Case 14036

Eurorad

Severe scrotal pain

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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
Special Focus: Abscess Case Type: Clinical Cases
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Patient: 66 years, male

Clinical History:

A 66-year-old man presented to the ER with increasing severe scrotal pain that started 7 days before. His physical examination revealed a hardened right hemiscrotum with associated inflammatory signs. His past medical history included type 2 diabetes mellitus and alcoholic chronic liver disease. Laboratory tests demonstrated moderate leukocytosis.
Imaging Findings:

A scrotal ultrasound was requested revealing an enlarged heterogeneous right testicle with multiple round hypoechoic lesions, with low-level internal echoes, compatible with testicular abscesses (Fig. 1). An increased overall testicular and scrotal wall vascularity was noted (Fig. 2). Additionally a fluid collection with internal echoes, septations and loculations was observed in the tunica vaginalis external to the testicle (Fig. 3) representing a pyocele. Compare with the contralateral normal-sized testicle (Fig. 4).
Discussion:

A. An acute scrotum is defined as a painful swelling of the scrotum and its contents, developed over a short period of time, with or without accompanying symptoms. [3]
Its differential diagnosis includes testicular torsion, incarcerated or strangulated inguinal hernia, testicular trauma and ischaemic or infectious conditions. [4]
Infectious causes of scrotal pain include epididymitis, epididymo-orchitis, testicular abscess, pyocele, and Fournier's gangrene. [1]

B. These conditions are organ-threatening, potentially affecting the patient's fertility, and some are life-threatening, representing surgical emergencies.
The physical examination findings in these cases may be nonspecific, making the use of ultrasound imaging pivotal for the differential diagnosis. [4]

C. Scrotal pyoceles represent purulent collections within the potential space of the tunica vaginalis surrounding the testicle. [2]
Sonographic findings suggestive of a pyocele include a fluid collection with internal echoes, loculations, septae, and fluid-fluid or air-fluid levels in the tunica vaginalis external to the testicle.
A round hypoechoic lesion in the testicular parenchyma, with internal low-level echoes and a central lack of flow at Doppler interrogation, is suggestive of testicular abscess in the appropriate clinical context.

D. Treatment requires broad spectrum antibiotics and surgical drainage; some patients may need an orchiectomy. [2]
Sepsis and Fournier's gangrene are possible complications; the latter is a polymicrobial necrotizing infection that

involves the perineum. These patients usually have a history of diabetes mellitus or immunocompromising conditions. It constitutes a urologic emergency and demands aggressive treatment with surgical debridement and intravenous antibiotic therapy.
The modality of choice for Fournier's gangrene is CT to delineate the presence and extension of soft tissue gas and facilitate surgical planning.

E. Epididymitis and epididymo-orchitis are two of the most common causes of acute scrotum; if left untreated, may be complicated by testicular abscess formation or pyocele. [1]
The imaging modality of choice to diagnose a testicular abscess and/or a scrotal pyocele is ultrasound.
A scrotal pyocele and/or testicular abscess must be recognized and treated promptly to avoid further testicular damage or Fournier's gangrene.
Differential Diagnosis List: Scrotal pyocele and multiple intra-testicular abscesses, Testicular contusion, Haematocele, Testicular infarction

Final Diagnosis: Scrotal pyocele and multiple intra-testicular abscesses

References:

Avery LL, Scheinfeld MH. (2013) Imaging of penile and scrotal emergencies. Radiographics 33:721–740 (PMID: 23674771)
Bruner D.I., Ventura E.L., Devlin J.J. (2012) Scrotal pyocele: uncommon urologic emergency. J. Emerg. Trauma Shock 5:206 (PMID: 22787360)
Davis JE, Silverman M. (2011) Scrotal emergencies. Emerg Med Clin North Am 29(3):469–484. (PMID:21782069)
Wright S., Hoffmann B. (2015) Emergency ultrasound of acute scrotal pain. Eur. J. Med 22 (1): 2-9. (PMID: 24910960)

Figure 1

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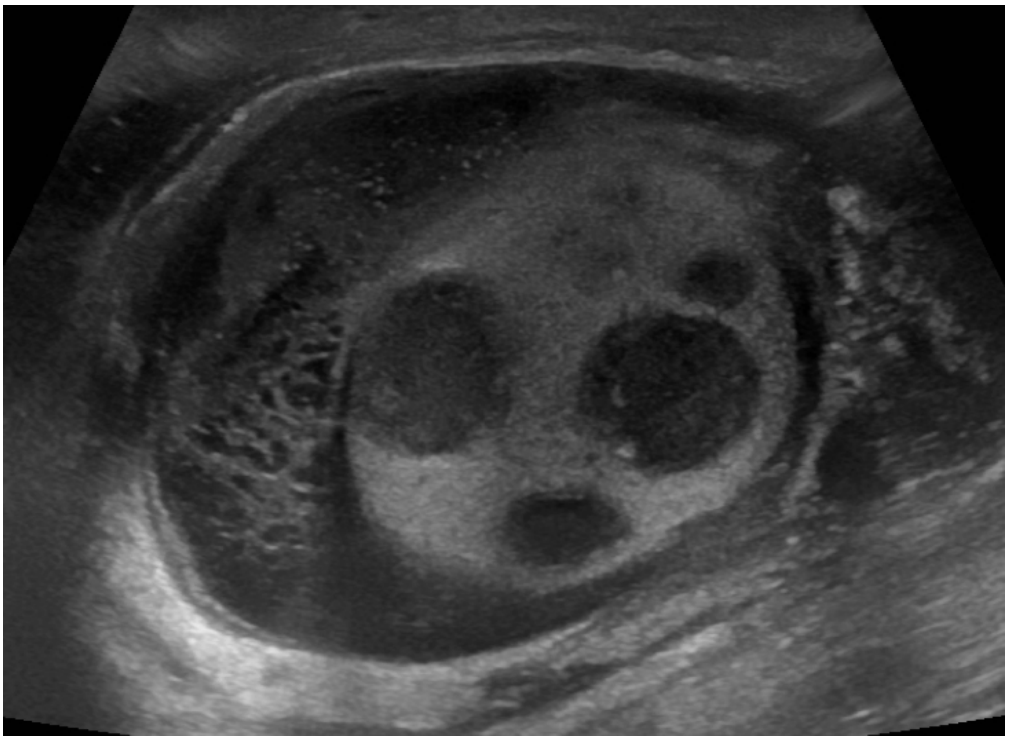

Description: Scrotal ultrasound revealed an enlarged right testicle, with multiple round hypoechoic lesions, many with low level internal echoes, suggestive of intra-testicular abscesses. **Origin:** Department of Radiology, CHLC, Lisbon, PT

Figure 2

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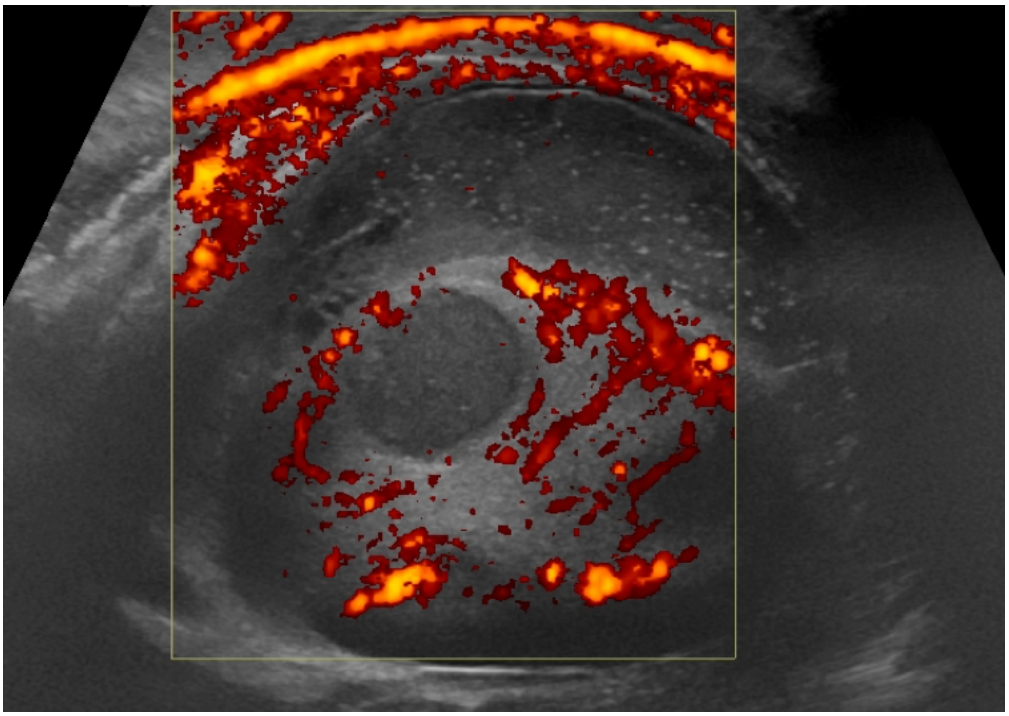

Description: Ultrasound-Power Doppler image demonstrated right testicular and scrotal tissue hyperemia, secondary to the inflammatory/infectious process. **Origin:** Department of Radiology, CHLC, Lisbon, PT

Figure 3

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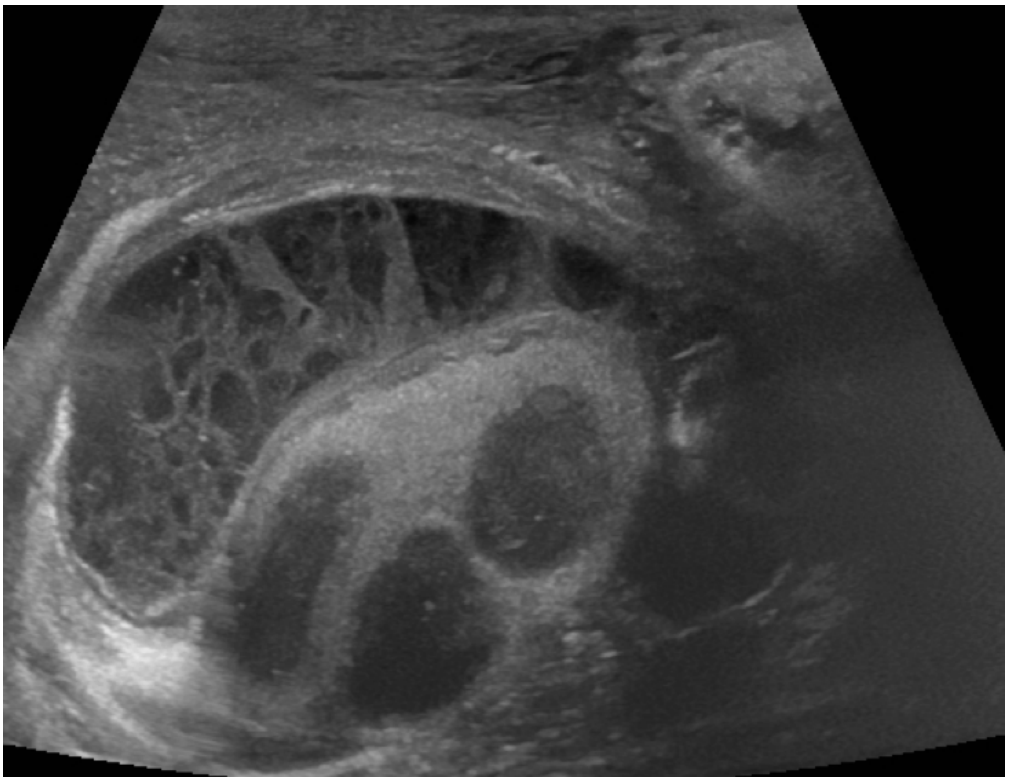

Description: Scrotal pyocele around the right testicle: complex fluid collection with internal septae and loculations at US imaging. **Origin:** Department of Radiology, CHLC, Lisbon, PT

Figure 4

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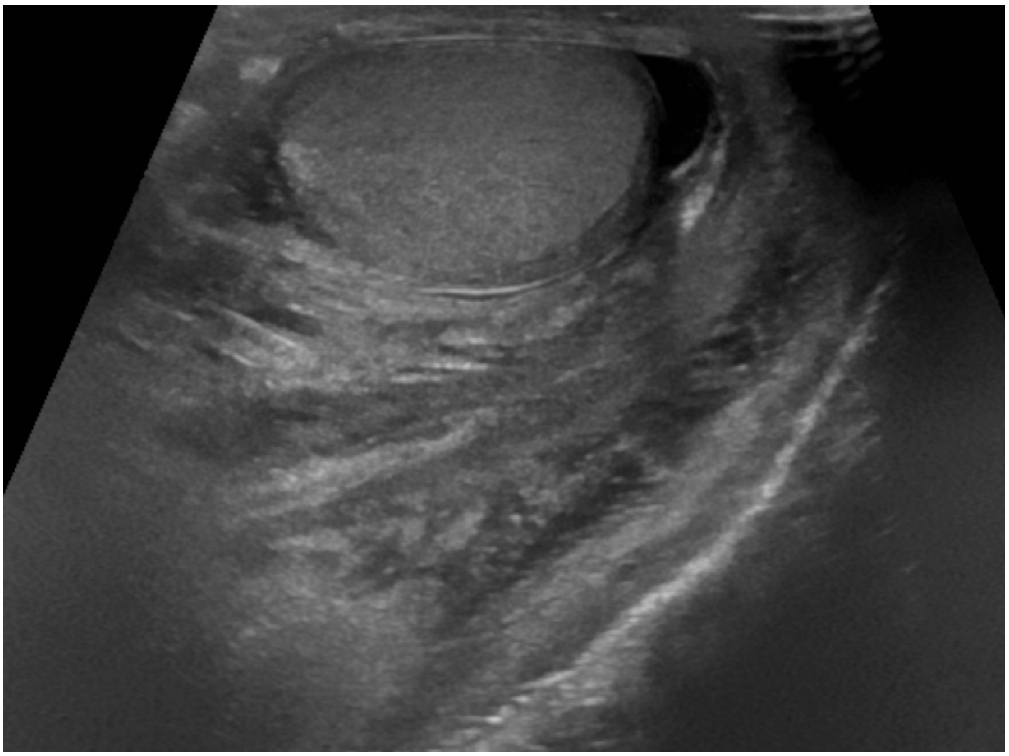

Description: Sagittal US image showing the homogeneous parenchyma of the contralateral (left) testicle. **Origin:** Department of Radiology, CHLC, Lisbon, PT