Case report

Tubercular dactylitis with secondary involvement of
tendon sheath in an adult. A rare manifestation of adult
skeletal tuberculosis

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Tuberculous infection of metacarpals, metatarsals and phalanges of hands and feet is also known as tuberculous dactylitis. The metacarpals, metatarsals and phalanges are frequently the sites of tuberculosis during childhood. The disease becomes increasingly uncommon after the age of five years. Tuberculous dactylitis needs to be differentiated from a variety of conditions. Isolated tubercular disease of the synovial sheath occurs rarely, however any synovial sheath or bursa can be involved. The disease is thought to reach the synovial/bursal sheaths by direct, hematogenous spread or from underlying bone/joint disease. The disease is diagnosed by fine needle aspiration cytology or biopsy of the lesion. We hereby report a case of tubercular dactylitis with atypical radiological picture with secondary involvement of tendon sheath in a 25 year old lady which is a rare manifestation of adult musculoskeletal tuberculosis.

Keywords: Tuberculosis; Dactylitis; Tendon sheath.

INTRODUCTION

Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis and is manifested by formation of tubercles and caseous necrosis in tissues. In the musculoskeletal system, the spine is the most frequent site of skeletal involvement; occurring in 1 to 3% of patients with extrapulmonary tuberculosis (Evanchick et al., 1986). However, joint changes in extraspinal sites such as the hip, knee, wrist and elbow, also may occur. Other abnormalities commonly encountered are tubercular dactylitis and involvement of tendon sheaths (Singhal et al., 2005). The metacarpals, metatarsals and phalanges are frequently the sites of tuberculosis during childhood. 85% of patients with tubercular dactylitis are younger than 6 years of age (Andronikou and Smith, 2002). Tubercular dactylitis in adults is rare (Subasi et al., 2004; Putschar, 1996; Subbarao, 1996). There is a paucity of literature pertaining to this subject. The disease usually affects the diaphysis of the short bones of the hand. It produces fusiform expansion of the bone due to the deposition of the successive layers of new bone. Classically, this is being described as the spina ventosa. At times, atypical presentation can create diagnostic dilemma. In this case report, we present a case of tuberculous dactylitis in a 25 year old lady with secondary involvement of tendon sheath with atypical radiological presentation.

Case presentation

A 25 year old lady belonging to poor socioeconomic status (Gujjar Family) presented with progressively increasing painless globular swelling in her left ring finger since two years. She had intermittent fever for the last two months. No history of injury could be elicited. Patient was non-diabetic and HIV test was negative. History of any other immunocompromised state was not there. Significant drug history was negative. On examination there was a globular, firm, non-tender swelling fixed to the underlying structures extending from
metacarpophalangeal joint to distal interphalangeal joint (Figure 1 and 2).

Over dorsal aspect there was thickening and widening of proximal and distal phalanges of ring finger. A thickened cord like structure over the palm corresponding to the ring finger was present. There was mechanical limitation of flexion movements of ring finger at MCP, PIP and DIP joint. There was no past history or family history of tuberculosis. Chest examination was normal. Chest radiograph was taken and was normal. ESR was 60mm and TLC was mildly raised. Other routine investigations were within normal limits.

The radiographs of the left hand revealed multiple cortical erosions of 4th digit in the proximal and middle phalanges. There was evident cortical destruction of the phalanges with increased soft tissue swelling (Figure 3 and 4).

We suspected some chronic pathology as the disease was of longer duration and fine needle aspiration cytology was done to confirm the pathology. There was no central expansion of the bone. Other bones were osteopenic but uninvolved. We suspected fungal infection, syphilitic infection and rheumatoid arthritis as differential diagnosis before going for fine needle aspiration cytology. FNAC was done which revealed tubercular tenosynovitis. It was followed by open biopsy which confirmed tuberculosis.

The patient was put on antitubercular treatment. Patient was advised at least eight months of treatment with four drugs (Isoniazid, Rifampicin, Ethambutol, Pyrazinamide) for first two months (thrice in a week) and two drugs (Isoniazid, Rifampicin) for next six months and was subsequently discharged home for follow up later after two weeks after explaining her the side effects of all the drugs. Range of motion increased progressively with the subsidence of swelling. Two year after follow up patient is doing well and there is no recurrence of the disease.

DISCUSSION

Tuberculous involvement of the metacarpals and phalanges is a rare presentation of extrapulmonary tuberculosis (Subasi et al., 2004). Boyer is credited with the first anatomical description of spina ventosa (spina - short bone; ventosa - inflated with air) in the short tubular bones in 1803, while Nelton proved the tubercular etiology of this condition in 1837 (Komins, 1952). The shaft bones of the hand are the most frequent location of the skeletal tuberculosis in infancy and early childhood before the epiphyseal centers are well established (Putschar, 1996; Subbarao, 1996; Sante, 1958; Paul and Juhl, 1972). At this age, the hemopoietic marrow in those
bones offers a fertile period for hematogenous bacterial implants; pulmonary lesions can be demonstrated. The infection rapidly involves the entire marrow space. Tuberculous granulation tissue expands the relatively soft cortex as it is resorbed or inflicted by the underlying process. The resultant fusiform expansion of the bone with thinned cortex and relatively radiolucent marrow space due to trabecular destruction resembles an inflated balloon. Typically there is periosteal layering or thickening and sequestration ordinarily does not occur (Putschar 1996; Reeder 1981). In natural course the disease heals with shortening of the involved bone and deformity of the neighboring joint (Tuli, 2004). Only 1/3rd of patients with tuberculosis of the bone are diagnosed with concomitant active pulmonary disease (Daniel and DebaBanne 1987). Disseminated skeletal tuberculosis without primary foci is rare (Kothari et al., 2004). The skeletal infection often becomes symptomatic within 1-3 years after initial infection (Kushwaha et al., 2008). Tubercular dactylitis needs to be differentiated on one hand from chronic pyogenic osteomyelitis, syphilitic dactylitis and on the other hand from neoplastic condition with lytic condition (e.g.; enchondromata or fibrous defects).

In syphilis, bone is thickened by periosteal reaction. The diffuse osteopenia associated with tubercular infection may distinguish it from pyogenic infection, as well as the absence of sequestration. Clinically, pyogenic osteomyelitis tends to be acutely painful, swollen and hot, with generalised fever. Tubercular osteomyelitis is more often mildly painful, pyrexia is minimal and the whole condition is relatively benign as earlier diagnosis and proper treatment in tubercular osteomyelitis does not cause much morbidity.

Other rare granulomatous conditions which may mimic tubercular infection are mycotic infection, sarcoidosis, brucellosis.

Diaphyseal lesions tend to respond to therapy with slow healing. The bone density return with slow filling of defects by new bone, which may become sclerotic,
coarsely trabeculated or relatively normal (Reeder 1981).

The patient was given antitubercular drug therapy in the form of four drugs during intensive phase for two months followed by two drugs for subsequent six months. Current recommendations for the treatment of osseous tuberculosis include a 2-month initial phase of isoniazid, rifampin, pyrazinamide, and ethambutol followed by a 6 to 12-month regimen of isoniazid and rifampin (Glassroth 2003). Few studies argue that 6-month of antitubercular treatment is appropriate for tubercular dactylitis because of its paucibacillary nature (Sante 1958). At the end of therapy patient was assessed for range of motion. There was no limitation of movements at joints both proximal and distal to the lesion.

CONCLUSION

Tuberculosis uncommonly involves upper extremity. Tubercular dactylitis is the least common presentation in an adult and the radiographic features may be confused with a variety of other diagnosis. A biopsy is often required and curettage may be performed in addition to chemotherapy.

REFERENCES


