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Tubercular Dactylitis In A 9 Year Old Male Child: A Rare Case Report

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ABSTRACT

Tuberculosis of musculoskeletal system is most common manifested as tuberculosis of spinal cord (tubercular spondylitis) followed by joint diseases affecting hip, knee, wrist and elbow in the descending order. Tubercular involvement of small bones of hands and feet is known as tubercular dactylitis. It is a rare from of extrapulmonary tuberculosis, causing spindle shaped expansion of short tubular bones due to granuloma formation thereby named as spina ventosa. We, hereby present a case of nine year old male child who presented with acute painful swelling with pathological fracture of right ring finger later diagnosed as tubercular dactylitis on histopathology.

Keywords: Tuberculosis, dactylitis, spina ventosa

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INTRODUCTION

Tuberculosis is an infection caused by Mycobacterium tuberculosis manifested by formation of tubercles and caseous necrosis in tissues.[1] Among the extrapulmonary sites, spine is the most common site of skeletal involvement comprising about 1-3 % cases followed by limb bones and rarely bones of hands and feet. Being a paucibacillary lesion, skeletal tuberculosis is often difficult to diagnose. First described in 1896 by Feilchenfeld, tubercular dactylitis occurs most frequently in children below 6 years of age (85%) involving bones of hand more frequently than that of feet and proximal phalanx of index and middle finger being most commonly affected. We, hereby present a rare case of tubercular dactylitis.

CASE REPORT

A 9 year old male child presented in orthopaedics OPD with swelling in right ring finger since one week followed by sudden excruciating pain with loss of mobility of the involved joint since past one day. There was no history of any trauma, fever, weight loss, chronic cough or any history of exposure to pulmonary tuberculosis. Examination revealed a tubular swelling measuring 4 x 2 x 1 cm over right ring finger at middle phalanx with painful mobility. The swelling was tender, hard with raised local temperature and appear to arise from underlying bone. Systemic examination was unremarkable.

Complete blood count revealed lymphocytosis along with elevated erythrocyte sedimentation rate of 28. Mountoux test was borderline positive with an induration of 8 x 11 cm at 72 hours. A baseline chest X-Ray was performed which showed no abnormality.

X-Ray of right hand AP and lateral view was advised which showed a cystic expansile lesion middle phalanx of right ring finger with cortical destruction. The margin was breached suggesting pathological fracture with mild internal septations (figure 1a). No evidence of periosteal reaction or any irregular growth was present. A differential diagnosis of spina ventosa and pyogenic osteomyelitis was made and biopsy was advised for confirmatory diagnosis.

Management comprised of wide local excision and curettage of the lesion along with bony chip grafting and the excised tissue was sent for histopathological examination.

Grossly, the specimen received consisted of multiple grey white firm to hard tissue pieces, aggregate measuring 1.5cm diameter. Bony tissue was sent for decalcification and remaining tissue was processed.

Microscopically, sections showed several well formed granulomas comprising of central caseous necrosis surrounded by lymphocytes, plasma cells, epitheloid cells and few langhans type of multinucleated giant cells (figure 1b). Background showed areas of caseous necrosis mixed with scarce viable bony as well as soft tissue.

On the basis of these clinical, radiological and histopathological findings, a diagnosis of tubercular dactylitis was made.

DISCUSSION

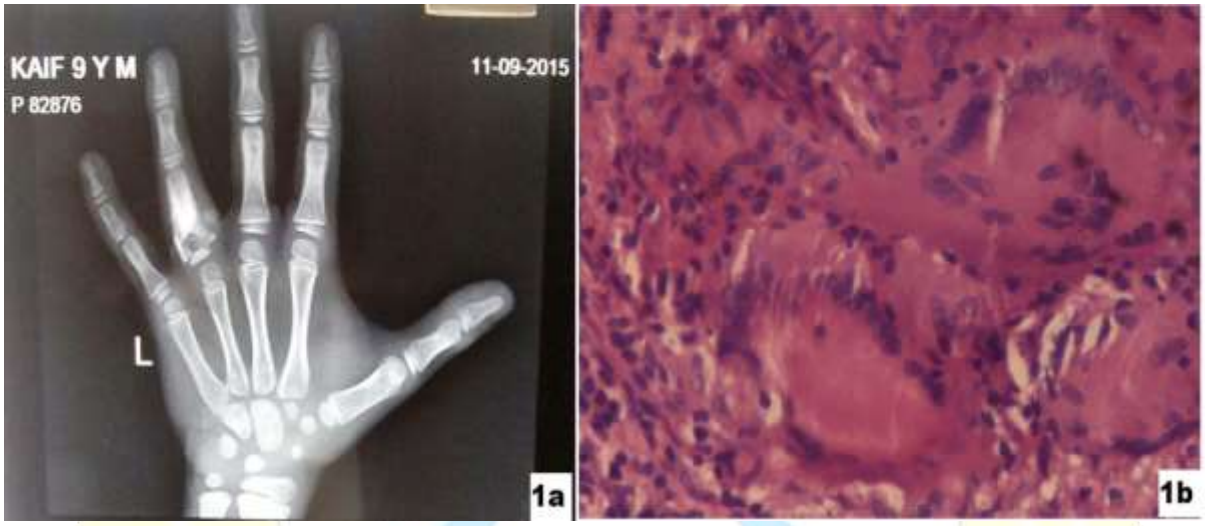

Figure 1a- X-Ray Right hand A-P View showing cystic lesion of middle phalanx of right ring finger with cortical destruction

Figure 1b- Section shows granuloma comprising of epithelioid cells, langhans type giant cells and lymphocytes (H&Ex 40x)

Skeletal tuberculosis accounts for 1-5% of extrapulmonary tuberculosis as a consequence of either reactivation of latent foci seeded during the primary illness; or lymphohematogenous spread from newly reactivated tuberculosis.[2] Tuberculous involvement of the metacarpals and phalanges is a rare presentation of extrapulmonary tuberculosis[3] with about 85% of patients being younger than 6 years of age[4] while its incidence among children is reported to be 0.65-8%.[5] Tubercular dactylitis runs a protracted chronic course, symptom duration ranging from a few months to 2-3 years after the initial infection.[5] Involvement of the bones of hands is more frequently seen than the bones of feet with the proximal phalanx of index and middle finger being the most commonly affected.[1,5] Only 1/3rd of patients with bone tuberculosis are found to have concomitant active pulmonary disease[6] and about 1/2 such cases had peripheral lymphadenopathy. Disseminated skeletal tuberculosis without primary foci is rare.[7]

The usual presentation of this disease is a painless digital swelling of a few months duration. Local trauma prior to the infection is reported in up to 40% of cases, but this may represent recall bias.[2] A positive history of socioeconomic deprivation, immunosupression and history of contact may be present. But nothing significant was found in our case. On radiography, it usually presents (90%) as cystic expansion of short tubular bones, also named as "spina ventosa" which may have a central cavity containing coke like sequestra.[8] Other manifestations are osteopenia (72%), joint space narrowing (66%), cysts (66%), erosions

(64%), bony sclerosis (20%), periostitis (15%) or calcifications (5%).[9] During childhood, the short tubular bones have a lavish blood supply through a large nutrient artery entering in the middle of the bone. The first inoculum of infection is lodged in the centre of the marrow cavity gradually converting the interior of bone into a tubercular granuloma, thus leading to a spindle shaped expansion of the bone. Occlusion of the nutrient artery supplying the diseased bone leads to destruction of internal lamellae thus, forming sequestra. Periosteal reaction is uncommon although sclerosis is seen in long standing cases. The disease may result in deformity, ankylosis of the neighbouring joints and rarely fractures.[5]The definite diagnosis of tuberculous dactylitis rests on bacteriological and histological studies.

The differential diagnosis includes chronic pyogenic osteomyelitis, syphilitic dactylitis, metabolic disease (gout), granulomatous diseases like sarcoidosis, mycotic infection and neoplastic conditions with lytic lesions like enchondromatosis, fibrous defect.[5] Infection is rapidly responsible for bone destruction, but the rate of progression is far slower with mycobacteria. In sarcoidosis, well demarcated cystic lesions are found in the phalanges of the fingers, although bony expansion and periosteal new bone formation are not found. In enchondromatosis, numerous lesions are present along with characterstic punctate calcification. Other even more uncommon causes of lesions simulating dactylitis are haemoglobinopathies, hyperparathyroidism and leukemia.

The mainstay of management is anti-tubercular drugs supported by rest to involved part in functioning position followed by early active exercise. In case of non-responders and recurrence, surgical debridement is justified. If any neighbouring joint is ankylosed in awkward position excision arthroplasty or corrective osteotomy is indicated.[1,5]

CONCLUSION

Although rare, tubercular dactylitis must be kept in mind and needs continued vigilance when dealing with a lytic expansile lesion with long standing pain and swelling that involves a phalanx as it difficult to diagnose during early stages. Despite the unusual clinical presentation and unusual history of our case, an accurate diagnosis was made based on histopathological positivity of the excised tissue for tuberculosis and thereby the patient was started on anti-tubercular treatment.

REFERENCES

1. Panchonia A, Kulkarni C.V., Mehar R, Mandwariya S. Isolated tuberculous dactylitis (spina ventosa) in a 9 year old boy - a rare entity. International Journal of Basic and Applied Medical Sciences. 2012; 2: 2
2. Aisenberg G. Tuberculous Dactylitis: An Unusual Finding Demanding Invasive Diagnosis. J Clin Case Rep 2014; 4: 389.

3. Subasi M, Bukte Y, Kapukaya A, Gurkan F. Tuberculosis of the metacarpals and phalanges of the hand. Ann Plast Surg 2004; 53:469-72.
4. Andronikou S, Smith B. Spina ventosa-tuberculous dactylitis. Archives of Disease in Childhood 2002; 86: 206.
5. Jindal MK. Tuberculous Dactylitis Presenting as a pathological Fracture a case report. WebmedCentral ORTHOPAEDICS 2015; 6(10):WMC004994
6. Daniel TM, DebaBanne SM: The serodiagnosis of tuberculosis and other mycobacterial diseases by enzyme-linked immunosorbent assay. Am Rev Respir Dis 1987; 135: 1137-51.
7. Kothari PR, Shankar G, Gupta A, Jiwane A, Kulkarni B. Disseminated Spina Ventosa. Indian J Chest Dis Allied Sci 2004;46: 295-6.
8. Weaver P, Lifeso RM. The radiological diagnosis of tuberculosis of the adult spine. Skel Radiol 1984; 12: 178-86.
9. Leung PC. Tuberculosis of the hand. Hand 1978; 10: 285-291.