Testicular torsion with necrosis
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Section: Uroradiology & genital male imaging
Area of Interest: Genital / Reproductive system male
Procedure: Diagnostic procedure
Procedure: Surgery
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Colour Doppler
Special Focus: Acute Case Type: Clinical Cases
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Patient: 23 years, male

Clinical History:
23-year-old man presented to the emergency department because of acute scrotal pain at the right side for 4 days. Ultrasound examination and laboratory tests were performed.

Imaging Findings:
At the ultrasound examination, the right testicle was enlarged, diffusely hypoechoic with multiple hyperechoic triangular and oval areas. There was no testicular flow at colour Doppler, compared to the normal flow pattern in the left testicle. The right epididymis was enlarged with indistinct anatomic boundaries. No vascularity could be demonstrated in the epididymis at colour Doppler.

Discussion:
Testicular torsion is a surgical emergency because of impaired or absent flow to the testis caused by the twisting of the spermatic cord. Torsion can occur at any age but most frequently in puberty. The degree of ischaemia depends on the degree of rotation [1]

Predisposing factors are long and narrow mesentery and bell-clapper deformity, in which the tunica vaginalis completely encircles the epididymis, distal spermatic cord and testis rather than being an attachment only to the posterolateral aspect of the testsis.

The majority of patients present with acute unilateral scrotal pain, nausea, vomiting and low-grade fever. Testicular torsion is a surgical emergency, since the salvage rate of testicular parenchyma clearly depends on the elapsed time and degree of ischaemia. Optimal results are obtained during the first 6 hours after the onset of symptoms, 70% salvage rate within 6-12 hours and only 20% within 12-24 hours [2]

Differentiation of this surgical emergency from other more benign and non-surgical causes of acute pain as acute epididymitis / epididymo-orchitis are essential.

Ultrasound is the examination of choice. [3] Other less frequently used modalities are Radionuclide imaging with Tc-99m and MRI [4], yet the availability is limited.

At ultrasound, in the acute phase, the affected testicle is enlarged and hypoechoic with diminished or absent colour flow with appropriate settings, and compared to the asymptomatic side [3]. The epididymis is thickened and twisting of the spermatic cord may be observed. A normal ultrasound study within 6 hours after the onset of symptoms virtually excludes testicular torsion. Later the testicle becomes more heterogeneous with prominent infarcted areas as in this case. In cases of spontaneous detorsion, reactive hyperaemia can be seen, thus mimicking testicular inflammation.

In this case, the patient went for medical assessment 4 days after the first symptoms. The only therapeutical option...
was removal of the necrotic testis.

Differential Diagnosis List: Torsion of the testicle and epididymis with necrosis, Epididymo-orchitis, Testicular tumour

Final Diagnosis: Torsion of the testicle and epididymis with necrosis

References:

**Figure 1**

**Description:** The right testicle is generally hypoechoic with several rather peripheral hyperechoic nodules with a hypoechoic halo, representing necrotic areas. It does not exhibit any vascularity. **Origin:** Pilavas P., Dpt of Radiology, Aretaeion hospital, Nicosia, Cyprus
Description: The right epididymis is enlarged with no discrimination of the different parts of it (head, body, tail) and no prominent vascularity. Origin: Pilavas P., Dpt of Radiology, Aretaeion hospital, Nicosia, Cyprus
Figure 3

Description: Normal appearance of left testicle. Origin: Pilavas P., Dpt of Radiology, Aretaieion hospital, Nicosia, Cyprus
Figure 4

Description: Photo from the surgery. Torsion and necrosis of the right testicle and epididymis are confirmed. Origin: Pilavas P., Dpt of Radiology, Aretaeion hospital, Nicosia, Cyprus