The Epidemiology of Tuberculous Dactylitis: A Case Report and Review of Literature

Hana Sahli1,2, Leila Roueched1,3, Mohamed Ali Sbai1,4, Asma Bachali1,5, Rawdha Tekaya1,3

1Rheumatological Medical Department, Faculty of Medicine, University of Tunis El Manar, 2Department of Rheumatology, Charles Nicolle Hospital, Tunis, Departments of 3Internal Medicine, 4Orthopaedics and Trauma and 5Clinical Laboratory, Mohamed Tahar Maamouri Hospital, Nabeul, Tunisia

Abstract

The literature on tuberculous dactylitis is poor, and most literature consists of isolated case reports. The aim of this case series is to study the particularities and the epidemiological aspects of tuberculous dactylitis in Tunisian patients. Google and Medline search was done using key words “tuberculous dactylitis” and “spina ventosa.” Only Tunisian reports in adult patients were included. Eleven cases including this mentioned case were included in this review. There was a female predominance, high frequency of trauma before disease installation, rarity of predisposing factors, and less inflammation in blood tests when comparing with other cases in literature.

Keywords: Dactylitis, epidemiology, tuberculosis

Introduction

Skeletal tuberculosis accounts for only 1%-5% of all tuberculous infections. Tuberculous dactylitis (TD) is a very rare form of extrapulmonary tuberculosis involving the small bones of the hand or the foot in adult patients. In the literature, there are only scattered reports with no statistics. Although we live in an endemic country of tuberculosis, TD always poses a diagnostic challenge for orthopedic surgeons. Here, we present one case of TD revealed by a trauma that we treated in our center and provide a review of the published literature of this rare form of osteoarticular tuberculosis in our country.

Case Report

A 54-year-old woman, working as a seamstress, presented with pain and swelling of the major finger of the right hand lasting for 1 year. It was a mechanical pain. The examination revealed that she had a minimal trauma of the major finger 1 year ago. She had no fever, decreased appetite, or weight loss. There was no history of tuberculosis contagion. The examination showed a swelling around the third phalanx without an inflammatory aspect of the skin. The finger motion was painful and limited. Right hand radiograph showed an osteolytic lesion with blurred limits of the second phalanx of the major finger associated with narrowing of the interphalangeal joint. Chest X-ray was normal. Magnetic resonance imaging showed inflammatory aspect of the second and third phalanx with medullar edema and osteoarthritis. The laboratory examinations showed a normal erythrocyte sedimentation rate (ESR) and total leucocyte count at 6500/mm3. The intradermal tuberculin reaction test was negative. The bone biopsy of the third finger revealed granulomatous inflammation without caseous necrosis. The special coloring of Ziehl–Neelsen did not highlight Mycobacterium tuberculosis. This histological aspect made it possible to carry the diagnosis of a TD after eliminating all the other diagnoses. The investigations did not show other tubercular sites. Chemotherapy associating four antitubercular drugs was prescribed (isoniazid, rifampicin, pyrazinamide, and ethambutol) over 2 months followed by bi-therapy (isoniazid, rifampicin) over 10 months. Chemotherapy was associated with immobilization of the third finger by a splint for 21 days. There was a remarkable response to therapy with the disappearance of the swelling.

Address for correspondence: Dr. Asma Bachali, Mrazka, 8000 Nabeul Tunisia. E-mail: asma.belhadj@gmail.com

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Radiographs after 1-year treatment showed bone condensation and decrease in the osteolytic lesion size [Figure 3].

**Literature search**

Medline and Google search using key words: “tuberculous dactylitis” and “spina ventosa” was done. Published case reports that are from our country were included for review. Case reports that mentioned age, patient sex, and the site of TD were included for review. Ten reports of TD in our country from 5 published papers report fulfilled inclusion criteria. Thus, 11 cases including this mentioned case were included in this review. There was only one report in infant which was excluded. Data extracted were age, patient sex, TD site, presenting symptom, duration of symptoms before consultation, presence of constitutional symptoms of tuberculosis, predisposing factors, any history of local trauma, history of contact or positive family history, radiological findings, associated tubercular lesion, ESR, hemogram abnormalities, intradermal tuberculin reaction test result (positive or negative), and the bacteriological findings.

**Literature review**

Included case reports were published between 2003 and 2016.[4-8] Age of the patients ranged from 38 to 64 years (average = 51.36 years). A majority were female (10 women and one man). Chief presenting complaint was mentioned in all cases and all patients presented with swelling which was painful in most cases (n = 10). Discharging was noted in two cases. Inflammatory aspect of the skin was reported in 3 cases. The symptoms’ duration was mentioned in 9 cases. Patients presented for the first time between 3 weeks and 12 months from the onset of symptoms (mean duration = 4.75 months). Tuberculosis predisposing factors were present in 2 cases: diabetes and corticotherapy. One or more constitutional symptoms of tuberculosis were present in only one case. ESR was elevated above normal range in 6 cases from 10 available data. Leukopenia was reported in two cases. Intradermal skin sensitivity test was positive in 3 of the 10 cases with available data. Five patients had history of local trauma before the development of TD symptoms. One patient had family history of tuberculosis.[6] Ten cases had hand involvement with multifocal localization in one case.[5] One patient had foot involvement.[8] Different radiological findings of the hand and feet are enumerated in Table 1. One patient had associated tubercular lesion at another site.[5] It was a mediastinal tuberculous lymphadenitis. Bacteriological examinations were negative in all cases.

**Discussion**

TD, also known as spina ventosa, is a rare form of tuberculous osteomyelitis involving phalanges, metacarpals, and

| Table 1: Radiographic findings in patients with tuberculous dactylitis |
|-------------------------------------------------|
| Radiological findings | Numbers of cases |
|-----------------------|------------------|
| Osteolytic lesion with blurred limits | 10 |
| Cortical lysis without a periosteal reaction | 10 |
| Articular pinching | 2 |
| Joint space widening | 1 |
It is characterized by a diagnosis delay. In our country, TD is more elevated than in our review. This result could be explained as in literature as noted in our review. Radiological findings in TD are of nonspecific nature. In the review of Nadeem et al., ESR was elevated above normal range in 80% and intradermal skin sensitivity test was positive in 75% cases, which seems to be more elevated than in our review. This result could be explained by vaccination problems in endemic countries.

**Conclusion**

TD presents nonspecific clinical and paraclinical presentation. It is characterized by a diagnosis delay. In our country, TD is characterized by a female predominance, frequency of trauma before symptoms development, rarity of predisposing factors, and less inflammation in blood tests.

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**Conflicts of interest**

There are no conflicts of interest.

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