

SECTION 4: POST-PROSTATECTOMY COMPLICATIONS-REVIEW

Practical evaluation of post-prostatectomy incontinence

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Abstract

For patients undergoing radical prostatectomy, urinary incontinence is not an uncommon postoperative complication. For some, it can resolve over time, while in others the condition persists and requires medical and/or surgical intervention. This summary provides a review of the recommended evaluations to perform in this setting.

Incontinence is one of the most significant complications of a radical prostatectomy (RP). Rates reported after RP range from 2% to 57% depending on the definition used.¹⁻⁵ This summary will provide an overview of the evidence-based evaluation of incontinence in RP patients.

Causes of post-RP incontinence

Although incontinence may be present before RP (reported rates up to 21%),⁶⁻⁹ preoperative incontinence is likely due to urge incontinence rather than stress incontinence.

The most common causes of incontinence post RP are damage to the distal urethral sphincter through direct injury, or injury to the nerve supply or supporting structures.¹⁰ While bladder dysfunction can also be present in 26% to 46% of patients postoperatively, it is rarely the sole cause of incontinence in this setting.¹¹⁻¹⁶

Radiation can also be a contributing factor with respect to postoperative incontinence. Among patients who undergo RP after failed radiation therapy, the incidence of urinary incontinence has been reported to be as high as 44%.¹⁷ Reported rates of incontinence after radiation and high-intensity focused ultrasound alone are 6.6% to 23% and 0.5% to 15.4%, respectively.¹⁸⁻²⁰

Unpublished data from the Toronto University Health Network demonstrate that, among patients who underwent radiation therapy after RP, the incidence of urinary incontinence was not dependent on the timing of the radiation. Furthermore, those who underwent early radiation (up to six months after surgery: mean 3.6 months) and those who underwent late radiation (after six months: mean

30.1 months) had similar rates of incontinence after the radiation therapy (early: 24.5%; late: 23.3%).

Evidence-based evaluation

All of the recommended evaluations listed below are based on a review of the literature conducted by Herschorn and colleagues as part of the Fourth International Consultation on Incontinence Committee on Surgical Treatment of Urinary Incontinence in Men.²¹ Table 1 provides a summary of the recommendations, with the levels of evidence and grade of recommendation shown for each.

History can provide a great deal of important information in the work-up of the post-RP patient with urinary incontinence. The critical factors to include are age, radiation history, date of surgery, type of surgery (nerve sparing vs. non-nerve sparing) and type of leakage (urge vs. stress; enuresis suggests urge). Other critical factors include time of day and degree of leakage (number of pads), fluid, caffeine and alcohol intake, medications, and other medical conditions.

The physical examination typically does not provide a great deal of information, although meatal stenosis, phimosis and retention can be identified. A stress test (both cough and valsalva, as they can produce different results) should be performed with a full bladder and the patient upright.

Voiding diaries can be very helpful; they should capture intake, output, number of voids and leaks, and timing of each. There is no concrete evidence to recommend any particular duration of diary keeping, although four to seven days is reasonable.^{22,23} Pad testing provides more direct evidence of incontinence than the diary. While a 24-hour test is the most accurate, practical limitations most often mean that a one-hour test is the one used.^{21,24} The interpretation of a one-hour test is: 0 to 1 g = normal/dry; 2 to 50 g = mild leakage; >50 grams = significant leakage.

Laboratory investigations are particularly important when renal failure, polyuria or diabetes is suspected. The key tests to order are blood urea nitrogen, creatinine and glucose. Urine culture and sensitivity, and urinalysis are also simple to do and can be helpful.

Formal imaging of the upper and lower urinary tract is usually not needed or warranted, but a bladder scan post-void residual is helpful, easy to do and readily available to most urologists.

Table 1. Recommended evaluations of the incontinent patient prior to surgical therapy

| Evaluation | Level(s) of evidence | Grade of recommendation |
|---------------------------|---|-------------------------|
| History | 1-2 | A |
| Physical examination | 1-2 | A |
| Urinalysis, urine culture | 1-2 | A |
| Bladder scan PVR | 1-2 | A |
| Voiding diary (2-7 days) | 1-2 | B |
| Pad test | 1-2 | B |
| Cystoscopy and imaging | 2-3 | B |
| Multichannel UDS | 3 | C |
| BUN, creatinine, glucose | Recommended for polyuria without diuretics or suspected impaired renal function | |

PVR: post-void residual volume; UDS: urodynamic; BUN: blood urea nitrogen.

There is little hard evidence for or against the use of cystoscopy in this setting. It can be useful to assess for bladder neck contracture, urethral stricture and abnormalities of the bladder itself (e.g., diverticulum, stones, staples).

The Fourth International Consultation on Incontinence Committee on Surgical Treatment of Urinary Incontinence in Men recommended urodynamic testing prior to invasive therapy to characterize the underlying pathophysiology.²¹ With respect to the type of test, multichannel is considered to be superior to cystometrogram, as it can identify detrusor overactivity (DO) and poor compliance. Limited access to this type of testing may, however, limit its use in Canada. Video/fluoroscopy with the urodynamics may be considered to assess reflux, the bladder neck and urethra. Urodynamics with invasive pressure-flow studies are still the gold standard to rule out bladder outlet obstruction accompanied by DO, which can cause leakage.²⁵

There is also evidence from other urologic surgery settings that argues against using urodynamic testing prior to RP. Theil and colleagues found no evidence that patients with DO, low first sensation filling, decreased compliance or low bladder capacity had worse outcomes after artificial urinary sphincter (AUS) insertion in 86 men than those who did not have urodynamics.²⁶ Trigo-Rocha and colleagues also reported that preoperative urodynamic findings such as DO, impaired detrusor contraction, low valsalva leak point pressure, bladder outlet obstruction and mildly reduced compliance did not lead to a bad outcome after AUS implantation.²⁷

If one decides to do urodynamic testing after RP, there is some guidance about appropriate timing. Evidence shows that there is continued recovery of continence up to 24 months post RP (95.2% at 12 months, 98.5% at 24 months in one study).²⁸ Other researchers have reported a plateau at 12 months.^{29,30} It is reasonable, therefore, to perform post-RP urodynamics at one year.

Conclusions

Urinary incontinence is not an uncommon complication following RP. Evidence-based guidance is available to help direct investigations and make decisions about management for patients with these symptoms.

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