CASE REPORT

Acquired male urethral diverticulum: a complication following artificial urethral sphincter implantation

João Pedro Peralta,¹ Mário Reis,¹ Carlos Rabaça,¹ Amílcar Sismeiro¹

¹Department of Urology, Portuguese Institute of Oncology of Coimbra, Coimbra, Portugal

Correspondence to

Dr João Pedro Peralta, joaopedroperalta@gmail.com

SUMMARY

The authors report a case of a 72-year-old patient who underwent radical prostatectomy in 2003 due to prostate cancer. During follow-up, he presented with permanent and severe urinary stress incontinence for which he underwent an artificial urinary sphincter implantation in 2009. After infection of the device, followed by the development of a urinary fistula, the artificial urinary sphincter was removed. He presented no new signs or symptoms for 2 years, during which he remained completely incontinent. In April 2012, he developed a painless scrotal swelling close to the median raphe. On manual compression, it showed urinary leakage and disappeared completely, only to reappear several hours later. Auxiliary examinations revealed a bulbar urethral diverticulum which was subsequently excised. A urethroplasty was performed during the same procedure. The patient presented with no further complications. Although still suffering from complete urinary incontinence, he refused any kind of surgery for the time being.

BACKGROUND

Although artificial urethral sphincter implantation is a common procedure worldwide for the treatment of urinary stress incontinence after radical prostatectomy, this case report shows one of the serious complications following an artificial urethral sphincter implantation.

CASE PRESENTATION

A 72-year-old patient underwent radical prostatectomy in 2003 for prostate cancer. Follow-up showed no signs of disease recurrence. Meanwhile, owing to severe stress incontinence following the surgery, he underwent an artificial urinary sphincter placement in 2009. Six months after the procedure, he developed a genital infection with purulent discharge from the scrotum and urinary leakage from the skin, which led to the suspicion of a urinary fistula. A trial of antibiotics and suprapubic drainage showed no improvement, leading to the removal of the artificial sphincter. He fared well for 2 years but remained totally incontinent. In April 2012, he developed a painless scrotal swelling close to the median raphe. On manual compression, it showed urinary leakage and disappeared completely, only to swell again and reappear after a few hours of walking.

INVESTIGATIONS

A urethrocytogram highlighted a major anterior urethral diverticulum in the bulbar urethra and a

stricture immediately after the meatus of the diverticula (figure 1).

TREATMENT

A perineal approach was used during surgery, with a complete excision of the diverticulum, neck and attached portion of the bulbar urethra, with a partial urethrectomy and an end-to-end anastomosis.

A urethral catheter was left in place for 3 weeks and suprapubic drainage was maintained for 3 days.

Pathology revealed a urethral diverticulum with a length of 7 cm, showing squamous metaplasia and a fistulous tract to the skin of 2.5 cm.

OUTCOME AND FOLLOW-UP

Until now, the patient is doing fine. Although remaining totally incontinent, he is capable of using a urinary device and refuses any kind of surgery for the time being.

DISCUSSION

Urethral diverticula (UD) are sac-like dilations of the urethra that communicate with the urethral lumen. They can be congenital or acquired in origin. The neck of the diverticula can be narrow or wide (figure 2).¹⁻³

Congenital UD are lined by the epithelium with full-thickness involvement of the urethral wall, while acquired UD are lined by the epithelium and granulation tissue without any smooth muscle fibres within its wall.⁴

Most often, they are found in women due to the anatomically unsupported urethra, complications during delivery or because of periurethral abscesses. In men, UD are uncommon and most often acquired (90%) by trauma, infection, obstruction and urethral surgery.⁵

Clinical presentation involves urinary incontinence, postmicturition dribbling or even an obstructive flow pattern, recurrent UTIs and perineal or scrotal swelling.⁶

Physical examination may demonstrate a palpable scrotal or penoscrotal mass, sometimes showing urinary leakage on external manual pressure.

Diagnostic evaluation in men should include retrograde urethrography with voiding cystourethrography. Furthermore, a cystourethroscopy with manual compression of the diverticula, to expose the orifice of the UD, should be performed (figure 3).

MRI is of the utmost importance when evaluating UD in women; however, this is not standard in men.

CrossMark

To cite: Peralta JP, Reis M, Rabaça C, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-201542

Figure 1 (A) Plain film. (B) Major anterior urethral diverticulum in the bulbar urethra, and a stricture immediately after the communication of the urethral lumen with the diverticula. (C) Complete emptying of the diverticula after manual expression.

Figure 2 OR isolation of the proximal bulbar urethra with individualisation of the urethral diverticula.

Figure 3 OR isolation of both ends of the bulbar urethra with the attached portion of the diverticula and its neck.

Treatment strategies should be tailored to the individual case and account for the presence of any concomitant urogenital abnormalities.

In small UD, an endoscopic approach with unroofing of the diverticula may be an effective and quick solution. However, it is not advisable in major diverticula or in cases where there is little urethral support due to a higher rate of recurrence and fistulae.⁷

For more complicated UD, an open approach is advisable. When infection is present, a double-stage procedure should be

chosen/preferred because of the higher rate of complications and failure related to single-stage repair.

In bulbar UD, diverticulectomy with urethrotomy and end-to-end anastomosis is, if surgically feasible, one of the most common procedures providing the best outcomes.

If the diverticulum is too large, diverticulectomy with the use of local flaps or distant grafts (buccal mucosa) might be necessary.

Whenever possible, maximum efforts should be made to reinforce the repair with surrounding tissues in an attempt to minimise the risk for development of urethrocutaneous fistulae.^{8,9}

The final option for complex or recurrent diverticula, or in patients in whom urethral reconstruction is expected to fail (eg, due to a history of multiple urethral surgeries, extensive fibrosis or complicated strictures, namely from radiotherapy), of a perineal urostomy is an option. In an extreme scenario, a urinary diversion might be considered, but this will always be a last resort.¹⁰

Learning points

- ▶ Urinary incontinence after radical prostatectomy is common.
- ▶ Not all the available options are optimal.
- ▶ The possible risk of major complications following incontinence surgery should be fully explained because they may change the patient's wish for surgery.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Laborde E, Winters JC. Male urethral diverticulum after placement of an artificial urinary sphincter. *Ochsner J* 2012;12:1282–4.
- 2 Allen D, Mishra V, Pepper W, et al. A single-center experience of male urethral diverticula. *Urol* 2007;70:650–3.
- 3 Rimón U, Hertz M, Jonas P. Diverticula of the urethra: a review of 61 cases. *Urol Radiol* 1992;14:59–55.
- 4 Wickman ME, Engel RME. Case of anterior urethral diverticulum in male quadriplegic. *J Urol* 1976;116:118.
- 5 Davis BL, Robinson DG. Diverticula of the female urethra: assay of 120 cases. *J Urol* 1970;104:850–3.
- 6 Ortlip SA, Gonzalez R, Williams RD. Diverticula of the male urethra. *J Urol* 1980;124:330–5.

- 7 Labanaris AP, Zugor V, Witt JH. Urethral diverticulum with massive urolithiasis presenting as a scrotal mass. *Urol Int* 2011;87:481.
- 8 Alphs HH, Meeks JJ, Casey JT, *et al.* Surgical reconstruction of the male urethral diverticulum. *Urol* 2010;76:471.
- 9 Jang TL, Blunt LW, Yap RL, *et al.* Large urethral diverticulum presenting as a scrotal mass: urethral reconstruction with ventral onlay buccal mucosa. *J Urol* 2004;171:351.
- 10 Cinman NM, McAninch JW, Glass AS, *et al.* Acquired male urethral diverticula: presentation, diagnosis and management. *J Urol* 2012;188:1204–8.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow