Giant anterior urethra stones combined with a diverticulum: a case report

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ABSTRACT

Urethral diverticulum is a condition where the urethra or the periurethral glands push into the connective tissue layers that surround it. Patients of urethral diverticulum present with nonspecific symptoms such as incontinence, urinary frequency and urgency, and pain during sexual intercourse and urination. The incidence of this condition is low. We report a case of giant anterior urethra stones combined with a diverticulum with no lower urinary tract symptoms. We believe that this case is extremely rare, and the process of diagnosis and treatment is of great significance in clinical practice.

KEYWORDS

Anterior urethral stone – Diverticulum

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Introduction

The urethral diverticulum is a cystic lesion that is connected to the urethra and is rarely seen in clinical practice.¹ The lesion usually occurs at the junction of the penis and scrotum or the bulbous urethra.² The urethral diverticulum can exist in many ways, including recurrent urinary tract infection, difficulty urinating, increased urinary frequency, urgency and haematuria. Urinary stasis and chronic infection have been identified as the cause of stone formation in the urethra. Since it is connected to the urethra, this diverticulum is repeatedly contaminated by urine during urination, which causes symptoms. As reported in the literature, urethral diverticulum with stones has a low incidence.

Case history

A 50-year-old man presented to the hospital with a three-month complaint of protuberance at the root of the penis. The patient did not complain of any bothersome lower urinary tract symptoms and he was able to generate a reasonable urinary stream; moreover, he did not admit to a history of haematuria, fever or weight loss. The general physical examination was remarkable for a round mass at the root of the penis, about 5 cm in diameter, with a tough texture. The rest of the physical examination was normal.

Complete laboratory evaluation, routine blood investigations, urine culture and creatinine were all normal, and urine routine microscopy showed 3+ white blood cells/HPF. Pelvic computed tomography (CT; Figure 1) showed two rod-shaped dense foci behind the root of the cavernous body of about 1.8 × 5.0 cm in diameter. The CT value was roughly 1315 Hu and a cystic mass was noted in the lower part of the lesion. The range of the cystic mass was about 4.9 × 5.4 cm.

We punctured the mass at the root of the penis and a pale yellow liquid was extracted, which was possibly urine. We then drained the lesion (Figure 2). We wanted to verify whether the urethra and the cystic mass were connected, so retrograde urography was performed (Figure 3). After the Foley catheter was placed, the contrast agent was injected through the external urethral orifice. However, because the volume of the stone was too large, the contrast agent was blocked and no contrast agent entered the cystic mass. The patient's disease lasted a long time, but the large stones did not cause severe urinary retention. During the hospital stay, the patient was still able to urinate normally, but he said that occasionally it was necessary to pull the root of the penis to generate a smoother flow of urine.

To prevent postoperative complications, the patient first underwent suprapubic puncture cystostomy and was given prophylactic antibiotics. Open surgery was performed three days later. After general anaesthesia, a 5-cm longitudinal incision was made at the root of the penis. After the

Figure 1 Pelvic tomography showing a giant stone and a cystic mass.

Figure 2 Placing a drainage tube at the lesion.

Figure 3 Retrograde urography.

Figure 4 Before the diverticulum was cut, identifying the shape of the stones clearly.

Figure 5 Stones removed from the urethral and diverticular tissue.

urethral sponge was exposed and cut, the diverticulum was exposed (Figure 4), which revealed a urethral fistula and two stones. The stones were removed and the diverticulum was resected for biopsy (Figure 5). Postoperative biopsy suggested that the resected tissue was a urethral fistula. No complications occurred intraoperatively or postoperatively.

The protuberance in the penis root disappeared after surgery and the patient was discharged on postoperative day 5 with a Foley catheter and bladder stoma that he was asked to remove two weeks after discharge. During the three-month follow-up, his urination was good and there were no complications.

Discussion

It has been reported that only 1% to 10% of patients with urethral diverticulum develop stone formation.⁵ The urethral diverticulum is mainly divided into two types: congenital and acquired. The incidence of congenital urethral diverticulum may be related to congenital dysplasia of the corpus cavernosum. Acquired urethral diverticulum is often associated with urethral trauma, urethral mucosal necrosis and urethral abscess rupture. Based on the patient's age and onset time, we decided that the patient was more likely to have a urethral diverticulum, suggesting that chronic obstruction by the urethra or gland rupture caused by repeated inflammation of the urethra was a possible mechanism for the diverticulum formation.

Small diverticula generally cause no real discomfort. When combined with urethral stones, symptoms of dysuria, urinary retention and urinary tract infection may occur; where the stone penetrates the skin a urinary fistula may form. This patient had a significantly large stone with no lower urinary tract symptoms, which may be due to slow disease progression and compensatory changes in anatomy.

Excretory urography and urethroscopic surgery are the best choices for urethral diverticulum diagnosis. There are reports in the literature that there may be cancerous changes in the urethral diverticulum, especially in patients with diverticulum complicated with stones,⁴ indicating that biopsy after diverticulectomy is essential.

Clinical studies have confirmed that the most effective method for urethral diverticulum treatment is resection, which has a cure rate of 83% to 97%.⁵ Delayed treatment can lead to serious complications such as cancer and urinary fistula. Timely diagnosis is important and surgical treatment is required.

References

1. Thakur N, Sabale VP, Mane D *et al.* Male urethral diverticulum uncommon entity: our experience. *Urol Ann* 2016; **8**: 478–482.
2. Allen D, Mishra V, Pepper W *et al.* A single-center experience of symptomatic male urethral diverticula. *Urology* 2007; **70**: 650–653.
3. Skyggebjerg KD. Female urethral diverticulum with calculus. *Acta Obstet Gynecol Scand* 1986; **65**: 797–798.
4. O'Connor E, Iatropoulou D, Hashimoto S *et al.* Urethral diverticulum carcinoma in females: a case series and review of the English and Japanese literature. *Transl Androl Urol* 2018; **7**: 703–729.
5. Shalev M, Mistry S, Kernen K *et al.* Squamous cell carcinoma in a female urethral diverticulum. *Urology* 2002; **59**: 773.