



## TUBERCULOUS EPIDIDYMO-ORCHITIS AS A MIMICKER OF TESTICULAR MALIGNANCY: A CASE REPORT

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**ABSTRACT** **Background:** Tuberculous epididymo-orchitis is a rare extrapulmonary form of tuberculosis which commonly occurs in young adults. It is often misdiagnosed as malignancy clinically and radiologically. We hereby present a case which was clinically and radiologically diagnosed as neoplasm, however histologically turned out to be tuberculous epididymo-orchitis. **Case report:** A 75 years old male presented with complaints of swelling in left scrotum for 5 weeks, associated with dragging pain. O/E – Size of swelling 4x4cm with draining sinuses on inferolateral aspect. Consistency of the swelling was hard. MRI Pelvis with contrast was suggestive of testicular neoplastic etiology. **Gross Examination:** Received single testis with spermatic cord. Testis measuring 5x4x3 cm. Spermatic cord measuring 7 cm. External surface was congested. Cut surface showed cheese like whitish area in the posterior inferior aspect. Testicular parenchyma was compressed. **Microscopy:** Multiple sections studied show caseating epithelioid granulomas with Langhan's giant cells involving testis, epididymis and scrotal wall forming sinus tract. ZN(20%), SM and PAS stains were negative. Though ZN stain did not reveal any acid-fast bacilli, in view of presence of caseating epithelioid granulomas, diagnosis of tubercular epididymo-orchitis was offered. **Conclusion:** Being a mass forming lesion, tuberculous epididymo-orchitis is often misdiagnosed as malignancy. High index of suspicion and use of modalities such as epididymal lesion FNAC, TB-PCR, and TB Culture can be considered as pre-surgical diagnostic modality for early diagnosis of these lesions.

## KEYWORDS :

## INTRODUCTION:

Tuberculosis, an age-old disease, continues to pose a significant global health challenge despite being preventable and treatable (1,2). It stands as the leading cause of death from a single infectious agent after COVID-19 (3). Despite its relatively low incidence compared to pulmonary tuberculosis, genitourinary tuberculosis (GUTB) accounts for a significant portion of extrapulmonary tuberculosis cases globally (4). Genitourinary tuberculosis (GUTB) is the second most common form of extrapulmonary tuberculosis after tuberculous lymphadenitis (5).

Among extrapulmonary manifestations, genitourinary tuberculosis often presents as isolated epididymo-orchitis without renal involvement, which can clinically resemble testicular tumors (6,7). Here, we present a case where clinical and radiological findings initially suggested a neoplasm but histological examination revealed tuberculous epididymo-orchitis.

## Case Report:

A 75-year-old male presented with a 5-week history of gradually progressive swelling in the left scrotum associated with dragging pain. The swelling ruptured spontaneously with purulent discharge, without any history of trauma or systemic symptoms. There was no history of trauma. There was no history of fever, urinary complaints, loss of weight or loss of appetite. There was no history of history of hypertension, diabetes or past history of tuberculosis.

The patient was averagely built with stable vitals. There was no pallor, edema, cyanosis, icterus, clubbing or lymphadenopathy.

Local examination of the left testicular swelling revealed a single, non-tender, hard swelling measuring 4x4 cm in the left scrotum, with an associated ulcer and draining sinuses on the inferior-lateral aspect. There was loss of scrotal rugae over the swelling. The spermatic cord was normal. There were no palpable inguinal lymph nodes. The right scrotum was normal.

Ultrasonography of left scrotum revealed testis with heterogeneous hypoechoic mass lesions of size 28x23 mm and 29x23 mm at the inferior pole. The masses had irregular borders and were communicating with each other. Increased vascularity on colour Doppler and patchy dense internal echoes suggestive of areas of necrosis were noted.

MRI Pelvis with contrast revealed an ill-defined heterogeneous soft tissue lesion involving the posterior and inferior pole of the left testes measuring approximately 4.2 x 3.3 x 2.7 cm with few heterogeneous areas of degeneration within.

Radiological findings suggested possibility of left testicular neoplastic etiology.

Considering the probability of neoplastic etiology, left high inguinal orchidectomy was performed. Involved skin along with testis and spermatic cord up to the deep ring were excised. Specimen was sent for HPE.



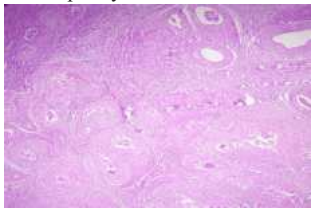
**Fig. 1.** Spermatic cord with cut surface of testis showing caseating necrosis.

## Gross Examination:

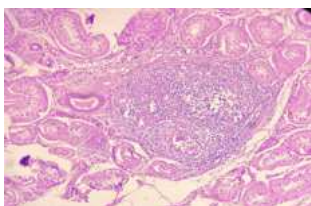
Grossly, the left testis measured 5x4x3 cm. The attached spermatic

cord measured 7 cm in length. The external surface was congested. Cut surface showed cheese like whitish area in the posterior inferior aspect. Testicular parenchyma was compressed.

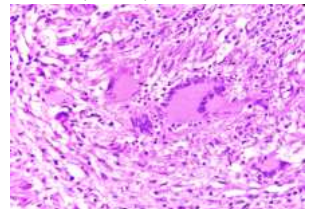
**Microscopically**, the multiple sections studied showed caseating epithelioid granulomas with Langhan's giant cells involving testis, epididymis and scrotal wall forming sinus tract. ZN (20%), SM and PAS stains were negative. Though ZN stain did not reveal any acid-fast bacilli, in view of presence of caseating epithelioid granulomas, diagnosis of tubercular epididymo-orchitis was offered.



**Fig. 2.** Epididymis With Caseating Granuloma, H & E, 10X.



**Fig. 3.** Granuloma in testis, H & E, 10X.



**Fig. 4.** Langhan's giant cells, H & E 40X.

## DISCUSSION:

Tuberculous epididymo-orchitis represents a diagnostic challenge due to its tendency to mimic testicular malignancy both clinically and radiologically (5). The presentation of tuberculous epididymo-orchitis can vary widely, ranging from asymptomatic to symptomatic cases with features such as scrotal swelling, pain, and sometimes systemic symptoms like fever and weight loss. Importantly, the absence of systemic symptoms does not exclude the diagnosis. Due to the delayed onset of symptoms and their nonspecific nature, along with the absence of rapid, sensitive, and specific diagnostic techniques, the condition is frequently misdiagnosed or diagnosis is postponed (8).

Tubercular epididymitis typically initiates from early involvement via retrograde spread of mycobacteria through urinary reflux. Additionally, the tail of the epididymis, benefiting from greater blood supply, may contribute to its early engagement. The coexistence of epididymis involvement and testicular lesion further supports the likelihood of infection. (9)

The diagnostic workup for suspected tuberculosis epididymo-orchitis often begins with imaging studies such as ultrasound and MRI. These modalities may demonstrate features suggestive of malignancy, including mass lesions with irregular borders and heterogeneous enhancement. However, such findings are non-specific and can overlap with tuberculous lesions, leading to diagnostic confusion. In our case, radiological findings initially raised suspicion for testicular neoplasia, highlighting the importance of histopathological confirmation (9).

In certain instances, surgical confirmation may be necessary, possibly due to the variability in sensitivity and specificity of diagnostic tests such as urine acid-fast staining, sonography and MRI (10).

Histopathological examination remains the cornerstone for the definitive diagnosis of tuberculous epididymo-orchitis. Characteristic findings include caseating epithelioid granulomas with or without Langhan's giant cells involving the testis, epididymis, and surrounding

tissues. Despite the absence of acid-fast bacilli (AFB) on Ziehl-Neelsen staining in some cases, the presence of caseating granulomatous inflammation is highly suggestive of tuberculosis. Additional stains such as periodic acid-Schiff (PAS), and silver stains may aid in ruling out other infectious etiologies.

It is crucial to differentiate tuberculous epididymo-orchitis from testicular malignancy to avoid unnecessary radical surgeries and initiate appropriate anti-tubercular therapy promptly. However, FNAC of epididymal nodules can be a promising tool for diagnosis of tuberculous epididymo-orchitis (11).

Despite significant progress in anti-TB therapy and rigorous implementation of established TB control measures, tuberculosis (TB) continues to be a prominent global health issue. The co-infection with HIV has further exacerbated its prevalence, contributing to a worldwide epidemic affecting over 2 billion individuals. In 2018, approximately 10 million people developed TB, marking a slight decrease compared to 2017. Similarly, TB-related deaths decreased from 1.6 million in 2017 to 1.5 million in 2018. (12)

Genitourinary tuberculosis (TB) can lead to serious complications including infertility, sexual dysfunction and renal failure. Among male patients, the epididymis is frequently affected, typically due to spread through the bloodstream or retrograde extension from the seminal vesicles and prostate. Testicular involvement often occurs as an extension from epididymitis, though isolated testicular TB via hematogenous spread is rare. In the past, bilateral testicular involvement was more prevalent than unilateral cases; however, unilateral testicular-epididymal TB appears to be more common in recent times. (13)

In approximately half of the cases, both urinary and genital organs are affected, although isolated diseases of the genital organs are uncommon. Kidney involvement is the most frequent in genitourinary tuberculosis (GUTB), causing significant morbidity. Male genital TB represents a distinctive subset, with the epididymis and prostate being the most commonly affected organs. TB affecting other genital organs apart from epididymitis is rare, and there is limited guidance available for diagnosing and managing such cases. (14)

Pre-operative diagnostic modalities such as fine-needle aspiration cytology (FNAC) for cytology and TB-PCR can provide valuable insights, potentially guiding clinical decision-making. Moreover, TB culture may help confirm the diagnosis and assess drug susceptibility, informing treatment regimens.

Early recognition of tuberculous epididymo-orchitis is paramount, particularly in regions with a high prevalence of tuberculosis. Awareness among clinicians, utilization of appropriate diagnostic algorithms, and collaboration with pathologists for accurate histopathological evaluation are essential steps in achieving timely and optimal patient outcomes.

## CONCLUSION:

Tuberculous epididymo-orchitis poses a diagnostic challenge due to its resemblance to testicular malignancy. Clinicians should maintain a high index of suspicion, employ a multidisciplinary approach, and utilize a combination of imaging, cytological and histopathological modalities to ensure accurate diagnosis and appropriate management. Early initiation of anti-tubercular therapy remains crucial in reducing morbidity associated with delayed or misdiagnosis.

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