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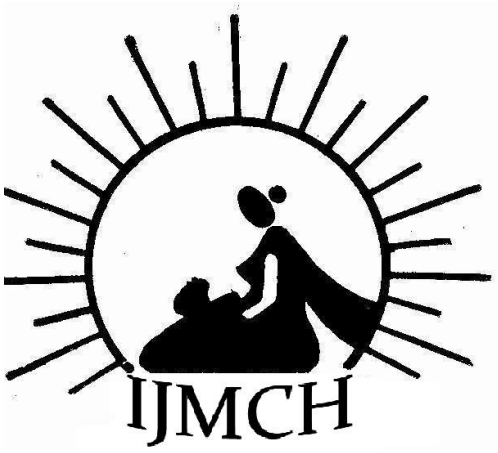

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Tubercular pyomyositis of quadriceps femoris in an immunocompetent infant

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ABSTRACT

Tuberculosis is a very rare cause of soft tissue abscesses and pyomyositis in children. The diagnosis is often missed due to lack of awareness, non-specific clinical features and resemblance with other common pediatric inflammatory and malignant conditions. Reports of its occurrence in infants with no immune dysfunction are virtually non-existent. We report a 5- mo-old infant with tubercular pyomyositis of quadriceps femoris that improved with needle aspiration and anti-tubercular therapy.

Keywords: Tuberculosis, pyomyositis, infant, soft tissue tuberculosis, quadriceps muscle

INTRODUCTION

Extrapulmonary tuberculosis especially osteoarticular tuberculosis in rare comprising 3% of all tuberculosis patients (1). Subcutaneous involvement and pyomyositis comprise less than 1% of all musculoskeletal tuberculosis (1). It is generally described in patients with immunedeficient states although cases with no immune deficiency have been reported (2, 3). Delayed or misdiagnosis is common as the disease manifestations may mimic malignant or other inflammatory conditions and the culture positivity amongst specimens is poor (2, 4). A high index of clinical suspicion in areas with tuberculosis endemicity may result in early diagnosis and good outcome (1, 2, 4). In this communication, we describe a 5-mo-old boy recently diagnosed with tubercular pyomyositis of quadriceps femoris.

CASE REPORT

This 5-mo-old boy presented with progressively increasing swelling in front of right thigh for last 15 days. There was no history of fever, poor feeding, lethargy, weight loss or history of contact with tuberculosis. On examination, child was active, alert and weighed 4.7 kg (<-3 SDS on WHO growth charts 2007). His length (64 cm, between 0 and -1 SDS) and head circumference (42 cm, between 25th and 50th centiles) were appropriate for age. A small 3 x3 cm, mildly erythematous swelling was palpable on anterolateral part of right thigh. The swelling was non tender and non-fluctuant. The limb movements were unrestricted and not

painful. Child had heart rate of 120/min, respiratory rate 48/min and blood pressure 80/40 mmHg. Systemic examination was unremarkable.

Investigations revealed hemoglobin of 8.8 g/dL, leukocyte count 8,900 (neutrophils 33%, lymphocytes 62%, monocytes 2%, eosinophils 3%) and platelet count of 201,000/cmm. Liver and renal function tests and chest radiography were normal. Cerebrospinal fluid analysis revealed no cells, proteins 35 mg/dL and glucose 60 mg/dL (blood glucose 81 mg/dL). Results of Gram stain, culture, smears for acid fast bacilli and polymerase chain reaction for mycobacterium tuberculosis in cerebrospinal fluid were all negative. Ultrasonography of thigh showed an ill-defined collection of 3x3 cm in anteromedial aspect of right thigh in subcutaneous and intramuscular plane in quadriceps femoris (Fig.1).

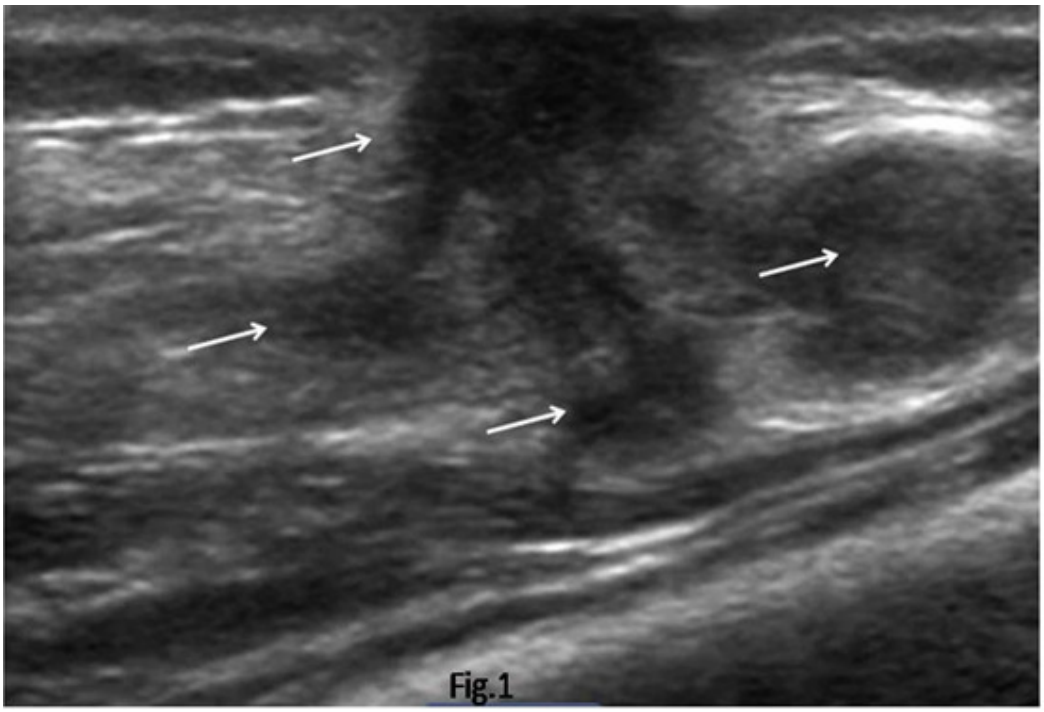

Fig1: High resolution contrast ultrasound in longitudinal plane revealing area of heterogenous echotexture (arrowa) in right quadriceps femoris suggestive of pyomyositis

Ultrasound guided aspiration from this swelling yielded about 20 ml of pus. Gram stain and culture of the aspirate were negative and stain for acid fast bacillus was positive. Histopathological examination revealed epitheloid cell granulomas, Langhans type of giant cells, abundant necrosis and fibrocapillary fragments (Fig.2a and 2b). Ultrasonography of pericardial and pleural cavities, abdomen, cranium, and hip and knee joints was normal. Technetium-99m MDP scintigraphy of the whole body showed no active focus in bones. HIV ELISA and Mantoux test were non reactive. The IgG immunoglobulin level was 578 mg/dL (range 300-900 mg/dL), IgA level was 23 mg/dl (range 15-70 mg/dL) and IgM level was 47 mg/dL (range 40-160 mg/dL). Nitroblue tetrazolium reduction in the patient as well as in control was similar. Percentage of CD3+ (T lymphocytes marker) were 49.3% (range 50-77%), CD19+ (B lymphocyte marker) were 36.9% (range 13-35%) and natural killer cells were

8.6% (range 3-14%). Child was started on 4 drug anti-tubercular therapy with rifampicin, isoniazid, pyrazinamide and ethambutol. At 3 months follow up visit, child showed a weight gain of 1 kg and a reduction in the thigh swelling (Fig.3).

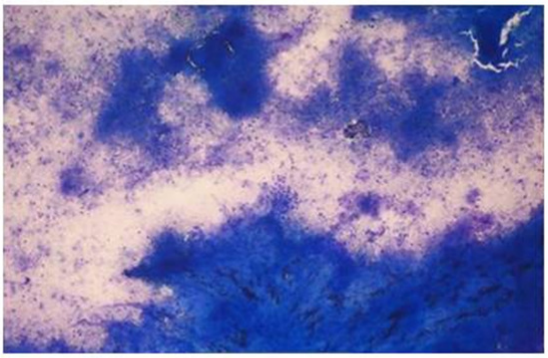

Fig.2a

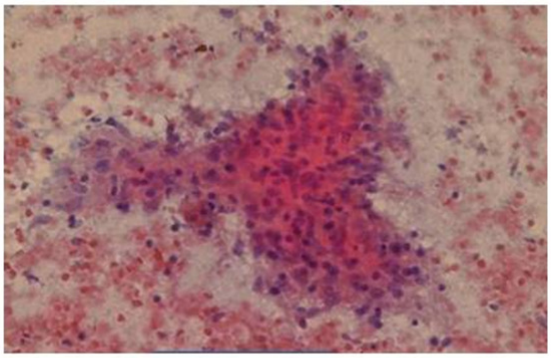

Fig.2b

Fig 2a: Micro photographs showing extensive caseation necrosis and degenerated inflammatory cells (magnification 20x)
Fig 2b: Micro photographs showing an epitheloid cell granulomas (Pap x40x)

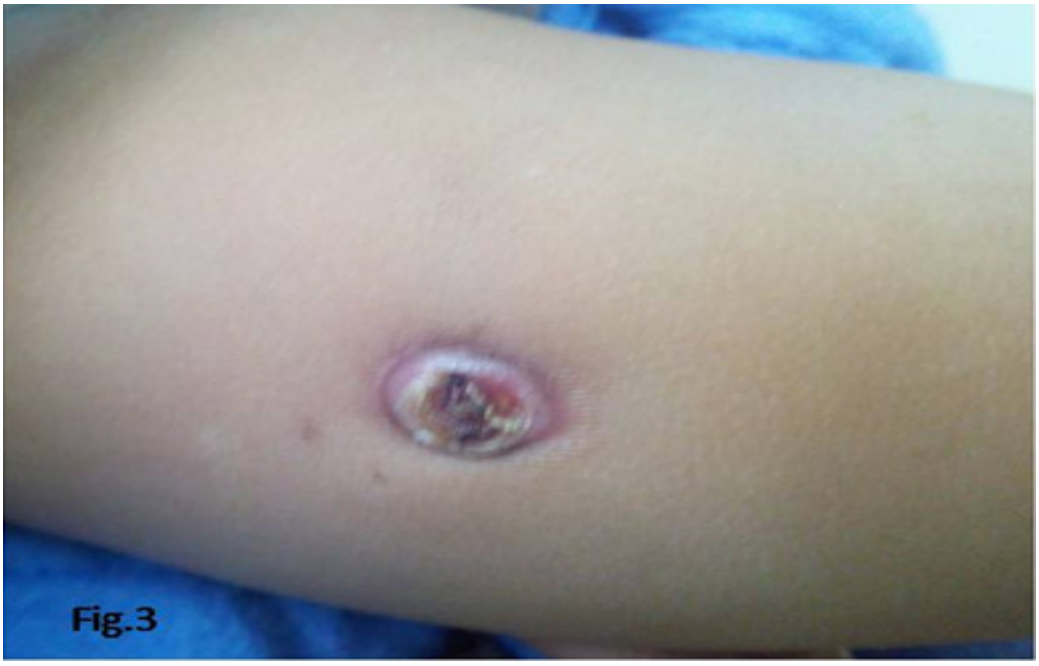

Fig 3: Healing lesion on right anteromedial thigh

DISCUSSION

The tubercular infection in our patient was confined to the thigh as extensive investigations done to demonstrate dissemination of infection, commonly observed in young infants, were negative. Also the work up for an underlying immunodeficiency was negative. The occurrence of mycobacterial infection as musculoskeletal and subcutaneous abscesses is understandably rare (4). The low oxygen content, high lactic acid concentration and paucity of lymphoreticular tissue in muscles makes this an uncommon site for mycobacterial infections (5). Such involvement may be due to hematogenous seeding from a distant focus, local inoculation or minor trauma due to intramuscular injections during previous vaccination in infants. Isolated soft tissue and muscle tuberculosis has been reported in post-renal transplant recipients, diabetic patients, patients on chronic corticosteroid therapy and infection with HIV (1, 2, 6, 7). The presence of an immunodeficient state, however, is not essential to development of this form of tuberculosis (1-3, 8). The involvement of quadriceps muscle appears to be more common as compared to other muscle groups (1-3, 8-10). This assumes significance in terms of its masquerading as other inflammatory and malignant conditions that affect thigh muscles (3, 10-12). The differentiation is important for an early diagnosis that may reduce morbidity and mortality as tuberculosis is known to disseminate rapidly to other organ systems in infants. In conclusion, in areas of high endemicity for tuberculosis, a diagnosis of tubercular pyomyositis should be considered in children who present with a soft tissue or muscular swelling and have minimal local signs of inflammation.

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