

## Multifocal Tuberculosis in Immunocompetent Patients through a Clinical Case at Mohamed V Rabat Military Hospital, Urology Department

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### Abstract

### Case Report

Tuberculosis is a real public health problem still rampant in an endemic fashion in developing countries. Multifocal forms are observed in immunocompromised patients but can also be observed in immunocompetent subjects. Often misleading aspects, and which can mislead the diagnosis. The authors reported the case of a 32-year-old young man with no particular medical history, immunocompetent, received with acute obstructive renal failure from the outset anuric associated with orchiepididymitis, pulmonary and vertebral involvement on CT scan without physical signs, progressing well under treatment. This form of multifocal tuberculosis can be life-threatening and requires early diagnosis and urgent management.

**Keywords:** Multifocal tuberculosis, acute obstructive renal failure, anuria, orchiepididymitis, tuberculous spondylolysis.

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## INTRODUCTION

Multifocal tuberculosis (TBCMF) is a real public health problem in developing countries, particularly in Morocco, its multiple aspects which can mislead to misdiagnosis.

It is a serious condition with a mortality estimated between 16% and 25% [1-2], affecting in the majority of cases immunocompromised patients, immunocompetents are not being excluded.

The frequency of multifocal tuberculosis is 9% to 10% according to the literature [3]. It is defined as involvement of at least two sites more or less associated with pulmonary involvement.

We are reporting to you a clinical case of TBCMF (pulmonary, urogenital and vertebral L5-S1 involvement) in the HMIMV RABAT of 04/12/2021 which resulted in an obstructive ARI with anuria from the start in an immunocompetent.

## OBSERVATION

28-year-old patient with history of inguinal hernia treatment a year ago, no hypertension or

diabetes. Consult the emergency room for bilateral nephritic colic accompanied by fever, without any notion of tuberculosis contagion.

As a little story, the beginning dates back to 6 days of his admission to the emergency room by installation of a bilateral nephritic colic with low grade fever accompanied by a progressive onset of micturition burning secondarily complicated by anuria from the outset, all evolving in a context of deterioration of his general condition motivating the patient to consult the emergency room.

On admission, EG at 15/15 stable on hemodynamics and pleuropulmonary BP at 120 / 80mmhg.

HR at 110 beats per minute, a respiratory rate at 26 cycles per minute, a fever of 38 degrees, a 45kg, a height of 160 cm, a pulsed oxygen saturation at 95%.

Urological examination: no lumbar contact, no renal sloshing, but there is excused pain in both lumbar fossae. There is an absence of bladder.

Examination of the external genitalia reveals a purulent discharge that appears yellowish when the finger is pressed on the glans.

There is a slight swelling of both testicles plus a very painful palpation suggesting tuberculous orchiepididymitis. The perineal examination does not show any particularity The TR: normotonic sphincter, a small hemorrhoidal bead at 7 o'clock.

The spine exam is normal. No neurological and bone manifestations, part of a pain point between L5-S1. The rest of the exams are unremarkable.

Frontal pulmonary x-ray: describe diffuse micronodular opacities regularly distributed at the level of the two pulmonary fields suggestive of miliary tuberculosis Figure 1.

Thoracic scanner: Shows an irregular cavity with centrilobular micronodules in the left apical segment and moderate pleural effusion predominant on the right, suggestive of pulmonary tuberculosis. Figure 2, 3

Uroscanner: Right kidney: increased in volume (137x75x80mm) with a CPD at 15 mm the pyélon, lumbar ureter at 6.7mm, pelvic ureter at 8mm, Left kidney: calyceal dilation with filiform ureter, callus microlithiasis arranged in 9x7mm clusters, disco process. Vertebral between L5-S1 with partial lysis of the upper vertebral endplate of S1: spondylodiscitis Figure 4, 5.

Biological evaluations were requested which revealed very compromised renal function: CRP at 150, Créât at 148 mmol / L, DFG at 3; GB at 17000, HB at 11.2g / dl

The patient is admitted to the operating room with the aim of placing probe bilateral JJ. This procedure was unsuccessful, due to the reorganization and invasion not only of the bladder mucosa but also of the almost invisible ureteral meatus, because of fibrin deposits. On the next day, considering impairment of

renal function markers and increased inflammation again, the patient underwent three dialysis sessions followed by bilateral nephrotomy under CT-guide. The result was marked by an improvement in renal function with DFG from 3 to 35, Creat from 148 to 46 mmol / L.

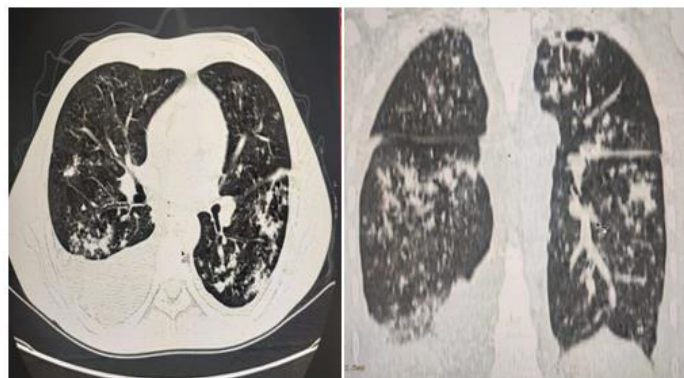
The HIV serology was negative, the AFB tests were positive in the urine of the three successive days and in the sputum with the genExpere.

The patient is put on anti-tuberculosis treatment adapted to renal function gradually based on Rifampicin, isoniazid, ethambutol, pyrisinamide and urination is established on day 3 of treatment.

The patient is reviewed at 3 months after treatment with a spinal MRI showing a vertebral hemiblock of L5-S1, without abnormal bone alterations or signs of infiltration or épidurite Figure 6.



**Fig-1: Chest X - Ray of the thorax: shows miliary tuberculosis**



**Fig-2, 3: Chest CT: Pulmonary tuberculosis image above**

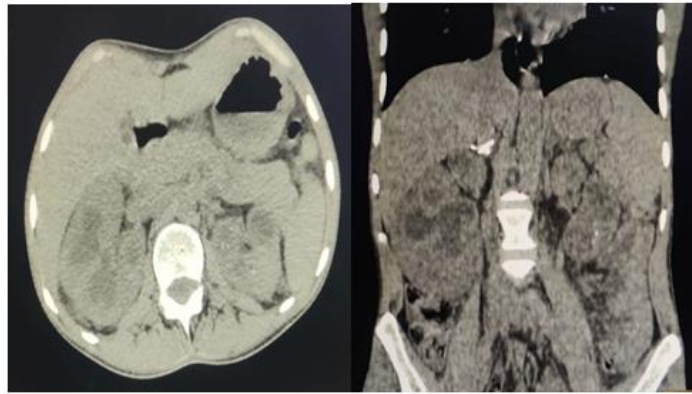


Fig-4, 5: Uroscanner aspect of bilateral hydronephrosis with tuberculous pyelitis



Fig-6: Vertebral MRI: after 3 months, shows vertebral hemiblock of L5-S1

## DISCUSSION

TBC is a growing condition, particularly with the advent of HIV, with 8 to 16 million new cases per year. Multifocal or diffuse tuberculosis is a serious form of extra-pulmonary manifestation. It has been clearly demonstrated that the risk of developing extra-pulmonary disease is proportional to the degree of the immune deficiency [4].

Several hypotheses have been put forward to explain the occurrence of this serious form of tuberculosis in immunocompetent patients. Some authors have been able to establish a relationship between diffuse tuberculosis and the intensity of transmission in the community [5]. Others implicate malnutrition as a contributing factor [6].

And represents 10% of diffuse forms (in diffuse forms the urogenital TBC represents 14% to 41% and bone tuberculosis represents 10 to 15%) [7]. Mortality remains high in immunocompromised patients in 66% of cases without excluding immunocompetent relating to our clinical case. Diffuse

with association with urogenital involvement is very rare, ie 9% to 10% of extra pulmonary manifestations. With a pejorative prognosis of 10% to 25% of deaths according to authors [7, 8].

Urogenital tuberculosis is like all other forms of TBI, secondary to an infestation of bacteria of the genus *Mycobacterium tuberculosis*. The most common species is *mycobacterium tuberculosis*, but the *mycobacterium bovis* can also be virulent in humans. It has been clearly shown that the risk of developing extra-pulmonary expectations is proportional to the degree of immune deficiency [9]. In our clinical case the localization was threefold apart from any immunodeficiency. Several hypotheses have been put forward for the occurrence of this severe form in immunocompetent persons. Some authors have been able to establish a relationship between TBCMF and the intensity of transmission in the community [8]. Others implicate malnutrition as a contributing factor [8]. CATHERINOT [9] described the syndrome of Mendelian susceptibility to mycobacteria infections by the existence of an interleukin 12 axis defect - gamma interferons and exposing to TBCMF. Mode of dissemination: the renal localization of tuberculosis is secondary to a primary infection that went unnoticed.

Urinary tract involvement initially occurs via the hematogenous route [7]. Which explains the frequent bilaterality of urinary lesions, which do not evolve in symmetrical ways. Kidney damage progresses from the cortex to the medulla [8]. Tuberculous follicles cluster together and form tuberculomes, then several tuberculomes form caverns that exclude or communicate with the excretory tract allowing the passage of koch bacilli in the urine, the starting point of stenosing lesions.

The most frequent locations are the kidneys, the pyelo-ureteral junction, the bladder and the epididymis [9]. Circumstance of discoveries: diagnoses often difficult because rarely mentioned is based on chronic epididymitis, repeated cystitis, leukocyturia without germ which and the most frequent mode of discovery [7, 9].

Finally, it is necessary to know how to evoke this diagnosis in the face of macroscopic hematuria, lumbar pain or nephretic colic in the absence of other aetiologies, as this clinical case reveals.

### Diagnostic

In addition to symptoms related to renal dissemination in ureteral involvement, most often tuberculosis will present clinically in the form of banal cystitis. The diagnosis is evoked by a pyuria without germ [9] an epididymitis. 50 to 75% of men have a radiological abnormality in the urinary tract. An assessment of the entire urinary tract is indicated, a uroscanner and a chest x-ray [10].

### Vertebral bone manifestations

Pott's disease is an often-multistage osteomyelitis of the spine, which one or more vertebral bodies can cause fractures, compression, axis defects of the column in kyphosis or scoliosis, ligaments and soft tissues are affected, compression of the marrow by a cold abscess or by direct invasion.

The clinic is often insidious and therefore responsible for a long diagnostic delay, leading to neurological complications. The most common, and sometimes unique, symptom is back pain greater than 80% [9].

Neurological complications in tuberculous spondylodiscitis represent ten to twenty percent of patients in developed countries and up to 40% in developing countries, abscess of posas is relatively common, occurring in a quarter of cases [8], more rarely a pseudoaneurysm the aorta or a retro-pharyngeal abscess have also been reported. The diagnosis is based on imaging, MRI with the presence of multiple and staged lesions.

### Bacteriological diagnosis: confirmatory examination

It is done by isolation of the germs in the urine or a biopsy. AFB can be found. Nuclear PCR amplification techniques can be used to demonstrate mycobacterial DNA, culture.

### Treatment

In general drug treatment urogenital TBC and tuberculous spondylodiscitis respond to the same therapeutic regimen which initially includes four first-line drugs: isoniazid, for two months, Rifampicin, Pyrisinamide and Ethanbitol: followed by a consolidation phase with dual therapy: isoniazid and rifampicin for up to months [10]. In order to improve treatment direct supervision of treatment is recommended by WHO in some cases.

The treatment will be prolonged in case of immunosuppression and ethanbitol will be added for the first two months in case of resistant BK.

Corticosteroid therapy is sometimes added to limit the risk of fibrosis. In practice, Isoniazid, rifampicin, and pyrisinamide: 1cp /10kg of weight without exceeding 6cp / day for two months. Then rifampicin and isoniazid: two CP / day for 4 months.

Surgical treatment of fixed lesions, inaccessible to medical treatment alone. It must be as conservative as possible. It most often consists of treating ureteral stenosis by re-permeabilization or placement of a JJ catheter, or bladder retraction by interposition of the small intestine (enlargement enterocystoplasty). A destroyed kidney may also have to be removed (nephrectomy) when it is symptomatic (hypertension, repeated infection, hematuria, intractable pain).

The patients are reviewed at 3, 6 and 12 months with ECBU three days in a row on the morning urine, an Uroscanner, renal, hepatic and CBC assessment.

Surgical treatment for vertebral damage is not systematic and must be discussed with the surgeon on a case-by-case basis; severe neurological damage with direct compression of the spinal cord is a clear indication for surgery. Often the inflammatory process is the origin of neurological deficit which resolves with drug treatment. In severe neurological damage, steroids can be used.

Follow-up by MRI in cases of disease progression despite well-conducted medical treatment with deformity of the spine at one month and then at the end of two months according to the results of the initial imaging.

## CONCLUSION

Multifocal tuberculosis is a form of manifestation of extra-pulmonary TBC, usually the prerogative of immunocompromised patients without forgetting that the immunocompetent are also affected. This is a real public health problem, a debilitating pathology discovered late by spinal cord compression.

It is therefore important to carry out an exhaustive assessment of the dissemination in a systematic way to lead to better management with a well-codified therapeutic scheme.

The prognosis depends on the one hand on the early diagnosis and initiation of anti-tuberculosis drugs and on the other hand on the organ affected.

The end of treatment must be marked by monitoring at 3 months, 6 months, 12 months with assessments: renal function, hepatic assessment, NFS, ECBU three successive days on the morning urine, Uroscanner, MRI.

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