Tuberculous Dactylitis Presenting as a pathological Fracture a case report

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Abstract

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* and manifested by formation of granulomas associated with caseous necrosis in tissues. In the musculoskeletal system, Tuberculous Spondylitis is the most typical form of the disease; however joint changes in extraspinal sites such as the hip, knee, wrist and elbow also may occur. Tuberculosis of the metacarpals, metatarsals and phalanges is an uncommon disease. Tuberculous infection of metacarpals, metatarsals and phalanges is known as Tuberculous Dactylitis. There is a spindle shaped expansion of the short tubular bones due to tuberculous granuloma. Hence it is also known as SpinaVentosa (spina ventosa derives from spina = short bone and ventosa =expanded with air).

In our case a 8 year old male presented to us with an isolated swelling in his Rt little finger associated with a sinus and skin excoriation and active discharge since 3 months. This entity is very rare in children more than 5 years of age but in the Indian context possibility for the same is to be considered. FNAC of the swelling was done which yielded granulomas, lymphocytosis against a background of caseous necrosis, a typical picture seen in Tuberculosis. A diagnosis of Spina ventosa was made.

Introduction

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* and manifested by formation of granulomas associated with caseous necrosis in tissues. In the musculoskeletal system, Tuberculous Spondylitis is the most typical form of the disease; however joint changes in extraspinal sites such as the hip, knee, wrist and elbow also may occur. Tuberculosis of the metacarpals, metatarsals and phalanges is an uncommon disease. Tuberculous infection of metacarpals, metatarsals and phalanges is known as Tuberculous Dactylitis. There is a spindle shaped expansion of the short tubular bones due to tuberculous granuloma. Hence it is also known as SpinaVentosa (spina ventosa derives from spina = short bone and ventosa = expanded with air). It is a rare entity and very seldom seen in children more than 5 years of age. Not many reports have documented this entity and isolated presentation of the same is very rare.

Case Report(s)

A 8 year old boy was presented with a swelling of Proximal phalanx of the Right little finger for last 3 months. The swelling was initially small gradually increasing in size. There was history of surgical intervention in the form of incision and drainage at a rural setting following which the swelling initially subsided but recurred again at the same site. There was no history of any trauma. However, h/o exposure to pulmonary tuberculosis was present (first degree relative affected with Tuberculosis).

On examination, a semi tubular swelling 4.5 cm X 3cm was seen over proximal phalanx of the Right little finger . The swelling was associated with excoriation of the skin and scar tissue could be well appreciated (Figure 1) The swelling was firm, fixed to underlying bone, tender and local temperature slightly raised. Clinical picture of the swelling involving the little finger of Right hand of a 8 year old boy. A radiograph of the right hand was done and showed pathological fracture dislocation of the proximal interphalangeal joint of Right little finger. Marked swelling and associated soft tissue component with a dense sclerotic segment of bone can be seen (Figure 2).However no periosteal reaction was seen. The patient was suspected as a case of tumor, but a differential diagnosis of tubercular dactylitis was kept in mind. FNAC was done which showed granulomas and lymphocytosis against a background of caseous necrosis, a typical picture of Tubercular dactylitis . ESR was done and was 45 mm (raised). Montoux was positive.

Bone and joint tuberculosis occur in 1-5% children who have untreated initial pulmonary tuberculosis and spread to the skeletal system via the lymphohaematogenous route. The skeletal infection becomes symptomatic within 1-3 years after the initial
infection. 85% of children with Tuberculous Dactylitis are younger than 6 years of age and its incidence among children with tuberculosis was reported to be 0.65%-6.9%. The bones of hands are more frequently affected than the bones of feet with the proximal phalanx of index and middle finger more frequently affected. The condition usually presents as a painless swelling of a digit of a few months duration. The radiographic feature of cystic expansion of short tubular bones has led to the name of spina ventosa being given to tuberculosis dactylitis of the short bones of the hand. Periosteal reaction and sequestra are not common. **Sclerosis is seen in long standing cases.** During childhood, these 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 infection is lodged in the centre of the marrow cavity and the interior of the short tubular bone is converted gradually into a tuberculosis granuloma. This leads to a spindle shaped expansion of the bone (spina ventosa) with the occlusion of the nutrient artery of the involved bone and the destruction of internal lamellae (or formation of sequestra). The disease may result in deformity, ankylosis of the neighbouring joints and rarely fractures. Tuberculous dactylitis needs to be differentiated on one hand from chronic pyogenic osteomyelitis and syphilitic dactylitis and on the other hand from neoplastic conditions with lytic lesions (enchondromata and fibrous defect). Other rare granulomatous conditions which mimic tuberculous infection are mycotic infection, sarcoidosis and brucellosis.

Management is essentially done by anti-tubercular drugs, rest to the part in functioning position and early active exercise of the involved parts or joints. In patients with unfavorable response or recurrence of infection, surgical debridement is justified. If a metacarpophalangeal, metatarsophalangeal or interphalangeal joint is ankylosed in awkward position excision arthroplasty or corrective osteotomy is indicated. If a finger has ankylosed of more than one joint, is grossly deformed scarred and interfering with normal functioning it may be wise to ampute the finger or the corresponding ray.

In our case a provisional diagnosis of Spina ventosa was made and finger was splinted and patient started on Anti tubercular therapy. The patient is on regular follow up on OPD basis.

**References**

5. Ranadeb Bandyopadhyay, Arindam Mukherjee and Rajib Kumar Mondal Case Report: Spina Ventosa Tuberculous Dactylitis in a 2 Year Old Boy - A Very Rare Disease *The Open Orthopaedics Journal*, 2012, 6, 118-120
Illustrations

Illustration 1

Clinical picture of the swelling showing the deformed little finger with a non healing ulcer

Illustration 2

Figure showing radiological picture of the swelling with a pathological fracture and sequestrum (sclerosed)