Sildenafil induced bilateral disruption of corpus cavernosum with complete disruption of urethra and corpus spongiosum- report of a case with review of literature

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Abstract
Sildenafil induced penile fracture is known but bilateral disruption of the corpus cavernosum associated with complete urethral rupture is not reported. We report one such case resulting from blunt trauma during sexual intercourse. The patient underwent emergency surgery with preserved erectile and voiding functions in the follow-up.

Keywords: Penile, Fracture, Sildenafil, Urethral, Ruptupture.

Introduction
Penile fracture (PF) is defined as rupture of the tunica albugenia of corpus cavernosum caused by blunt trauma to an erect penis.[1] The most frequent reported mechanism of trauma is unphysiological bending of the erect penis during sexual intercourse, masturbation being a rare cause.[2] Another rare injury mechanism is rolling over on one's own penis during night erection. Penile fracture has a typical clinical presentation. In the presence of associated urethral injury, which happens in 10% to 20% of cases, findings, such as urethral bleeding, hematuria, and difficulty voiding can be observed.[3,4]

Less than 10 cases of bilateral corporal disruption with complete urethral rupture have been reported in literature till date,[5] but none has been reported with the use of sildenafil, to the best of our knowledge.

We report an unusual and rare case of bilateral corpora cavernosal laceration with complete urethral rupture with the use of sildenafil. The purpose of this report is to highlight the rarity of this case, sildenafil as a cause and need for immediate surgical repair to preserve the sexual and voiding functions.

Case Summary
A 59 year diabetic man with erectile dysfunction presented to our casualty department with 5 hours history of sudden dorsal bending associated with cracking sound, followed by pain, detumescence and swelling of the penis during vaginal intercourse with female partner on top. He gave history of Viagra 100 mg intake 1 hour prior to the act. There was history of initial gross hematuria with decreased flow and force of urine.

On examination his penis was swollen all over and discoloured. 12 French two way soft Foley catheter was indwelled with a gentle push on operation table before penile exploration. Findings of bilateral partial disruption of corpus cavernosum along with complete disruption of urethra and corpus spongiosum were revealed on penile degloving (fig. 1). Both corpus cavernosum and urethra were repaired by 3-0 vicryl after mobilising and spatulating the urethral cut ends. Patient was discharged next morning and urethral catheter was removed after 3 weeks. After one year of follow up he is having satisfactory errection and voiding.

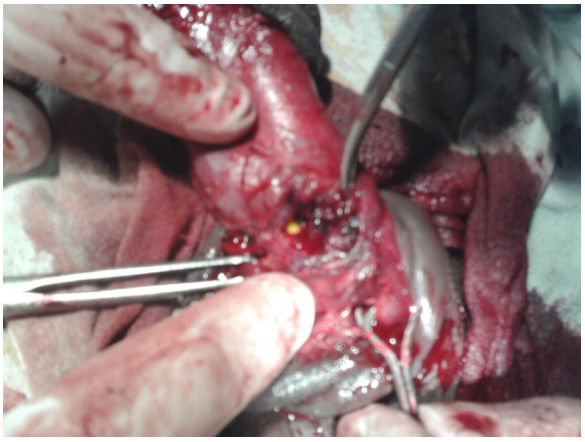

Fig. 1: Degloved penis with bilateral corpus cavernosal laceration and foley catheter visible through the urethral cut ends.

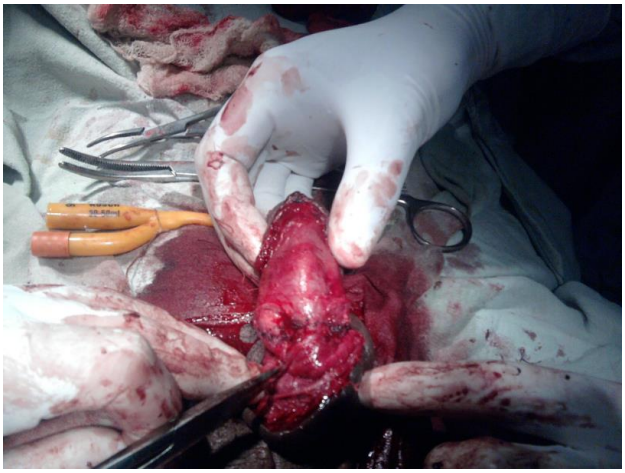

Fig. 2: Transversely sutured both corpora and urethra after wide spatulation of the urethra.

Table 1: Published cases of post cottal bilateral corporal fracture with complete urethral rupture

Author	Salient Features (Nos of cases)	Mangemnet	Outcame
Tanello et al, 2005	B/L Corporal laceration with complete urethral rupture(1)	Immediate surgical repair + primary urethroplasty	Excellent sexual & voiding function at 1year
Soylu et al,2004	Transverse two tears in both corpora with complete urethral disruption (1)	Immediate surgical repair + hematoma evacaatuon primary urethroplasty	Normal erectile & voiding function at 3 months
Mydlo et al, 2001	B/L Corporal rupture (30 + urethral injury (5)	Pre-Op cavernosogram + RGU + Primary Surgical repair	Normal voiding & sexual function
Hafiani et al, 1995	B/L corporal laceration with complete urethral rupture (1)	Immediate surgical repair	Normal Voiding & sexual function
Kowalczyj et al, 1994	B/L corporal laceration with partial urethral rupture (1)	Immediate surgical repair	Normal Voiding & sexual function
Parvard et al, 1998	B/L corporal laceration with complete urethral rupture (1)	Immediate surgical repair	Normal Voiding & sexual function

Discussion

Vigorous sexual intercourse is the main cause of penile fracture in the Western world. Because of high energy trauma urethral rupture is associated in up to 38% of penile fractures.[6] Due to a low energy trauma the urethra is rarely involved. Zargooshi reported urethral rupture in 3% of penile trauma.[7] Usually urethral rupture is partial, rarely complete.[1]

Tunica albugenia is one of the strongest fascias in the human body. One reason for the increased risk of penile fracture is that the tunica albugenia stretches and thins significantly during erection. In the flaccid state it is up to 2.4 mm thick and during erection it becomes as thin as 0.25 to 0.5 mm. Bitsch et al. and De Rose et al. proposed that an intracorporal pressure of 1500 mmHg or more during erection can tear the tunica albugenia.[8]

Zargooshi[7] reported a study of 172 cases of PF and recommends only clinical diagnosis, suggesting that additional tests not be performed routinely. USG is an examiner-dependent method whose interpretation depends on the examiner's experience. Because of the rarity of this lesion, very few radiologists are trained to make a precise diagnosis of PF.

Lesions of the superficial dorsal vein of the penis, smaller vessels, and soft tissue may occur during sexual activity, leading to a clinical picture that is very similar to PF.[9] Often, the differential diagnosis of these conditions can be established only through specific complementary tests (USG or MRI) or surgical exploration. When there is clinical suspicion of urethral injury, retrograde urethrogram (RUG) should be performed routinely because it is inexpensive, easy to perform, and highly accurate.[3] Mydlo et al[4] recommend thorough assessment of the urethra through penile degloving so that injuries do not go unnoticed.

Surgical repair of penile fracture was first described by Fetter and Gartman in 1936.[10] Since the repair reduces complication of fracture, it is now the gold standard for treatment of penile fractures.[1] Immediate surgical exploration and repair of both corpora (corporoplasty) with urethroplasty forms the mainstay of treatment in such cases that provides the best long-term results.[11]

Our subject had both the corpora cavernosa lacerated transversely with complete urethral rupture, although catheter had negotiated the ends. Both the carpora and urethra were repaired and was discharged on the same day.

Singh Iqbal et al,[5] reported a similar case in 2008 and during his search for the literature he found less than 10 such cases published till 2005, as shown in table 1. Nicholas A Boncher et al,[12] reported another similar case in 2010 whose erectile and voiding functions were preserved after immediate surgical repair.

Blake Et al,[13] reported first case of penile fracture caused by sildenafil in 2001 and many more such cases were reported subsequently. However none has been reported with bilateral corporal disruption and urethral rupture.

Conclusion

Bilateral corpora cavernosal laceration with complete urethral rupture due to the use of sildenafil is a very rare urological condition and should be suspected in a patient with circumferential penile hematoma and hematuria or blood at meatus. Emergency surgical repair can preserve voiding and sexual functions.

Source of funding

None.

Conflict of interest

None.

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How to cite: Dar TI, Khawaja AR, Nazir SS, Akhtar OS. Sildenafil induced bilateral disruption of corpus cavernosum with complete disruption of urethra and corpus spongiosum-report of a case with review of literature. *IP J Urol Nephrol Hepatol Sci* 2019;3(1):14-6.