



(CASE REPORT)



## Uncommon case of rupture of the superficial dorsal vein of the penis

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World Journal of Advanced Research and Reviews, 2024, 21(02), 870–873

Publication history: Received on 01 January 2024, revised on 08 February 2024, accepted on 11 February 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.21.2.0499>

### Abstract

Penile dorsal vein rupture is a rare condition that affects the vascular network of the penis. It is often misdiagnosed as a penile fracture. Diagnosis can be facilitated by ultrasound of the penis coupled with Doppler or magnetic resonance imaging. Treatment options include conservative or surgical approaches. This case report presents an adult patient who presented to the emergency department with a suspected penile fracture six hours after vigorous sexual intercourse. Although a fracture of the corpora cavernosa was ruled out, an intraoperative discovery revealed a rupture of the dorsal vein of the penis. The purpose of this article is to report an uncommon case of rupture of the superficial dorsal vein of the penis.

**Keywords:** Uncommon; Vein; Rupture; Superficial

### 1. Introduction

Penile fracture is a urological emergency that occurs when the tunica albuginea of the corpora cavernosa ruptures, usually during sexual intercourse (1). The diagnosis is clinical, although in some cases it can be confused with rupture of the dorsal vein of the penis (2). Magnetic resonance imaging is the preferred diagnostic test, but its high cost and limited availability in hospitals can be a challenge (3,4). Surgical exploration can lead to a definitive diagnosis. We present the case of a 42-year-old man who exhibited symptoms indicative of a penile fracture. Surgical exploration revealed a rupture of the superficial dorsal vein of the penis. This observation is valuable due to its rarity and the need for a definitive diagnosis.

### 2. Observation

This case report describes a 42-year-old man who presented to the urological emergency room six hours after experiencing progressive swelling and hematoma of the penis following vigorous sexual intercourse. The language used is clear, concise, and objective, with a formal register and precise word choice. The text adheres to conventional structure and formatting features, including consistent citation and footnote style. The grammar, spelling, and punctuation are correct.

The patient reported no audible cracking or immediate detumescence of the penis. Urination was normal and there was no blood circulation in the urinary meatus. No changes in content have been made.

The patient reported slight discomfort in the penis.

The clinical examination revealed a swollen hematoma on the penis with a normal appearance of the glans.

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Imaging assessment was not possible due to the unavailability of the sonographer during on-call hours, and magnetic resonance imaging is not performed urgently.

Based on this clinical picture, there was uncertainty regarding the diagnosis of a penile fracture. As the edema increased in size, emergency surgical exploration was necessary. The patient was informed of the possibility of circumcision and its associated risks, including erectile dysfunction, glans hypoesthesia, and penile deviation. The operation was performed with the patient in the supine position and under spinal anesthesia. A peripheral circumferential incision was made 1 cm beyond the crown. Degloving of the penis revealed a significant hematoma with complete rupture of the dorsal vein of the penis, which was spurting blood. The examination of the corpora cavernosa albuginea showed no discontinuity. The urethra was undamaged.

Consequently, it was determined that the patient experienced a rupture of the superficial vein of the penis. The hematoma was drained, and the two ends of the dorsal vein of the penis were tied with 3/0 Vicryl. Circumcision was performed at the end of the procedure. The postoperative recovery was uneventful, and the patient was discharged from the hospital on the second day after the operation. The patient's penile hematoma resolved within a few days. After four weeks, he regained his morning erections and reported significant improvement in his erectile function during sexual intercourse after three months.

### 3. Discussion

Rupture of the dorsal vein of the penis is a rare condition (5) that can occur during sexual intercourse due to stretching of the skin of the penis or blunt trauma to an erect penis. Vascular lesions of the penis can be superficial or deep, depending on the location of the hematoma under or on Buck's fascia (3,4). Superficial rupture of the dorsal vein of the penis (Fig. 1) affects the dorsal veins located above Buck's fascia (3, 4, 5). It can mimic a fracture of the corpus cavernosum (3). There are few cases reported to date in the literature. Some authors suggest that circumcision may contribute to venous tears due to tighter penile skin in circumcised men, making the penile vasculature more vulnerable to injury during sexual intercourse (3, 4). Some have suggested that certain sexual positions may cause vascular injury (6). However, our patient was not circumcised and engaged in sexual intercourse in a normal position. We do not have a pathophysiological explanation for the tear of the superficial dorsal vein of the penis. It is possible that the intensity of the back and forth movements during sexual intercourse could have contributed to the injury.



**Figure 1** Photograph displaying a rupture of the superficial dorsal vein of the penis (indicated by the arrow).

The patient did not report hearing an audible crack during sexual intercourse, which differentiates the rupture of the dorsal vein from the fracture of the penis. Additionally, he did not experience immediate detumescence. The patient noticed bruising and swelling of the penis at the end of sexual intercourse, which gradually increased in size. Another symptom to report is deviation of the penis, which is present in penile fracture but absent in rupture of the dorsal vein of the penis. Although our patient arrived at the emergency room with a hematoma, it was difficult for us to confirm a deviation of the penis or a break in the continuity of the corpus cavernosa albuginea through palpation. However, the patient reported that his penis was not deviated after sexual intercourse. The patient did not report any pain during

urination or urethrorrhagia (1.6). Penile ultrasound coupled with Doppler can identify a discontinuity or tear in the dorsal vein of the penis and rule out rupture of the corpora cavernosa, but it is an examination that depends on the operator's skill (1).

Magnetic resonance imaging (MRI) is a non-invasive and painless imaging modality that is preferred (7) for visualizing a rupture of the dorsal vein and the discontinuity of the tunica albuginea in the event of a penis fracture (1, 2, 3). However, it is often not urgently requested due to its high cost or unavailability.

In the case of our patient, neither of these examinations had been requested due to their unavailability in an emergency.

The exact diagnosis is difficult and is often confirmed after surgical exploration. Our patient presented with an increasing hematoma and edema. When in doubt, surgical intervention is recommended.

Management of a ruptured dorsal penile vein can be either conservative or surgical (4). Conservative management includes compression bandaging and the use of anti-inflammatory drugs (1,8). Healing is spontaneous and without sequelae.

Surgical management involves evacuation of the hematoma and ligation of the torn vessels (9). Circumcision may be discussed with the patient due to the high risk of secondary necrosis of the prepuce (1). In this case, the patient underwent circumcision at the end of the procedure. The prognosis after surgery is excellent, but long-term success depends on careful patient selection (10). The postoperative course was uneventful, and the patient's long-term clinical course was satisfactory with good erections.

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#### 4. Conclusion

Rupture of the superficial dorsal vein of the penis is a rare condition that can be mistaken for a penile fracture. Diagnosis can be challenging, but penile ultrasound coupled with Doppler and magnetic resonance imaging (MRI) can aid in diagnosis. However, these examinations have limitations. Surgical exploration is the most accurate diagnostic and therapeutic option. If surgical treatment is promptly performed, the prognosis is excellent, and the patient can quickly regain erectile function.

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#### Compliance with ethical standards

##### *Acknowledgments*

Acknowledgments for the staff of the department of Urology, Hassan II University Hospital, Fez, Morocco.

##### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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