

**Isolated testicular tuberculosis mimicking a testicular tumor****Testis tümörünü taklit eden izole tüberküloz orşit**Isen K<sup>1</sup> Bakır S<sup>2</sup><sup>1</sup>Diyarbakır Eğitim ve Araştırma Hastanesi, Üroloji, Diyarbakır, Türkiye<sup>2</sup>Diyarbakır Eğitim ve Araştırma Hastanesi, Patoloji, Diyarbakır, Türkiye**Summary**

Isolated testicular tuberculosis ( TB ) is rarely seen. A 38-year-old man was admitted with the complaints of painless swelling in the right hemiscrotum for preceeding two months. The patient had no sign of tuberculosis. Examination revealed a firm mass arising from the right testis. The chest radiograph, testicular tumor markers and urine examination were normal. Abdomino-pelvic ultrason ( US ) and Computed Tomography were normal except the presence of polycystic kidney. Scrotal US showed a 3x2 cm mass with cystic and solid components and normal epididymis. Under the possibility of diagnosis of right testicular tumor, right radical inguinal orchiectomy was performed. Histological examination revealed the presence of tuberculous granuloma with necrotic caseation and Langhans type giant cells. The patient received anti-TB treatment for 6 months. Unfortunately, today, there are no clinical methods to make definitive diagnosis in such cases, and like this case, most of the patients are still undergone orchiectomy for ruling out a testicular tumor..

**Key Words:** Tuberculosis, male genital, orchitis, diagnosis, therapy.

**Özet**

*İzole testiküler tüberküloz ( TB ) nadiren görülmektedir. 38 yaşındaki erkek hasta 2 aydan beridir gelişen sağ skrotumdaki ağrısız şişlik şikayeti ile başvurdu. Hastada TB hikayesi yoktu. Fizik muayenede sağ testisten gelişen sert kitle saptandı. Akciğer grafisi, testis tümör belirleyicileri ve idrar tetkiki normaldi. Abdomino-pelvic ultrasonografi ( US ) ve Bilgisayarlı tomografi polikistik böbrek olması dışında normaldi. Skrotal US'de 3x2 cm boyutunda kistik ve solid komponent içeren kitle görüldü ve epididim normaldi. Sağ testis tümörü olma olasılığı nedeniyle sağ radikal inguinal orşiektomi yapıldı. Histolojik değerlendirmede tüberkülotik granüloma, kazeifikasyon nekrozu ve Langhans tipi dev hücreler görüldü. Hasta 6 ay TB tedavisi aldı. Ne şansızlıktır ki, günümüzde bu tip olgularda kesin tanı koyabilecek klinik bir metod mevcut değildir ve olguların çoğuna bu vakada olduğu gibi, testis kanserini ekarte etmek için hala orşiektomi yapılmaktadır.*

**Anahtar Sözcükler:** Tüberküloz, erkek genital, orşit, tanı, tedavi.

**Introduction**

The genitourinary tract is the most common site of extrapulmonary involvement by tuberculosis (TB). The most common side of genital TB is the epididymis, however, testicular tuberculosis is rare (1, 4). Testicular involvement is usually as a result of local invasion from the epididymis, retrograde seeding from the epididymis and rarely by haematogenous spread (4).

The isolated orchitis is an unusual presentation of tuberculosis and may produce diagnostic difficulty while excluding a possible testicular tumor (2, 3). Herein, a case of isolated TB orchitis is presented because of its rarity and difficulty in clinical diagnosis.

**Case Report**

A 38-year-old man was admitted with the complaints of painless swelling in the right hemiscrotum for preceeding two months. There was no history of systemic symptoms, pulmoner tuberculosis, hernia repair, epididymitis, lower urinary tract symptoms, trauma,

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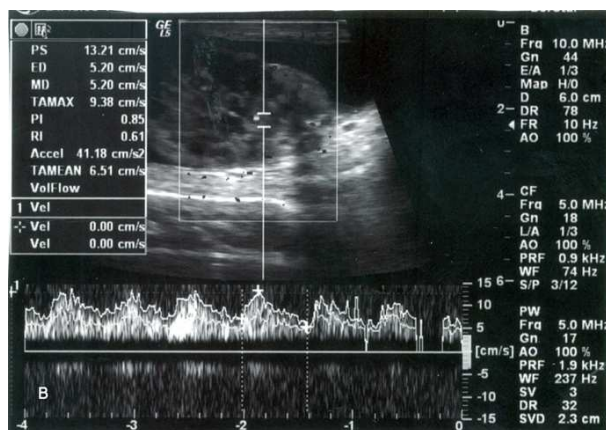
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medical treatment or infertility. The patient has four children. Examination revealed a hard mass arising from the right testis. The overlying scrotal skin showed no sign of inflammation. Transillumination test of the right scrotal contents was negative. The left testis and epididymis were normal. Scrotal ultrason (US) demonstrated a 3x2 cm mass with cystic and solid components and normal epididymis (Fig. 1A ). Doppler US showed increased vascularity and low arterial flow in the inflamed structures ( Fig. 1B ).



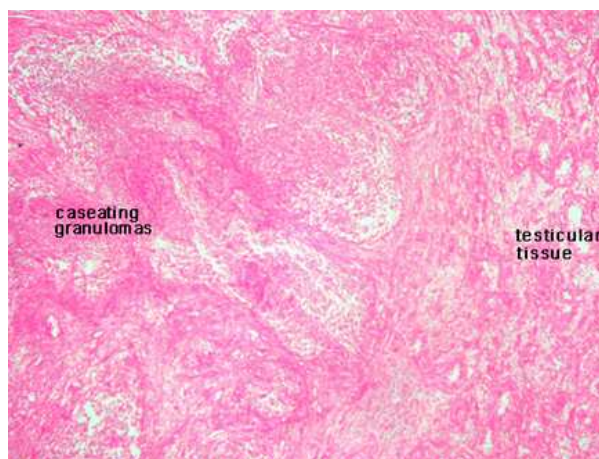
**Figure 1 A.** Longitudinal sonogram of right hemiscrotum is showing a 3x2 cm mass with cystic and solid components and normal epididymis.



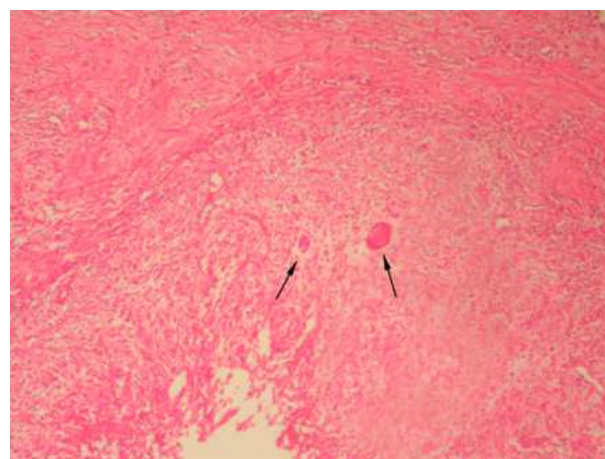
**Figure 1B.** Doppler US is showing increased vascularity and low arterial flow in the inflamed structures.

His blood count was normal but ESR was slightly rised. The chest radiograph, testicular tumor markers ( $\alpha$ -fetoprotein and  $\beta$ -human chorionic gonadotropin ) and

urine examination were normal. Abdomino-pelvic US and Computed Tomography (CT) were normal except polycystic kidney. Pre-operative imaging failed to shed light on the nature of the lesions (benign or malign). The diagnostic dilemma was explained to the patient and informed consent was obtained for right radical inguinal orchiectomy. Under the possibility of diagnosis of right testicular tumor, right radical inguinal orchiectomy was performed. Histological examination revealed tuberculotic granuloma with necrotic caseation and Langhans type giant cells (Fig. 2A, B). Urine examination and polymerase chain reaction were negative for acit-fast bacilli. Anti-TB treatment (Isoniazid 300 mg, Rifampicin 450mg, Ethambutol 1000mg and Pyrazinamide 1500mg daily) was started to the patient for 2 months, followed by administration of Isoniazid and Rifampicin for an additional 4 months.



**Figure 2A.** Caseating granulomas and testicular tissue (H&E, x40 )



**Figure 2B.** Langhans type giant cells ( H&E, x40 )

## Discussion

TB of the genitourinary tract presents with atypical manifestations. Only 20% to 30% of patients with genitourinary TB have a history of pulmonary infection. TB often affects the lower genitourinary system rather than the kidney (1). The epididymis is the commonest structure to be involved, followed by the seminal vesicles, prostate, testis, and the vas deferens. Genital TB occurs through hematogenic spread to the epididymides and prostate or through the urinary system to the prostate and canalicular spread to the seminal vesicles, deferent ducts, and epididymides (1,4). Testicular involvement is mostly due to local spread from the epididymis, retrograde seeding from the epididymis and rarely by haematogenous spread. TB of the lower genitourinary tract can present with irritative voiding symptoms, hematuria, epididymo-orchitis, prostatitis, and fistulas (1,4,5). Drug treatment is the first line therapy in genitourinary TB. Treatment regimens of 6 months are effective in most of the patients (5).

Isolated TB orchitis is a rare manifestation of tuberculosis (2,3). It is difficult to diagnose TB orchitis in the absence of pulmonary or renal involvement. The most important step in diagnosing genitourinary TB is patient history. A positive culture or histological analysis of biopsy specimens possibly combined with PCR is still required in most patients for a definite diagnosis (5). TB orchitis may be diagnosed by fine needle aspiration cytology (6), however, it may cause spread of malignant cells to the scrotal skin and thus to lymphatic drainage to the inguinal nodes. Radiological imaging tests including US and MRI may be helpful for diagnosis of TB epididymo-orchitis especially in patients with known genitourinary tuberculosis. The sonographic pattern of TB epididymo-orchitis is nonspecific and may be seen with non-TB infection, tumor or infarction. The presence of epididymal involvement with a testicular lesion is support an infection rather than a neoplastic cause. US features of TB epididymo-orchitis include diffusely-enlarged heterogeneously hypoechoic, diffusely enlarged homogeneously hypoechoic, and nodular enlarged heterogeneously hypoechoic epididymis and testis (7,9). Other US features include scrotal skin thickening, scrotal abscesses, intrascrotal extratesticular calcification and scrotal sinus tract (9). With MR imaging, epididymo-orchitis generally demonstrates heterogeneous areas of low signal intensity on T2-weighted images. The epididymis may be enlarged and hyperenhancing on contrast-enhanced T1-sequences. Heterogeneous enhancement of the testis with hypointense bands may also be seen (10). The combined use of scrotal MRI and urinary PCR may be

more valuable for the diagnosis of TB epididymitis, especially in the patient with the previous history of pulmonary TB (11). Differential diagnosis of TB epididymo-orchitis include bacterial epididymo-orchitis, testicular torsion, sarcoid and testicular tumour (9,10). Bacterial epididymo-orchitis presents with the sudden onset of testicular pain, dysuria and high fever. Nausea and vomiting are also common. The testis is enlarged, indurated and tender on palpation. Doppler US shows increased blood flow to the testis. Testicular torsion generally is easily diagnosed by a more dramatic clinical picture with acute testicular pain and swelling. Physical examination reveals a tender, firm affected testis that may appear retracted upward as a result of twisting of the spermatic cord. US appearance of testicular torsion are diffusely hypoechoic or heterogeneous testis. Doppler US usually shows decreased or absent blood flow to the testis (9,12). Sarcoidosis can rarely involve the genitourinary tract. In general, it affects the epididymis more commonly than the testis. While it can manifest as a solitary lesion, it is more commonly seen as multiple small bilateral lesions. At US, testicular lesions are hypoechoic (9,13). Sarcoid presents with systemic symptoms including night sweats and weight loss. A CT scan of the chest, abdomen and pelvis may reveal pretracheal, hilar, aortocaval, inguinal, iliac and gross para-aortic lymphadenopathies (13). A testicular tumor usually presents as a painless mass found by the patient or physician on routine examination. The patients may complain of a dull ache or a sense of scrotal heaviness. Uncommonly, some men have acute pain secondary to bleeding into the testis from extravasation of tumor vessels, causing an expanding mass effect against the inelastic tunica albuginea. Testicular tumor markers are elevated in most of the patients. At US, nonseminomatous tumors is heterogeneous masses with cysts and calcifications, however, seminomas are comprised of homogeneous, hypoechogenic and sharply delineated masses (14).

Infertility is an uncommon manifestation of genitourinary tract tuberculosis. Infertility results from either a direct obstruction by granulomatous masses in the epididymis or vas deferens or from scarring and distortion of normal anatomy. Since the most common manifestation of tuberculous infertility is azoospermia, the majority of patients with tuberculous infertility will require assisted reproduction. Fortunately, the testis is usually spared in these cases and testicular sperm is almost always available for aspiration. The site of sperm harvest depends on the site of infection and the degree of destruction. Tuberculous obstruction of the genital tract does not adversely influence the outcome of assisted

reproduction techniques using epididymal or testicular sperm (15,16).

In the present case, there were not any symptoms of pulmonary or urinary system which were considered TB. The patient had no other side of TB. Examination revealed a firm mass like testicular tumor. Because of the patient has normal contralateral testis and epididymis and with no history of infertility, semen analysis was not done to evaluate his fertility. Scrotal US showed a testicular mass with cystic and solid components without epididymal involvement. Doppler US revealed increased vascularity and low arterial flow in the inflamed structures. The findings of US are non-specific, and they did not helpful to make definitive diagnosis (benign or malign). Today, general concept for any firm or solid intratesticular mass, especially in a

young person, is treated as a malignancy unless proven otherwise. Therefore, radical inguinal orchiectomy was performed to the patient for ruling out a testicular tumor.

### Conclusions

Isolated tuberculous orchitis is a rare entity. It may be the first and only presentation of genitourinary TB. Radiological findings may invaluable in making the diagnosis especially in patients who had no other side of TB. Unfortunately, today, there are no clinical methods to make definitive diagnosis in such cases. Therefore, most of the patients are still undergone orchiectomy for ruling out a testicular tumor. Clinical diagnosis of this situation is important to prevent unnecessary orchiectomy. This issue needs to be investigated further.

### Kaynaklar

1. Wise GJ, Shteynshlyuger A. An update on lower urinary tract tuberculosis. *Curr Urol Rep* 2008; 9:305-313.
2. Joual A, Rabii R, Guessous H, Benjelloun M, el Mrini M, Benjelloun S. Isolated testicular tuberculosis: report of a case. *Ann Urol* 2000;34:192-194.
3. Riehle RA, Jayaraman K. Tuberculosis of testis. *Urology* 1982;20:43-46.
4. Viswaroop BS, Kekre N, Gopalakrishnan G. Isolated tuberculous epididymitis: A review of forty cases. *J Postgrad Med* 2005;51:109-111.
5. Cek M, Lenk S, Naber KG, Bishop MC, Johansen TE, Botto H et al. EAU Guidelines for the Management of Genitourinary Tuberculosis. *European Urology* 2005;48; 353-362.
6. Garbyal RS, Gupta P, Kumar S; Anshu. Diagnosis of isolated tuberculous orchitis by fine-needle aspiration cytology. *Diagn Cytopathol* 2006;34:698-700.
7. Kim SH, Pollack HM, Cho KS, Pollack MS, Han MC. Tuberculous epididymitis and epididymo-orchitis: sonographic findings. *J Urol* 1993;150: 81-84.
8. Muttarak M, Peh W. Tuberculous Epididymo-orchitis. *Radiology* 2006;238:748-751.
9. Muttarak M, Peh WCG, Lojanapiwat B, Chaiwun B. Tuberculous epididymitis and epididymo-orchitis: sonographic appearances. *Am J Roentgenol* 2001; 176:1459-1466.
10. Kim W, Rosen MA, Langer JE, Banner MP, Siegelman ES, and Ramchandani P. US MR Imaging Correlation in Pathologic Conditions of the Scrotum. *RadioGraphics* 2007;27: 1239-1253.
11. Liu HY, Fu YT, Wu CJ, Sun GH. Tuberculous epididymitis: a case report and literature review. *Asian J Androl* 2005; 7:329-32.
12. Palvica P, Barozzi L. Imaging of the acute scrotum. *Eur Radiol* 2001;11:220-228.
13. Datta SN, Freeman A, Amerasinghe CN, Rosenbaum TP. A case of scrotal sarcoidosis that mimicked tuberculosis. *Nat Clin Pract Urol* 2007;4:227-230.
14. Marth D, Scheidegger J, Studer UE. Ultrasonography of testicular tumors. *Urol Int* 1990;45:237-240.
15. Kondoh N, Fujimoto M, Takeyama M, et. al. Treatment of azoospermic patient with genitourinary tuberculosis: A case report. *Hinyokika Kyo* 1999;45:199-201.
16. Moon SY, Kim SH, Jee BC, et. al. The outcome of sperm retrieval and intracytoplasmic sperm injection in patients with obstructive azoospermia: Impact of previous tuberculous epididymitis. *J Assist Reprod Genet* 1999;16:431-435.