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By Yassine Ben Lahlou

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A hydrocele revealing epididymal tuberculosis

--Manuscript Draft--

A hydrocele revealing epididymal tuberculosis

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Data summary

No data was reused or generated

Summary

Urogenital tuberculosis is a severe form of extrapulmonary tuberculosis. The organs most commonly affected are the epididymis and the testis. Clinical manifestations may include epididymitis, orchi-epididymitis, hydrocele, associated with leukocyturia, and significant hematuria.

We report a case of a patient with a hydrocele that revealed epididymal tuberculosis.

Introduction:

Tuberculosis (TB) is a public health problem, especially in developing countries. Urogenital tuberculosis, known as a severe variant of tuberculosis, constitutes 20-73% of all extrapulmonary cases [1]. Among the organs affected, the epididymis and testis are the most commonly involved. However, epididymal localization remains relatively rare [2].

In this report, we present a case of a patient with a hydrocele that revealed epididymal tuberculosis.

Observation:

This is a 70-year-old man from Tangier, in the north of Morocco. He is a chronic and active smoker, with a medical history of Chronic Obstructive Pulmonary Disease (COPD) and rheumatoid arthritis, for which he is receiving immunosuppressive treatment.

The patient presented with a left hydrocele, along with a one-month history of mild scrotal pain. Upon clinical examination, the patient was in a satisfactory overall condition, with no signs of hernia and a soft lower abdomen. The appearance of the penis was normal, while the scrotum displayed fluid accumulation. Scrotal ultrasound revealed a significant amount of fluid in the left hydrocele and a smaller amount in the right hydrocele.

Subsequently, surgical treatment was undertaken, during which epididymitis was identified. An intraoperative unilateral epididymectomy was performed. In terms of laboratory findings, the cyto-bacteriological examination of urine was negative for bacterial growth but showed elevated leukocyturia (37.10^3 /ml) and haematuria (13.10^3 /ml).

Further testing using a molecular biology assay (GenXpert®) on the epididymectomy specimen confirmed the presence of *Mycobacterium tuberculosis*, without any indication of rifampicin resistance. However, a urine test specifically for *Mycobacterium tuberculosis* was not conducted. The histopathological examination of the epididymectomy specimen supported the bacteriological diagnosis, revealing caseous-follicular granulomatous epididymitis consistent with a tubercular origin. Consequently, the patient was initiated on the recommended anti-bacillary treatment.

Discussion:

Tuberculosis continues to be a significant global public health issue. The World Health Organization (WHO) reports that more than 10 million people contract active tuberculosis each year, with 1.6 million deaths resulting from the disease [3]. Urogenital tuberculosis, considered as a severe form of tuberculosis, accounts for 20 to 73% of all extrapulmonary cases [1, 4]. The epididymis (22%) and testis are the most commonly affected organs, followed by the bladder, ureter, prostate, and penis.

In most cases, involvement is unilateral [2, 5]. This was our patient's case. While the average age of onset is typically between 38 and 40 years [2], TB can affect individuals of all age groups, including children. Risk factors such as immunosuppression, smoking, and alcoholism increase the susceptibility to

urogenital tuberculosis. Our patient has two risk factors related to smoking and immunosuppressive therapy.

The manifestations of urogenital tuberculosis can vary, with epididymitis [5, 6, 7] or orchi-epididymitis [8] being common presentations. However, it can also be revealed by the presence of a seemingly ordinary hydrocele [5, 7, 9, 10] or present as a pseudotumoral appearance. In our patient's case, the hydrocele was the presenting symptom that led to the consultation.

Several theories have been proposed regarding the route of infection of the epididymis in tuberculosis. While the ductal route, where the infection ascends along the path of sperm from the prostate and seminal vesicles, has been implicated, hematogenous dissemination may also be responsible for cases of tuberculous epididymitis without renal involvement or *Mycobacterium tuberculosis* detection in the urine. Lymphatic involvement is also recognized [2]. In rare instances, tuberculous epididymitis can result from venereal transmission.

Due to the variability of clinical symptoms, diagnosing urogenital tuberculosis can be challenging [11]. Therefore, identifying additional diagnostic clues is important. Biologically, hematuria and/or leukocyturia are commonly observed without the isolation of any specific bacteria on standard culture media. Our patient exhibited significant leukocyturia and hematuria (37.10^3/ml and 13.10^3/ml, respectively) in sterile urine.

In our case, molecular biology testing provided a definitive diagnosis. This diagnostic tool is highly valuable for paucibacillary specimens due to its high sensitivity, specificity, and rapid results, facilitating prompt management and preventing complications [12]. While the most common complication of epididymal tuberculosis is the potential impact on fertility due to seminal tract obstruction or testicular necrosis caused by caseous necrosis [5, 11], it can also lead to severe, life-threatening complications such as psoas abscess and Addison's disease [13].

In terms of treatment, the national tuberculosis protocol involving rifampicin, isoniazid, pyrazinamide, and streptomycin was followed. Some authors have reported success with treatment involving rifampicin injection into the testicular vagina, enabling higher concentrations to be achieved in contact with the lesion [11].

Conclusion:

The case presented highlights the importance of considering tuberculous epididymitis as a possible diagnosis when encountering a hydrocele, particularly in an endemic setting. It emphasizes the value of employing molecular biology testing for such cases, enabling accurate detection of *Mycobacterium tuberculosis*.

Ethical approval

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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Author contributions

Yassine Ben Lahlou**:** Conceptualization 8b73531f-db56-4914-9502-4cc4d4d8ed73.

Zakaria Laanibi, Zakaria Malihy: Data curation f93e0f44-f2a4-4ea1-824a-4e0853b05c9d.

Elmostapha Benaissa, Adil Maleb: Methodology f21e2be9-4e38-4ab7-8691-d6f72d5d5843.

Mariama Chadli, Mostafa Elouennass,: Validation 4b1bf348-faf2-4fc4-bd66-4cd3a84b9d44.

Conflict of interest statement

The author(s) declare that there are no conflicts of interest.

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