Ultrasound findings in a patient with tuberculous epididymo-orchitis

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DESCRIPTION

A 40-year-old man presented to urology with progressive painless right hemiscrotal swelling of 1 month with no fever, trauma, weight loss or hernia. Local examination revealed right hemiscrotal swelling with hydrocele. Routine blood investigations were within normal limits, total count—6300 cells/mm³, Hb—12 g/dL, Fasting Blood Sugar—90 mg/dL and creatinine of 0.9 mg/dL. Patient had no significant medical, surgical or family history.

Ultrasound of the scrotum and testis revealed bulky right testis with well-defined, vascular, non-calcified hypoechoic lesion (figure 1A,B), on a background of multiple small hypoechoic foci (figure 1C). Right epididymis was bulky, hypoechoic (figure 1D,E), and hypervascular (figure 1F). Minimal right hydrocele (figure 1G) was noted. Left testis was normal in size and vascularity (figure 1H). Possibility of tuberculous epididymo-orchitis was raised and was confirmed by Fine Needle Aspiration Cytology. Antitubercular treatment was initiated.

The most common extrapulmonary site of tuberculosis (TB) is the genitourinary tract (GUTB) (14%–40% of cases), which is the primary target of haematogenous dissemination.¹ Two-thirds of cases of GUTB coexist with lower urinary tract involvement; isolated involvement is seen in 5%–30% cases.² Spread from primary focus of infection can occur by haematogenous, lymphatic, canalicular and contiguous spread.^{1,3} Epididymis and vas deferens are the most commonly involved sites in GUTB.¹ Retrocanalicular spread from prostate, and direct spread from kidney are the most common mechanisms causing epididymal TB.⁴ Isolated involvement of the testes is extremely rare; contiguous spread from epididymis is more common.¹

High-resolution ultrasonography (HRUS) is the best modality for examination of scrotum, testis, epididymis and vas deferens. Ultrasonographic findings of GUTB are non-specific, and used to assess extent of disease and response to treatment.¹ On HRUS, TB epididymitis can present as focal nodular lesion(s) in the tail. Other patterns include diffuse involvement of epididymis, and bipolar involvement, where both head and tail are involved.⁵ Majority of lesions are hypoechoic, but they can be heterogenous or hyperechoic. Lesion heterogeneity is due to fibrosis, granuloma, inflammatory oedema and caseation. Lesions can show mild hypervascularity on doppler, and can also progress into a complex abscess.¹ On MRI, these lesions appear T2 hypointense, similar to tuberculous lesions

Figure 1 Ultrasound images of the bilateral testis. (A, B) Hypoechoic lesion in right testis with features of mild internal vascularity (white arrows). (C) Multiple small hypoechoic areas with increased vascularity within the right testis (white arrows). (D, E) Nodular enlarged and hypoechoic head and tail region of epididymis (white arrows). (F) Linear area of blood within involved region of epididymis. (G) Features of mild hydrocele. (H) Left testis appears normal in size with normal echotexture and no hydrocele.

elsewhere.⁶ TB orchitis can show enlarged testis with heterogeneously hypoechoic echotexture; other patterns include nodular, enlarged, heterogenous hypoechoic testis and single or multiple, poorly or well-defined hypoechoic intratesticular lesions.^{7,8}

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Images in...

Differential diagnosis for TB epididymitis includes pyogenic epididymitis, which presents as a homogenous hypoechoic lesion with markedly hypervascularity. Presence of heterogeneous focal thickening of tail of epididymis (>6 mm) with features like testicular involvement, bilateral epididymal involvement, septate pyocele and scrotal wall sinuses favour tuberculous epididymitis.¹ In case of isolated involvement of testis, malignancy needs to be considered as a differential. Malignant lesions are well defined and deform the contour of the testis.⁵ Epididymal involvement occurs close to the lesion in case of malignancy, whereas smooth calcification of tunica albugens with septate pyocele will favour tuberculous orchitis.⁸ Another important differential is torsion, which can be differentiated with altered position and absent vascularity of testis.¹

Learning points

- ▶ Tuberculous epididymo-orchitis can present with indolent course with normal levels of inflammatory markers.
- ▶ Ultrasound patterns of tuberculous epididymo-orchitis are diffuse or nodular enlarged hypoechoic testis and epididymis. Involvement of testis and epididymis indicates infective aetiology.
- ▶ Doppler finding in tuberculous epididymis is mildly increased vascularity, compared with markedly increased vascularity in pyogenic causes.

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