

### Editorial Comment

These two papers essentially cover all available knowledge on the clinical application on permanent interstitial seed brachytherapy for prostate cancer.

Next to radical prostatectomy, permanent interstitial prostate (low-dose-rate, LDR) brachytherapy has become an accepted modality for treating localized prostate cancer. These papers are very thorough and up-to-date overviews on the history, the technical aspects, the treatment results and side effects of this new therapeutic option. Based on previous ultrasound inventions in Europe, the technique was refined basically in the US and realized on biplanar linear array ultrasound probes. This tool, together with an expert technique, forms the basis of a successful brachytherapy. Furthermore, software advances for the preplanning and the procedure resulted in new programs that now can accurately monitor each seeds position and radiation contribution.

Patient selection is crucial for successful therapy and the ideal candidate has low risk prostate cancer, defined as PSA of 10 or less, Gleason score of 6 or less and clinical stage T2a or less. Patients who present with more advanced features will require additional therapy, which is also addressed in depth in the articles.

The important aspect of doses is also focussed in detail. Generally, a dose of 140 Gy can be considered as threshold, as doses of less than 140 Gy had inferior results. Doses of 140 Gy and higher had outcomes comparable to radical prostatectomies.

The treatment results of studies all over the world are given for low risk patients, and also for patients with high-risk cancer. Low risk patients treated with brachytherapy have treatment results comparable to radical prostatectomy results. High-risk patients if treated in combination with hormones and/or external radiation therapy do fairly well with still room for improvement.

Treatment morbidity and side effects are also given in detail and are clearly inferior to radical prostatectomy results. Urinary retention rates vary between 1.5 to 34%, whereas late urinary complications including stricture, incontinence, and proctitis are very rare, given the right dose and technique.

An important aspect is the results on erectile dysfunction. Here, brachytherapy clearly has an advantage over radical prostatectomy, with potency preservation rates in the seventies to nineties, if brachytherapy is given alone. These data still can be improved by edition of files.

In summary, permanent interstitial prostate cancer brachytherapy has become an accepted treatment modality for localized prostate cancer. Therapeutic validity is high and side effects are very low as compared to other curative alternatives. Therefore this technique will represent a clear option in the armamentarium of the urologic surgeon.

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## FEMALE UROLOGY

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### **Effective treatment for mixed urinary incontinence with a pubovaginal sling**

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**Purpose:** We assessed the results of autologous fascia pubovaginal sling (PVS) in women with mixed incontinence using a validated outcome score and identified risk factors for failure.

**Materials and Methods:** A total of 131 women who received a PVS for sphincteric incontinence (SUI) confirmed by history, physical examination and/or videourodynamic study (VUDS) were identified from a database during the accrual dates 1995 to 2001. Patients with a urethral diverticulum, neoplasm or urinary fistula were excluded. Patients with SUI who also complained of urinary urge incontinence (UUI) and/or had detrusor instability that reproduced incontinence symptoms during VUDS were diagnosed with mixed incontinence (MUI). Patients completed a urological questionnaire, 24-hour voiding diary, pad test, VUDS and cystoscopy preoperatively. The diagnosis of SUI and UUI was further confirmed by physician interview. In patients with MUI detrusor overactivity was classified according to urodynamic criteria. At least 1 year postoperatively the validated Urinary Incontinence Outcome Score (UIOS) was calculated from a 24-hour diary, pad test and questionnaire, and outcomes in patients with SUI and those with MUI were compared. The study was powered a priori to detect a 20% difference in outcome score. Cured patients (UIOS 0) were compared with those who were not cured (UIOS 1 or greater) and univariate analysis was applied to identify the correlates of failed PVS.

**Results:** Of the 131 patients evaluated 33 with a diverticulum or fistula were excluded and 98 underwent PVS. Patient age was 45 to 84 years (median 66). Followup was 1 to 7 years (median 3). A total of 46 patients (48.5%) had simple SUI and 52 (51.5%) had MUI. Two patients were lost to followup (2%) and the procedure was presumed to have failed. There were no differences in age, hormone status, previous surgery or pelvic organ prolapse between patients with SUI and MUI. The cure/improved rate was 97% in 44 SUI cases and 93% in 47 MUI cases, which was a nonsignificant difference ( $p = 0.33$ ). Analysis of the MUI group showed that patients who were cured and not cured had similar age, parity, urethral angle, bladder capacity, leak point pressure and pad tests. Patients with MUI who were cured had a higher number of voids in 24 hours on preoperative voiding diary (12 vs 8,  $p = 0.01$ ), while those who were improved or in whom treatment failed had a greater number of urgency (5.6 vs 4.1,  $p < 0.05$ ) and UUI (5.1 vs 3.0,  $p < 0.01$ ) episodes. Univariate analysis of MUI cases showed that an increasing number of preoperative urgency and urge incontinence episodes correlated directly with PVS failure ( $r = 0.33$ ,  $p = 0.038$  and  $r = 0.35$ ,  $p = 0.048$ , respectively). In contrast, an increasing number of voids correlated with successful PVS ( $r = 0.4$ ,  $p = 0.01$ ).

**Conclusions:** Women with SUI and concurrent urge incontinence or detrusor instability have a successful PVS outcome at a rate comparable to that in women with simple SUI, in contrast to our previous findings. Increasing episodes of urgency and urge incontinence on the preoperative voiding diary correlated directly with surgical failure, while voiding frequently was associated with cure.

### Editorial Comment

The authors review 131 patients who underwent an autologous rectus fascial pubovaginal sling performed by the same surgeon. Pre-operatively, the patients completed a urologic questionnaire, 24 hour voiding diary, pad test, video urodynamics and cystoscopy. One year postoperatively the patients completed a 24 hour voiding diary, pad test, questionnaire and physical examination with a full bladder. In addition, they completed a validated urinary incontinence outcome score (UIOS) (1). The treatment outcome in patients with the preoperative diagnosis of stress urinary incontinence was compared to the outcome in patients with preoperatively diagnosed mixed urinary incontinence.

This is a very elegant and well written paper. It offers multiple points to ponder for those surgeons treating urinary incontinence. The data the paper presents is very fair, unbiased and clear. The use of the Urinary Incontinence Outcome Score draws very firm lines between what is considered a cure, improved, and a failure (1). I use this outcome score as well when analyzing data and urge the reader to consider using it in his practice. One of the true highlights of this paper is in the discussion section, especially reviewing the outcome

data presented and pondering whether a selection bias may have been found in the authors of this paper in view of their impressive previous research into this population group. The caveats they extend to the reader for the use of a pubovaginal sling with mixed urinary incontinence should be strongly reviewed and considered.

#### Reference

1. Groutz A, Blaivas JG, Rosenthal JE: A simplified urinary incontinence score for the evaluation and treatment outcomes. *Neurourol Urodynam.* 2000; 19: 127-35.

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### **Preoperative urodynamic evaluation may predict voiding dysfunction in women undergoing pubovaginal sling**

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**Purpose:** We determine which urodynamic parameters can best predict postoperative voiding dysfunction following pubovaginal sling surgery.

**Materials and Methods:** The records of 98 consecutive women who had undergone pubovaginal sling surgery with allograft fascia lata between July 1998 and July 2000 were reviewed. Urodynamic and follow-up data were sufficient for evaluation for 73 patients. Urodynamic and clinical parameters were correlated with urinary retention, time to return of efficient voiding and development of post-operative urgency symptoms.

**Results:** Average time to return of efficient voiding was 3.92 days (median 3). Of 21 women who voided without a detrusor contraction, urinary retention developed in 4 (23%) versus 0 of 48 who voided with detrusor contraction ( $p = 0.007$ ). Urinary retention was defined as the need to perform even occasional self-catheterization. All 4 women with urinary retention had a detrusor pressure of greater than 12 cm H<sub>2</sub>O (0 in 3, 4 in 1). None of the women with a detrusor pressure of greater than 12 cm H<sub>2</sub>O had urinary retention ( $p = 0.047$ ). The presence of Valsalva voiding in women without detrusor contraction did not affect the incidence of urinary retention (11.1%) compared to those who did not demonstrate Valsalva voiding (5.1%) ( $p = 0.603$ ). Peak flow rate, detrusor instability on preoperative urodynamics and post-void residual urine volume were not associated with postoperative urinary retention. Finally, post-void residual urine volume predicted delayed return to normal voiding ( $p = 0.001$ ). There were no other urodynamic parameters that were significantly associated with urinary retention, delayed return to normal voiding or postoperative urgency symptoms including peak flow rate, capacity or compliance.

**Conclusions:** Women who void without or with a weak detrusor contraction are most likely to have urinary retention postoperatively. Therefore, we conclude that preoperative urodynamic evaluation may be used to counsel women regarding the risk of urinary retention following the pubovaginal sling procedure.

#### Editorial Comment

The authors review the urodynamic parameters and follow-up data on 73 patients who had undergone pubovaginal sling with allograft fascia lata. They characterized post-operative dysfunctional voiding patterns as urinary retention, delayed return to normal voiding and de novo urgency. The urodynamic patterns analyzed

to define post-operative dysfunctional voiding patterns included detrusor voiding pressure at maximum flow rate, detrusor instability, peak flow rate, post-void residual, cystometric bladder capacity and bladder compliance. Out of the 73 post-operative women reviewed, 4 women were in urinary retention and 9 different women took greater than 7 days to resume their post-operative voiding. The 4 women in urinary retention all voided without a detrusor contraction. One of those women voided with Valsalva maneuvers while the other three in urinary retention voided without a Valsalva maneuver. Of the 7 women who were noted to void by Valsalva maneuver, one had a delayed return to efficient voiding. Three patients developed de novo urgency and one of the three had detrusor instability on pre-operative urodynamics while two did not.

This paper is quite notable with regard to emphasizing the importance of pre-operative urodynamic evaluation prior to an anti-incontinence procedure and to commenting on the post-operative voiding function of Valsalva voiders. Many times with a physical examination and history consistent with stress urinary incontinence, surgeons will question the need to put patients through a urodynamic testing. The value of a urodynamic testing denoted by this article would include characterizing the woman's voiding pattern with regards to the use of a detrusor contraction or not, in addition to documenting detrusor instability. Preparation for potential post-operative difficulties is of immeasurable value in the field of voiding dysfunction. However, as stated by this paper, most women who void without a detrusor contraction will not have urinary retention after an anti-incontinence operation such as a sling. Perhaps these patients do normally void with a detrusor contraction but that the urodynamic study was unable to identify or characterize same thus obscuring the true voiding difficulties of patients who void without a detrusor contraction and who undergo a suburethral sling.

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## **PEDIATRIC UROLOGY**

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### **Antibiotics and surgery for vesicoureteric reflux: a meta-analysis of randomised controlled trials**

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**Aims:** To evaluate the benefits and harms of treatments for vesicoureteric reflux in children.

**Methods:** Meta-analyses of randomised controlled trials using a random effects model. Main outcome measures were incidence of urinary tract infection (UTI), new or progressive renal damage, renal growth, hypertension, and glomerular filtration rate.

**Results:** Eight trials involving 859 evaluable children comparing long term antibiotics with surgical correction of reflux (VUR) and antibiotics (seven trials) and antibiotics compared with no treatment (one trial) were identified. Risk of UTI by 1-2 and 5 years was not significantly different between surgical and medical groups (relative risk (RR) by 2 years 1.07; 95% confidence interval (CI) 0.55 to 2.09, RR by 5 years 0.99; 95% CI 0.79 to 1.26). Combined treatment resulted in a 60% reduction in febrile UTI by 5 years (RR 0.43; 95% CI 0.27 to 0.70) but no concomitant significant reduction in risk of new or progressive renal damage at 5 years (RR 1.05; 95% CI 0.85 to 1.29). In one small study no significant differences in risk for UTI or renal damage were found between antibiotic prophylaxis and no treatment.