Case Report

Isolated tuberculous epididymitis presenting as a painless scrotal tumor

Victor Ka-Siong Kho, Pei-Hui Chan*

Division of Urology, Department of Surgery, Far Eastern Memorial Hospital and Medical Center, Banciao, New Taipei City, Taiwan, ROC

Received December 16, 2010; accepted May 21, 2011

Abstract

Genitourinary tuberculosis, the second most common extrapulmonary tuberculosis (TB), is very difficult to diagnose unless one maintains a high index of suspicion. Isolated tuberculous epididymitis (ITE), defined as tuberculous epididymitis without clinical evidence of either renal or prostate involvement, is a rare entity among genitourinary tuberculosis. When diagnosed correctly, ITE can be cured with anti-TB medications. However, patients with poor response to medical treatment may require surgery. Here, we report a 20-year-old man who presented with a slow-growing painless scrotal tumor for 2 months, with the initial workup suspicious for a right paratesticular tumor. Surgical resection of the tumor was therefore scheduled. However, severe pain and redness over the patient’s right hemi-scrotum were noted on the day of surgery. A repeat scrotal ultrasound was performed that revealed findings suggesting a chronic inflammatory process rather than a malignancy. Frozen section of the lesion confirmed the ultrasonographic findings, and the pathology established the diagnosis of ITE. The patient remained on anti-TB therapy postoperatively for 6 months and had an excellent outcome.

Keywords: genitourinary tuberculosis; isolated tuberculous epididymitis; orchiectomy; scrotal tumor; scrotal ultrasound

1. Introduction

The present incidence and prevalence of tuberculosis (TB) has not changed significantly for decades due to the emigration of people born in endemic areas of TB, the growing population positive for human immunodeficiency virus (HIV) infection, and the emergence of multidrug resistant strains of Mycobacterium. Despite strict implementation of control measures, TB remains one of the leading causes of death among notifiable diseases in Taiwan, with an estimated 15,000 new cases and approximately 8000 sputum-smear positive cases reported annually. Chang et al reported that the incidence and mortality rates of TB for aborigines in eastern Taiwan were 3.1 and 3.2 times higher, respectively, than the rates for the general population in Taiwan.

Extrapulmonary TB can develop in a variety of locations, with the skeletal, genitourinary tract, and central nervous system as the three most common extrapulmonary sites. Evidences from the literature suggest that the infecting Mycobacterium tuberculosis bacilli reach the kidney through hematogenous spread from the lungs, then spread down the ureter, bladder, and/or prostate. Isolated tuberculous epididymitis (ITE), defined as TB epididymitis without clinical and laboratory evidence of renal involvement, is usually rare and difficult to diagnose. Although the typical symptoms and imaging signs of epididymal TB have been described by Madeb et al, the definitive diagnosis of ITE can only be confirmed by positive cultures, Ziehl–Neelsen staining, and/or histopathologic examination. In this report, we present a case of ITE initially presenting as a scrotal tumor that was diagnosed by histopathologic examination of the surgical specimen and managed later with anti-TB medications for 6 months.

2. Case report

A 20-year-old man, recently discharged from military service in eastern Taiwan, came to our clinic due to a slow-growing painless scrotal tumor for the preceding 2 months.
He was healthy previously, without a history of pulmonary TB, and claimed he had received a bacilli Calmette–Guerin vaccination during infancy. Physical examination revealed an afebrile male with a 5 × 2-cm non-tender, irregular, nodule in his right hemi-scrotum. Digital rectal examination revealed a non-tender, firm, and rubbery prostate. Urinalysis was normal, without evidence of pyuria, and his complete blood count, biochemistry, C-reactive protein, alpha-feto protein, and beta-human chorionic gonadotropin levels were all within normal limits, with only the lactate-dehydrogenase slightly elevated. Chest X-ray was clear, and the abdominal computed tomography scan showed a 5.2-cm heterogenous lesion over the right paratesticular region involving the epididymis (Fig. 1), with both kidneys normal in appearance (Fig. 2). A scrotal ultrasound also revealed a 5.2-cm solid heterogenous paratesticular tumor.

With tentative diagnosis of a paratesticular tumor, the patient was scheduled for a high right inguinal orchiectomy. However, on the scheduled operation day, severe pain with erythema was noted over the lesion site (Fig. 3).

A scrotal ultrasound was repeated, showing that the previous solid heterogenous lesion had become a focal anechoic lesion with calcifications and internal echoes, which was compatible with a chronic inflammatory process. An exploration of the right testis was performed through an inguinal incision. Approximately 20 mL of purulent pus with caseous necrotic epididymal tissues was noted intraoperatively (Fig. 4). Frozen sections of the necrotic tissues were sent for examination and revealed chronic granulomatous inflammation. The testis was then preserved, and the pus was sent for cultures and Ziehl–Neelsen staining. The remaining necrotic tissues were sent for pathologic examination. The patient’s urine was negative for TB culture and Ziehl–Neelsen staining. Nevertheless, pathologic examination of the necrotic tissues showed caseating granulomatous reaction with Langhan’s giant cells, (Fig. 5A), and with positive Ziehl–Neelsen-stained bacilli (Fig. 5B). The pus culture later was also positive for M. tuberculosis. The patient was then treated with a four-drug combination (isoniazid + rifampicin + ethambutol + pyrazinamide) of anti-TB for 2 months, followed by triple-drug (isoniazid + rifampicin + ethambutol) therapy for 4 months. He remained stable at follow-up, with both testes intact inside the scrotum (Fig. 6). He tested negative for HIV infection during follow-up at the clinic.

3. Discussion

Despite advances in anti-mycobacterial therapy and strict implementation of well-known TB control measures, the prevalence and incidence of TB remains high worldwide. Epididymal TB, which accounts for about 20% of genitourinary tuberculosis, is believed to result from a retrograde
spread of prostate TB, which is usually secondary to a renal TB. ITE, which is defined as TB epididymitis without clinical and laboratory evidence of renal involvement, is a rare and hard-to-diagnose disease entity. However, some authors have disputed the existence of true ITE since initial imaging studies or microscopic examination of the urine may fail to reveal a renal lesion. In addition, urine culture can be falsely negative due to its low sensitivity (as low as 50%). Ross et al reported that renal TB or positive urine culture could develop during the later course of the disease (ITE). ITE is usually seen in young adults. In a review of 40 ITE patients, Viswaroop et al reported the median age was 32 years (range 21–37 years); our patient falls into this age category. ITE can be either the clinical onset of HIV infection or caused by intravesical bacilli Calmette–Guerin instillation of superficial bladder cancer. Clinically, ITE usually presents with a painful scrotal swelling; however, it can also present as a painless scrotal mass, acting as a first clue to the presence of TB infection of the prostate and seminal vesicles. Irritative voiding symptoms commonly seen in acute inflammation of the epididymis and testis are not common in ITE, as was noted in our patient. Typically, ITE occurs unilaterally, but bilateral involvement has also been reported.

Up until now, ITE has shared the same imaging findings as those of other chronic inflammatory processes or testicular tumor. Commonly used imaging modalities such as scrotal ultrasonography, computed tomography scan, or magnetic resonance imaging may show diffuse or focal heterogeneous lesions in the enlarged epididymis, with or without hydrocele, septation, extratesticular calcification, scrotal abscess, or scrotal sinus tract. Therefore, correct preoperative diagnosis of ITE relies on having a high index of suspicion. A definitive diagnosis of ITE is based on pathological material obtained from fine-needle aspiration cytology or surgical resection of the epididymis. However, as we know, fine-needle aspiration is contraindicated in a patient presenting with a painless scrotal tumor, because if a malignancy is
proven later, possible lymphatic spread of malignant cells may occur during aspiration cytology.

ITE can be cure by anti-TB medications, with a combined oral regimen of isoniazid, rifampicin, ethambutol, and pyrazinamide given daily. Suggested duration of therapy varies from 2 months to 2 years, although a 9- to 12-month regimen is generally accepted. Currently, the standard treatment for genitourinary tuberculosis in Taiwan consists of 2 months of quadruple-drug therapy, followed by a triple regimen for an additional 4 months, which our patient received immediately after pathologic confirmation of ITE. The present consensus recommends surgical intervention if there are no signs of resolution within 2 months of medical treatment or if intrascrotal abscess is identified. Surgical resection (epididymo-orchiectomy) is usually reserved for patients who do not respond to medical therapy.

In conclusion, we have presented a case of ITE, the initial presentation of which was a painless scrotal tumor. ITE is a very rare disease entity which usually presents as a painful scrotal tumor. Nevertheless, ITE can also present as a painless scrotal tumor. The differential diagnosis includes malignant testicular and paratesticular tumors and inflammatory conditions such as epididymitis and epididymo-orchitis. It is difficult to achieve an early and correct diagnosis, which sometimes leads to unnecessary orchiectomy. A high index of suspicion cannot be overemphasized. ITE is usually curable with anti-TB medication, while surgical resection (epididymo-orchiectomy) is reserved for patients who do not respond to medical therapy. We also recommend a scrotal ultrasound for patients when the initial diagnosis of painless scrotal tumor has become questionable, to prevent unwarranted orchiectomy.

References