



Trauma and reconstruction

Bilateral partial thrombosis of the corpus cavernosum associated with the use of a stationary bike. Case report and literature review

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ABSTRACT

Partial and segmental thrombosis of the corpus cavernosum is a rare pathology not entirely understood, however, there are some triggers that have been associated in its appearance. We present a case of a 36-year-old patient with bilateral partial thrombosis of the corpus cavernosum, without priapism, after use of a stationary exercise bike. Ultrasound and magnetic resonance findings are shown, in which bilateral involvement stands out. The patient received conservative management with good response. This pathology is idiopathic and multiple factors have been associated to its origin, one of them being repetitive trauma due to sports activity.

1. Introduction

Partial and segmental thrombosis of the corpus cavernosum is a rare disease with a poorly known cause and in some cases considered idiopathic.¹ Thrombosis usually occurs in young people and its clinical presentation is perineal pain, a palpable mass, and increased volume, which is generally located at the penile base and is unilateral. Its association with erectile dysfunction has been described, as linked to loss of rigidity.² The presence of priapism can be associated with this condition, being considered within the spectrum of erectile dysfunction pathologies with hard flaccidity syndrome and partial priapism.³ The chronic bilateral form of a presentation not associated with priapism is rare and reveals the importance of its early suspicion.¹

2. Case presentation

We report a case of a 36-year-old patient, with no significant morbid history, with a 3-month history of enlargement, hardening, and pain of the perineal region, with no evidence of priapism. At the beginning of his symptoms, he reports repetitive trauma associated with the use of a stationary bicycle and since then he begins to feel a palpable mass and slight incurvation of the penis with erection. Upon physical examination, a massive increase in the volume of the penile base was observed without alterations in its middle or distal third. Ultrasound evaluation is performed (Fig. 1) (Video 1), in which an increase in the volume of the

right corpus cavernosum of the penile base stands out, with an expansive, non-vascularized echogenic mass of tubular morphology, which follows the course of the cavernous body, with respect to the membranous septum in the midline, except for its middle third, in which focal involvement of the contralateral corpus cavernosum can be seen, being interpreted as suspicious of a primary expansive lesion. The laboratory study does not present relevant findings to record. It is complemented by Magnetic Resonance (MRI), in which a tubular lesion is appreciated that expands and follows the morphology of the right corpus cavernosum, hypointense on T2 and iso-hypointense on T1, without diffusion restriction and without impregnation to the study with paramagnetic intravenous contrast, compatible with partial and segmental thrombosis of the corpus cavernosum (Fig. 2). The patient began management with oral anticoagulants and aspirin. He progresses adequately.

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3. Discussion

Partial thrombosis of the corpus cavernosum is a pathology of unknown etiology. It is associated with some predisposing conditions such as repetitive perineal compression that generates microtraumas in recurrent bicycle users or in very intense sexual intercourse, proliferative disorders like leukemia or lymphoma, coagulation disorders such as protein C deficiency or factor V Leiden mutation, hematological

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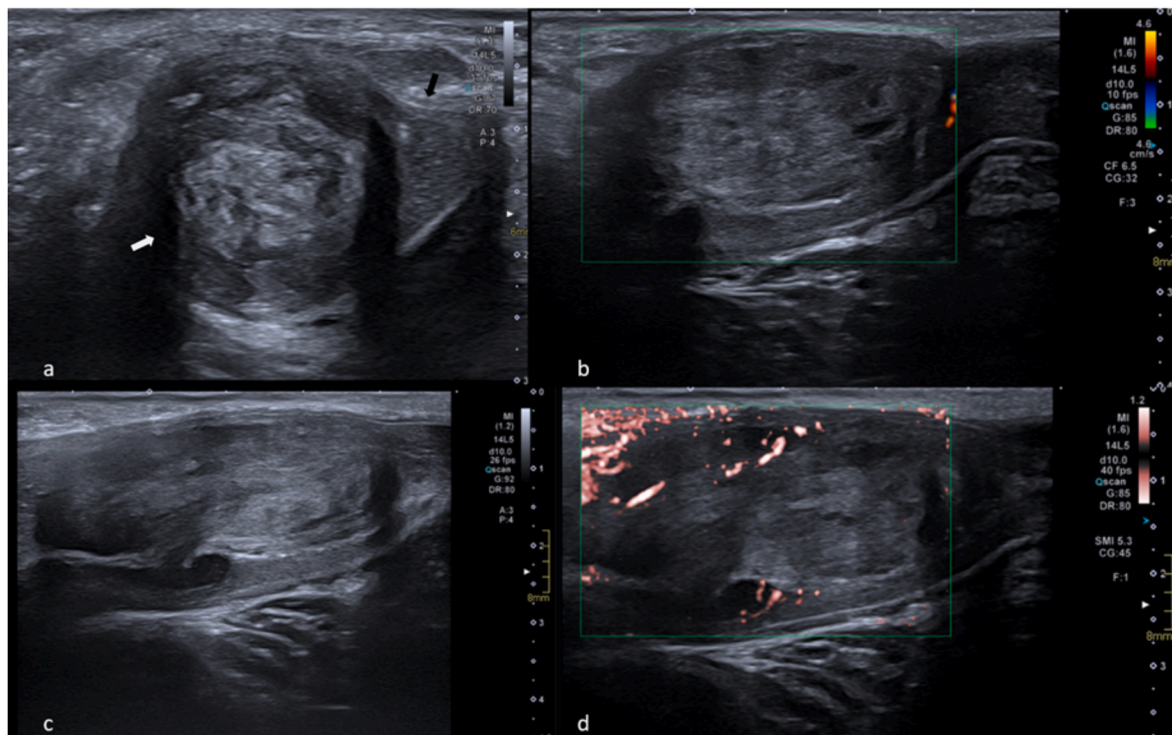


Fig. 1. Selected images of penile ultrasound in B mode and Doppler. The B-mode images in a and c show, in the transverse and longitudinal axis respectively, the increase in volume of the right corpus cavernosum with echogenic content inside (white arrow in a), compared to the contralateral one (black arrow in a) associated with mild posterior enhancement. In the color Doppler and low-flow Doppler images (b and d respectively), there is evidence of absence of vascularization. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

disorders such as sickle cell anemia or spherocytosis, use of drugs such as cocaine or marijuana and use of medications such as tamsulosin or sildenafil.²

The location of the lesion is usually in the proximal aspect of the corpus cavernosum and rarely affects both sides, as in our case.¹ Anatomical elements have been associated with its pathophysiology, such as a fibrous connective tissue septum at the cruro-cavernous junction that may predispose patients to this condition. In our case, this finding is unilateral to the right, the site of greatest involvement.⁴

Imaging-wise, the first diagnostic approach is ultrasound, however, as in our case, it may be insufficient, and the lesion may be mistaken for a neoplastic origin. Magnetic resonance imaging provides the key to an accurate diagnosis. The characteristics of the lesion will be determined by the temporality of the thrombosis and hemoglobin degradation. In this case, the findings show a hypointense expansive tubular morphology lesion on T2-weighted sequence and isointense - hypointense on T1 sequence, and this can be explained by the time evolution of the condition. This lesion presents an absence of diffusion restriction as well as an absence of impregnation upon study with intravenous paramagnetic contrast.^{1,5}

In the differential diagnosis, both benign conditions such as a penile fracture or Peyronie's disease, and malignant pathologies such as sarcoma, should be considered.⁵

The management of this pathology can be carried out through pharmacological or surgical treatment. In pharmacological treatment, anticoagulation and pain management have been proposed. Anticoagulation may include the use of antiplatelet agents, low molecular weight heparin, and Warfarin, the latter proven to be effective, with an approximate duration of 3–6 months, during which time the symptoms

resolve. Pain management can be done with non-steroidal anti-inflammatory drugs or Gabapentin if necessary. Surgical resolution is controversial and is reserved for cases with great symptoms or progression of the disease, using corporotomy, with the aim of avoiding erectile dysfunction and Peyronie's disease.⁴

4. Conclusion

Segmental partial thrombosis of the corpus cavernosum is an uncommon pathology with multifactorial causes that should be suspected in cases of pain and penile base enlargement, with or without associated priapism. Ultrasonography is useful for the initial evaluation, however, MRI results are essential for the correct diagnosis. It must be suspected to avoid long-term complications.

Patient consent

Obtained.

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Declaration of competing interest

We declare that there are no conflicts of interest.

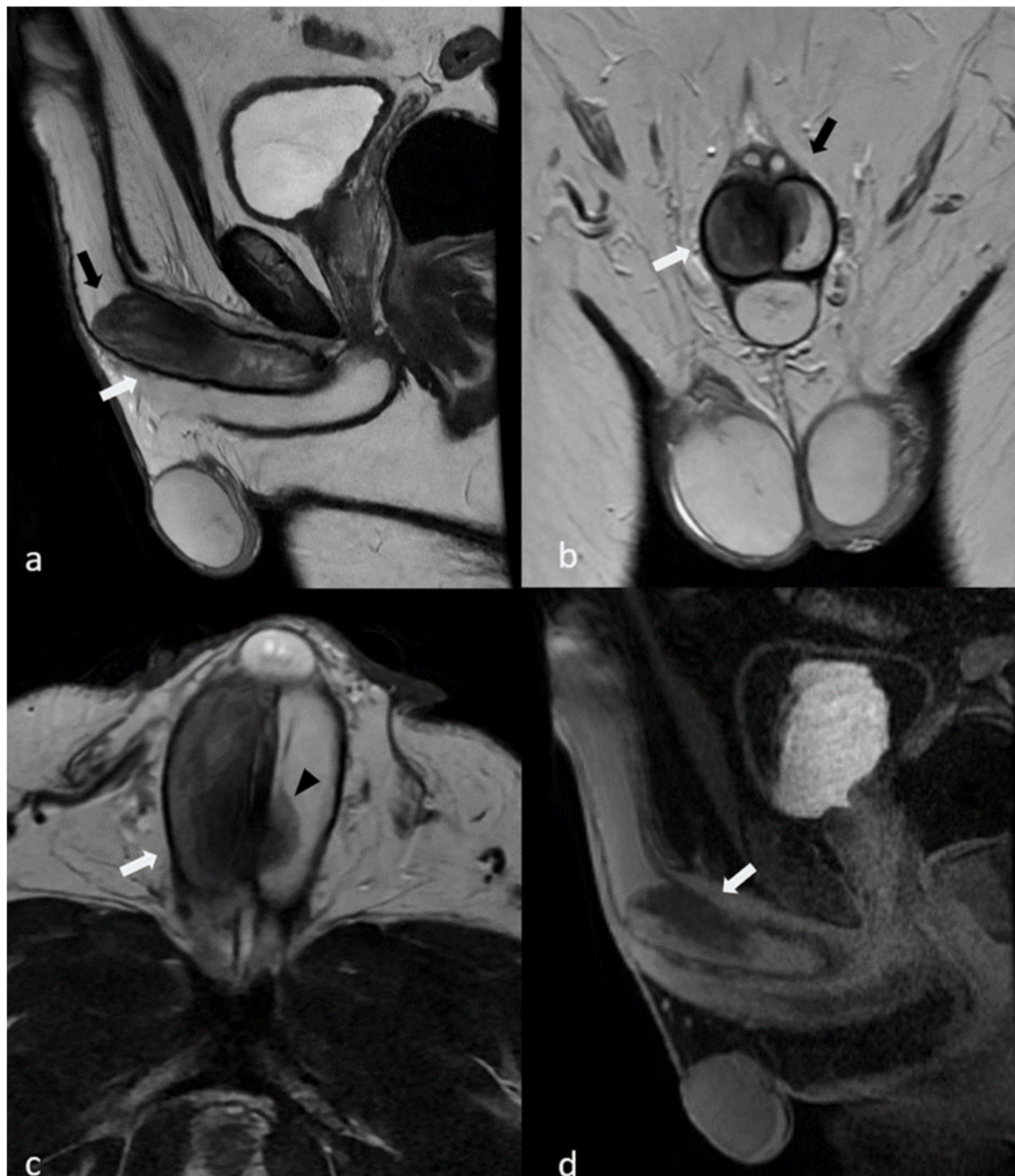


Fig. 2. Selected penile magnetic resonance images. Figures a, b and c present sagittal, coronal and axial T2 sequence slices where a hypointense signal is evident in the right corpus cavernosum (white arrow), which has a greater volume compared to the contralateral one and a hypointense linear image in a (black arrow) demonstrating a transverse septum. The left corpus cavernosum presents a hypointense area on T2 sequence suggestive of focal thrombotic involvement (black arrowhead). The image in d shows a sagittal cut of T1 sequence with fat saturation and contrast, showing absence of impregnation with intravenous contrast (white arrow) consistent with thrombotic origin.

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