). IPSS improved from a mean of 25.2 at baseline to 5.5 at 3 years ($p < 0.001$). Freedom from repeat intervention of the study stricture was 33/43 (77%). Quality of life, flow rate, and post-void residual urine volumes improved significantly from baseline. There was no impact on erectile function.

Conclusions: Subjects with recurrent bulbar strictures treated with Optilume DCB exhibited significant improvement in symptomatic and functional outcomes through 3 years post treatment. The rate of success is consistent with reported 2 year outcomes. Long term follow up will continue through 5 years in the ROBUST I study and a randomized study is ongoing.

P13-8 Single centre retrospective analysis of endocrine stimulation therapy prior to microsurgical testicular sperm extraction (mTESE) in men with hypogonadism and non-obstructive azoospermia (NOA)

Miss Katy Naylor[1], Mr Giovanni Chiriaco[1], Mr Vikram Talaulikar[2], Ms Elizabeth Williamson[3], Prof David Ralph[1], Prof Gerard Conway[4], Ms Philippa Sangster[1]

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Introduction: This study evaluated the role of endocrine stimulation prior to mTESE in men with hypogonadism and NOA.

Materials & Methods: This is a retrospective study on mTESE with/without prior endocrine stimulation (clomiphene or human chorionic gonadotropin). Hypogonadism was defined as serum testosterone (T) level <12nmol/L. Demographic data, cause of testicular failure, duration and type of endocrine stimulation, pre/post-stimulation hormone levels, successful sperm retrieval rate (SRR), average Johnsen score and vials retrieved were recorded.

Results: 168 men underwent mTESE, of which 59 received endocrine stimulation therapy for NOA between 2015-2020. Men with hypogonadism were selected (71/168, 43%). 28/71 had Klinefelter syndrome, of which 40 received stimulation prior mTESE for a mean of 13.9±9.2 months. T significantly increased after stimulation (6.3±3.3nmol/L vs. 11.7±7.4nmol/L) with a mean T change (ΔT) of 5.7nmol/L (-5.5-23.3, N35). In the stimulated group, pre-operative T was significantly higher than the unstimulated (11.7±7.4nmol/L vs. 7.8±3.0nmol/L, p:0.007), however, with no significant difference in mTESE success rate (16/40 vs. 13/31 - 40% vs. 42%). Comparing successful vs. unsuccessful mTESE, higher T and lower FSH and LH correlated with successful SRR. In stimulated men, ΔT before and after stimulation correlated with SRR (AUC 0.701, SE: 0.089, p:0.043) with ΔT>3.5nmol/L significantly associated with success (p:0.041).

Conclusions: Our study shows significant improvement of serum T concentration following endocrine stimulation therapy in hypogonadal men. Overall, in hypogonadal men, hormonal stimulation didn't relate to higher success rate, however our data suggested positive correlation between ΔT before and after stimulation, and a successful mTESE.

P13-9 Does intracytoplasmic morphologically selected sperm injection improve live birth rates compared to ICSI in men with infertility and raised sperm DNA fragmentation?

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Introduction: There is conflicting evidence on the role of intracytoplasmic morphologically selected sperm injection (IMSI) in assisted reproductive technology (ART), and whether it increases live birth rates (LBR) compared to conventional intracytoplasmic sperm injection (ICSI). In particular, the role of IMSI on ART outcomes in infertile men with raised sperm DNA fragmentation (SDF) is controversial.

Material and methods: We performed a retrospective analysis of 2,693 ICSI and 765 IMSI cycles from a single institution. Primary outcome measures included fertilisation rate, clinical pregnancy rate, miscarriage rate, and LBR. Subgroup analysis was performed on couples who had undergone SDF testing with the Comet assay. An average Comet score (ACS) of ⩾29% was used as the threshold for elevation, as previously defined. Multiple regression analysis was conducted to identify variables which may predict LBR in both patient cohorts.

Table 1: Clinical outcome parameters in men with raised SDF.

Parameter	Normal SDF (ACS < 29%)		*p*-value	Raised SDF (ACS ≥ 29%)		*p*-value
	ICSI	IMSI		ICSI	IMSI	
No. of couples	32	22	-	62	57	-
No. of started cycles	40	27	-	91	79	-
No. of transfer cycles	32	23	-	63	63	-
No. of MII oocytes collected	7.6 ± 4.2	4.4 ± 2.8	**0.001***	7.2 ± 4.0	7.8 ± 4.3	0.369
No. of 2PN zygotes formed	4.85 ± 3.2	3.1 ± 2.1	**0.014***	4.4 ± 3.3	5.1 ± 3.3	0.166
Fertilisation rate (%)	63.5	70.2	0.245	60.0	62.5	0.549
No. of embryos transferred	1.2 ± 0.8	1.3 ± 0.8	0.755	0.9 ± 0.7	1.2 ± 0.8	**0.023***
No. of clinical pregnancies	3	6	-	18	22	-
Pregnancy rate per transfer (%)	9.4	26.1	0.143	28.6	34.9	0.444
Miscarriage (%)	2/3 (66.7)	1/6 (16.7)	0.368	16/18 (88.9)	9/22 (40.9)	**0.003***
Termination (%)	0	0	-	0	0	-
Stillbirth (%)	0	0	-	0	0	-
Infants delivered (no. of births)	1 (1)	1 (3)	-	1 (2)	1 (10), 2 (1)	-
Live birth rate per transfer (%)	3.1	13.0	0.486	3.2	17.5	**0.003***

Results: LBR was comparable between ICSI and IMSI cycles in the overall study population; 18.1% and 21.0%, respectively. Subgroup analysis of men with raised SDF (Table 1) demonstrated a lower miscarriage rate (40.9% vs. 88.9%,p=0.003) and higher LBR (17.5% vs. 3.2%,p=0.003) in IMSI compared to ICSI cycles. In contrast, no differences in clinical outcomes were observed in men with normal SDF. Multiple regression analysis revealed that IMSI significantly increased the probability of LBR (OR 7.052 [95% CI 1.826-27.237],p=0.005) in men with raised SDF.

Conclusions: This study indicates that whilst IMSI may not be beneficial in the general infertile male population undergoing ART, it does improve LBR in men with raised SDF and male factor infertility.

P13-10 Varicocele treatment - Outcomes of ligation and embolisation in the treatment of 281 men with a clinically palpable varicocele

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Introduction: Treatment options for varicoceles include surgical ligation (SL) and radiological embolisation (RE). RE has the advantages of being performed under LA. The EAU guidelines quote the recurrence rate with RE of 3.8-10%, hence SL is often performed despite the potential for increased morbidity.

Methods: This was a retrospective study investigating men who had varicocele treatment from 2017-2020. We assessed their pre-and post-treatment SA and ultrasound. The results were analysed using Wilcoxon, Mann-Whitney and t-test.

Results: 281 patients were treated; 168 with RE, 113 with SL. 124 had pre-and post-treatment SA (RE n=78, SL n=46). Both groups showed statistically significant improvement in count; RE 63% (p=<0.001), SL 52% (p=0.009) and Morphology; RE 45% (p=0.003), SL 46% (p=0.005). Neither group showed a statistically significant improvement in Motility; RE 47% (p=0.156), SL 46% (p=0.032). There was no statistically significant difference between the two groups.

83 patients had a pre-and post-treatment US performed (RE n=56; SL n=27). Vein diameter decreased in 68% following RE (3.7±0.86 mm to 3.1±0.80 mm, p<0.0001), 84% following SL (3.91±1.0 mm to 3.1±0.72 mm, p=0.001). Doppler US demonstrated cessation of reflux in 56% treated by RE (n=32) and 52% following SL (n=23).
Technical failure for embolization included 11 single sided failures and 1 bilateral.
Conclusion: Neither RE and SL are superior for improving semen analysis parameters. Vein diameter decreases significantly after both. RE is a LA, day case procedure versus a GA and groin incision. We would favour the less invasive technique in the light of these findings.

EPOSTER 14 - Stones/Imaging/Upper Tract Disorders 2

P14-1 Renal angiomyolipoma: a comparison between a non-intervention and interventional group

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Introduction: Criteria for intervention for angiomyolipoma (AML) of the kidney is debated. An arbitrary 4cm cut off was established to trigger intervention, however, this has been contested. These tumours grow slowly, and active surveillance can be an appropriate management. We assess the natural history and follow up of AMLs and compare this to an intervention cohort.
Patients and Methods: Patients with radiologically diagnosed AMLs at our institution were categorised into non-intervention (Group A) and intervention (Group B) cohorts. Patients with AML-related genetic syndromes were excluded.
Group A were identified from a single year (2013) with follow-up recorded until 2020.
Group B comprised of patients who has undergone either AML embolisation or nephrectomy between 2008 and 2020.
Results: Group A consisted of 168 patients with a median age of 61 years and a strong female predilection. Initial presentation was most commonly abdominal pain (37%).
The mean AML size was 12.5mm and had a derived growth rate of 0.21mm/year. 66 patients underwent active surveillance with an average of 3.09 scans. 102 patients had no formal follow-up.
Group B consisted of 23 patients with similar demographics. The mean AML size was 87.6mm. 18 patients were embolised with 5 patients undergoing surgery.
Conclusions: Our study confirms the growth rate of AML is low and active surveillance appears safe. The need for intervention is associated with increasing size. There is a lack of consensus on appropriate follow up for these patients. This study questions the need for surveillance of the small AML.

P14-2 Does ureteroscopy still have a role in the diagnosis of upper tract urothelial carcinoma? A two-year review in a high-volume centre

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Introduction: Ureteroscopy (URS) is an established tool in the assessment of upper tract urothelial carcinoma (UTUC); it enables exclusion of UTUC and facilitates kidney-sparing surgery (KSS) in selected cases. However, its use is controversial due to potential risk of intravesical tumour seeding and diagnostic pathway delays. We review the diagnostic value of URS in a large cohort of patients investigated for UTUC.
Materials and Methods: We performed a retrospective review of diagnostic URS for suspected UTUC between January 2018 to December 2019.
Results: A total of 161 diagnostic URS were performed for suspected UTUC. Pre-operative CT urogram demonstrated a filling defect/lesion (48%), hydronephrosis (25%), urothelial thickening (21%) or no abnormality (6%). A diagnosis of UTUC was confirmed in 47 cases (29%). Of these, 31 patients (66%) underwent radical nephroureterectomy (RNU), 14 patients (30%) underwent KSS and 2 patients (4%) were unfit for further surgery. Following negative URS, 68 patients (54%) were discharged and 8 patients (6%) were referred to other specialties for non-urothelial tumours.
Conclusions: RNU was avoided in 61% of patients with a negative URS or non-urothelial diagnosis. KSS was performed in 30% of patients with UTUC. We conclude that in cases of diagnostic uncertainty and where KSS is feasible, URS should remain in the diagnostic pathway of UTUC. Although evidence suggests association with increased intravesical recurrence, this has not been shown to impact overall survival.

P14-3 Is flexible ureteroscopy and laser lithotripsy (FURLS) the new gold standard for paediatric lower pole stones: Outcomes from 2 large European tertiary paediatric endourology centres

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Introduction: Whilst paediatric Ureteroscopy is increasingly performed, the evidence for its use in lower pole stones (LPS) is sparse and management recommendations unclear. Our objective was to look at the effectiveness and outcomes of flexible ureteroscopy and lasertripsy (FURSL) in the management of LPS for the paediatric population.
Methods: Data was collected retrospectively from two large European tertiary endourology centres specialising in paediatric kidney stone management. The inclusion criteria were patients in the paediatric age group (⩽16 years) with LPS having a FURSL procedure. We collected patient demographic data, stones characteristics, surgical details and results with follow-up at 2-4 months post-surgery.
Results: A total of 57 paediatric patients underwent FURSL for LPS. The mean age was 10.1 years + 4.7 (range: 1-16.9 years) with a male:female ratio of 2:3. The mean single stone size was 9.45+3.9 mm (range: 3-20 mm) and 31(54.4%) had multiple stones. A pre-operative stent was present in 18(31.6%) patients and a post-operative stent or ureteric catheter was left behind in 32(56.1%) patients. The initial and final SFR was 82.4% and 98.2% respectively with 1.19 procedures per patient performed to be stone free. While there were no intra-operative complications, there were only four(7%) minor complications (Clavien I) noted which were all uncomplicated urinary infections. No other long-term complications were noted.
Conclusions: Flexible ureteroscopy and lasertripsy achieves excellent outcomes for treatment of paediatric LPS. While some patients might need a second procedure for complete stone clearance, this should be the new gold standard for treatment of LPS.

P14-4 The use of Allium ureteric stents in the treatment of ureteric obstruction or injury

Mr. William Fowler[1], Mr Matthew Shaw[1], Dr Rob Williams[1], Dr Phil Haslam[1], Mr David Rix[1], Mr Trevor Dorkin[1], Mr Thiru Suntharisivam[1], Mr David Thomas[1], Mr Alistair Rogers[1]
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Introduction: Ureteric obstruction can occur due to many causes such as cancer and iatrogenic injury. Drainage via JJ ureteric stenting can be sufficient, but in a significant number of patients this strategy is ineffective, leading to stent occlusion risking renal failure or sepsis. The Allium ureteric stent is a polymer-covered metallic stent which may provide alternative drainage in certain circumstances.
Methods: All patients undergoing placement of an Allium stent were recorded in a prospective database. 68 patients had placement of a stent in 79 renal units between 2015 and 2020 for ureteric obstruction, injury or leak. Insertion was performed; retrogradely(n=60), antegradely(n=3) and via rendezvous(n=5).
Results: Indications for insertion were (n=renal unit); Iatrogenic ureteric leaks (15) and Obstructive strictures (64). Obstruction was due to malignancy in 19 and benign conditions in 45. 6 patients had renal transplants and 2 had ileal conduits. Treatment was successful in 58(72%) renal units, defined as maintained renal drainage or healed leak when in situ or removed. Treatment failed in 21(28%) units due to obstruction above/below stent, stent migration or failure to tolerate stent symptoms. Stent migration occurred in 17 (21%) renal units, with benign pathology(13) and proximal location(8) risk factors for migration.
Conclusions: Endourological management of complex ureteric pathology can be challenging. This largest series to date of Allium stent experience shows they work well where other means of renal drainage have failed and reduce need for long term nephrostomy. Migration rate is similar to some other series of metallic stents and requires further investigation.

P14-5 Primary ureteroscopy versus ureteric stenting in the emergency setting: a cost-effectiveness analysis

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Introduction: Nephrolithiasis represents a significant economic burden worldwide, yet there is a lack of data reviewing the cost-effectiveness of current treatment modalities. We present a cost-effectiveness analysis between primary treatment and ureteric stenting in patients with ureteric stones in the emergency setting.
Patients and Methods: We conducted a retrospective analysis of patients requiring emergency intervention for a ureteric calculus at our institution between January and December 2019. Secondary care cost (SCC) was calculated to include cost of the intervention, inpatient bed days, emergency department (A&E) attendances, additional procedures such as nephrostomy and secondary definitive procedure.
Results: A total of 244 patients were included. Patients underwent ureteric stenting (62.3%) or primary treatment (37.7%), to include primary URS (34%) and shock wave lithotripsy (3.6%).
Those undergoing primary treatment had significantly less A&E reattendances (10.9% vs 25.7%, p=0.02). SCC was greater in the stenting group (£4485.42 vs £3536.83; $p = 0.65$). The cost-per-patient related to A&E reattendances was significantly higher in the stenting group (£61.05 vs £20.87; $p < 0.001$).
Conclusions: Performing primary treatment in patients presenting with acute ureteric colic may infer a cost

benefit, notably related to fewer A&E attendances. This is particularly relevant in the COVID-19 era where it is crucial to avoid unnecessary attendances to A&E and reduce the backlog of delayed definitive procedures. Primary treatment should be considered, in concordance with clinical judgement and factors such as patient preference, equipment availability and operator experience.

P14-6 Acute extracorporeal shockwave lithotripsy (ESWL) for ureteric stones – 7-years' experience from a busy district general hospital

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Introduction: ESWL is underutilised in ureteric stone management. The GIRFT report showed just four units nationally treated >10% of acute ureteric stones with ESWL. Despite guideline recommendations as a first-line treatment option, few large volume studies have been published. We present our experience of ESWL in 530 ureteric stone cases in the largest series we are aware of to date.
Methods: Retrospective review of prospectively collected data between December 2012–February 2020 was performed. Data relating to patient demographics, stone characteristics, skin-to-stone distance, and treatment failure were collected. Cost analysis was conducted by the hospital trust's Head of Finance. Chi-squared analysis for statistical significance was performed.
Results: A success rate of 67.9% with a mean treatment number of 1.7 sessions was observed (n=530). Statistically significant outcomes were observed for stone size (p=0.0001), stone density (Hounsfield units) (p=0.006) and skin-to-stone distance (p=0.03). Stone position was not statistically significant (p=0.54). However, the small number of stones treated >13mm or >1250HU had an approximate 50% chance of successful treatment.
In our practice acute ureteric ESWL was found to be less costly than acute ureterorenoscopy, consistent with findings from previous NHS studies.
Conclusion: Acute ESWL is a safe, reliable, and financially viable treatment option for a wider spectrum of patients than reflected in international guidelines based on our large, heterogenous series. In the COVID-19 era, with theatre access reduced and concerns over aerosol generating procedures, acute ESWL remains an attractive first-line treatment option.

P14-7 Time to Lithotripsy; Determining whether patients referred for Lithotripsy received their first treatment within timeframes outlined by NICE guidelines and local protocols

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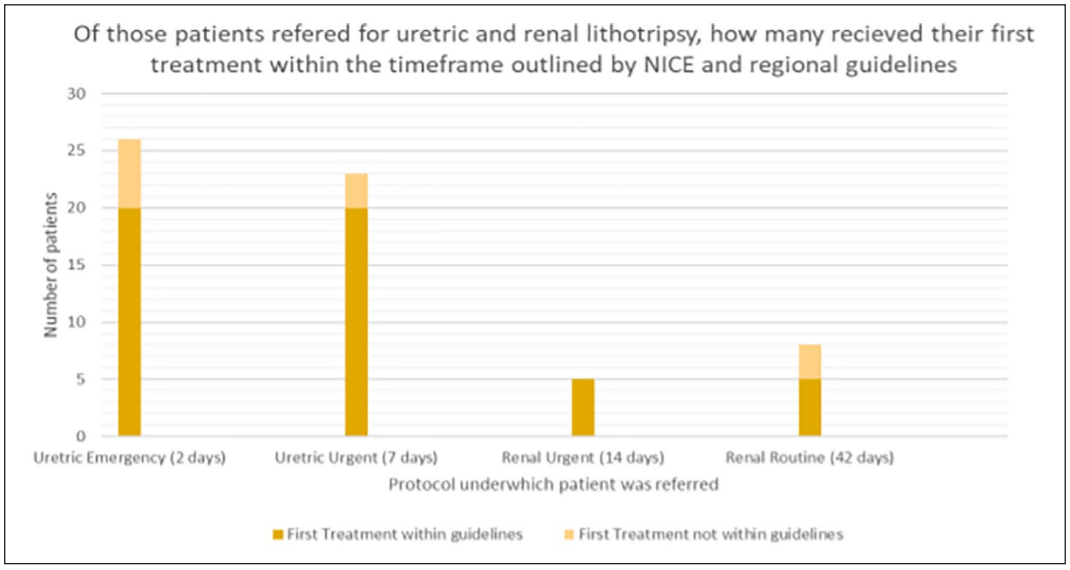
Introduction: This audit aims to determine whether patients referred for ureteric and renal lithotripsy received their first treatment in the timeframes outlined by NICE guidelines and local protocols.
Patients (or Materials) and Methods: This clinical audit was carried out at a regional Lithotripsy unit. Patients data was collated using clinical information systems. Radiology information systems were interrogated to collect electronically archived referral and treatment data.



Results: Consecutive patients from July to August 2020 were included (n=62). For ureteric stones, median CT to treatment time was 4 days (IQ range 2-9) and referral to treatment 3 days (IQ range 1-4). Times to treatment were not significantly different between referring hospitals when assessed with T-Test. Median time from CT to

treatment for emergency ureteric stones was 3 days (IQ range 2-4.5). Compliance with guidelines and protocols is displayed in Table 1.

Conclusions: Of patients referred for emergency ureteric lithotripsy, 77% were treated within 48 hours and 87% of urgent cases were treated within 7 days from referral. If time of CT is used as the 48 hours pathway start, 38% had emergency ureteric lithotripsy within NICE timeframes. Causes for delays included anticoagulant washout time, equipment downtime, patient choice of appointment and weekends unit closure.

This study demonstrates current performance to NICE guidelines. The delay from CT to emergency lithotripsy highlights that pathways should be in place for immediate Urologist review when obstructing stones are diagnosed. An improved metric for defining treatment pathways may be imaging diagnosis to clearance.

P14-8 Post-ureteroscopy febrile urinary tract infections are linked to pre-operative stent dwell time: Results from three European endourology centres

Mr. Robert Geraghty[1], Miss Amelia Pietropaolo[2], Dr Luca Villa[3], Dr Eugenio Ventimiglia[3], Mr Alistair Rogers[1], Mr Rajan Veeratterapillay[1], Mr Matthew Shaw[1], Mr John Fitzpatrick[1], Mr Chris Harding[1], Professor Bhaskar Somani[2]

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Introduction: Indwelling ureteric stents, usually inserted for emergency drainage of an obstructed system, can cause significant morbidity with infections. We aimed to assess pre-operative stent dwell time on infectious complications following ureteroscopy and laser fragmentation (URSL).

Material and Methods: Data was retrospectively collected for outcomes of URSL from 3 European endourology centres for patients with pre-operative indwelling ureteric stents. We included data for patient details, stone demographics, operative details, stone free rate (SFR), outcomes and complications between 2011 and 2020. Patients divided into group 1 (<6 months stent dwell time) and group 2 (⩾6 months). Primary outcomes were early post-operative infectious complications (febrile UTI) and ICU access. Analysis with binomial logistic regression (SPSS v.24).

Stent Dwell time	Group 1 (<6 months)	Group 2 (>6 months)
Mean Age (years) ±SD	71±30	64±22
Male gender, n (%)	264 (61.5%)	51 (70.8%)
Mean Operative Time (mins) ±SD	51±28	59±39
Febrile UTI, n (%)	32 (7.5%)	22 (30.6%)
Urosepsis, n (%)	3 (0.7%)	1 (1.4%)

Table 1. Study demographics by groups

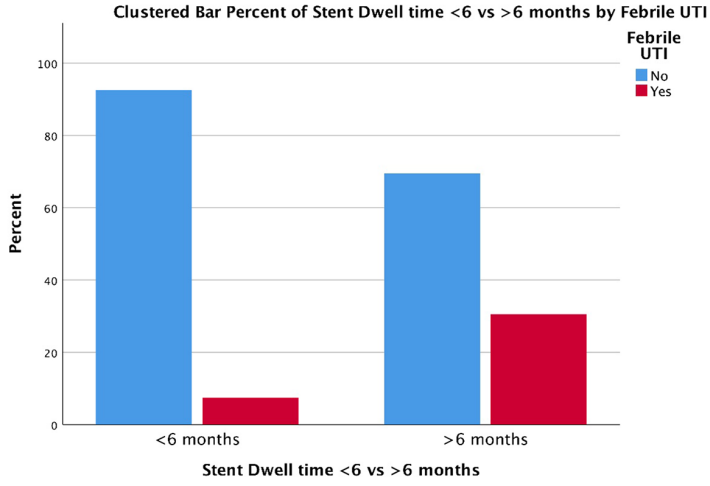

Figure 1. Percentage of patients developing post-operative febrile UTI by Stent dwell time (<6 vs ≥6 months).

Results: 501 patients were included (group 1, n=429; group 2, n=72) [Table 1]. Mean age and operative time in groups 1/2 were 71±30 years and 64±22 years, and 51±28 minutes and 59±31 minutes. Febrile UTI and ICU admissions were seen in 32(8%) and 3(0.7%), and 22(31%) and 1(1.4%) in groups 1/2 respectively. Stent dwell time of ⩾6 months carried significantly higher risk for febrile UTI post URSL (RR=5.45, 95% CI: 2.94-10.10, p<0.001) [see fig 1].
Conclusion: Although the overall risk of infectious complication rates from URSL were low, longer indwelling stent time significantly increases the risk of post-operative infections. We would recommend having the stent dwell time as short as possible and not to exceed 6 months. Our findings will help prioritise these patients in the post-COVID era.

P14-9 A machine learning study of post-ureteroscopy infectious complications

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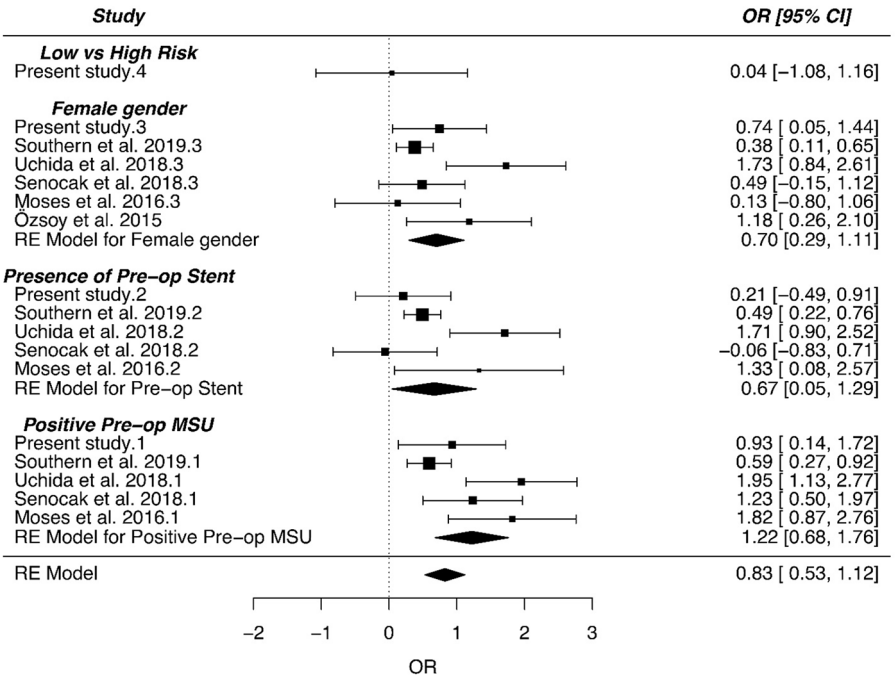
Introduction: Post ureteroscopic infectious complications have proven difficult to predict. We therefore aimed to use described risk factors to delineate low and high risk groups to compare risk of post ureteroscopic infective complications.
Materials and Methods: Retrospective cohort of all patients undergoing ureteroscopy from June 2019 to September 2019. Data collected on age, sex, type of admission, presence of a stent, operative factors and the presence of risk factors (diabetes mellitus, neurological disorders, immunocompromised state, abnormal upper tract anatomy, previous reconstructive surgery, previous post-operative UTI). Patients were divided into low(no risk factors)/high risk groups. Adverse outcome defined as post-operative pyrexia, ITU/HDU admission for urosepsis and/or 30 day readmission for infective symptoms. Binary logistic regression (BLR) and random forests (RF) were used for model construction.



Results: There were 258 patients (female, n=96, male, n=162; low-risk, n=28, high-risk, n=230), with a mean age of 60±17 years. Adverse outcomes: low-risk, n=4(14.3%) l high-risk, n=34 (14.7%).
The non-validated BLR model demonstrated three significant predictive factors: neurological disorder (p=0.03), stent on strings insertion (p=0.04) and complete stone clearance (p=0.04). Model accuracy=0.90 (95% CI:0.85-0.93), sensitivity=0.90, specificity=0.80. There were no significant differences between the low/high risk groups (p=0.14).
The internally validated RF model demonstrated two significant predictive factors (history of post-operative UTI, p=0.004; neurological disorder, p<0.001). Model accuracy=0.88 (95% CI: 0.77-0.94), sensitivity=1.00, specificity=0.00, AUC=0.71. Figure for literature comparison.
Conclusions: Presence of a neurological disorder is consistent risk factor for post-ureteroscopy infective complications. Modern machine learning techniques fail to accurately predict those with an infective complication.

P14-10 Initial experience of miniaturised PCNL with Swiss LithoClast® Trilogy: a European multicentre prospective study on behalf of ESUT

Miss. Niyukta Thakare[1], Dr Florin Tanase, Mr Kasra Saeb-Parsy, Dr Nabil Atassi, Dr Renate Endriss, Dr Guido Kamphuis, Dr Daniel Perez-Fentes, Dr Mudhar Hasan, Dr Marianne Brehmer, Dr Palle Osther, Dr Helene Jung, Mr Benjamin Turney, Mr William Finch, Mr Neil Burgess, Mr Stuart Irving, Mr Laurian Dragos, Dr Evangelos Liatsikos, Dr Thomas Knoll, Dr Victor Cauni, Mr Oliver Wiseman
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Introduction: Studies have shown that mini-PCNL can achieve comparable stone-free rates to conventional method, even for larger stones, and is safe. We report our experience for miniaturised PCNL with LithoClast® Trilogy using track size 20F or less and compare it to the outcomes for standard PCNL.

Patients and Methods: Data was prospectively collected from 10 European centres, evaluating the efficiency and safety of LithoClast® Trilogy. Objective measures of stone clearance rate, device malfunction, and complications were assessed. Each surgeon evaluated ergonomic and device effectiveness, for each case, on a 1-10 scale (10=extremely ergonomic/effective) and compared it to their usual lithotrite on a 1-10 scale (10=extremely effective).

Results: 24/157 cases were performed using the miniaturised technique (58% male, 42 % female; Mean age 50years, range 13-82years). Median track size=17.5F (range 8.7F-18F), median Trilogy probe size=1.5mm (range 1.1-1.9mm). Mean stone clearance rate was 46.80mm2/minute (vs 69.06mm2/minute for standard PCNL), or 274.17 mm3/minute (vs 1071.05mm3/minute for standard PCNL). The stone-free rate on fluoroscopy for miniaturised PCNL was 88% (versus 82.6% for standard PCNL). Mean subjective surgeon feedback for ergonomic score was 7.3, suction effectiveness was 7.8, with 8.3 for combination effectiveness and 8.1 for overall effectiveness. 2 (8.3%) experienced probe breakage, no major complications (Clavien Grade>=III) were reported.

Conclusions: This study demonstrates that LithoClast® Trilogy is highly effective and safe for miniaturised PCNL, with high user satisfaction. Stone clearance efficiency is lower for miniaturised PCNL when compared to Trilogy for standard PCNL in our series, which is expected given the smaller probe size.