Scrotal tuberculosis: a case report and literature review

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ABSTRACT

Tuberculosis continues to be a public health problem and cases involving the genitourinary system are frequently observed, with the probability of any site within that system being affected. The urologist should always consider its diagnosis when there are any atypical urological symptoms that do not respond adequately to a given treatment. Tuberculosis diagnosis continues to be a challenge and radical treatment can end up being carried out if the disease has not been suspected and antituberculosis agents have not been used to resolve symptoms. The case of a 36-year-old man with scrotal tuberculosis is presented.

Keywords: Genitourinary tuberculosis, scrotal tuberculosis, Mexico.

RESUMEN

La tuberculosis continúa siendo un problema de salud pública y es frecuente observar casos que involucran al sistema genitourinario, con la probabilidad de afectar cualquier sitio del mismo. El diagnóstico siempre debe de ser considerado por el urólogo ante cualquier cuadro atípico que no presente adecuada respuesta al tratamiento instituido. En la actualidad el diagnóstico de la tuberculosis continúa siendo un reto y en ocasiones se llegan a realizar tratamientos radicales al no existir una sospecha que justifique la investigación de tuberculosis y el uso de antituberculosicos para resolver el cuadro. Se presenta un caso de tuberculosis escrotal en un hombre de 36 años de edad.

Palabras clave: Tuberculosis genitourinaria, tuberculosis escrotal, México.
INTRODUCTION

Today tuberculosis (Tb) continues to be a worldwide public health problem with greater prevalence in underdeveloped countries. Genitourinary Tb is a chronic granulomatous infection and after lymphatic dissemination is the most common extrapulmonary manifestation presentation worldwide, affecting up to 46% of patients. On rare occasions Tb can develop in the scrotum and differential diagnoses include orchiepididymitis, viral orchitis, hydrocele, spermatocele, testicular torsion, and scrotal trauma, or neoplasia. Scrotal Tb continues to be a difficult diagnosis for the physician, leading to radical treatment such as orchiectomy that could have been avoided with antituberculosis management.

The following case is a patient with increased scrotal volume and histopathological result compatible with tuberculosis.

CASE PRESENTATION

Patient is a 36-year-old man with genetic burden for high blood pressure. He is married, resides in Mexico City, and is a psychologist and behavioral researcher of birds and primates. He does not smoke or drink or live in an overcrowded environment. He owns his home and has access to all utilities. He has adequate hygiene and diet. Patient’s blood type is O positive, Combe sign (having been in contact with individual with Tb) was negative, and he had no important previous pathology. Symptoms began seven days prior characterized by left hemiscrotal volume increase of 5 mm with progressive growth, reaching 4 cm in three days, accompanied with slight pain upon mobilization with no lower urinary tract symptomatology or sexual alterations. Patient sought medical attention at the emergency room of the ISSSTE where he was evaluated by the urology service. Physical examination revealed no cardiopulmonary or abdominal disorders, unaltered inguinal region, external genitals in accordance with age and sex, medial penis, retractile prepuce, permeable central meatus, both testes in scrotal sacs with normal size and shape, non-painful epididymis of normal size and shape, right hemiscrotum with no alterations, and left hemiscrotum with mobile, irregular-edged, hardened, non-painful 2 x 2 cm tumor independent from testis and cord. Digital rectal examination (DRE) revealed normotonic sphincter and a smooth, euthermic, non-painful adenomatous prostate weighing 30 g with no malignancy data. Patient extremities were intact and he had no neurological disorders.

Scrotal ultrasound was done (Image 1) and patient was released and managed with antibiotics, anti-inflammatory agents, support measures, and local ice application. Left hemiscrotal tumor persisted and so the following laboratory work-up was ordered: PT 15.1, INR 1.1, PTT 50, Hb 15.9 g/dL, leukocytes 6.3 x 10^3 / μL, platelets 182 x 10^3 / μL, glucose 95 mg/dL, urea 23 mg/dL, creatinine 1.2 mg/dL, Na 141 mmol/L, K 4.4 mmol/L, Cl 107 mmol/L, AFP 1.97, beta hCG 0.0, and LDH 282. Surgical exploration revealed 4 x 2 cm hardened zone dependent on left scrotum that was completely resected with 20 mL blood loss. Intraoperative histopathological study reported chronic inflammatory granulomatous process. Antibiotic impregnation and support management was begun and patient was released after two days.

Final histopathological study reported chronic granulomatous inflammation compatible with tuberculosis. Ziehl Nielsen stain was positive for acid-fast bacilli (AFB) and Langhans multinucleated giant cells (Images 2 and 3). Extension studies of chest film and excretory urography were ordered and the latter showed multiple narrowing in distal third of right ureter (Image 4). Kidney ultrasound had no alterations, AFB in urine was negative, polymerase chain reaction (PCR) test was positive for Mycobacterium tuberculosis. ELISA test for HIV was negative.

Patient was referred to infectious disease service and intensive phase anti-tuberculosis management was begun with isoniazid 300 mg, rifampicin 600 mg, pyrazinamide 1600 mg and ethambutol 1200 mg for 10 weeks, Monday to Saturday. Support treatment was isoniazid 800 mg y rifampicin 600 mg three times a week.

DISCUSSION

Urogenital tuberculosis (Tb) is the second most common extrapulmonary form of Tb after lymphatic Tb. Genitourinary system involvement has been observed in up to 20% of pulmonary Tb cases, particularly in the kidneys (80%) and only 5% in the male genitals. Isolated genital tuberculosis is very rare and usually presents with concomitant kidney and/or lung disease. There are different causes of scrotal skin mass, such as scrotal sebaceous cysts that present with volume increase with or without pain that are mobile and easily separated from the epididymis and testis. In the past, squamous cell carcinoma of the scrotum was frequent in chimney sweeps who were exposed to carcinogenic substances. They were studied thoroughly and today the etiology is well-known. Likewise the use of psoralen...
to genitourinary tissues causing infection in the kidney, epididymis, testis, prostate, and seminal vesicles. Primary lesions cause granulomas that remain viable for decades and can be reactivated from a granuloma after a large period of inactivity. After initial exposure the mycobacterium lodges inside the macrophage and slowly begins to replicate. Bacilli remain latent for many years until they are reactivated and cause macrophage inflammatory response that in turn causes the formation of giant cell or Langhans cell granulomas. This response is dependent on the state of the patient’s immunological system. Sexual transmission is believed to be possible because the bacillus has been observed in the seminal fluid of patients with tuberculous postatitis. One of the possible explanations for attenuated inflammatory response is the slow growth of \( M. \) tuberculosis that produces progressive decrease in the host immune response. In a study carried out on scrotal Tb patients it was striking that Tb was initially suspected in only 17.2% of patients, suggesting that said diagnostic failure is largely due to the lack of suspicion on the part of the clinician, as in the present case, which at symptom onset was diagnosed and treated as infectious inflammation of the testis or epididymis. Ferrie et al. have reported abnormal findings in excretory urography in up to 75% of patients with epididymal Tb. In this type of Tb it is common to observe pain, scrotal mass, and heavy sensation as principal symptoms. Pain can irradiate to the inguinal, hip, or testicular regions.
Findings can be unilateral or bilateral accompanied with inguinal lymphadenopathy or hydrocele in up to 10% of cases. The patient described in this article did not present with associated symptomatology, making his case even more atypical.

Urinalysis is abnormal in 99% of urogenital Tb patients and sterile pyuria is a characteristic finding. Resected tissue culture in scrotal Tb patients is of vital importance given that *M. tuberculosis* growth is currently considered to be the criterion standard for Tb diagnosis.

Scrotal ultrasound is useful in the evaluation of testicular or extratesticular lesions and the most frequent ultrasound findings in one series were focal scrotal lesion (68%) and lesion heterogeneity (50%). It should be remembered that these findings are not specific for Tb and it is necessary to make differential diagnosis with tumors, epididymitis-orchitis, and testicular infarct. Epididymal Tb and orchitis do not show characteristic images. However, scrotal ultrasound can show a decrease in testicular echogenicity and testicular calcifications. Epididymal inflammation is not very specific for Tb.

All patients with suspected or confirmed urogenital Tb diagnosis should be studied to rule out coexisting human immunodeficiency virus (HIV) infection that is currently known to be one of the primary causes of immunosuppression that can predispose *M. tuberculosis* infection or reactivation. Normally Tb is diagnosed when granulomas are found in the histopathological specimens. Differential diagnosis should be made with *Mycobacterium bovis* and atypical mycobacteria such as *M. kansasi*, *M. leprae*, *M. avium*, and *M. fortuitum*. In order to make diagnosis it is essential to have clinical, pathological, and microbiological findings. It is worth mentioning that in contrast to what appears in the literature, the patient described here did not show any alteration suggestive of Tb in epididymis, testis, or prostate. He showed accelerated granuloma growth but with no triggering factor. This, together with other factors, was the reason Tb was not considered as the initial diagnosis.

Today these patients should be treated with initial anti-tuberculosis regimen based on rifampicin, isoniazid, pyrazinamide and ethambutol for two months and then with rifampicin and isoniazid for 6 months. Management of the present case began once diagnosis was made and currently is in the support phase.

Surgical management should only be resorted to in those patients in whom chemotherapy has failed and symptoms persist. Lesion resection is recommended after 4 weeks of anti-tuberculosis treatment. Due to the fact that scrotal Tb is a curable pathology, biopsy or resection of the mass for histopathological study and culture should be carried out opportunely for adequate diagnosis and therefore avoiding unnecessary surgery.
CONCLUSIONS

Urogenital tuberculosis is presenting more frequently worldwide as a consequence of hematogenic or lymphatic dissemination of the infection coming from the lung in patients with some type of immunosuppression. The physician is not easily oriented by clinical symptoms to suspecting Tb. Nevertheless it should be one of the obligatory differential diagnoses in any patient presenting with atypical urogenital symptoms. Opportune diagnosis is important so that useless and costly treatments can be avoided as well as surgical procedures that have no diagnostic support, allowing the patient’s symptoms to be resolved solely through antituberculosis treatment.

BIBLIOGRAPHY


