CASE REPORT

White tumor of the wrist: A rare localization of tuberculosis

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Abstract Background: Tuberculosis (TB) bacteria can infect any bone, joint, tendon, or bursa; however, the most common musculoskeletal site for infection includes the spine and weight-bearing joints of the hip and knee. A tubercular involvement of the wrist is rare.

Aim of the work: To describe a rare case of tuberculosis of wrist.

Case report: A 37-year-old man with a history of immunosuppressed Human Immunodeficiency Virus (HIV) infection was referred to the Rheumatology department for a 10 month history of low-grade fever, swelling and pain in the wrist. X-ray and wrist CT scan, revealed an osteolytic lesion of the wrist. Cold abscess aspiration cytology was negative for acid-fast bacilli but the Polymerase Chain Reaction, using Xpert MTB/RIF (Mycobacterium tuberculosis/resistance to rifampicin) diagnostic test done on the cold abscess fluid was positive in revealing Mycobacterium tuberculosis. The evolution under specific antibiotic treatment has been favorable, with the disappearance of wrist pain and a regression of swelling.

Conclusion: This case highlights that TB should be taken into consideration when dealing with nonspecific chronic wrist arthritis, especially if the patient is immunocompromised HIV infected.

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diagnosis of tuberculosis of bones and joints is often a pre-
sumption diagnosis because the technical level is insufficient
or missing. We report a rare case of tuberculosis of the wrist
which was diagnosed by using Polymerase Chain Reaction
(PCR) in an immunosuppressed Human Immunodeficiency
Virus infected patient.

2. Case report

A 54-year-old man with a history of immunosuppressed
Human Immunodeficiency Virus (HIV) infection presented
to our rheumatology department with complaints of pain,
impaired mobility and progressive swelling of the right wrist
which appeared 10 months before presentation. The patient
denied any history of wrist trauma, fever, weight loss, cough
or other general diseases such as kidney disease, diabetes mel-
litus or sickle-cell anemia. There was no tuberculosis contagion
found. The patient had not received the Bacillus Calmette-
Guérin (BCG) vaccine against TB. On physical examination,
the patient had no alteration of general condition, was afebrile,
and had no abnormality on chest or abdominal examination.
On local examination, there was a non-painful multiple lobu-
lated swelling located in the dorsal area of the right wrist
and hand (Fig. 1). The temperature of the swelling was not
raised. Movements of the wrist were limited and painful. This
finding suggested the presence of a cold abscess.

Radiograph and CT scan of the wrist showed marked
destruction of the carpal bones and gross soft tissue swelling
(Fig. 2). An aspiration of the collection allowed the bacterio-
logical study with research of tuberculosis. Direct examina-
tions and the culture were negative. Polymerase Chain
Reaction (PCR), using the Xpert MTB/RIF (Mycobacterium
tuberculosis/resistance to rifampicin) diagnostic test done on
the cold abscess fluid was positive in revealing Mycobacterium
tuberculosis. With the presence of cold abscess, chronic infec-
tive etiology like tuberculosis was considered as a differential
diagnosis and confirmed by the positive Xpert MTB/RIF diag-
nostic test. X-ray chest, however revealed no evidence of any
pulmonary tuberculosis. Other Laboratory investigations
showed a total leukocytic count of 6000/mm³ with neutrophils
(71%) and lymphocytes (29%), hemoglobin was 9.8 g/dl, CD4
count was 353/µl, while erythrocyte sedimentation rate (ESR)
was 118 mm/1st h. Extensive drainage and debridement were
performed. The patient received TB treatment involving four
drugs: Isoniazid (5 mg/kg/day); Rifampicin (10 mg/kg/day);
Pyrazinamide (30 mg/kg/day) and Ethambutol (25 mg/kg/

Figure 1  Appearance of the lesion on presentation. Multiple lobulated swelling located in the dorsal area of the right wrist.

Figure 2  Advanced multiple geode osteolysis of the wrist, carp, and bases of the metacarpus with multiple organized abscess of the soft
tissue. A = sagittal reconstruction CT scan; B = coronal reconstruction CT scan; C = X-ray wrist frontal view.
day) for 2 months followed by 10 months of a double association (Isoniazid (5 mg/kg/day) and Rifampicin (10 mg/kg/day)) that corresponds to the standard treatment provided in our country. This treatment allowed a full recovery, and the patient was asymptomatic at the last follow-up after one year. Hemoglobin was 11.2 g/dl and erythrocyte sedimentation rate (ESR) was 20 mm/1st h. The follow-up CT scan after treatment was not performed because of lower socioeconomic level of the patient.

3. Discussion

Skeletal tuberculosis remains a frequent disease in developing countries [7–10]. Vertebral location is the most common form of skeletal tuberculosis [7–9]. Osteoarticular tuberculosis (OAT) is rare. The major areas of predilection are, in order of frequency, the spine, hip, knee, foot, elbow, hand, shoulder, bursal sheaths, and other sites [2]. Tuberculosis of the wrist is rarely reported [3,11,12]. This scarcity is even more striking in our context, as skeletal tuberculosis is frequent in Africa [8,9]. Thus, none of the 41 cases with OAT from Madagascar [15]. The diagnosis can be easily delayed because of non-specificity of clinical signs and can suggest numerous other disease entities as rheumatoid arthritis [16,3]. The time lapsed till TB diagnosis was 10 months in our case. In the literature the mean of this time was 6.5 ± 2.5 months with a range from 3 to 12 months [3,12,15]. Wrist tuberculosis is rare but it should be the first and foremost differential diagnosis in the presence of atypical clinical and radiological features of a carpal lesion particularly in an immunosuppressed HIV infected patient in developing countries. The most common presenting symptoms are non-specific pain and swelling leading to incorrect initial diagnosis and delay in the institution of treatment. In the present case, with the presence of cold abscess, chronic infective etiology like tuberculosis was considered as a differential diagnosis. Diagnosis is often established after culture of mycobacterium from surgical biopsies because direct microscopic examinations are often negative, as in our patient. Molecular biology techniques can also be used to detect and identify the main species of mycobacteria as in our patient. In this case, the positive result of PCR for Mycobacterium tuberculosis was confirmed from the cold abscess aspiration. The PCR assay, a molecular biologic technique using nucleic acid amplification, is a highly sensitive method for detecting Mycobacterium tuberculosis and requires only a few days to obtain confirmation [17]. The treatment of TB of the wrist usually involves a combination of appropriate antimicrobial therapy and surgical debridement. Biopsy is of particular importance in determining organism sensitivities in areas in which drug resistance is common (3). The success of treatment is variable and depends on prolonged treatment with appropriate combination therapy. The total duration of antituberculous therapy was 12 months in our patient with a favorable evolution. The diagnosis in our patient was missed with the resultant extensive sequelae. As a consequence of the delay in diagnosis, an extensive drainage and debridement were necessary. In conclusion, carpal tuberculosis is rare but it should be the first diagnosis in the presence of atypical clinical and radiological features of a carpal lesion particularly in an immunosuppressed HIV infected patient in Black Africa.

Competing interests

The authors declare that they have no competing interests.

References