Inflammation and infection

A case of nontraumatic urethral rupture possibly induced by prostatic abscess

Masaki Kobayashi **, Hiroshi Fukushima, Keizo Kawano, Shinji Morimoto

Department of Urology, Tsuchiura Kyodo General Hospital, Ibaraki, Japan

** Corresponding author. Department of Urology, Tsuchiura Kyodo General Hospital, Ibaraki, Japan, 4-1-1 Ootsuno, Tsuchiura, Ibaraki, 300-0028, Japan.
E-mail address: masaki1_kobayashi@tmhp.jp (M. Kobayashi).

Keywords:
Nontraumatic urethral rupture
Prostatic abscess
Retrograde urethrogram

ABSTRACT

We herein report a rare case of nontraumatic urethral rupture. The patient presented with oliguria, perineal pain and anorexia, and a 3 cm fistula was located in the perineum. Computed tomography revealed a retroperitoneal abscess invading the urethra, and a retrograde urethrogram revealed the rupture of the membranous urethra. He had no history of perineum trauma or transurethral procedures. Although he underwent a suprapubic cystostomy and conservative therapy by antibiotics, he eventually died.

Introduction

Because nontraumatic urethral rupture is a rare disease, the mechanism underlying nontraumatic urethral rupture remains unclear. We herein report a case of nontraumatic urethral rupture possibly caused by a urinary tract infection. Our case suggests that infections might mainly cause nontraumatic urethral rupture.

Case presentation

An 83-year-old man presented to our hospital complaining of oliguria, perineal pain and anorexia. Although he had previously been diagnosed with benign prostatic hyperplasia, he had not received any treatment. No residual urine was shown on ultrasonography and his prostate was enlarged in size (75 g). A fistula of 3 cm was located in the perineum (Fig. 1A) and almost all of urine was flowing out of the perineal fistula without retention of urine in the bladder. He did not present with fever, while the blood test revealed elevated levels of leukocyte (10,800 cells/mm³) and C-reactive protein (53.7 mg/L). Urine test and urine culture were not performed because no urine sample could be obtained. Instead, the culture result of pus samples from the perineum showed the presence of Escherichia coli. Computed tomography (CT) scan revealed a retroperitoneal abscess invading the membranous urethra that extended from the dorsal part of the prostate to the perineum (Fig. 1B). A retrograde urethrogram revealed the rupture of the membranous urethra and leakage of contrast agent to the perineal fistula (Fig. 2). As a result, he was diagnosed with urethral rupture secondary to prostatic abscess, given that he had no history of perineum trauma or a transurethral procedure.

He underwent a suprapubic cystostomy and conservative therapy with antibiotics. However, he subsequently suffered from severe anorexia but refused parenteral nutrition. He eventually died of malnutrition four weeks after admission.

Discussion

Nontraumatic urethral rupture is rare. Indeed, Murphy et al. published the first case in 1998, and no other cases have been reported since then.1 The mechanism causing nontraumatic urethral rupture is unclear due to the rareness of this disease. Murphy et al. hypothesized that untreated urethral stricture might be associated with urethral rupture. However, a retrograde urethrogram did not indicate obvious urethral stricture in our case. The patient was at an old age and had an untreated benign prostatic hyperplasia, suggestive of the presence of a chronic urinary tract infection. The findings of CT images were compatible with a prostatic abscess. The blood test showed high levels of leukocyte and C-reactive protein, indicating an inflammatory status of the urinary tract. Thus, the patient might have had acute exacerbation of urinary tract infections including prostatitis. Given the prostatic abscess invading the urethra on CT images, a urinary tract infection was likely to cause nontraumatic urethral rupture. Urinary tract infections can also damage the urethral epithelium and eventually lead to permeation and leakage of urine from the urethra. Escherichia coli was detected by the culture of pus samples from the perineum. This finding may support our diagnosis of nontraumatic urethral rupture caused by urinary tract infection because Escherichia coli is the most popular bacterium causing
occurs secondary to periurethral infection,² corresponding with our hypothesis.

Treating urethral rupture caused by urinary tract infections can be a challenge. No studies reported optimal therapeutic strategies for it. We speculate that the best management was the administration of antibiotics, drainage, and urinary diversion such as a suprapubic cystostomy or bilateral percutaneous nephrostomy. If infections can be controlled after these initial treatments, urinary diversion using an ileal conduit may be an optional therapy.

Conclusion

We experienced a rare case of nontraumatic urethral rupture possibly induced by prostatic abscess. The present case reflects the clinical relevance of a history of chronic urinary tract infections when nontraumatic urethral rupture is suspected. Because urinary tract infections are very common, the current case indicates that clinicians can encounter urethral rupture cases without a history of trauma or urethral catheterizations.

Declaration of competing interest

The authors have no conflicts of interest to declare.

References

1. Murphy M, Palmer MA. Spontaneous urethral rupture. Br J Urol. 1998;82:758–759.
2. Jordan GH, Schlossberg SM. Surgery of penis and urethra. In: Wein AJ, ed. Campbell-walsh Urology. ninth ed. Philadelphia: WB Saunders; 2007:1042–1043.