**SUMMARY**

There is little information in Peru on the association of tuberculous orchiepididymitis in relation to immunosuppressed patients, being an endemic country of tuberculosis and there is an increase in the prevalence of chronic non-communicable diseases such as diabetes, producing wrong diagnoses. We present the case of a 70-year-old man with a history of type 2 diabetes mellitus who was admitted to the outpatient clinic due to dysuria and frequency. On physical examination, a hard, non-painful right testicle, the ultrasound showed signs of epididymal abscess in the scrotal wall of the Right testicle, which is why an infected neoplasm is suspected, and a right orchiectomy is performed, later in the histological study, multinucleated Langhans-type giant cells with granulomatous areas suggestive of tuberculosis are shown, which is why it is proposed that in the presence of urological symptoms in immunosuppressed patients, it is ruled out tuberculosis.

**Keywords:** Tuberculosis, Orchitis, Epididymitis, Hyperglycemia (MeSH)

**INTRODUCTION**

About 15% of extrapulmonary TB represents genitourinary tuberculosis; since it is the second common manifestation in the countries of Europe. Commonly infected sites are the epididymides, seminal vesicle, prostate, and testes (1).

Genital TB is rare, and testicular TB even rarer, comprising only 3%. Thus, scrotal infection by Mycobacterium tuberculosis occurs in 7% of patients; (1) being the most common site of genital TB, the epididymis, followed by the seminal vesicles, the prostate, the testicles and the vas deferens. As the epididymis is affected first, orchitis occurs by contiguous extension and reflects a late stage of the disease. Other authors postulate dissemination through the pelvic lymphatic system and venereal transmission (2), with middle-aged men being the most affected.

According to the World Health Organization in 2016, it was estimated 10.4 million new cases of active tuberculosis (TB) per year, and 1.8 million deaths in 2015 due to Mycobacterium tuberculosis (3).

The global prevalence of diabetes is 8.3%; in Latin America, the prevalence of diabetes is 5% and in Peru there is not enough epidemiological data on DM; however, some studies suggest a prevalence of 5 to 7% (4).

The association between TB and DM was described in the middle of the...
20th century. The evidence supports the hypothesis that DM increases susceptibility to developing TB due to immunodeficiency (5). However, the emergence of comorbidities such as HIV/AIDS and diabetes mellitus (DM) jeopardizes the goal of global elimination of TB by 2050 (6).

In Peru, the evidence on the effect of DM and TB is scarce; only one cohort study in patients at high risk of resistant TB was associated with 11% with DM (7).

Through this case, it is proposed that in the presence of urological symptoms in immunosuppressed patients, tuberculosis should be ruled out before any surgical procedure, on the other hand, it is proposed to analyze the relationship that exists between the state of immunosuppression of patients with DM and the extrapulmonary forms of tuberculosis. tuberculosis, emphasizing the testicular presentation.

PRESENTATION OF THE CASE

A 70-year-old man from Huancayo-Junín, with a history of insulin-dependent type 2 diabetes mellitus, prostatectomy 10 years ago, and intermittent urinary infection without response to antibiotic treatment. Patient is admitted with dysuria and frequency of 1 month evolution; He denies contact with tuberculosis, fever, sweating and weight loss. On examination: pain in the lower abdomen, PRU positive. Right testicle of hard consistency, not painful; normal left testicle. Laboratory analysis: leukocytes 7,650 cells/mm³, Hb 16.99 gr/dl, platelets 507,000 cells/mm³, glucose 195 mg/dl, glycosylated hemoglobin 7.3%. Urine test: glucose ++, leukocytes and red blood cells 1 per field and BAAR in urine x 2 negative. Prostatic Specific Antigen 2.69 ng/ml. Ultrasound: Right testicle of 34x13x25mm, echo hard structure, signs of epididymal abscess and scrotal wall. Left testicle with normal shape, echostructure and size (36x14x23mm), without signs of varicocele, hydrocele. Grade 3 prostatic hyperplasia and kidney stones. Infected testicular neoplasia was suggested and a right orchiectomy was performed. Macroscopic study: right testicle plus epididymis 8x4cm, smooth surface; On cut, yellowish brown stroma with a focus of purulent secretion. Histopathology: positive staining for acid-fast bacillus (AFB), areas of fibrosis and mixed inflammatory infiltrate with the presence of giant multinucleated Langhans-type cells with granulomatous

FIGURE 1: Histology of the right testicle showing seminiferous ducts with chronic inflammatory infiltrate and formation of incomplete granulomas with the presence of Langhans-type giant cells.

FIGURE 2: Computed tomography of the chest in the pulmonary window where no tomographic signs of parenchymal lesion suggestive of tuberculosis are observed.
areas suggesting a specific tuberculous process. (Figure 1). A diagnosis of tuberculous orchiepididymitis was made and antituberculous treatment was started with isoniazid, rifampin, pyrazinamide, and ethambutol (2HRZE + 4HR) for 6 months. The patient evolved favorably.

**DISCUSSION**

Tuberculosis is caused by the aerobic, non-motile, airborne Mycobacterium tuberculosis. Pulmonary tuberculosis (TB) is the most common type and represents 70% of cases, spreading especially in immunocompromised patients and young children. Spread of TB to the testis can result in secondary infection of the epididymis. (8)

In relation to the case, we observed an important history of being an insulin-dependent diabetic, therefore an immunocompromised person who, according to the evidence, describes the risk of up to three times more possibilities of becoming infected and developing TB and being able to develop extra-pulmonary disease between 15% and 28%. of which genitourinary tuberculosis was the outcome of our patient; however, the involvement of other organs such as the prostate, seminal vesicle, vas deferens, testicle, penis and epididymis is also reported as a frequent complication (6). Thus, it is pointed out that genitourinary TB represents 5% of cases of extrapulmonary tuberculosis, the most frequent location being the epididymis, as it was in the case presented (7).

At the age of 40 years, urogenital tuberculosis is twice more frequent in men than in women, suggesting that the presence of urinary symptoms and sterile pyuria has renal compromise. On the other hand, a pulmonary alteration can be visualized in the imaging study even in 75%. In our case, the patient reported having presented dysuria and intermittent frequency with an evolution time of up to one month, coinciding with the literature (6); however, no apparent primary pulmonary focus was found since the chest tomography did not show characteristics of having HA1C greater than seven is a risk factor for latent tuberculosis (9). In addition, there are differences in the pharmacokinetics of drugs for TB and DM and other comorbidities such as hypertension or obesity, which leads to a higher risk of death and relapse (10).

Regarding the presence of DM, data indicate that having HA1C greater than seven is a risk factor for latent tuberculosis (9). In addition, there are differences in the pharmacokinetics of drugs for TB and DM and other comorbidities such as hypertension or obesity, which leads to a higher risk of death and relapse (10).

In our case, a patient with immunosuppression, diabetes, compatible symptoms, and histology with epithelioid granulomas, caseous necrosis, and Ziehl-Neelsen staining confirmed the diagnosis.

The evidence recommends antituberculous treatment with the usual regimen of isoniazid, rifampicin, pyrazinamide, and ethambutol (2HRZE + 4HR) for 6 months, through which cure rates of 95% are obtained. However, surgical intervention may be necessary; especially in severe cases, such as no clinical response to treatment, increased testicular size, and edema or abscess formation (11).

One of the challenges that occurs in patients with DM-TB is therapeutic management, since it has been shown that the levels of anti-TB drugs in plasma are below therapeutic values (12). This, added to hyperglycemia, makes management difficult.

There are still no randomized studies that evaluate an adequate treatment for TB-DM, and there is not enough evidence to evaluate the effect of insulin or metformin (13), with the use of insulin being recommended in Peru (14).

In endemic countries such as Peru, patients with symptoms such as long-standing dysuria and frequency, scrotal mass, or chronic epididymitis should be evaluated for tuberculosis. This would significantly reduce any delay in establishing a diagnosis which would increase the chances of quick management and recovery. A surgical approach should be considered only in cases where the diagnosis is not clearly established or when there is a strong clinical indication.

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References


