

Research Article

ISOLATED TUBERCULOUS DACTYLITIS (SPINA VENTOSA) IN A 9 YEAR OLD BOY - A RARE ENTITY

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ABSTRACT

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* and manifested by formation of tubercles and 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 Spina Ventosa. We describe a nine year old boy with a swelling in the right ring finger diagnosed as Tuberculous Dactylitis on histopathological examination.

Key Words: *Tuberculosis, Spina ventosa, Dactylitis, Granuloma*

INTRODUCTION

It is of historic interest that Rankin in 1886 identified Tuberculous Dactylitis by histological technique and Feilchenfeld in 1896 described Tuberculous Dactylitis roentgenographically in children. The spine is the most frequent site of skeletal involvement; occurring in 1 to 3% of patients with extra pulmonary tuberculosis. The diagnosis is often delayed because osseous tuberculosis is a paucibacillary lesion. Tuberculosis of the metacarpals, metatarsals and phalanges is an uncommon disease. Tuberculous infection of metacarpals, metatarsals and phalanges of hands and feet is known as tuberculous dactylitis. The hand is more frequently involved than the foot. In children the disease may occur in more than one short tubular bone at a time. There are not many reports devoted to tuberculous dactylitis.

CASE REPORT

Clinical Features

A 9 year old boy was presented with a swelling of right ring finger for last 1 month. The swelling was initially small gradually increasing in size. It was associated with dull aching pain for the last 20 days. There was no history of any trauma, fever, weight loss or exposure to pulmonary tuberculosis.

On examination, a semi tubular swelling measuring 5.0 x 2.0 x 1.0 cm was noted over right ring finger at middle phalanges. The swelling was bony hard, fixed to underlying bone, tender and local temperature slightly raised. Systemic examination was unremarkable.

Laboratory Investigations

Complete blood count reveals relative lymphocytosis. Erythrocyte sedimentation rate was increased (45mm/hr). Other laboratory investigations were not fruitful.

Radiological Examination

A roentgenograph of the right hand showed a cystic expansile lesion of right ring finger middle phalanges. The margins were well defined with internal septations. There was cortical destruction but no periosteal reaction. A provisional diagnosis of Spina Ventosa was made.

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Figure 1: X-Ray Right hand A-P View, (a) Lateral View (b) The boy was underwent excision biopsy of the lesion. The specimen sent for histopathological examination in Department of Pathology, M.G.M. Medical College and Indore.

Histopathological Examination

Gross Examination:

Specimen received consist of multiple gray white soft to hard tissue pieces together measuring 1.0 x 0.3 x 0.2 cm.

Microscopic Examination:

Sections studied show soft tissue along with bony tissue showing well-formed granuloma consisting of epithelioid cells, lymphocytes, plasma cells and few langhans type of giant cells. Areas of caseous necrosis also appreciated.

Histological diagnosis

Tubercular Dactylitis

DISCUSSION

Bone and joint tuberculosis occur in 1-5% children who have untreated initial pulmonary tuberculosis and spread to the skeletal system during the initial infection 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 spinaventosa being given to tuberculosis dactylitis of the short bones of the hand. Periosteal reaction and sequestra are not common but may occur. Sclerosis may be 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 (spinaventosa) with the occlusion of the nutrient artery of the involved bone and the destruction of internal lamellae (or formation of sequestra). In natural course, the disease heals with shortening of the

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involved bone and deformity of the neighbouring joint. 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 metacarpo-phalangeal, metatarso-phalangeal 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 amputate the finger or the corresponding ray. In our case a provisional diagnosis of tuberculous dactylitis was made.

Differential diagnoses were osteoblastoma, syphilis. Surgery was conducted and excision biopsy of the lesion was done. The specimen sent for histopathological examination showed epithelioid granuloma suggestive of tuberculosis. Anti-tubercular drugs were started post-operatively.

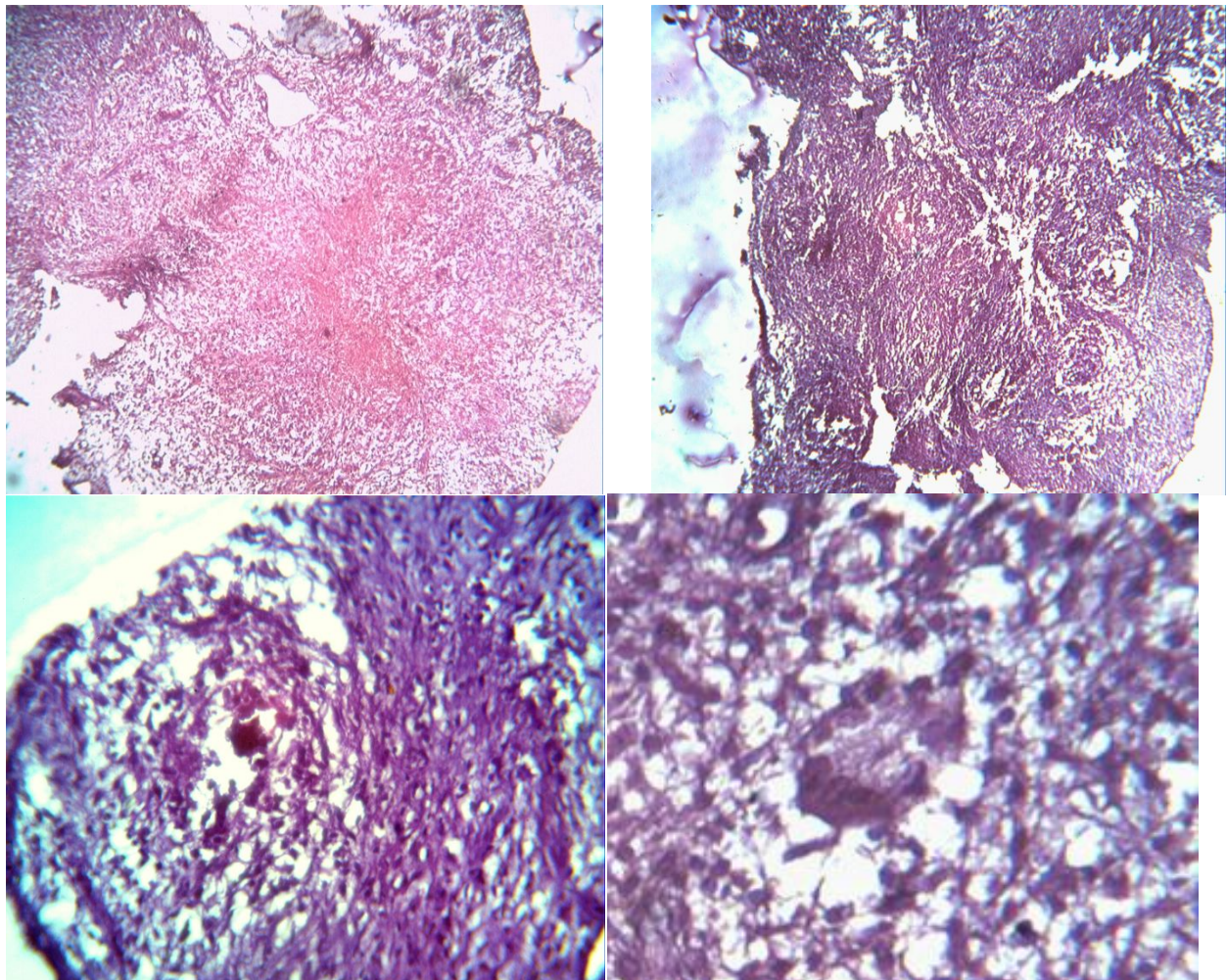


Figure 2: (a) Granuloma with central caseous necrosis (Hand E 4X) (b) Multiple granuloma formation (H and E 4X) (c) Epithelioid cells with giant cells (H and E 10X) (d) Giant cell (H and E 40X)

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