Risk of Urinary Incontinence following Post-Brachytherapy Transurethral Resection of Prostate (TURP) and Correlation with Clinical and Treatment Parameters

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Introduction and Objectives
We assess the risk of urinary incontinence after TURP in patients previously treated with brachytherapy. Clinical and treatment factors were analyzed to determine their role in the risk of urinary incontinence (UI).

Methods
A total of 2,405 patients underwent transperineal radioactive seed implantation of the prostate with or without external beam radiation therapy for the diagnosis of prostate cancer between June 1990 and December 2008. Those who underwent pre-implant TURP were excluded. Of these patients, 79 (3.3%) underwent channel TURP due to urinary retention or refractory obstructive urinary symptoms. Urinary morbidity was recorded prior to implantation and at regular followup intervals using the International Prostate Symptom Score and quality of life assessment scores. All patients underwent post-implantation computerized tomography dosimetry at 1 month. UI was defined as need to use one or more pads. Patient and treatment variables were analyzed in univariate fashion. Multivariate linear regression analysis was performed using variables in continuous fashion which demonstrated p < 0.2 on univariate analysis.

Results
Median follow up after implantation was 7.2 yrs (range 2.2 to 18.5 yrs). Median time to first post-implantation TURP was 14.8 months (range 0.5 to 188 months). Twenty of the 79 patients (25.3%) undergoing post-implant TURP had urinary incontinence compared with 3.1% for implantation only patients (odds ratio 10.4; 95% CI, 6.18; p < 0.001). Of the 15 patients who required more than 1 TURP, 8 (53%) patients had urinary incontinence compared with 19% of patients who had only 1 TURP (odds ratio 4.8; 95% CI, 1.5-16; p = 0.006). Exclusion of patients with multiple TURPs still demonstrated significant differences (18.8% vs. 3.1%, odds ratio 7.1; 95% CI, 3.6-13.9; p < 0.000). There was no relationship between patients undergoing multiple TURPs and more pad usage. On univariate analysis, CT volume > 50 g demonstrated an incontinence rate of 37.5% vs. 16.7% in those with a CT volume < 50 g (p = 0.04). On multivariate linear regression analysis, hormone use and post-implantation TURP were significant (p < 0.05). There was no correlation between timing of TURP after implantation and risk of incontinence.

Conclusions
Urinary incontinence developed in 25.3% who underwent TURP following prostate brachytherapy. UI risk correlates with the number of TURPs. Patients should be counseled thoroughly prior to undergoing post-implantation TURP.