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Post-Coital Traumatic Rupture of the Corpus Cavernosum: A Case Report

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Abstract **Case Report**

Penile fracture is an uncommon but well-recognized urological emergency characterized by rupture of the tunica albuginea of the corpora cavernosa following blunt trauma to the erect penis. We report the case of a 45-year-old man admitted four hours after sexual intercourse, presenting with an audible cracking sound, immediate pain, and sudden penile deformity. Clinical examination revealed diffuse ecchymosis, hemorrhagic swelling, and axial deviation. High-resolution ultrasound using a 7–12 MHz linear probe demonstrated a 23 mm ventrolateral rupture of the tunica albuginea of the left corpus cavernosum, associated with a heterogeneous para-cavernous hematoma. The contralateral corpus cavernosum, corpus spongiosum, and urethra were preserved. Color Doppler imaging showed no abnormal flow or arteriovenous fistula. Emergency surgical exploration allowed hematoma evacuation and tunical repair. Postoperative evolution was favorable, with resolution of edema, recovery of morning erections, and satisfactory erectile function. This case highlights the pivotal role of high-resolution ultrasound in diagnosing and localizing penile fractures, enabling prompt surgical repair that ensures optimal functional recovery and minimizes long-term complications.

Keywords: Penile fracture; Corpus cavernosum; Tunica albuginea; Penile ultrasound; Urologic surgery; Erectile dysfunction

INTRODUCTION

Penile fracture is a rare but well-defined urological emergency, resulting from rupture of the tunica albuginea of the corpora cavernosa during trauma to the erect penis [1]. It typically occurs during vigorous sexual intercourse, although voluntary manipulation or accidental trauma may also cause it [2, 3]. The diagnosis is primarily clinical, based on the classical triad: audible "crack," immediate pain, and rapid detumescence with typical "eggplant" deformity [1, 2].

Ultrasound is the first-line imaging modality in the emergency setting, providing rapid confirmation and precise localization of the tunical defect, thereby guiding surgical management [4, 5]. Magnetic resonance imaging (MRI), although more sensitive, is reserved for atypical or equivocal cases, offering superior lesion mapping [6]. Early surgical intervention remains the gold standard, ensuring the best functional outcomes and reducing the risk of complications compared to conservative management [7, 8].

PATIENT AND OBSERVATION

A 45-year-old man, with no relevant medical history, presented to the emergency department four hours after sexual intercourse, reporting a sudden cracking sound, immediate sharp pain, and rapid penile detumescence.

Physical examination revealed diffuse swelling, ecchymosis, and leftward penile deviation.

An emergency ultrasound was performed using a 7–12 MHz linear probe in longitudinal and transverse planes. It showed a 23 mm ventrolateral defect of the tunica albuginea of the left corpus cavernosum, associated with a 17 mm heterogeneous para-cavernous hematoma. The right corpus cavernosum, corpus spongiosum, and urethra appeared normal. No abnormal flow or fistula was detected on color Doppler. Mild subcutaneous edema and hemorrhagic infiltration were also noted.

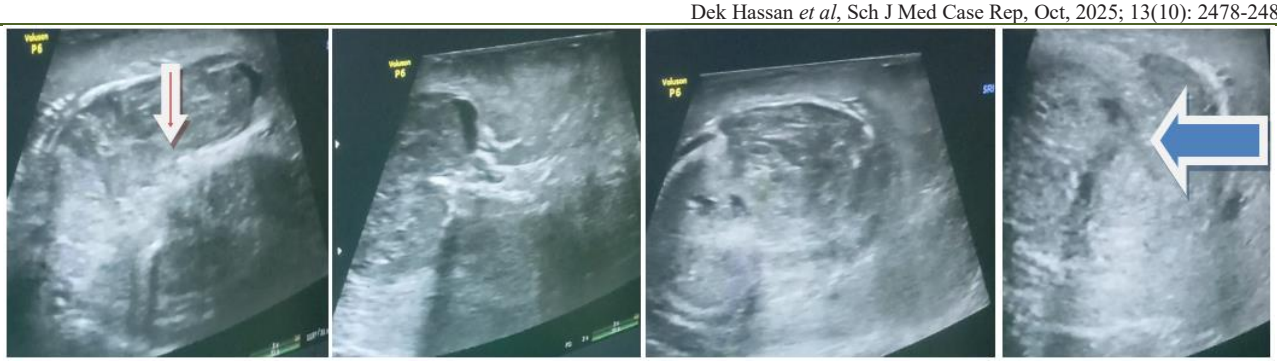

Figure 1: Longitudinal and transverse penile ultrasound views showing a 23 mm defect of the tunica albuginea (red arrow) with a heterogeneous para-cavernous hematoma (blue arrow)

(Bilingual caption: Penile ultrasound in longitudinal and transverse sections showing a 23 mm breach of the tunica albuginea associated with a heterogeneous paracavernous hematoma.)

The patient underwent emergency surgical exploration, which confirmed the ultrasound findings. The hematoma was evacuated, and the tunical defect was sutured with an absorbable material. The urethra was intact upon intraoperative assessment.

Postoperative management included antibiotics, analgesics, and sexual abstinence for six to eight weeks. Follow-up showed complete recovery, with disappearance of swelling and resumption of normal erectile function.

DISCUSSION

Penile fracture most commonly results from vigorous sexual activity [2], but it may also follow self-inflicted trauma or blunt injury [3].

Although diagnosis is largely clinical [1, 2], imaging—especially ultrasound—plays a crucial role in confirming the lesion, evaluating its extent, and excluding associated urethral injury [4,5]. Typical sonographic features include hypoechoic discontinuity of the tunica albuginea, extra-cavernous heterogeneous hematoma, and axial deviation of the penile shaft.

Diagnostic pitfalls include superficial hematomas and ruptures of the dorsal vein, which may mimic tunical rupture. Doppler imaging can assist in ruling out arteriovenous fistulas or abnormal vascularity.

MRI provides superior soft-tissue contrast and lesion mapping [6], but its limited availability and higher cost restrict its use in acute emergencies. Thus, ultrasound remains the cornerstone modality in urgent evaluation.

Late complications may occur if diagnosis or surgery is delayed—these include fibrosis, penile curvature, painful erection, and persistent erectile dysfunction [9]. Early surgical repair dramatically reduces these risks and achieves a success rate exceeding 85 % [8, 9].

When urethral involvement is suspected—manifested by urethral bleeding or hematuria—a retrograde urethrogram or intraoperative exploration is warranted [10].

In our case, ultrasound proved decisive in confirming a 23 mm tunical rupture and ruling out urethral damage, allowing rapid, targeted surgical intervention.

CONCLUSION

Penile fracture is an uncommon but characteristic urological emergency. Clinical history remains essential, yet high-resolution ultrasound is the preferred imaging modality for rapid confirmation, localization, and surgical planning. MRI should be reserved for atypical presentations. Prompt surgical repair remains the cornerstone of treatment, ensuring optimal functional recovery and preservation of erectile function.

A prompt and accurate ultrasound assessment remains the cornerstone of diagnosis, ensuring optimal surgical outcomes and preservation of erectile function.

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