Management of incontinence after prostate surgery

RAJAN VEERATTERAPILLAY, VICTORIA LAVIN AND MARY GARTHWAITE

In this article, the authors summarise the evaluation of the incontinent male and provide an overview of treatment strategies, particularly focusing on post-prostatectomy incontinence.

With an ageing population and an increase in radical surgery, for both prostate cancer and benign prostatic enlargement, male incontinence is becoming increasingly prevalent. The pathophysiology of this condition is related to sphincter weakness with or without concomitant detrusor overactivity, or detrusor overactivity alone. The prevalence of male incontinence in the community is difficult to quantify accurately. Most studies have been postal questionnaires and report this to be between 8.9 and 25.9%, the prevalence generally increasing with age.\(^1\)

While patients with bladder outlet obstruction (BOO) from benign prostatic enlargement can suffer from incontinence as a result of concomitant detrusor overactivity or occasionally following surgical procedures for BOO, post-prostatectomy incontinence (PPI) is a devastating complication following radical prostatectomy for prostate cancer. Definitions of PPI have varied across studies, ranging from urine dripping daily, the need to use a penile clamp, incontinence pads or requiring further surgical intervention for incontinence. Overall, 8–20% of patients suffer from PPI, with approximately 6% requiring subsequent surgical treatment for it (Figure 1).\(^2\)

INVESTIGATING THE INCONTINENT MALE

Sphincter weakness, detrusor overactivity or a combination of both can be the problem in PPI and an accurate diagnosis is important.\(^3\) A detailed urological history should be taken regarding the nature of the incontinence (stress, urge or mixed), onset and progression, diurnal or nocturnal symptoms and pad usage. An associated history of surgery, radiotherapy or neurological and cardiovascular disease is important, as well as the impact of the symptoms on the patient’s quality of life. Important ‘red flag’ symptoms to identify are haematuria and...

Rajan Veeratterapillay, MB BS, FRCS(Urol), Urology Registrar; Victoria Lavin, MB ChB, MRCS(Eng), FRCS(Urol), Cert Clin(Ed), Urology Registrar; Mary Garthwaite, MB BS, PhD, FRCS(Urol), Consultant Urological Surgeon, James Cook University Hospital, Middlesbrough
recurrent urine infections, which may need further detailed evaluation.

Physical examination includes palpation for a full bladder and neurological examination, specifically the S2-4 sacral segments, including anal tone and perianal sensation. Urinalysis should be performed and urine sent for microscopy, culture and sensitivity to exclude any infection. Uroflowmetry and post-void residual measurement in the outpatient clinic allows assessment of bladder emptying.

Patients should complete a voiding diary (3–5 days) to allow objective assessment of the voided volumes, fluid intake and patterns of incontinence. Validated questionnaires from the International Continence Society (ICIQ-UI, ICIQ-MLUTS) can be used to assess the impact of incontinence and standardise reporting.4

More detailed investigations include cystoscopy and urodynamic studies by filling and voiding video cystometrogram. Cystoscopy allows inspection of the urethra for strictures, the sphincter and bladder neck area for any injury and the bladder for any intravesical pathology. Urodynamic studies with fluoroscopy demonstrate the bladder and bladder outlet during storage, voiding and provocative manoeuvres and can show urodynamic stress incontinence. Urodynamics are essential, as up to 60% of patients can have an element of bladder dysfunction.5

MANAGEMENT OF PPI
The management of PPI is tailored to each individual and depends on the balance of degree of bother from the symptoms against the potential morbidity of interventions. Overall management can be divided into conservative treatments, pharmacotherapy and surgical therapies (Box 1).

External appliances such as penile clamps, indwelling catheters, condom sheath catheters and pads are often used in the short term, but can significantly impair an individual’s quality of life. Nevertheless, they have a role in patients who are unfit for, or who wish to avoid the morbidity of further surgery and in those patients with only mild degrees of incontinence. NICE guidelines recommend that a choice of containment products to manage urinary incontinence should be offered based on individual circumstances and patient preference. Permanent containment products should be used only after exclusion of other methods of continence management.6

Pelvic floor therapy
Pelvic floor therapy (PFT) has been shown to reduce the frequency and amount of urinary incontinence and the time to reach continent status after radical prostatectomy. However, some authors have suggested that there is minimal long-term benefit of PFT in patients with severe PPI. The addition of biofeedback to PFT has not convincingly shown a benefit in PPI. Patient-related factors were felt to be a significant barrier to the success of PFT due to low level of patient motivation, poor perception of effectiveness of exercises, or simply forgetting to do the exercises (up to 78%).7

Pharmacotherapy
Duloxetine is a selective serotonin–noradrenaline reuptake inhibitor used for stress incontinence in women. Studies of its use in men with incontinence are unfortunately of short follow-up and limited sample size, but tend to show a small reduction in the average pad use per day. This has to be counterbalanced against the risk of significant side-effects such as nausea, fatigue and insomnia.8

Alpha-adrenergic blockers have been shown to be useful in very minor degrees of incontinence, while anticholinergic medications have a role if detrusor overactivity is demonstrated.

Urethral bulking agents
Multiple substances (Teflon, autologous fat, collagen, silicon) have been injected transurethrally or peri-urethrally to increase urethral resistance. While minimally invasive, urethral bulking agents have been shown to have poor long-term cure rates and require repeat injections. They are not routinely recommended.

Slings
Male slings are gaining in popularity for men with mild to moderate PPI. They are akin to female slings and work via passive compression to the external urethra.9 Commonly the AMS Advance Sling is used; however, bone-anchoring and other types remain available. Slings have the advantage of having no mechanical components that may fail in the long term. Placement is performed via a perineal approach as a day-case procedure. The main complication following sling placement is urinary retention, which is usually transient. Serious complications are unusual.10 There are, however, limited long-term outcome data for male slings and currently their use in the UK is limited to clinical trials or following informed consent regarding the lack of follow-up data.

Artificial urinary sphincter
The artificial urinary sphincter (AUS), AMS 800, remains the gold standard in the
treatment of PPI (see Figure 1). The system comprises an interconnected cuff, fluid reservoir and pump. Placement is performed (usually requiring an overnight stay) via a perineal and a small lower abdominal incision. The cuff is placed around the bulbourethra normally via a vertical perineal incision; the pump is placed in a subdartos pouch created through the abdominal incision and using the same incision the reservoir is placed in the retropubic space.11

The AUS is a pressurised hydraulic system with the cuff inflated at rest. To void, the patient deflates the cuff by pressing the pump. AMS provides a detailed explanation online (americanmedicalsystens.com). Due to the mechanical parts, there is a risk of failure requiring revision surgery, along with infection and explantation. Patients are normally given a week of antibiotics following infection and explantation. Patients are performed in clinic after a 6-week period. Failure requiring revision surgery, along with the cuff inflated at rest. To void, the patient deflates the cuff by pressing the pump. AMS provides a detailed explanation online (americanmedicalsystens.com). Due to the mechanical parts, there is a risk of failure requiring revision surgery, along with infection and explantation. Patients are normally given a week of antibiotics following infection and explantation. Patients are performed in clinic after a 6-week period.

 Patients require the mental capacity and manual dexterity to use the pump. It is also important to emphasise that, in future, periods of urethral catheterisation should be avoided as this can increase the risk of erosion. If the urinary tract requires instrumentation, the system should be deactivated to minimise this risk. Long-term data demonstrate that the AUS has success rates of up to 90%12 and is well tolerated.

Urinary diversion

If there are contraindications to urethral or bladder-neck placement of a continence device, such as previous radiotherapy or severe PPI with failed urethral surgery, a urinary diversion is worth considering. This can be either a Mitrofanoff stoma with concomitant bladder-neck closure or formation of an ileal conduit. Both these procedures have associated morbidity, more immediate complications than urethral surgery and come with long-term metabolic and stoma-related complications. However, if the patient is suitable for a urinary diversion, motivated and physically able to manage a stoma, it remains a valid choice and one that should not be overlooked.

CONCLUSION

With such a wide variety of treatments available for the male with PPI, one cannot underpin enough the importance of a thorough evaluation, with the inclusion of videourodynamics, in determining the right treatment for each individual patient.

Declaration of interests: none declared.

REFERENCES