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## Case Report

# A rare localization of tuberculosis of the wrist: The scapholunate joint

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## ABSTRACT

The tuberculosis of the hand and the wrist is a rare entity. Affecting the scapholunate joint is exceptional. It is usually diagnosed at an advanced stage of carpal destruction, due to slowly development of the symptoms. We report the case of a 58-year-old female, presenting as wrist pain for 3 months. Clinical study showed a local swelling in the left wrist, the mobility of the wrist was normal but painful at the end of motion. The diagnosis of osteoarticular tuberculosis was suspected after radiological and biological study then confirmed after histological study. Antibacillary chemotherapy during 12 months promoted healing and good outcome.

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## Introduction

Tuberculosis (TB) remains one of the most worldwide spread infectious diseases. Tunisia is an endemic country with an incidence of 22.4 by 100,000 inhabitants in 2010. The osteoarticular localization is rare; affecting the hand and the wrist remains exceptional (2–4%) [1].

Each specific location of TB in the wrist and the hand has its own symptomatology. The affection of the wrist typically begins in the scapholunate joint. The diagnosis is usually delayed and misdiagnosed, but when discovered at an early

stage, a well-followed medical treatment is usually enough to provide full healing.

## Case report

This study reports the case of a 58-year-old female. She is a primary school teacher, without any pathological history. She presented with mechanical pain in her left wrist for 3 months, without any history of trauma or septic inoculation. She indicated a low-grade fever and asthenia. The clinical study showed a local swelling in the left wrist, and the

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mobility of the wrist was normal, but painful at the end of motion.

An intradermal tuberculin reaction test was conducted, which was positive (18 mm). The analytical study showed elevated acute phase reactants (erythrocyte sedimentation rate: ESR = 70 and C-reactive protein: CRP = 58) and a normal rate of white blood cells.

The radiological study showed a lytic proximal scaphoid image. Magnetic resonance imaging (MRI) of the wrist showed a lesion of the scapholunate joint and tenosynovitis of the extensor tendons (Fig. 1).

The histological study after surgical biopsy revealed caseating giant cell granulomas with epithelioid cells confirming the diagnosis. Another localization of TB was eliminated.

Anti-bacillary chemotherapy over a 12-month period (associating isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months, then carried on by isoniazid and ethambutol for the next 10 months) promoted healing and a good health outcome in this patient: disappearance of the pain after 4 months of treatment, osseous reconstruction and normal range of motion after 18 months (Figs. 2 and 3).

## Discussion

The incidence of TB has increased, even in the developed countries. Several risk factors can be considered responsible for the increased incidence of TB: the absence of BCG vaccination, trauma or immunodeficiency (which can reactivate a pre-existing tubercular infection), and low socioeconomic status (which seems to be the major factor) [2]. The osteoarticular TB arrives in the fourth position after pulmonary, urogenital and ganglionic localization. The vertebral localization remains the most frequent one.

TB of the hand and wrist is the rarest osteoarticular localization after the shoulder. It represents 2-4% of all the localizations of the musculoskeletal system [3]. The osseous inoculation is usually hematogenous from an active or sleeping pulmonary or gastrointestinal source. TB of the wrist evolves slowly over several years, from an early stage where pain and swelling are the most common presenting features,



Figure 2 – Osseous reconstruction after 18 months.

until an advanced stage of articular destruction with abscess discharges [4].

At an early stage, radiological signs are little suggestive [5]. This involves a diffuse osteoporosis within which a discreet irregularity of the radiocarpal surfaces can be revealed. The tomography can then be more specific. A geode and a joint space narrowing are more suggestive. The geode is usually in the scaphoid or the semi-lunar, without sequestration. It is a variable-sized joint space. The radiological signs evolve with the clinical picture. Multiple geodes, the articular spaces disappearing, all the joints are affected including the Trapezio-metacarpal joint, and all the bones are nibbled, deformed within a significant radiological blurring. It is the stage of articular destruction.

This localization has a double etiopathogeny [6]. The affection is straightaway articular in two thirds of the cases, and it

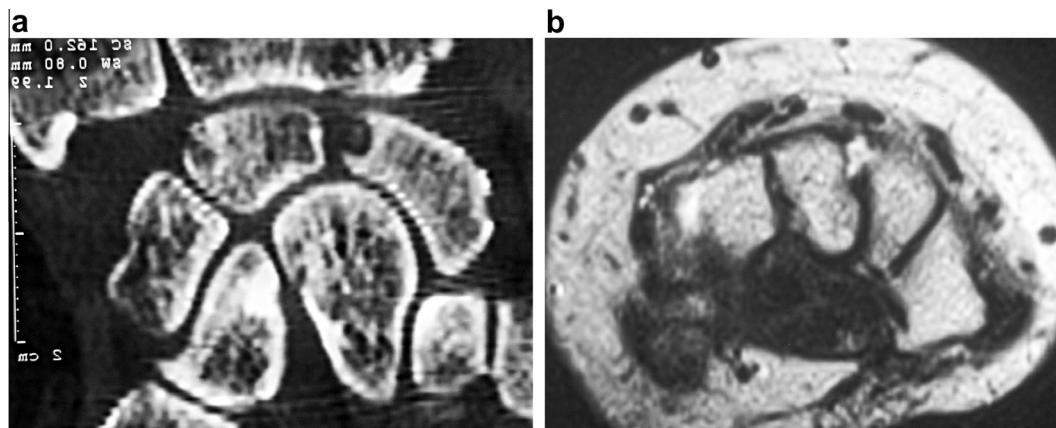


Figure 1 – Proximal pole of the scaphoid geodic image and scapholunate joint involvement.



**Figure 3 – Good functional outcome after 18 months.**

is secondary to a synovitis in one third of the cases, usually flexor tenosynovitis.

The primitive articular infringement begins typically in the external and proximal, then it progresses distally. The destruction evolves until it leads to articular collapse, subluxation and deformation. Only a few abscesses are found in these cases. When found, these abscesses are usually encapsulated by a solid barrier and synovial girdles that are difficult to penetrate.

Secondary affection after synovitis occurs after several years of evolution. The synovial girdle indeed creates a tissular reaction, a real barrier. At the stage of seropurulent exudate and synovial abscesses, they form fistulas. In some cases, this formation of fistulas presents posterior on the wrist. In time, arthritis evolves [7]. In order to make a clear diagnosis, an anatomopathological study is required, which has the advantage of being surgically easy because of the accessible location of the biopsy [8]. Specific elements are required, because of the other affections with the same images (giant cells, for example). These elements are either the caseous necrosis, or the typical follicle surrounded with epithelioid cells and the presence of Langhans cells, as in the present case.

The treatment is easy, from the three classic shutters of the treatment of the osteoarticular TB; only chemotherapy is essential [9].

**Chemotherapy:** The classic long-term treatment (1 year) has been replaced in recent years with a progressively shorter treatment (6 months) using more effective drugs [1].

**Orthopedic treatment:** The orthopedic immobilization splint will be maintained until the disappearance of clinical signs (3-4 weeks), followed by rehabilitation. **Surgery:** Other than the biopsy, there is very little need for surgery.

Medical treatment of this type of localized TB mainly consists in anti-bacillary chemotherapy for 12 months, associating isoniazid, rifampicin, pyrazinamide and ethambutol.

## Conclusion

TB of the wrist begins in the scapholunate joint, but it is usually diagnosed at an advanced stage of carpal destruction, due to the slow development of the symptoms. At an early stage, the affection of the scapholunate joint must be highly suspected of being osteoarticular TB, especially in endemic areas. The medical treatment remains effective as a first choice with a good health outcome.

## Competing interests

The authors declare that they have no competing interests.

## Patient consent and ethical approval

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review if necessary. The study was approved by the institutional review board.

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