

The Tuberculous Synovitis of the Elbow: A Misunderstood Entity

M. Mahir^{1*}, N. Mennis¹, H. Ch. Ahmanna¹, B. Zouita¹, D. Basraoui¹, H. Jalal¹

¹Radiology Department, Mother-Child Hospital, CHU Mohammed VI, Marrakech Faculty of Medicine of Marrakech, Morocco

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*Corresponding author: M. Mahir

Radiology Department, Mother-Child Hospital, CHU Mohammed VI, Marrakech Faculty of Medicine of Marrakech, Morocco

Abstract

Case Report

We present the case of a 7-year-old child with a history of tuberculosis exposure, admitted to the pediatric surgery department due to a chronic swelling of the right elbow persisting for 3 years. Despite being afebrile, the patient experienced unspecified weight loss. Clinical examination revealed a painful fluctuating swelling of the right elbow, limited flexion, and a 12-degree valgus deformity of the ulna. Laboratory tests showed an elevated CRP level indicative of an inflammatory process. Standard radiographs exhibited soft tissue hypertrophy without bone lesions. MRI demonstrated synovial hypertrophy of the right elbow joint with adjacent bone marrow infiltration and deformation of the distal humerus. Biopsy revealed nonspecific chronic synovitis. Surgical removal of the synovial mass was performed, and histopathological examination revealed features suggestive of tuberculosis. Extension studies for tuberculosis were negative. The patient was treated with antituberculous therapy and physiotherapy, leading to the regression of symptoms. This case highlights the diagnostic utility of MRI in detecting synovial hypertrophy and bone marrow infiltration in cases of chronic elbow swelling, especially in the context of tuberculosis exposure.

Keywords: Osteoarticular tuberculosis, elbow.

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INTRODUCTION

Tuberculosis of the elbow is among the rare cases of osteoarticular tuberculosis reported in the literature. Its frequency is estimated at 6% [1]. Diagnostic challenges are numerous due to the rarity of the condition and the nonspecificity of clinical and radiological signs.

CASE REPORT

A 7-year-old child with a history of tuberculosis exposure was admitted to the pediatric surgery department for a chronic swelling of the right elbow, evolving for 3 years, in the context of afebrile episodes and unspecified weight loss. Clinical examination revealed a painful fluctuating swelling of the right elbow without inflammatory signs, pain on mobilization, a 12-

degree valgus deformity of the ulna, and limited flexion. Laboratory tests showed an inflammatory syndrome with a CRP of 80 mg/l. Standard radiographs of the right elbow showed soft tissue hypertrophy without bone lesions. MRI revealed synovial hypertrophy of the right elbow joint with adjacent bone marrow infiltration and deformation of the distal humerus (Fig 1). Biopsy revealed nonspecific chronic synovitis without evidence of villous-nodular synovitis. The child underwent surgical removal of the synovial mass. Histopathological examination revealed a giant-cell granuloma with caseous necrosis suggestive of tuberculosis. Extension studies to search for tuberculosis elsewhere were negative. The patient was treated with antituberculous therapy combined with physiotherapy. The evolution was marked by the regression of pain, inflammatory syndrome, and swelling.

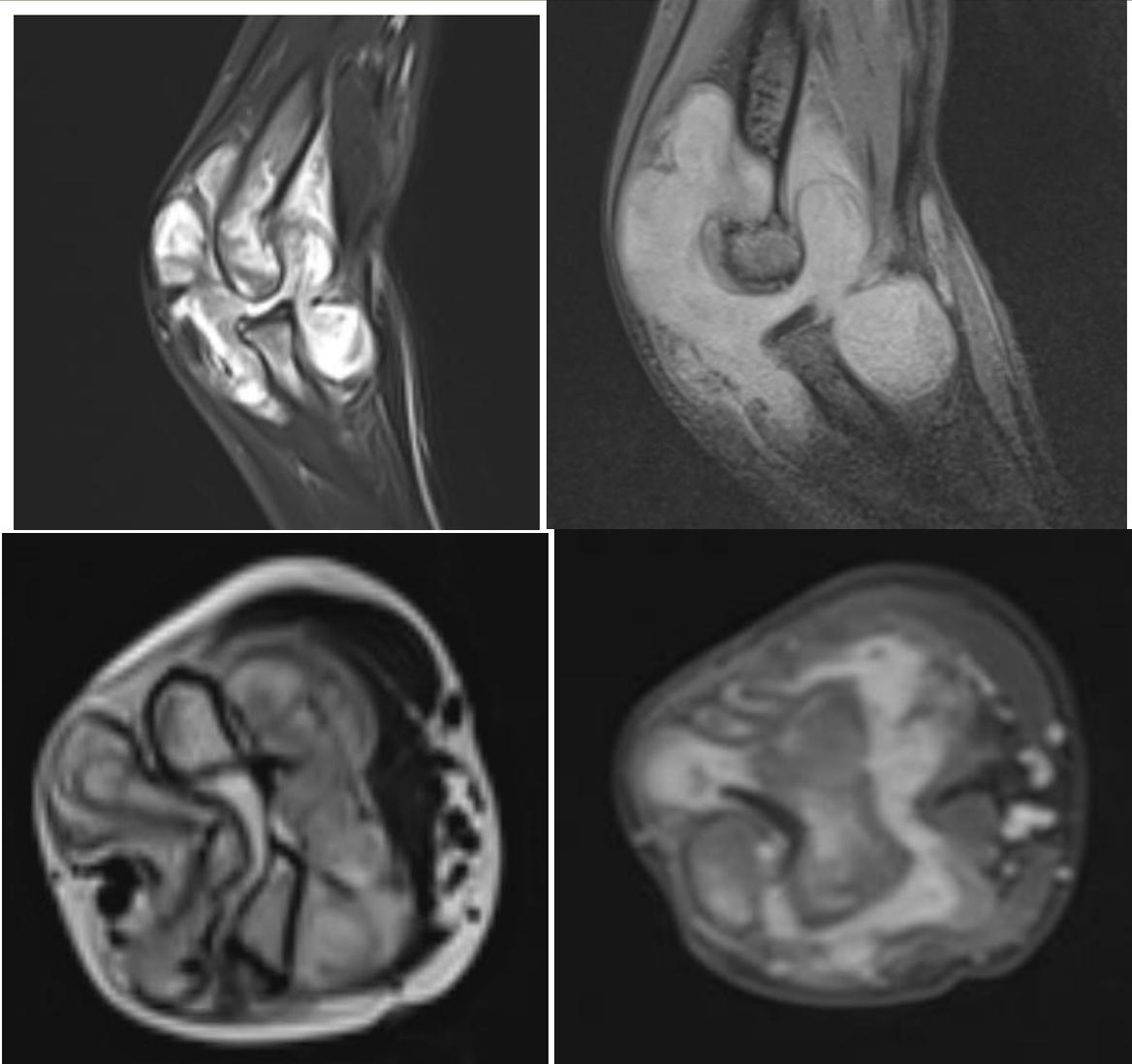


Figure 1: MRI of the elbow in sagittal T2DP, sagittal T1, axial T2*, and axial T1 FS sequences after gadolinium injection reveals elbow synovitis without hemosiderin deposition, along with bone marrow infiltration adjacent to it

DISCUSSION

Osteoarticular tuberculosis accounts for 1 to 3% of total tuberculosis cases, but has recently gained interest with the emergence of HIV [1]. Involvement of the elbow is rare, although it represents the most frequent location in the upper limb. Its frequency can be estimated at 6% according to the studies by Garrido *et al.*, [2] and Martini et Ouohés [3], and it is initially difficult to diagnose due to the subtle nature of clinical and radiographic signs. At the onset of a painful and stiff elbow, efforts should be made to search for synovitis around the tricipital tendon and olecranon. Later, the presentation may be revealed by a fistula or an abscess (as in our case), occurring respectively in 30% and 23% according to Martini [4]. Initial radiological signs resemble those of nonspecific arthritis. Late lesions, as described by Boucke [5], include characteristic geodes of the olecranon and cubital metaphysis. Holder reported primary involvement of the olecranon bursa, forming a

tuberculous hygroma that may subsequently extend to the joint. Definitive diagnosis relies on identifying the microorganism, which is exceptionally rare. Biopsy remains the only straightforward and reliable diagnostic method. Whether surgical or percutaneous, biopsy confirms the diagnosis in 9 out of 10 cases, as confirmed by several authors [6, 7]. Various chemotherapy protocols are proposed, ranging from short to long durations. A 12 to 18-month regimen is more reassuring [8], but short protocols have also proven effective. Treatment for bone tuberculosis is primarily medical according to the latest WHO consensus, involving a combination of antituberculous drugs, with rifampicin (R), isoniazid (H), pyrazinamide (Z), ethambutol (E), and streptomycin being the most commonly used currently. In our country, since 1995, we have been treating tuberculosis according to a short 6-month protocol: 2 months of RHZ followed by 4 months of RH. The response to medical treatment alone generally leads

to recovery, but unfortunately, the functional prognosis of the elbow remains poor due to delayed diagnosis.

CONCLUSION

Tuberculosis of the elbow is rare, and its diagnosis is very challenging. Therefore, it is essential to consider it even in the most unusual situations and perform an osseous biopsy, which often confirms the diagnosis. Treatment is primarily preventive. Prognosis depends on the diagnostic delay.

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REFERENCES

1. Eschard, J. (1993). Tuberculose osseuse et articulaire des membres. *EMC*, 14-14-185-10.
2. Garrido, G., Gomez-Reino, J. J., Fernandez-Dapica, P., Palenque, E., & Prieto, S. (1988, November). A review of peripheral tuberculous arthritis. In *Seminars in arthritis and rheumatism* (Vol. 18, No. 2, pp. 142-149). WB Saunders.
3. Martini, M., & Ouhaes, M. (1984). La tuberculose osseuse et ostéo-articulaire dans les pays à forte prévalence tuberculose. *En cycl Med chir Paris, Appareil locomoteur*, 14185.
4. Martini, M., & Gottesman, H. (1977). Traitement conservateur des tuberculoses ostéoarticulaires du coude. *Rev Chir Orthop*, 63, 539-44.
5. Boucker, C. (1972). Tuberculose du membre supérieur: épaule, coude. *Rev. Méd.*, 13, 509-511.
6. Martini, M., Adjrad, A., & Boudjemaa, A. (1986). Tuberculous osteomyelitis: a review of 125 cases. *International orthopaedics*, 10, 201-207.
7. Moulay, I. La tuberculose ostéo-articulaire des membres. A propos de 73 cas. *Rev Int des services de santé des forces armées*.
8. Pertiuset, E. (1999). Traitement de la tuberculose ostéo-articulaire des membres. *Rev Rhum*, 66, 26-31.