

Unilateral Tuberculous Epididymo-orchitis with Scrotal Fistula

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Background	A 58-year-old male presented to the outpatient surgery department with unilateral tubercular epididymo-orchitis with scrotal fistula and managed with left orchidectomy with no evidence of primary sites for tuberculosis.
Summary	This patient presented with a hard lump in the left scrotal region and purulent discharge from the scrotal skin for 12 days. He was under repeated medication with anti-inflammatories, analgesics, and antibiotics because of left epididymo-orchitis from local health posts; however, the condition aggravated daily. Long-standing unrecovered history and clinical examination suggested tubercular entity along with ultrasonography facilitated the diagnosis. Testicular malignancy was ruled out, while chronicity of the lesion and patient choice facilitated left-sided high-up inguinal orchidectomy with wide removal of scrotal ulcer. Histopathology was consistent with tubercular epididymo-orchitis evidenced by the presence of granuloma with multinucleated giant cells with caseous necrosis. No primary sites were found for tuberculosis, so an isolated entity was designated. The patient is currently undergoing category I antitubercular therapy.
Conclusion	Tubercular epididymo-orchitis should be kept as differential for long-standing cases with scrotal swellings and fistula, if associated, almost confirming the diagnosis in most cases. Treatment includes antitubercular therapy given extrapulmonary tuberculosis alongside excision if the lesions are chronic.
Key Words	fistula; orchidectomy; tubercular epididymo-orchitis
Abbreviations	PTB: Pulmonary tuberculosis, EPTB: Extrapulmonary tuberculosis, GUTB: Genitourinary tuberculosis, TLC: Total leucocyte count, ESP: Erythrocyte sedimentation rate, LDH: Lactic acid dehydrogenase, USG: Ultrasonography, AFB: Acid-fast bacilli, TBEO: Tuberculous epididymo-orchitis, FNAC: Fine needle aspiration cytology, PCR: Polymerase chain reaction, H: Isoniazid, R: Rifampicin, Z: Pyrazinamide, E: Ethambutol

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Case Description

Tuberculosis (TB) is an infectious disease with a prevalence of 416 per 100,000 in Nepal, with a 2% annual decline globally.^{1,2} Extrapulmonary tuberculosis (EPTB) that occurs in areas other than the lungs accounts for 15-20% of active cases, and includes sites like the pleura, central nervous system, genitourinary system, lymphatics, bones, joints, among other areas and most commonly immunocompromised individuals are affected.³ Genitourinary tuberculosis (GUTB) accounts for the second-most common cause of extrapulmonary tuberculosis only after lymph node involvement, notably cervical lymphadenopathy.⁴ Genital tracts are less commonly involved than the urinary tract, epididymis being the most commonly affected site.⁵ We present a rare case of isolated tuberculous epididymo-orchitis with scrotal fistula involving the left testis and epididymis with normal contralateral side along with no evidence of primary.

A 58-year-old male presented to the surgical outpatient department with chief complaints of pain and swelling in the left scrotum for 20 days. For the last 12 days, he started developing a wound in the scrotal region associated with purulent discharge. For the similar presentation of pain along the left testes, he had been treated by local health professionals with anti-inflammatory medications and antibiotics for presumed epididymo-orchitis for six months before presentation to the surgery clinic. However, the symptoms subsided for some time and recurred again and again. At this instant, he presented to our institute once he started developing an induration in the scrotum with a yellowish discharge. There was no history of chest pain, productive cough mixed with blood, difficulty breathing, evening rise of temperature, or night sweats. He gave no history of pain abdomen, burning micturition, or any features of lower urinary tract symptoms. There was no history of pulmonary tuberculosis, diabetes mellitus, or surgical interventions. At presentation, vitals were stable. Clinical examination showed enlarged and minimally tender left testes with firm-to-hard consistency, erythematous, edematous, and indurated left scrotal area with an ulcer around 1 × 0.5 cm with yellowish foul-smelling discharge (Figure 2A). Inguinal lymph nodes were not palpable. A preoperative diagnosis of epididymo-orchitis was made. Given the scrotal ulcer and chronicity of the lesion, a tubercular entity could not be ruled out and was considered a differential.

Laboratory investigations showed a total leucocyte count (TLC) of 6,300/mm³, hemoglobin 12.9 gm/dl, and erythrocyte sedimentation rate (ESR) measuring 17 mm/hr. Other biochemical tests were normal, with lactic acid dehydrogenase (LDH) at 292 units/L, alpha-fetoprotein at 5.14 ng/mL, and beta HCG at 2.31 mUI/mL. Routine urine test was normal, and the Mantoux test was negative. A chest X ray, as well as ultrasonography (USG) of the abdomen and pelvis, were normal. Sputum acid-fast bacilli (AFB) was negative. USG of the scrotum showed a heterogenous area at the posterior part of the testes measuring 41.2 × 31.1 mm with vascularity within it with minimal fluid in the testicular sac and epididymal head measuring 43.8 × 18.1 mm with vascularity with a thickened scrotal wall (Figure 1).

Figure 1. Ultrasonography of Left Scrotum. Published with Permission



Scans show heterogenous area at posterior part of testes measuring 41.2 × 31.1 mm with vascularity within it with minimal fluid in testicular sac and epididymal head measuring 43.8 × 18.1 mm with vascularity with thickened scrotal wall.

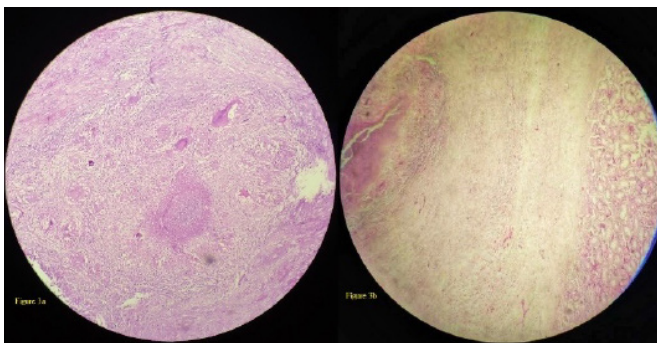
A scrotal wound culture demonstrated *Staphylococcus aureus* and was negative for AFB. The patient was admitted, kept on intravenous antibiotics, and planned for orchidectomy. The testis was delivered through a left inguinal approach with high-up orchidectomy and wide excision of the ulcer (Figure 2B). Intraoperatively, the testis and the epididymis were enlarged to around 7 × 4 cm, hard and communicating ulcer could be appreciated from the testes to the scrotal skin. The cut surface showed a well-circumscribed but ill-defined lesion, which was firm and pale with areas of necrosis and grayish-white color changes (Figure 2C).

Figure 2. Intraoperative Photo of Scrotum. Published with Permission



A) Enlarged and minimally tender left testes with firm-to-hard consistency, erythematous, edematous, and indurated left scrotal area with ulcer around 1 × 0.5 cm with yellowish foul-smelling discharge. Left inguinal incision can be appreciated along with spermatic cord being delivered with high inguinal approach. B) Enlarged testis and epididymis mass around 7 × 4 cm—hard and communicating ulcer could be appreciated from lump to scrotal skin. C) Well-circumscribed but ill-defined lesion, firm and pale, with areas of necrosis and grayish-white color changes along epididymis and some part of testis.

Figure 3. Histological Examination. Published with Permission



A) Multiple well-formed granulomas with epithelioid cells, histiocytes, Langhans type multinucleated giant cells, lymphocytes and areas of caseous necrosis and B) parts of normal testicular parenchyma on left along with necrotizing granuloma on right side.

Postoperative course remained uneventful and the patient was discharged on postoperative day 4. Histological examination revealed multiple well-formed granulomas with epithelioid cells, histiocytes, and multinucleated giant cells with areas of caseous necrosis suggestive of tubercular epididymo-orchitis. (Figure 3) The patient is currently undergoing category I antitubercular therapy.

Discussion

Pulmonary tuberculosis (PTB) and EPTB are two types of variants of this infectious disease, within which the former is the most common. GUTB is the second most common form of extrapulmonary tuberculosis, with more than 90% of cases occurring in developing countries.⁶ Tuberculous epididymo-orchitis (TBEO) is most commonly seen in those patients aged 20-50 years.⁷ The most common sites of involvement in order of occurrence rate are epididymis, prostate, seminal vesicles, and testis.³ Twenty-seven percent of GUTB show isolated genital involvement.⁸

Many controversial theories are mentioned in the literature regarding the dissemination of tuberculosis in the genital tracts. Retrograde spread of the bacilli from the infected urinary tract to the prostate and canalicular spread to seminal vesicles and vas deferens reaching to epididymis and testis has been documented.⁹ Commonly, the hematogenous and lymphatics route is the main portal of entry to the genitals.

Lower urinary tract symptoms can be appreciated in patients with involvement of the kidney and urinary tract in the form of irritative voiding symptoms and hematuria. A study from Siberia that included 514 cases of GUTB showed 62% of patients with renal tuberculosis along with TBEO, while 11.9% showed scrotal fistula.¹⁰ Local symptoms of the disease are progressive and insidious and may create confusion with other lesions like bacterial epididymo-orchitis, tumors, or cysts.¹¹ Sinuses or fistula develop in cases of neglected lesions or are treated with antibiotics given the bacterial entity. As in this case, treatment was aligned to a bacterial cause for epididymo-orchitis before the patient presented to us.

Diagnosis of extrapulmonary tuberculosis requires comprehensive evaluations, including histology, cytology, and microbiological evidence. Fine needle aspiration cytology (FNAC) includes epithelioid granuloma with a necrotic background and variable presence of lymphocytes. This

was impossible in our case due to patient compliance as he demanded surgical removal of testes without delay. Polymerase chain reaction (PCR) helps rapidly detect *Mycobacterium tuberculosis* if available; however, such tests may not be feasible in low-resource settings and areas of financial constraints.¹² Ziehl-Neelsen stain performed on alcohol-fixed slides usually confirms the presence of acid-fast bacilli, which was demonstrated in our case. Microscopy and culture negativity which may not be feasible, may not necessarily rule out tuberculosis as we, too, observed the growth of *Staphylococcus aureus*, possibly due to scrotal skin flora. Sonographically, tuberculous epididymitis, and orchitis appear as diffusely enlarged heterogeneously hypoechoic, diffusely enlarged homogeneously hypoechoic, or nodular enlarged heterogeneously hypoechoic lesions. Heterogeneity, which is more pronounced if there is the presence of necrotic debris exiting as sinus to scrotal skin, may be accounted for by the presence of various pathologic components, including caseation necrosis, granulation tissues, and fibrosis.¹³ Induration and thickened scrotal skin, the thin demarcation between testes and epididymis, which might get obscured in diffuse involvement; hydrocele and enlarged inguinal lymph nodes may be additional findings. MRI usually demonstrates an enlarged unilateral epididymis with heterogeneous and, most commonly, high signal intensity (similar to the adjacent testis) on T2(B)-weighted images, while postcontrast T1(A)-weighted images show marked enhancement in cases of acute epididymitis. In chronic epididymitis, the epididymis is enlarged and demonstrates darker signal intensity than normal testis on T2(B)-weighted images. Hypervascularity, thickened scrotal skin, and reactive hydrocele may be evident.¹⁴

Treatment includes antitubercular therapy comprised of two months of initiation therapy with isoniazid (H), rifampicin (R), pyrazinamide (Z), and ethambutol (E) in fixed-dose combination and four months of continuation therapy with HR.¹⁵ Surgery, preferably an orchidectomy, is warranted when medical therapy fails or when the patient presents with advanced disease that shows features of scrotal ulceration with discharge.

Conclusion

Tubercular epididymo-orchitis should be kept as differential for long-standing cases with scrotal swellings and fistula, if associated, almost confirms the diagnosis in most cases. Treatment includes antitubercular therapy given extrapulmonary tuberculosis alongside excision if the lesions are chronic.

Lessons Learned

Tubercular entity should be kept as differential for any scrotal swellings associated with ulcer and discharge. Testicular salvage can be tried for uncomplicated lesions. In chronic cases, orchidectomy is required.

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