CASE REPORT

Urinary incontinence following transurethral prostatectomy presenting as self inflicted penile gangrene

Subhabrata Mukherjee, Rajan Kumar Sinha, Nabankur Ghosh, Dilip Karmakar

Department of Urology,
CNMCH, Kolkata, West
Bengal, India

Correspondence to
Dr Rajan Kumar Sinha,
rajan_rims@yahoo.co.in

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SUMMARY

An elderly diabetic man with a 67 g prostate developed a moderate degree of stress urinary incontinence along with urge urinary incontinence after transurethral resection of the prostate. Initially, he did not perform the recommended pelvic floor exercise and wrapped a rubber band around his penis to control the problem. He presented with late development of penile gangrene requiring partial amputation of his penis. The stress urinary incontinence subsided on subsequent follow-up. The patient is now doing well.

BACKGROUND

Transurethral resection of the prostate (TURP) is a common urological procedure with minimal morbidity and negligible mortality.^{1–4} Incidence of postoperative urinary incontinence is low.^{3, 4} We report a case of post-TURP urinary incontinence. The patient wrapped a rubber band around his penis to control the problem and ultimately developed penile gangrene requiring partial amputation of his penis.

CASE PRESENTATION

A 73-year-old diabetic, normotensive man from a remote village, with controlled glycaemic status underwent TURP in our hospital. The patient had been on a combination of tamsulosin and dutasteride for the past 6 months. Though there was initial improvement in his lower urinary tract symptoms after starting the medication, the patient was significantly inconvenienced by the symptoms and opted for surgery. Before TURP, the maximum flow rate in uroflowmetry was 11.5 mL/s and the IPSS score was 22/35 (incomplete emptying: 4; frequency: 3; intermittency: 3; urgency: 3; weak stream: 3; straining: 4; nocturia: 2) with impaired quality of life (quality of life due to urinary symptoms: 4). On ultrasonography, the prostate was 67 g with postvoid residual urine of 45 mL. There was no evidence of bilateral hydronephrosis.

During the operation, both lateral lobes were found to be enlarged. Complete resection was carried out within 75 min by monopolar electrocautery. There was bothersome bleeding near the prostatic apex, which was coagulated with coagulation current for 1–2 min.

The patient's postoperative recovery was uneventful and the perurethral catheter was removed on the third postoperative day. The patient developed urge urinary incontinence (UUI) with a moderate

degree of stress urinary incontinence (SUI). He was trained to perform Kegel exercises and an antimuscarinic drug was added to his regimen. He was discharged with advice to attend our outdoor after 2 weeks with biopsy report, or emergency room at any time if required.

The patient attended our OPD 4 weeks later with dribbling of urine. On examination, to our utter surprise, we discovered that a rubber band was wrapped around the shaft of his penis resulting in complete blackening of the distal part ([figure 1](#)). The rubber band was removed immediately. The distal penile shaft was cold with complete loss of sensation.

INVESTIGATIONS

Blood examination revealed total count of 13 400/mm³ with urea of 65 mg% and creatinine of 1.6 mg%. The patient's blood sugar level was also deranged with fasting blood sugar at 286 mg% and postprandial blood sugar at 344 mg%.

TREATMENT

Intravenous fluid and parenteral antibiotics were started. Partial amputation of the penis with removal of the gangrenous part was performed under spinal anaesthesia ([figure 2](#)).

OUTCOME AND FOLLOW-UP

The patient was discharged on fifth postoperative day with per urethral catheter in situ after all the blood parameters became normal. He was strictly advised to perform Kegel exercises. He attended our outdoor after 2 weeks when the catheter was removed. The SUI subsided gradually over 2 months with pelvic floor exercise. The patient is doing well at 1-year follow-up.

DISCUSSION

The term 'gangrene' denotes necrosis of tissue with superadded putrefaction.⁵ Terminal appendages such as the fingers, toes and limbs are most commonly affected, but gangrene can also involve internal organs. Gangrene of the penis is an infrequently encountered condition as the penis is a highly vascular organ.^{6, 7}

Aetiological factors that have been associated with penile gangrene are diabetes mellitus with chronic renal failure (especially on dialysis, indicating severe systemic vascular disease, known as systemic calciphylaxis),^{8, 9} complication of circumcision (ring block with lignocaine and epinephrine, use of

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Figure 1 Gangrene of glans penis and distal penile shaft.

monopolar electrocautery),^{7 10 11} priapism (due to penile metastasis, thrombotic thrombocytopenic purpura or drug induced),^{12–16} Fournier's gangrene,^{17 18} mycotic infection,¹⁹ tourniquet effect created by foreign bodies (metallic and non-metallic rings, hair, rubber bands),^{20–25} thrombotic complications associated with ulcerative colitis,²⁶ after implantation of penile

Figure 2 Penile stump after partial amputation.

prosthesis,^{27 28} after radiotherapy for carcinoma rectum,²⁹ etc. Post-TURP urinary incontinence presenting as self-inflicted penile gangrene due to wrapping of a rubber band around the penis is extremely rare in the literature.

After TURP, up to 30%–40% of patients may experience urinary incontinence in the early postoperative period; however, the incidence of late incontinence that persists for more than 6 months is only 0.5%–1%.³ Three forms of incontinence may be observed after TURP: UII, which is associated with the healing process of the prostatic fossa and detrusor instability due to long-standing obstruction; SUI, which is related to excessive resection and application of coagulation current at the prostatic apex and around the verumontanum; and total urinary incontinence (TUI), which is the result of permanent damage to the external sphincter muscle during resection.^{3 4 30}

Resection of the apical lobes of the prostate is quite challenging because of its close proximity to the external sphincter. This is especially so in a big bulky prostate where the lateral lobe adenomas extend well down below the verumontanum and distort the sphincter. During resection of the apical tissue in such cases, great care should be taken so that the loop does not cut the corner and injure the sphincter. Sometimes, it is beneficial to lift the apex with a finger in the rectum. It is equally important to refrain from coagulating in this region for fear of injuring the sphincter.³¹

Management options for post-TURP urinary incontinence in the early postoperative period include assurance and pelvic floor exercise (Kegeling). If required, anticholinergic drugs (darifenacin, solifenacin) and anti-inflammatory medications (diclofenac) may be added.^{3 4} Incontinence that persists for more than 6 months requires complete investigation, including an ascending urethrogram, cystourethroscopy and urodynamic evaluation.^{3 30} Management options for total incontinence due to permanent sphincter incompetence include pelvic floor exercise combined with TRUS-biofeedback and electrostimulation, periurethral injection therapy and, ultimately, application of an artificial sphincter.^{3 4 32 33}

In our patient, we made the mistake of applying coagulation current in the apical region of the prostate for 1–2 mins, which probably injured the external sphincter, leading to a moderate degree of SUI. Also, the patient did not practice the recommended pelvic floor exercises, used a rubber band to control his

Learning points

- ▶ Resection of the apical lobes of the prostate is quite challenging because of its close proximity to the external sphincter.
- ▶ This is especially so in a big bulky prostate where the lateral lobe adenomas extend well down below the verumontanum and distort the sphincter.
- ▶ It is important to refrain from coagulating in this region for fear of injuring the sphincter.
- ▶ Post resection of the prostate incontinence requires careful evaluation and proper counselling.
- ▶ Early incontinence should be managed by pelvic floor exercises along with anticholinergic drugs and anti-inflammatory medications.
- ▶ Incontinence lasting for more than 6 months requires complete investigation, including ascending urethrogram, cystourethroscopy and urodynamic evaluation.

problem and presented late with a rare complication of penile gangrene requiring partial amputation of the penis. Presence of diabetes might have exacerbated the ill effect of the rubber band contraction, causing angiopathy. The SUI subsided gradually over 2 months with the pelvic floor exercises, suggesting that the weakness of the external sphincter was temporary.

Contributors SM, RKS and NG were involved in the data collection, manuscript writing and manuscript review. DK was involved in the manuscript review.

Competing interests None declared.

Patient consent Obtained.

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REFERENCES

- Madersbacher S, Alivizatos G, Nordling J, *et al.* EAU 2004 Guidelines on assessment, therapy and follow-up of men with lower urinary tract symptoms suggestive of benign prostatic obstruction (BPH guidelines). *Eur Urol* 2004;46:547–54.
- Mebust WK, Holtgreve HL, Cockett ATK, *et al.* Transurethral prostatectomy: immediate and postoperative complications. A cooperative study of 13 participating institutions evaluating 3,885 patients. *J Urol* 1989;141:243–7.
- Rassweiler J, Teber G, Kuntz R, *et al.* Complications of transurethral resection of the prostate (TURP) incidence, management, and prevention. *Eur Urol* 2006;50:969–79; discussion 980.
- Sokoloff MH, Michel K, Smith RB. Complications of transurethral resection of the prostate. In: Taneja SS, ed. *Complications of urologic surgery*. 4th edn. Philadelphia: Saunders Elsevier, 2010:279–94.
- Walter JB, Israel MS. *General pathology*. 4th edn. Edinburgh: Churchill Livingstone, 1974.
- Harris FC, Mydlo JH. Ischaemia and gangrene of penis. *J Urol* 2003;169:1795.
- Bhat M, Bhat A, Saran RK, *et al.* Auto-digestion of penis after ring block with Xylocaine & Adrenaline: a lethal iatrogenic trauma. *J Nephrol Urol Res* 2013;1:12–14.
- Bouzouita A, Kerkeni W, Cellier L, *et al.* Penile gangrene: a rare complication of systemic calciphylaxis, to be screened. *Prog Urol* 2014;24:142–4.
- Agarwal MM, Singh SK, Mandal AK. Penile gangrene in diabetes mellitus with renal failure: a poor prognostic sign of systemic vascular calciphylaxis. *Indian J Urol* 2007;23:208–10.
- Uzun G, Ozdemir Y, Eroglu M, *et al.* Electrocautery-induced gangrene of the glans penis in a child following circumcision. *BMJ Case Rep* 2012;2012:pil: bcr-2012-007096.
- du Toit DF, Villet WT. Gangrene of the penis after circumcision: a report of 3 cases. *S Afr Med J* 1979;55:521–2.
- Ajape AA, Bello A. Penile gangrene: an unusual complication of priapism in a patient with bladder carcinoma. *J Surg Tech Case Rep* 2011;3:37–9.
- Kwok B, Varol C. Priapism and penile gangrene due to thrombotic thrombocytopenic purpura. *Urology* 2010;75:71–2.
- Nagathan DS, Pahwa HS, Kumar A, *et al.* Anticoagulant-induced priapism progressing to penile gangrene: a devastating complication!. *BMJ Case Rep* 2012;2012:pil: bcr2012007073.
- Koers H. Priapism caused by simultaneous use of zuclopentixol and paroxetine. *Ned Tijdschr Geneesk* 1999;143:208–10.
- Khoriaty N, Schick E. Penile gangrene: an unusual complication of priapism. How to avoid it? *Urology* 1980;16:280–3.
- Talwar A, Puri N, Singh M. Fournier's gangrene of the penis: a rare entity. *J Cutan Aesthet Surg* 2010;3:41–4.
- Anantha RV, Kasper KJ, Patterson KG, *et al.* Fournier's gangrene of the penis caused by *Streptococcus dysgalactiae* subspecies *equisimilis*: case report and incidence study in a tertiary-care hospital. *BMC Infect Dis* 2013;13:381.
- Hombalkar NN, Vaze D, Guha P, *et al.* Devastating penile mycosis leading to penile gangrene. *Urology* 2013;82:704–6.
- Nuhu A, Edino ST, Agbese GO, *et al.* Penile gangrene due to strangulation by a metallic nut: a case report. *West Afr J Med* 2009;28:340–2.
- Labanaris AP, Zugor V, Smiszek R, *et al.* Dry gangrene of the penis induced by a bullring for sexual stimulation purposes. *Scientific World Journal* 2008;8:896–900.
- Kawoosa NU. Isolated gangrene of the penis in a paraplegic patient secondary to a condom catheter. *Indian J Surg* 2011;73:304–6.
- Kirtane JM, Samuel KV. Hair coil strangulation of the penis. *J Pediatr Surg* 1994;29:1317–18.
- Sasaki Y, Oda S, Fujikata S, *et al.* Gangrene of the penis due to strangulation by rubber band: a case report. *Hinyokika Kyo* 2014;60:155–7.
- Sekii Y, Katayama K, Hayashi T, *et al.* Strangulation of the penis with a rubber band: a case report. *Hinyokika Kyo* 2013;59:385–7.
- Zhuge Y, Hogan AR, Cheung MC, *et al.* Thrombotic cutaneous gangrene with autoamputation of the penis: a rare extracolonic manifestation of ulcerative colitis in a child. *J Pediatr Surg* 2009;44:e1–4.
- Gómez BG, Otero JR, Sicilia LD, *et al.* Ischemic gangrene of the glans following penile prosthesis implantation. *Case Rep Urol* 2013;2013:323574.
- Yildirim A, Basok EK, Basaran A, *et al.* Gangrene of the distal penis after implantation of malleable penile prosthesis in a diabetic patient. *Adv Ther* 2008;25:143–7.
- Zyczkowski M, Bogacki R, Bryniarski P, *et al.* Gangrene of the penis, scrotum, and perineum, occurred after radiotherapy of rectal cancer. *Cent European J Urol* 2013;66:336–40.
- Zwergel U. Benign prostatic hyperplasia (BPH) syndrome. Surgical and interventional therapy options. *Urologe A* 2001;40:319–29.
- Blandy JP, Notley RG, Reynard JM. Transurethral resection technique for benign prostatic enlargement. In: Blandy JP, ed. *Transurethral resection*. 5th edn. Oxfordshire: Taylor & Francis, 2005:97.
- Wasson JH, Reda DJ, Bruskewitz RC, *et al.* A comparison of transurethral surgery with watchful waiting for moderate symptoms of benign prostatic hyperplasia. The Veterans Affairs Cooperative Study Group on transurethral resection of the prostate. *N Engl J Med* 1995;332:75–9.
- Hübner WA, Schlarp OM. Treatment of incontinence after prostatectomy using a new minimally invasive device: adjustable continence therapy. *BJU Int* 2005;96:587–94.

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