

## Case Report

# Tubercular dactylitis in a 65 year old female: a rare case report

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**Received:** 20 March 2017

**Accepted:** 12 April 2017

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## ABSTRACT

Tubercular dactylitis is defined as tubercular infection of the metacarpals, metatarsals and phalanges. It is a rare form of extra pulmonary tuberculosis. Bones of the hand are more commonly affected than the bones of the feet. Tubercular dactylitis is common in children and children below 6 year of age accounts for 85% of cases. The diagnosis is usually by a combination of clinical suspicion coupled with radiological investigation and confirmation by biopsy. We hereby present a case report of tubercular dactylitis in a 65 year old female which was treated by antitubercular therapy.

**Keywords:** Tubercular dactylitis, Antitubercular therapy, Osteoarticular tuberculosis

## INTRODUCTION

Tubercular dactylitis is defined as tubercular infection of the small bones of hand and feet (metacarpals, metatarsals, phalanges).<sup>1</sup> The entity first described in 1886 by Rankin, is a rare form of osteoarticular tuberculosis that is common in childhood.<sup>2</sup> Tubercular dactylitis is also known as spina ventosa because of spindle shaped expansion of short tubular bones.<sup>3</sup> Tuberculous dactylitis is quite uncommon beyond 6 years of age after the formation of the epiphyseal centers. We hereby report a case of tubercular dactylitis in a 65 year old immunocompetent female.

## CASE REPORT

A 65 year old female presented to outpatient department of our institute with swelling over (L) index finger for last three months. The swelling had gradually increased in size. The swelling was firm to hard in consistency, bony in origin and tender to touch. Temperature overlying swelling was slightly raised. The swelling was associated with bluish discoloration of the skin also.

There was no history of systemic symptoms like fever, weight loss and there was no history of any contact with patient of pulmonary tuberculosis.

### Investigation

Laboratory investigation revealed haemoglobin 10.8g/dl, total leukocyte count 7800/mm<sup>3</sup>, differential leukocyte count showed neutrophil 58%, lymphocytes 35%, eosinophils 04%, and monocytes 03%, Erythrocyte sedimentation rate 42 mm/hr. Mantoux test was strongly positive (20 mm). Chest x-ray was normal. X Ray of the hand showed involvement of the distal part of proximal phalanx and predominantly proximal part of middle phalanx of index finger of (L) hand (Figure 1a and 1b). There was destruction of the cortex of the middle phalanx with loss of the corticomedullary differentiation.

### Treatment

After radiological investigation biopsy of the involved part was planned. After biopsy the material; was sent for cytology, culture and staining. Cytopathology shows

chronic granulomatous infection consistent with tuberculosis. Ziehl-Neelsen (ZN) staining of the material confirmed the presence of the Acid Fast bacilli. Subsequently the culture report also confirmed the growth of the *M. Tuberculosis*. After confirmation of the diagnosis, antitubercular therapy (ATT) was started. For first three months four drug therapy was used (Isoniazid, Rifampicin, Ethambutol, Pyrazinamide) followed by three drugs for four months (Isoniazid, Rifampicin, Ethambutol) and two drugs (Isoniazid, Rifampicin) for the rest of duration with total duration of 18 months. The patient was followed every month to see the response and complication of ATT, if any. After one month active mobilization of the joint was started to prevent stiffness. The swelling came to normal after 2 months of the treatment and at the end of third month the movement of the joint was completely painless (Figure 2a and 2b).



**Figure 1a. Preoperative x-ray of hand showing destruction of middle phalanx of ring finger.**



**Figure 1b: Clinical photograph of the hand at the time of presentation showing swelling over index finger.**



**Figure 2a: X-ray of the hand after three months of antitubercular treatment showing signs of healing.**



**Figure 2b: Clinical photograph of hand after three months of treatment showing complete subsidence of swelling.**

## DISCUSSION

Osteoarticular tuberculosis accounts for only 10-15% cases of the extra pulmonary Tuberculosis. Out of it, spine and hip tuberculosis constitutes more than 50% of the cases. Involvement of the short tubular bones of the hand and feet is termed as tubercular dactylitis. Tubercular dactylitis is a rare presentation of the extra pulmonary tuberculosis.<sup>1,4</sup>

Boyer is credited with the first anatomical description of spina ventosa (spina = short bone; ventosa = inflated with air) in the short long bones in 1803, while the tubercular etiology of the condition was proved by Nelaton in 1837.<sup>5</sup> Tubercular dactylitis is more common in children as compared to the adults.<sup>6</sup> The bones of the hand are more commonly affected than the bones of the feet.<sup>7</sup>

Diagnosis of tubercular dactylitis is usually by a combination of the clinical suspicion, clinical examination supplemented by radiological investigation. But, the final diagnosis is by open biopsy and/or the isolation of the *M. Tuberculosis* in the culture.

The disease usually present with insidious onset of swelling with mild or no pain and no Fever/low grade fever, usually without other constitutional features of tuberculosis. This mild presentation of the disease condition makes delay in diagnosis.<sup>8-10</sup> Unlike in developed world, due to the rarity of the tubercular infection there is lot of diagnostic dilemma particularly when the presentation is unusual; but in countries where tuberculosis is endemic tubercular dactylitis should be one of the probable differential diagnosis in any osseous pathology of hands and feet.<sup>8,10</sup>

Blood examination may show mild increase in ESR but rest of the parameters are usually normal x- ray may give a clue to the diagnosis. SPINA VENTOSA is the radiological characteristic of the TB dactylitis. The nutrient artery to the short tubular bones enter into the middle of the shaft of the bone and hematopoietic marrow in the paediatric short bones offers a fertile field for hematogenous bacterial implantation and the infection

rapidly spreads in the entire marrow space. The granulation tissue in the marrow expands the relatively soft cortex and this granulation tissue blocks the nutrient artery leading to resorption or infarction. As a result, the involved bone resembles an inflated balloon; fusiform shape, thinned cortices and relatively radiolucent marrow space (because of granulation tissue). Unlike pyogenic osteomyelitis usually, there is no periosteal reaction, and sequestration ordinarily does not occur. Sclerosis may be seen in long standing cases.<sup>9,10</sup> lesions similar to tubercular dactylitis may be seen in sickle cell disease, pyogenic osteomyelitis, congenital syphilis, fungal infections, histiocytosis X and some bone tumors. So these condition should be kept in mind while managing tubercular dactylitis.

The disease responds well to the antitubercular treatment along with rest to the part and mobilisation to prevent stiffness. Most of the cases heal with conservative treatment with good functional results. Surgery should be considered in case of poor response to ATT, recurrence and if deformity is painful

## CONCLUSION

In developing countries like India adult patient presenting with longstanding finger swelling and pain should alert a clinician to consider tubercular dactylitis as differential diagnosis. Conservative treatment with ATT along with supportive management treats the disease in most of the patients.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Kushwaha SS, Maurya G, Shantanu K, Kumar D. Tubercular dactylitis in a 65 year old female: a rare case report. Int J Res Orthop 2017;3:632-4.