KJU Korean Journal of Urology

www.kjurology.org
DOI:10.4111/kju.2011.52.4.293

Case Report

Superficial Dorsal Vein Rupture Imitating Penile Fracture

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Dorsal vein rupture of the penis is a rare condition, and few cases have been reported in the literature. Herein we report a 41-year-old man who presented with mildly painful and acute swollen penis, which initially imitated a penile fracture but was surgically explored and shown to be a superficial dorsal vein rupture.

Article History:
received 25 November, 2010
accepted 31 December, 2010

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Key Words: *Coitus; Penis; Rupture*

Penile fracture is the disruption of the tunica albuginea with rupture of the corpus cavernosum. Fracture may occur during vigorous sexual intercourse or during masturbation and has also been described after rolling over onto the erect penis, falling off a mountain onto the erect penis, and with an animal bite when the rigid penis sustains a buckling injury [1]. Penile fracture is the most common cause of acute penis. Rarely, rupture of the superficial or deep dorsal veins of the penis can mimic penile fracture [2]. In such cases, diagnosis is confirmed by exclusion of penile fracture, usually by surgical exploration [3].

CASE REPORT

A 41-year-old man presented with a mildly painful and swollen penis. He had developed sudden spontaneous penile swelling not accompanied by immediate detumescence while having vaginal intercourse 4 hours earlier. The patient did not describe the classic "snap-pop" or rapid detumescence typically associated with penile fracture and denied any intracorporeal injection. There was no history of acute bending of the penis.

Physical examination revealed a circumcised penis with a mildly painful, dorsally swollen ecchymosed area at the base. The glans appeared normal (Fig. 1). Laboratory values including coagulation parameters were in the normal range. Neither cavernosography nor urethrography was performed, because the provisional diagnosis was rupture of the dorsal vein.

After informed consent, to confirm the diagnosis and to exclude any tearing on the tunica albuginea or rupture of deep dorsal arteries, immediate surgical exploration was performed. Through a circumferential subcoronal incision, the penis was degloved and the corporeal bodies and deep dorsal arteries were found to be intact without any tearing on the tunica following evacuation of the hematoma over the Buck's fascia. However, the superficial dorsal vein was

FIG. 1. Circumcised penis with dorsally swollen ecchymosed area at the base and normal-appearing glans.

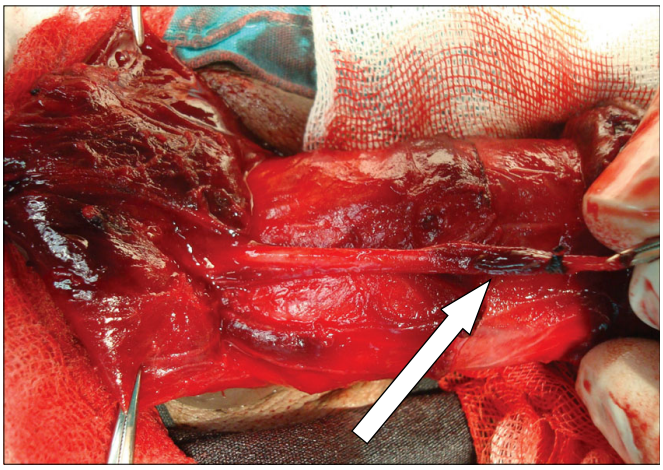

FIG. 2. Lacerated superior dorsal vein with normal cavernosal bodies and Buck's fascia (white arrow).

found to be lacerated and to be the source of the bleeding (Fig. 2). An artificial erection was induced to confirm the integrity of the corpora, and the dorsal vein was ligated near the base of the penis, proximal to the laceration. Penile swelling diminished and returned to normal in a few days. Four months later the patient reported normal erectile function and was able to have intercourse without difficulty.

DISCUSSION

Penile fracture is the most frequent diagnosis of swollen, ecchymosed penis with pain following blunt trauma to the penile shaft. Management of penile fracture depends upon an initial correct diagnosis based on history, a thorough physical examination, and radiological interventions (cavernosography, magnetic resonance imaging, and urethrography) whenever indicated. Tears in corporeal bodies should be promptly repaired surgically. However, other conditions, described as false fracture, superficial or deep dorsal vein rupture, and nonspecific bleeding from the dartos fascia, may all mimic true albugineal injury [2-4]. Moreover, injury of the deep dorsal artery under the Buck's fascia may mimic albugineal injury [5]. Each of these entities indicates hematoma formation subsequent to blunt trauma as the result of vascular injury. Venous tears may resolve without surgical intervention; however, arterial or tunical injuries necessitate surgical exploration as the first line of treatment [6].

Despite a lack of large cohorts on dorsal vein rupture of the penis, Bar-Yosef et al presented their experience with nine patients. They speculated that circumcision may be a risk factor for dorsal vein rupture with stretching of the penile skin during intercourse [6]. Our patient had a circumcised penis, and this might have been the mechanism for his injury.

In this particular patient, the provisional diagnosis was rupture of the dorsal vein of the penis owing to the lack of symptoms of tunical injury, such as the "snap-pop phenomenon," rapid detumescence, excessive pain, or expanding hematoma. Nevertheless, surgical exploration was performed to exclude arterial or tunical injury.

Anatomically, the major penile vasculature is composed of superficial and deep dorsal veins and the dorsal artery of the penis out of the tunica albuginea and the deep artery of the penis in the middle of the vascular erectile tissue covered by the tunica albuginea [7]. If no sign of cavernosal tearing is encountered during surgical exploration, logically, this suggests that an unidentified vascular trauma has occurred and the exact diagnosis should be rupture of the superficial or deep dorsal vessels or their branches [7]. Therefore, these conditions may preferably be renamed as penile vascular injuries, which may further be subdivided as deep or superficial with regard to the location of the hematoma, that is, either beneath or over the Buck's fascia.

Even though conservative treatment might be adequate in the management of dorsal vein ruptures, the exact diagnosis should be confirmed by surgical intervention, which also allows ligation of the vessel, prevents further hematoma formation, and reveals concomitant injuries.

Conflicts of Interest

The authors have nothing to disclose.

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