

Intratesticular abscess: Correlation of B-mode, colour Doppler and contrast-enhanced ultrasound

Published on 17.07.2016

DOI: 10.1594/EURORAD/CASE.13875

ISSN: 1563-4086

Section: Uroradiology & genital male imaging

Area of Interest: Genital / Reproductive system male

Procedure: Contrast agent-intravenous

Procedure: Diagnostic procedure

Imaging Technique: Ultrasound

Imaging Technique: Ultrasound-Colour Doppler

Special Focus: Abscess Case Type: Clinical Cases

Authors: George Skountzos, MD, MSc

Patient: 19 years, male

Clinical History:

A 19-year-old man was referred to our department reporting sudden onset of testicular pain and swollenness. He had been examined sonographically at a private clinic, where a suspicious lesion in his right testicle was reported. Physical examination revealed 38 degrees Celsius fever and blunt pain in right testicle on palpation.

Imaging Findings:

Ultrasound examination detected a round, heterogeneous focal lesion in the right testicle, with sharp margins.

Colour Doppler showed only peripheral blood vessels.

After the intravenous microbubble injection the lesion presented rim-like peripheral enhancement during the arterial phase with only a little washout during the late phases. There was no internal enhancement. Findings were consistent with testicular abscess.

Discussion:

Intratesticular abscesses are unusual and are associated with severe epididymo-orchitis. They may also arise secondary to mumps, trauma or infarction. The ultrasound appearances are of a lesion of low reflectivity with irregular borders. Hypervascular rims may be visible surrounding a testicular abscess on CEUS and CDUS but no internal vascularity is present. [1, 2]

The use of CEUS improves characterisation of testicular lesions, with more detailed evaluation of intratesticular vascular flow. [2] More importantly, CEUS allows a conclusive demonstration of the lack of vascularity that is likely to be encountered in benign lesions. [3] Demonstration of an avascular abnormality, which is likely to be benign in nature and may resolve, would allow the option of "watchful waiting"; with ultrasound, without subjecting the patient to unnecessary surgery. [4]

Ultrasound examination detected a round, heterogeneous focal lesion in the right testicle, with sharp margins.

Colour Doppler showed only peripheral blood vessels. After the intravenous microbubble injection the lesion presented rim-like peripheral enhancement during the arterial phase with only a little washout during the late phases. There was no internal enhancement. Findings were consistent with testicular abscess. The patient underwent antibiotic therapy with beta-lactam agent and aminoglycoside and there was an abscess respite in twenty days.

The use of high-frequency B-mode ultrasound, Colour Doppler and CEUS help to establish the correct diagnosis of

a variety of conditions involving testes. CEUS is a useful adjunct to the CDUS examination to clearly identify enhancement and, perhaps more importantly, non-vascularised abnormalities. With increasing experience, ultrasound evaluation of testicular pathology may allow a tailored follow-up plan, or targeted ultrasound-guided excision biopsy when deemed appropriate, thus potentially reducing the number of unnecessary orchidectomies. MRI has a great ability to characterize certain lesions such as lipoma and other fat-containing lesions, haematoma, fibrous pseudotumour and focal testicular infarction [5]. Gadolinium-enhanced imaging can be used to demonstrate areas of absent or reduced testicular perfusion, such as in segmental testicular infarction. The pattern of enhancement may also assist in lesion characterization (e.g. rim enhancement of a testicular abscess). Gadolinium-enhanced MRI can help differentiate between a benign cystic lesion and a cystic neoplasm [6]. When US findings are inconclusive, MR imaging has been shown to reduce healthcare costs and improve patient management. Nevertheless, the imaging method of choice for evaluation of scrotal lesions is ultrasonography (US) because of its high accuracy, excellent depiction of scrotal anatomy, low cost, and wide availability. When CEUS is applied, sensitivity and specificity of the method are even higher.

Differential Diagnosis List: Testicular abscess, Intratesticular haematoma, Segmental testicular infarction

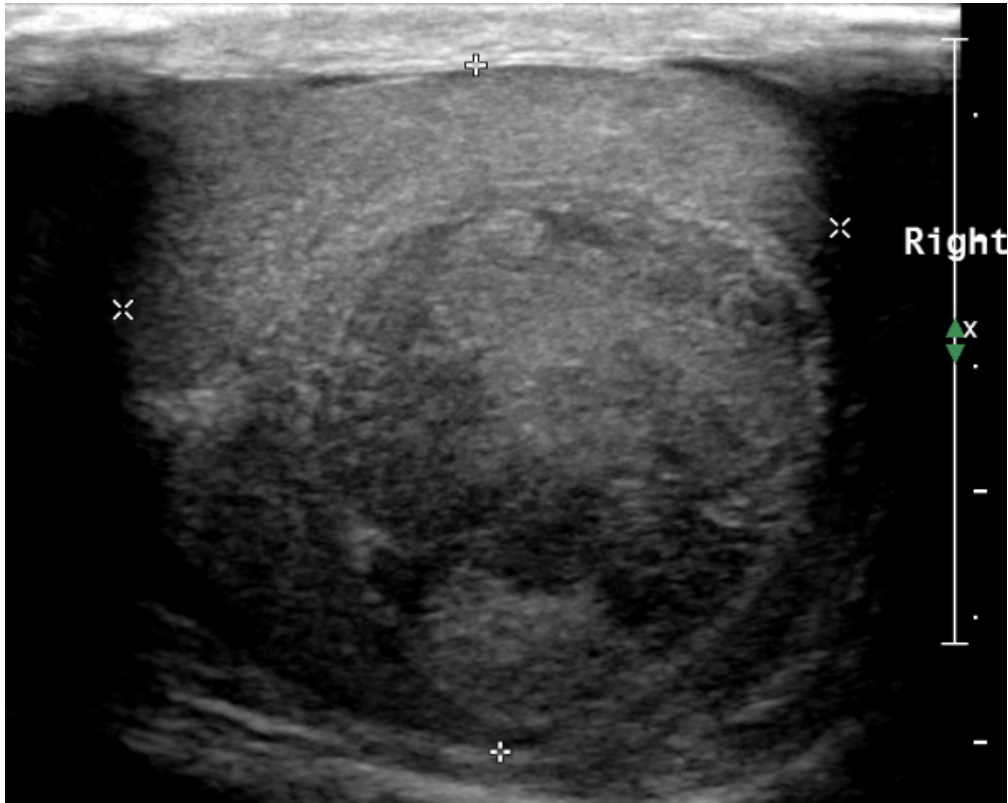
Final Diagnosis: Testicular abscess

References:

- Horstman WG, Melson GL, Middleton WD, Andriole GL (1992) Testicular tumors: findings with color Doppler US. *Radiology* December;185(3):733-7 (PMID: [1438754](#))
- Lock G, Schmidt C, Helmich F, Stolle E, Dieckmann KP (2011) Early experience with contrast-enhanced ultrasound in the diagnosis of testicular masses: a feasibility study. *Urology* May;77(5):1049-53. doi: 10.1016/j.urology.2010.12.035. Epub 2011 Feb 18. (PMID: [21334049](#))
- Hedayati V, Sellars ME, Sharma DM, Sidhu PS (2012) Contrast-enhanced ultrasound in testicular trauma: role in directing exploration, debridement and organ salvage. *Br J Radiol* Mar;85(1011):e65-8. doi: 10.1259/bjr/95600238. (PMID: [22391504](#))
- Shah A, Lung PF, Clarke JL, Sellars ME, Sidhu PS (2010) New ultrasound techniques for imaging of the indeterminate testicular lesion may avoid surgery completely. *Clin. Radiol* Jun;65(6):496-7. doi: 10.1016/j.crad.2010.01.016. Epub 2010 Mar 27 (PMID: [20451019](#))
- Muglia V, Tucci S Jr, Elias J Jr, Trad CS, Bilbey J, Cooperberg PL. (2002) Magnetic resonance imaging of scrotal diseases: when it makes the difference. *Urology* Mar;59(3):419-23 (PMID: [11880084](#))
- Tsili AC, Tsampoulas C, Giannakopoulos X, Stefanou D, Alamanos Y, Sofikitis N, Efremidis SC. (2007) MRI in the histologic characterization of testicular neoplasms. *AJR Am J Roentgenol* Dec;189(6):W331-7 (PMID: [18029845](#))

Figure 1

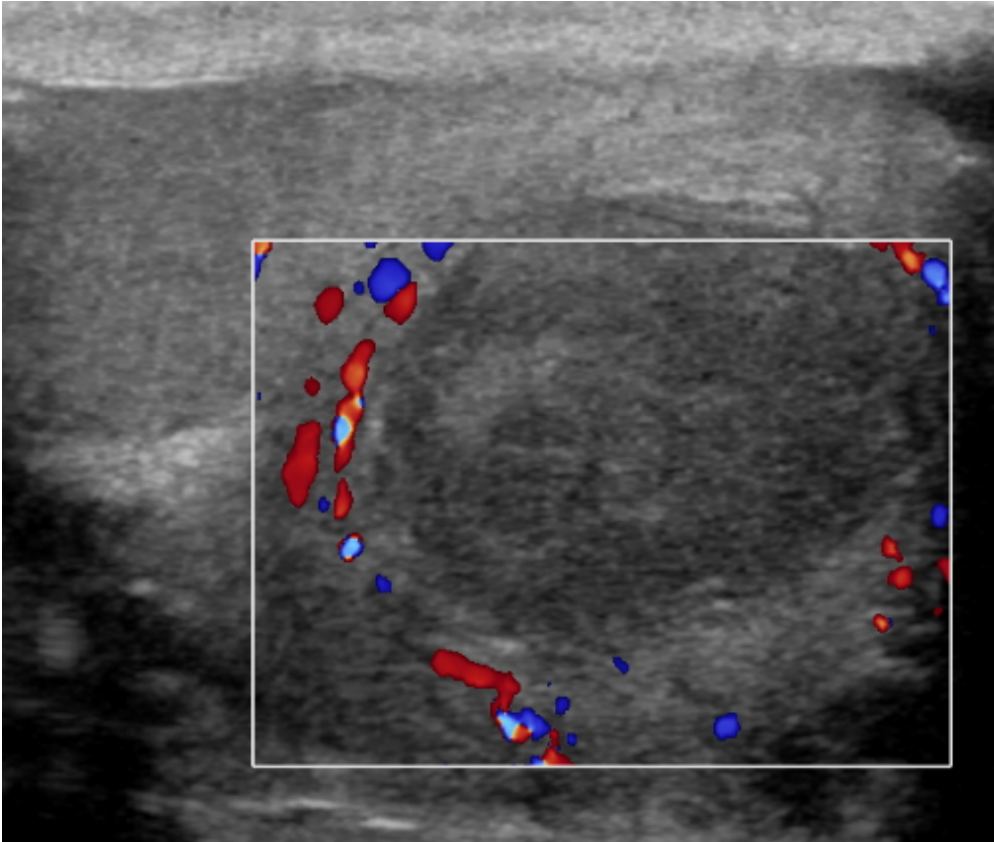
a



Description: Round, heterogeneous focal lesion in right testicle, with sharp margins. **Origin:** Dr Skountzos G., Dept. of Radiology, Athens General Hospital "Hippocraton"

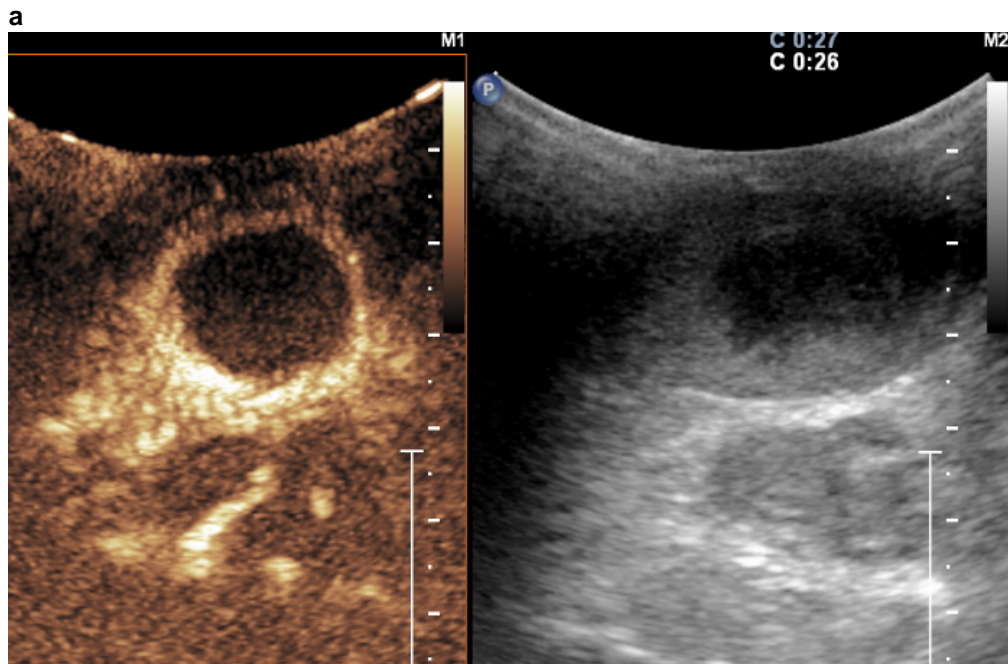
Figure 2

a



Description: Only peripheral vascularization **Origin:** Dr Skountzos G., Dept. of Radiology, Athens General Hospital "Hippocraton"

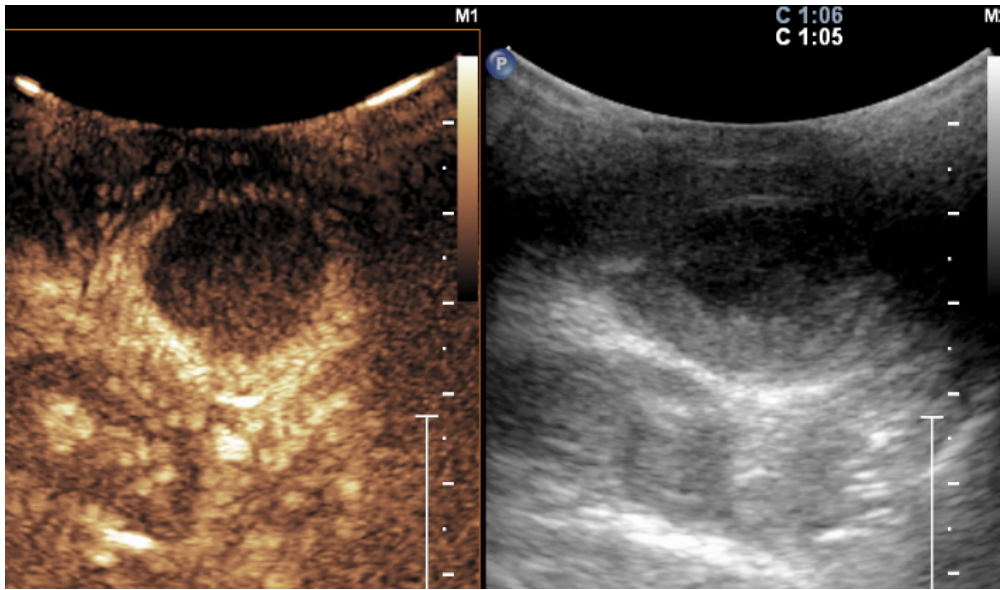
Figure 3



Description: Early peripheral enhancement **Origin:** Dr Skountzos G., Dept. of Radiology. Athens General Hospital "Hippocraton"

Figure 4

a



Description: Partial peripheral wash-out **Origin:** Dr Skountzos G., Athens General Hospital
'Hippocraton"