Case 10034

Idiopathic partial thrombosis of the corpus cavernosum: sonographic and MR imaging findings
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Section: Uroradiology & genital male imaging
Area of Interest: Genital / Reproductive system male
Procedure: Diagnostic procedure
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Power Doppler
Imaging Technique: MR
Special Focus: Embolism / Thrombosis Oedema Case
Type: Clinical Cases
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Patient: 50 years, male

Clinical History:

A 50-year-old man presented with a 4 days history of constant perineal pain and swelling. Physical examination revealed a slightly tender perineal mass and underling induration on the right side at the base of the penis. The patient’s medical history and laboratory analysis were unremarkable.

Imaging Findings:

Sonographic examination of the penis revealed an enlarged and heterogeneous proximal part of the right corpus cavernosum, with decreased echogenicity and lack of internal blood flow (Fig. 1). The distal part and the left side of the penis were normal.

MR imaging examination was followed, detecting expansion of the proximal part of the right corpora, with compression and displacement of the left cavernous body. The diseased part had signal intensity similar to that of the normal contralateral cavernous body on T1-weighted images, with heterogeneity on T2-weighted sequences and extremely hypointense areas centrally. A horizontal septum of low signal intensity was seen between the proximal part of the right corpus cavernosum and the normal distal part (Fig. 2). After contrast material administration, no lesion enhancement was noted. Based on imaging findings and patient’s clinical presentation, the diagnosis of partial segmental thrombosis of the right corpus cavernosum was made.

Discussion:

Partial segmental thrombosis (PST) of the corpus cavernosum also known as partial priapism (named from the Greek God Priapos) is a rare clinical entity, of unknown aetiology [6, 7]. It is characterised by thrombosis of the proximal part of the corpus cavernosum, usually occurring unilaterally. Patients typically present with priapism, perineal pain of acute onset and a palpable perineal mass or swelling, although a few cases with absence of priapism have also been reported. Predisposing factors include vigorous sexual intercourse, extensive bicycle riding, malignancies, in particular leukaemia and lymphoma or haematologic diseases [4, 6].

Typical clinical presentation and imaging findings usually permit an accurate diagnosis of this rare condition, as seen also in our patient.

Imaging features of PST of the corpus cavernosum, including sonography and MRI are usually characteristic,
directly correlating to the age of the thrombus [1, 3, 5]. Ultrasound examination typically demonstrates an enlarged, inhomogeneous proximal part of the diseased corpus cavernosum, usually hypoechoic, clearly separating from the normal distal part. Displacement of the contralateral corpus cavernosum is also seen. Colour or power Doppler sonography shows absence of flow within the thrombus, often accompanied but a marked system of collateral vessels peripherally [2, 3, 6]. These findings were met in our case.

At MRI examination, signal intensity of the abnormal corpus cavernosum varies, depending on the age of the thrombus [1, 3, 5]. In the early acute phase, the thrombosed part is detected isointense and hypointense, when compared to muscles, on T1 and T2 weighted images, respectively, due to the presence of deoxyhaemoglobin, and this was seen in our case. In the subacute phase, methaemoglobin results in increased signal intensity of the thrombus, on both T1 and T2 weighted images, whereas the presence of a hypointense peripheral rim, corresponding haemosiderin macrophages is seen on chronic phase [1, 5]. Thrombus formation in this rare clinical entity has been associated with the presence of a fibrous septum separating the diseased corpora from the distal mobile segment of the affected cavernosum, preventing the usual free flow of blood within the corpora cavernosa. Although a congenital origin for this fibrous band has been initially proposed, this most probably related to a previous trauma. MRI usually demonstrates this fibrous septum as a hypointense band, separating the thrombosed proximal carvenosal part from the normal distal part, and this was also seen in this case [1, 6].

**Differential Diagnosis List:** Idiopathic partial thrombosis of the right corpus cavernosum, Partial segmental thrombosis of the corpus cavernosum, Complete thrombosis of corpus cavernosum, Peyronie disease, Inflammation, Penile fracture with cavernosal rupture, Primary penile carcinoma, Secondary tumors

**Final Diagnosis:** Idiopathic partial thrombosis of the right corpus cavernosum

**References:**

Figure 1

**a**

Description: Gray scale ultrasound image (axial section) at the level of the base of the penis shows enlarged right corpus cavernosum with decreased echogenicity. Normal left corpus cavernosum (asterisk). Foley catheter (arrowhead) Origin: Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece

**b**

Description: Power Doppler sonography (axial section) depicts lack of vascularity within the thrombosed proximal part of the right corpus cavernosum (cursors). Foley catheter (arrowhead) Origin: Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece
Description: Power Doppler sonography (longitudinal section) demonstrates no lesion vascularity, with presence of collateral vessels peripherally. Normal distal part of right corpus cavernosum (circle) and normal left corpus cavernosum (asterisk). Origin: Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece
Description: Transverse T1-weighted image depicts asymmetric enlargement of the proximal part of the right cavernous body, with compression and displacement of the left cavernous body. Origin: Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece
**Description:** Transverse T2-weighted image demonstrates enlarged proximal right corpus cavernosum, with heterogeneous signal intensity, extremely hypointense centrally. Tunica albuginea is intact with no evidence of extracorporeal fluid. **Origin:** Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece
Description: Sagittal T2-weighted image shows the heterogenous thrombus enlarging the proximal right corpus cavernosum, with central areas of low signal. A hypointense horizontal septum (arrow), separating the thrombosed from the normal distal segment is seen. **Origin:** Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece
Description: Axial fat-suppressed contrast-enhanced T1-weighted image demonstrates lack of enhancement of the thrombosed proximal right cavernosum. The displaced left cavernosal body enhances normally. Origin: Ntorkou A. Alexnadra, Department of Radiology, Ioannina, Greece