

Case Study

A COMMON DISEASE WITH UNCOMMON PRESENTATION: SPINA VENTOSA

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ABSTRACT

Introduction: Tuberculosis of short tubular bones of hand and foot is called tuberculous dactylitis or “spina ventosa”. This is uncommon type of osteoarticular tuberculosis more often seen in children than adults. This report describes tuberculosis affecting third metacarpal bone in a 25-year-old male patient presenting with a firm, painless, progressively increasing swelling over the dorsum of left hand. Diagnosis was made by cytological examination of aspirate from the affected area.

Keywords: tuberculous dactylitis, spina ventosa.

INTRODUCTION

Tuberculosis affecting short tubular bones such as metacarpals, metatarsals and phalanges called as tuberculous dactylitis. This entity is uncommon and also called ‘spina ventosa’ (‘spina’ = a thorn/short bone; ‘ventosa’ = full of wind or distended with air). There is a spindle-shaped expansion of the affected bone due to underlying granulomatous lesion. Radiography of left hand revealed cystic expansion of the bone. The bone of hands are more affected than bone of feet. This condition is rarely seen after the age of five years¹. The present report describes a case of spina ventosa involving third metacarpal bone in an adult male with absent of primary foci of tuberculosis at other body site.

Case report

A 25 year old male student presented with a swelling on the dorsal side of left hand for the last five months. The swelling was insidious, gradually increasing in size but painless. He denied any history of trauma, fever or constitutional symptoms. He had no known medical conditions and was not receiving any medications.

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On examination, there was a 3x5 cm sized nodular swelling around the left third metacarpal. It was firm to hard in consistency, slightly tender to deep palpation with ill-defined margins and normal skin temperature. Movements at the adjacent metacarpophalangeal joint were slightly restricted. There was no lymphadenopathy. General physical examination and clinical evaluation of other systems were unremarkable. Skiagram of the left hand revealed a cystic expansile lesion at the third metacarpal bone. The margins were well defined with internal septations and cortical sclerosis but without any periosteal reaction.



Figure 1

Routine investigations including blood counts, serologic test for the human immunodeficiency virus and other biochemical tests, etc were normal except a raised ESR (55 mm in 1st hour). The chest radiography was also normal. Fine needle aspiration cytology from the lesion showed granuloma composed of clusters of epithelioid cells, multinucleated Langhans type giant cell and lymphocytes in the background of abundant caseous necrosis. The subsequent tuberculin skin test revealed an induration of 35 mm. The patient was initiated on combination chemotherapy with isoniazid, rifampicin, ethambutol, and pyrazinamide according to body weight. Initial two months follow up showed a reduction in the swelling but the patient did not come to follow-up visits thereafter.

DISCUSSION

Tuberculous dactylitis is a rare form of osteoarticular tuberculosis that involves short tubular bones of hands and feet. The first anatomical description of this condition was given by Boyer in 1803, Nelaton subsequently proved its tuberculous nature in 1837 and Parrot presented the autopsy findings in 1880². The literature and statistics on tuberculous dactylitis are scarce and mostly consists of case reports. Only 58 cases were traced on Google search engine and MEDLINE by Ali and coworkers³ from 1971 to 2013; who further added three more cases in their report.

Bones of the hand are more commonly involved than of the foot. In hand, the proximal phalanx of the index and middle finger are the most common sites than metacarpals whereas, in feet, the involvement of metatarsals is more common than phalanges. The most common predisposing factors mentioned are low socioeconomic status and immunodeficiency followed by malnutrition, local trauma, and history of contact with tuberculosis³. The condition usually presents as a painless local swelling of a few month's duration as seen in our case. It often follows a benign course without constitutional symptoms. Pain and discharging sinuses may appear in the later stage of presentation^{3, 4}. Tuberculous dactylitis is predominantly a disease of early childhood with very few cases reported in adult including ours⁵.

The radiographic feature of spindle-shaped cystic expansion of short tubular bones has led to the name of "Spina Ventosa" for tuberculous dactylitis of the short bones of the hand⁶. During childhood, short tubular bones have a lavish blood supply through a large nutrient artery entering almost in the middle of the bone. The first inoculum of the infection is lodged at the centre of the marrow cavity and the interior of the short tubular bone is then converted virtually into a tuberculous granuloma. Tuberculous granuloma expands the relatively soft bony cortex as it gets resorbed or infarcted by the underlying process. The resultant fusiform expansion of the bone with thinned out cortex and relatively radiolucent marrow space due to trabecular destruction resembles an inflated balloon (Spina Ventosa). The radiographic picture was classical in our case. Periosteal reaction and sequestra are less common but may occur. Sclerosis may also be seen in the late stage of the disease. In natural course, the disease heals with shortening of the involved bone and deformity of the neighboring joint¹.

The differential diagnoses of tuberculous dactylitis include chronic pyogenic osteomyelitis, syphilitic, mycotic infection, brucellosis, neoplastic conditions i.e. enchondromata and sarcoidosis, etc. Relatively benign courses, absence of fever, diffuse osteopenia and absence of sequestration points toward underlying tuberculosis etiology. However, cytopathological, bacteriological and other investigations are mandatory for confirming the diagnosis in doubtful cases^{1, 4}.

Management of tuberculous dactylitis essentially includes anti-tuberculosis therapy apart from rest to the affected part in functioning position and early active exercise of the involved parts or joints¹. In patients with unfavorable response or recurrence of infection, surgical debridement may be considered. Excision arthroplasty, corrective osteotomy or amputations are rarely indicated in the era of effective anti-tuberculosis drugs provided the diagnostic delay is avoided. A high index of clinical suspicion, timely diagnostic workup and early institution of therapy result in a favorable outcomes in such cases.

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