Isolated Urethral Rupture Related To Sexual Intercourse in Male and Literature Review

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INTRODUCTION

Penile fracture is defined as blunt trauma resulting in a tear of tunica albuginea surrounding the corpus cavernosum and rapidly expanding hematoma during erection.[(1)] Concomitant penile fracture with urethral rupture has been reported from 10% to 20% in all penile fracture cases.[(2)] However, isolated urethral injury during sexual inter courseis extremely rare. In females, intercourse-related urethral injury might occur after rape, sexual abuse, Müllerian anomalies, or intraurethral intercourse.[(3)] Among males, only 5 cases have been described in the literature.[(4-6)] We report a patient suffering from penile trauma during sexual intercourse and urethral rupture without penile fracture as demonstrated on surgical exploration.

CASE REPORT

A 51-year-old heterosexual married male had penile trauma while attempting to penetrate his partner's vagina in the missionary position. Sharp penile shaft pain developed suddenly, followed by detumescence and penile swelling. He also suffered from gross hematuria, difficulty in urination and weak stream thereafter. Initially, he did

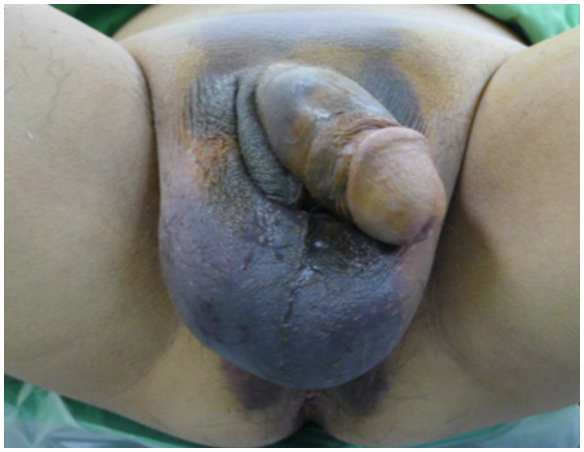

Figure 1. Ecchymosis, extended from penis to scrotum and perineum without penile deformity.

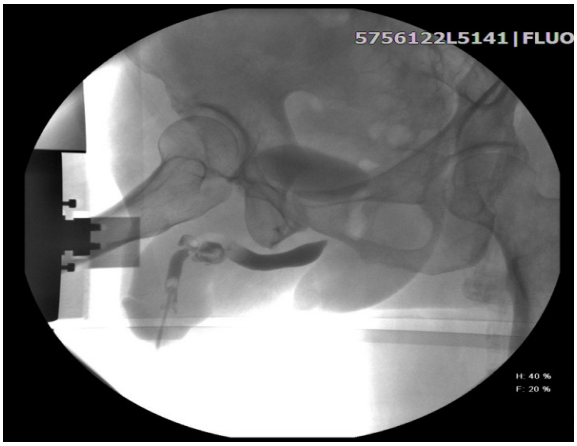

Figure 2. Contrast medium extravasation at proximal penile urethra in retrograde urethrography.

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Table. Summary of reports of isolated male urethral injury.

Study	Year	Patient Number	Site of Injury	Position
Mohapatra et al.3	1990	3	Fossa navicularis	Reverse position
De Mendonça et al.4	2009	1	Fossa navicularis	Reverse position
Patel et al.5	2010	1	Penobulbous junction	Missionary position
Present case	2015	1	Penobulbous junction	Missionary position

not take the symptoms seriously. Because of progressive penile shaft pain, he visited the outpatient urology clinic 3 days later.

Physical examination showed flaccid and mildly swelling penis, as well as ecchymosis on penis, scrotum and perineum. There was some bloody discharge over urethral meatus. No penile deformity was observed (**Figure 1**).

Under the suspicion of penile fracture with concomitant urethral rupture, he was subjected to retrograde urethrography with subsequent surgical exploration. Contrast medium extravasation at proximal penile urethra was demonstrated and flexible urethroscopy showed a urethral tear over the penobulbous junction (**Figures 2 and 3**).

A subcoronal circumferential incision with penile degloving was made but there was no tunica albuginea injury surrounding the corpus cavernosum nor perituni-cal hematoma. We identified the rupture of the urethra over the penobulbous junction (**Figure 4**). The wound edge debridement was done and the length of rupture was measured as 1 cm. The circumferential defect involved up to five-sixths of the urethra. Primary anastomosis with 5-0 Vicryl was done, and the patient was discharged with 16 French Foley catheter on the next day.

Foley catheter was removed 3 weeks later and urethral stricture was noted during follow-up. He kept regular sounding for urethral stricture in the first 4 months and then he had no more voiding difficulty. Uroflowmetry revealed fair urinary maximum flow rate (20.3 mL/s) with acceptable residual urine amount (59 mL) in the fourth month follow-up. There was no fistula for mation. International Prostate Symptom Score (IPSS) was 3 (1 score in intermittency, 1 score in frequency and 1 score in weak stream), International Index of Erectile Function (IIEF) was 25 in the sixth month follow-up.

DISCUSSION

The classic presentation of penile fracture is a cracking or snap sound , followed by sharp pain, detumescence, penile swelling, deformation and ecchymosis.[7] Furthermore, if bloody discharge over urethral meatus or difficulty in urination occurs, concomitant urethral injury should be taken into consideration.[8]

The frequency of combined penile fracture and urethral injury is variable, ranging from 0% to 3% in Asia to 20~30% in Europe and the United States.[7,8] It is believed that greater force results in greater injury, and bilateral corporal injury with concomitant urethral injury is more often seen compared with unilateral corporal injury. The site of urethral injury is usually the same

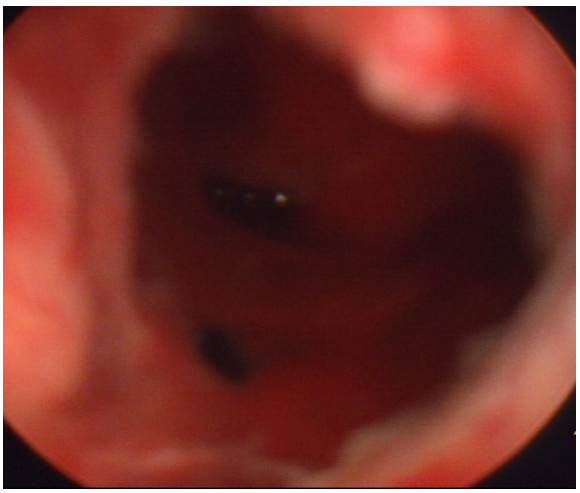

Figure 3. Urethroscopy showed urethral rupture over proximal urethra.

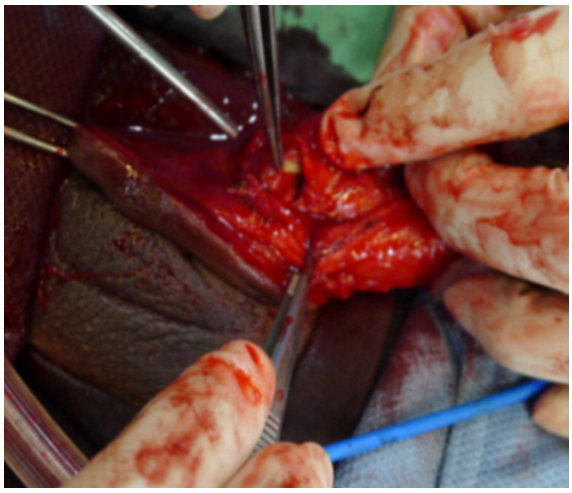

Figure 4. Proximal penile urethral injury was detected and repaired.

level as corporal injury.[8,10]

Isolated urethral injury without penile fracture during coitus is extremely rare. Based on the literature, only five male patients have been reported. Mohapatra and colleagues described 3 cases of fossa navicularis injury on the reverse position.[4] Mendonça and colleagues reported 1 case of fossa navicularis injury on the reverse position.[5] Patel and colleagues reported an isolated urethral injury over the penobulbous junction in missionary position (**Table**).[6] In the present case, the injury was over penobulbous junction while the patient adopted the missionary position. To the best of our knowledge, this is the sixth case of isolated male urethral injury in the literature. From an anatomical aspect, the hypothesis is that corpus spongiosum is overlain by the rigid tunica albuginea of the corpus cavernosa except for the glans and bulb of the penis. At the penile base, the corpus cavernosa diverts beneath the pubis and has inserted placement into the bilateral pubic ramus, leaving the bulb of the penis unsupported and vulnerable. On the other hand, in the missionary position, the penis is relatively dorsiflexed with more ventral force encountered; therefore, the proximal penile and bulbous urethra along with the adjacent corpus spongiosum might be injured by this ventral force, resulting in isolated urethral rupture. For partial urethral injury, diverting cystostomy or urethral catheterization has been described in some reports.[11] But the recent literature advocates surgical treatment for penile fracture and/or urethral injury as soon as possible as this appears related to fewer complications and better outcomes.[8,12] In our case, although urethral stricture was identified in the post-operative first 4 months, there was no erectile dysfunction or fistula formation.

CONCLUSIONS

Physicians should remain alert to urethral injury when patients present with gross hematuria or voiding difficulty after sexual intercourse, even though there is no typical feature of penile fracture. The main stream treatment for penile fracture with concomitant urethral injury or isolated urethral injury is early surgical exploration and repair.

CONFLICT OF INTEREST

None declared.

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