**LETTER/GENITOURINARY IMAGING**

**Idiopathic granulomatous orchitis: Ultrasound and MR imaging features**

**Keywords**  Orchitis; Ultrasonography; Magnetic resonance imaging (MRI)

Dear Editor,

Granulomatous orchitis (GO) is a rare, benign, inflammatory condition of the testis that can be idiopathic [1]. We report the imaging features of idiopathic GO including multiparametric ultrasound and magnetic resonance imaging (MRI).

A 50-year-old man presented with fever and dysuria one day after transrectal ultrasound-guided prostatic biopsy. Bacteriological analysis revealed extended spectrum β-lactamase (ESBL) producing *Escherichia coli*. and the patient was given antibiotics. The patient had again fever and dysuria one month later. Scrotal ultrasound revealed right orchi-epidydimitis and abscess of the tunica albuginea, which required surgery. No germs were observed in the resected specimens. There were no surgical complications, and the symptoms decreased. Three months later ultrasound showed thickened albuginea and skin around the otherwise normal right testis. Three months later, the patient still complained of fever and pain in the right testis despite appropriate antibiotic therapy. Ultrasound demonstrated an enlarged right testis with a diffuse hypoechoic, hypervascularized parenchyma with no residual normal pulp and a normal aspect of the right epididymis (Fig. 1). Shear wave elastography (Aixplorer®, SuperSonic Imagine, Aix-en-Provence, France) showed homogeneous increase in stiffness of the abnormal testis (9.2 kPa) compared to the contralateral one (1.5 kPa). On MRI, the right testis was

![Image](image-url)

**Figure 1.** Imaging features of granulomatous orchitis in a 50-year-old man. A. B-mode ultrasound shows an enlarged right testis with a volume of 33.5 cm³ compared with the left sided testis (9.0 cm³), with a hypoechoic parenchyma and normal tissue. B. Power Doppler ultrasound shows diffuse hyperemia of the right testis. C. Shear wave elastography reveals diffusely increased stiffness of the right testis (9.2 kPa) compared to the left side (1.5 kPa). D. T2-weighted MR image of the scrotum in the axial plane and E. Gadolinium chelate-enhanced T1-weighted MR image show an enlarged right testis with diffuse low signal intensity on T2-weighted MR image and a moderate inflammatory process around it. F. Macroscopic examination after orchiectomy shows homogeneous testis without focal mass, consistent with granulomatous orchitis.
hypointense on T2- and T1-weighted images with a moderate enhancement around it. Because a malignant condition was considered the patient underwent right orchiectomy. Histopathological findings were consistent with GO. Gross examination showed an enlarged homogeneous testis with no focal mass. Microscopic examination revealed an important interstitial infiltration by lymphocytes, plasmocytes and macrophages, some with epithelioid aspect. There were no giant cells. Seminiferous tubules were colonized by macrophages. The albuginea was thickened with chronic inflammatory process and fibrosis. Specific colorations and cultures did not reveal any pathogenic agent.

Idiopathic GO is more commonly unilateral. Two histological forms exist based on the location of the granulomatous inflammation: the tubular form, and the interstitial form as in our patient. Ultrasound reveals an enlarged, diffusely hypoechoic testis or intratesticular focal hypoechoic areas. A rim of residual normal testis is uncommon in idiopathic GO and must raise suspicion for lymphoma or seminoma [2]. Scrotal wall and tunica albuginea thickening are uncommon in GO but suggest a benign process. Color Doppler findings are variable. Ultrasonound elastography is a relatively recent technique [3] that requires further evaluation in the testis [4]. This case demonstrates that benign conditions such as idiopathic GO may also increase testicular stiffness. On MRI, GO presents with homogeneous hypointensity or multiple hypointense areas on T2-weighted images and variable degrees of enhancement. In our patient, the right testis had a low to intermediate signal on T2-weighted and T1-weighted images and showed moderate enhancement.

Disclosure of interest

The authors declare that they have no competing interest.

References


