## Title

PD34-06 CALCULATING THE RISK OF URETHRAL STRICTURE RECURRENCE AFTER ANTERIOR URETHROPLASTY



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surgical volume did not influence treatment failure significantly neither in main, nor in subgroup analyses (all P≥0.3).

CONCLUSIONS: In a large contemporary cohort of 491 patients undergoing VO-BMGU we found age, length of buccal mucosal graft, and delayed suprapubic catheter removal due to failure at voiding trial 21 days after surgery highly predictive of treatment failure. Our model may help in patient counseling during the postoperative setting regarding the stricture recurrence risk and function as basis for future clinically practicable risk calculators.

**Source of Funding:** None

## PD34-06
### CALCULATING THE RISK OF URETHRAL STRICTURE RECURRENCE AFTER ANTERIOR URETHROPLASTY

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INTRODUCTION AND OBJECTIVES: A prediction model that accurately predicts risk of stricture recurrence after anterior urethroplasty is lacking. We hypothesized that such a model would be dependent on both patient and stricture characteristics and could predict recurrence with high sensitivity and specificity.

METHODS: We created models based on clinical outcomes of consecutive men undergoing anterior urethroplasty by one of 6 surgeons in the Trauma and Urologic Reconstruction Network of Surgeons (TURNS) from 2010 to 2015. The outcome variable of interest was stricture recurrence, defined as the need for a secondary procedure. All available pre-operative and operative variables, including interaction variables when deemed appropriate, were initial candidates and the final model was chosen by stepwise selection. Receiver operating characteristic (ROC) curves were created and the area under the curve (AUC) was reviewed. Colinearity with stricture length and location variables dictated that separate models for standard excisional (EPA) and substitutional (flap and/or graft; SUB) repairs be created. Surgeon effects were accounted for through an exchangeable structure of the working correlation matrix.

RESULTS: There were 547 EPA and 706 SUB repairs used for model creation, of which recurrence was noted in 20 (3.7%) and 67 (9.5%) respectively. AUC was marginally higher for the SUB model (0.7777) versus the EPA model (0.7601). Significant variables in the SUB model included number of prior DVIUs (OR 1.14; 95% CI 1.07-1.21), stricture etiologies of prior TURP (OR 3.77; 2.07-6.89), ureteroscopy (OR 4.07; 1.66-10.02), infection (OR 5.77; 2.57-12.05) and/or lichen sclerosus (OR 3.33; 1.06-10.42) and ventral (OR 3.53; 1.55-8.03) or sandwich (OR 3.70; 2.23-6.11) graft placement. Stricture length was not an independent predictor (OR 1.03; 0.99-1.07) and smoking was protective (OR 0.58; 0.36-0.95). In the EPA model, only stricture length (OR 1.31; 1.12-1.53) and pre-operative urine residual (OR 1.00; 1.00-1.00) were significant variables.

CONCLUSIONS: Traditional pre- and intraoperative variables used to create these prediction models led to AUCs well below 0.8, indicating only moderate clinical usefulness. The low recurrence rate affected robust EPA model creation, though longer EPA repairs were more likely to fail as predicted. The SUB model was heavily dependent on stricture etiology and location of graft placement. Improved collection of pathologic, morphologic and surgical characteristics appears necessary if improvement in the prediction capabilities of these models is desired.

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## PD34-07
### COMPLICATIONS OF URETHRAL RECONSTRUCTION ARE MINIMAL COMPARED TO OTHER UROLOGICAL PROCEDURES

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INTRODUCTION AND OBJECTIVES: Although urethroplasty for the treatment of urethral stricture disease provides excellent functional outcomes, the associated postoperative morbidity remains underreported. The purpose of this study was to report and classify postoperative complications utilizing the Clavien-Dindo classification system in comparison to those reported from a variety of other common urological surgical procedures.

METHODS: A retrospective review of over 1000 urethroplasty cases by a single surgeon from 2007-2014 was performed. Complications <90 days after surgery were identified and grouped by Clavien-Dindo classification (minor Clavien 1-2, and major Clavien 3-5). Clinical characteristics and outcomes were compared between men with and without complications. Mutivariable logistic regression models assessed risk factors associated with postoperative complications.

RESULTS: Of the 573 procedures reviewed, 121 complications occurred in 107 (18%) procedures within 90 days of urethroplasty. Complications included 70 (12%) minor (Clavien 1-2) and 37 (6%) major (Clavien 3-5) (Table 1). In comparison to other urologic procedures, the complication rate of urethroplasty was similar to other reconstructive procedures such as pyeloplasty. Treatment failure was more common in men who experienced a <90 day complication (39% vs 15%, p<0.0001). Per procedure, the most common complications included: urinary tract infection (N=21, 4%), wound complication (N=16, 3%), acute urinary retention (N=13, 2%), refractory bladder spasms (N=13, 2%), and urine leak (N=11, 2%). Median time to complication was 26 days (IQR 17-40). Men experiencing a any <90 day complication were more likely to have a history of radiation (28% vs 18%, p=0.04), benign prostatic hyperplasia (BPH) (28% vs 18%, p=0.04), and undergo substitution urethroplasty relative to excision primary anastomosis and urethrostomy (23% vs 18% vs 6%, p=0.03). There was no difference in stricture length, location, prior endoscopic procedures, age, or other comorbidities. On multivariable analysis, substitution urethroplasty (OR 1.68, 95%CI 1.04-2.68; p=0.03) and BPH (OR 1.90, 95%CI 1.02-3.43; p=0.04) were associated with risk of any postoperative complication. Meanwhile, history of radiation therapy (OR 3.12, 95%CI 1.29-8.63; p=0.03) and BPH (OR 4.50, 95%CI 1.89-10.55; p=0.0009) were independently associated with risk of major complications.

CONCLUSIONS: Relative to other surgical procedures, urethroplasty has acceptable complication rates with a low incidence of major complications similar to that reported after pyeloplasty. Risk factors for complications include substitution urethroplasty and radiation.

Table 1. <90 day complications in urethral reconstruction and review of other urological surgeries1

| **Urethroplasty** | **(N=573)** |
|---|---|
| <90d complication , no. (%)* | 107 (18) |
| Minor (Clavien 1-2) | 70 (12) |
| Major (Clavien 3-5) | 37 (6) |
| **Reference surgeries** | **% Incidence** |
| Radical cystectomy[1] | 66 |
| Percutaneous nephrolithotomy[2] | 23 |
| Radical prostatectomy[3] | 20 |
| Nephrectomy[4] | 20 |
| Pyeloplasty[5] | 13 |
| Ureteroscopy[6] | 4 |

*Highest complication per procedure
[1]Laudone VP et al. *E Urol* (67) 2015: 1042-50
[2]Seitz C et al. *E Urol* (61) 2012: 146-58
[3]Tewari A et al. *E Urol* (62) 2012: 1-15
[4]Lowrance WT et al. *J Urol* (183) 2010: 1725-30
[5]Permpongkosol S et al. *J Urol* (177) 2007: 580-85
[6]Traxer O et al. *J Endo* (28) 2014: 131-9

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