LETTER / Genito-urinary imaging

Unilateral testicular vasculitis in polyarteritis nodosa mimicking a testicular torsion

Keywords: Polyarteritis nodosa; Testicular torsion; Vasculitis

Case report

A 28-year-old patient followed up for 1 year for polyarteritis nodosa (PAN) with neurological, renal and skin disease, presented to the Emergency Department with lower abdominal pain present for two days and combined with nausea and vomiting, and who had developed right testicular pain 12 hours previously. On clinical examination, he had no abdominal guarding or pyrexia. His right testis was ascended and painful. He had no urethral discharge. Laboratory results showed a slight increase in his CRP at 16 mg/L and a neutrophilia of 15,270 WBC/mm³. An urgent testicular ultrasound was performed and showed no Doppler flow in the right testis, which appeared extremely abnormal with numerous hypoechogenic areas, leaving however some areas of healthy parenchyma (Fig. 1). In view of the context of pain and absence of flow on Doppler ultrasound, testicular torsion was considered and the patient underwent urgent surgery. The surgeon found no torsion of the spermatic cord, although the right testis was heterogeneous in appearance with alternating areas of ischemia without necrosis and healthy parenchyma suggestive of acute vasculitis. Because of the absence of torsion and the areas of necrosis, the right testis was left in situ. An abdominal and pelvic CT scan carried out the next day to investigate the abdominal pain showed thrombosis of the distal third of the right testicular artery (Fig. 2) supporting a diagnosis of right testicular vasculitis as part of an acute flare of polyarteritis nodosa. He was started on urgent treatment with intravenous prednisolone and cyclophosphamide and improved, with rapid resolution of his abdominal and right testicular pain.

Discussion

PAN is a vasculitis characterized by fibrinoid necrosis of the small and medium diameter arteries combined with immune complex deposition in the vascular wall, which may result in thrombosis or aneurysm [1]. Although its origin is unknown, it appears most likely to be of immune origin.

It is usually a systemic vasculitis with cardiac, renal, gastrointestinal, neurological, skin or testicular manifestations.

Testicular involvement is relatively common, affecting 38 to 86% of patients in autopsy series, although only 2 to 18% of patients are symptomatic [2,3]. Testicular disease is also one of the 10 main criteria for PAN drawn up by the American College of Rheumatology. Occasionally, the testicular involvement in PAN may occur in isolation without concomitant systemic disease. It may also be the presenting feature of systemic PAN making it more difficult to diagnose [2].

Clinically, the testicular involvement is usually characterized by pain without a history of injury or infection, which may suggest a diagnosis of testicular torsion. A pseudotumoral nodular mass is also frequently felt and may also incorrectly suggest a diagnosis of a testicular tumor [4]. Bilateral disease is extremely rare [5].

The differential diagnosis with testicular torsion may be difficult on ultrasound. Failure to visualize the spiral of the spermatic cord may help in the diagnosis, although it is particularly on a background of uncontrolled PAN and the absence of overall testicular disease with areas of healthy testis in contact with affected hypoechogenic areas, which may suggest the diagnosis [4]. Histologically, these hypoechogenic areas represent areas of hemorrhage and ischemia secondary to fibrinoid necrosis of the wall of small diameter arteries [4].

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Doppler ultrasound can also show vasculitis with involvement of the testicular artery seen as a reduction in arterial flow [6]. In our case, this finding was not made on ultrasound but by CT angiography, which confirmed right testicular artery vasculitis with thrombosis of its distal portion. To our knowledge, this computed tomography appearance of testicular artery thrombosis in a flare up of PAN with testicular involvement has not yet been reported in the literature. This finding, however, is consistent with the vascular damage in PAN, which combines micro-aneurysms ranging from 1 to 5 mm in size and stenoses of the medium and small diameter arteries.

On a background of pseudo-testicular torsion associated with testicular disease in PAN, the diagnosis of testicular vasculitis is often made per-operatively by the surgeon or even on histological examination of the orchietomy specimen. It is, however, important to recognize this on imaging in order to avoid needless orchietomy, particularly as with testicular disease in PAN testicular viability is often preserved and patients usually improve on treatment with cyclophosphamide and corticosteroids [5].

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

References


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