

## Case Report

### Primary tuberculous abscess of rectus femoris muscle: a case report

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#### Abstract

Tuberculosis of skeletal muscle is very rare, especially in immunocompetent patients. We describe a case of tuberculous abscess of rectus femoris muscle, which presented as a tender ill-defined mass. Diagnosis was established by PCR and histology. The patient showed marked improvement with a standard four-drug regimen with no evidence of disease activity at the two-year follow-up.

**Key words:** tuberculosis, abscess, rectus femoris

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#### Introduction

Tuberculosis affects a significant percentage of the world's population and musculoskeletal tuberculosis constitutes 1-5% of all cases [1]. Its effects on various bones and joints are well known. Skeletal muscle tuberculosis is a rare entity in itself as it is an unfavorable site for survival and multiplication of *Mycobacterium tuberculosis*. [2] Involvement of muscles in the tuberculous process without coexisting active skeletal or extraskeletal tuberculosis is very rare. We present a case of primary intramuscular cold abscesses in the right rectus femoris muscle with no underlying bone lesion.

#### Clinical Record

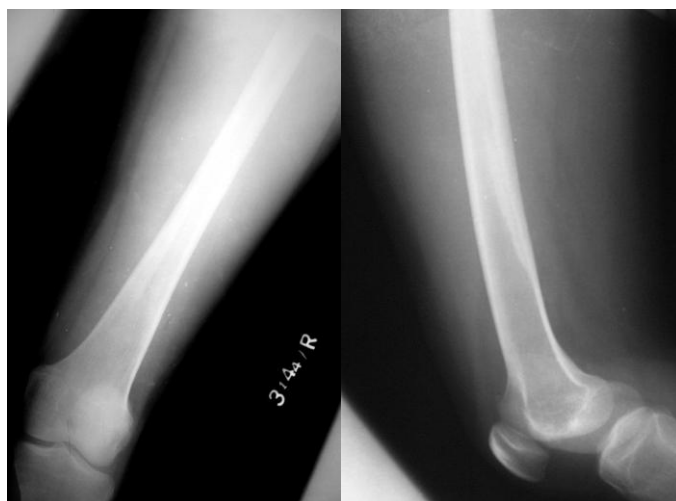
A 21-year-old female presented to us with a tender ill-defined mass of one month's duration localized to right mid-thigh. There was no history of fever or pulmonary complaints though weight loss and anorexia were present. There was no history of trauma, intra-muscular injection at the local site or contact with tuberculosis (TB).

Examination revealed a cystic, ill-defined mass of 6 cm x 4 cm x 4 cm in size in the anterior mid-thigh, well separated from the underlying bone. The skin over it was normal looking with no sinuses. There was no limitation of motion in the ipsilateral hip or knee joint. There was no neurovascular involvement.

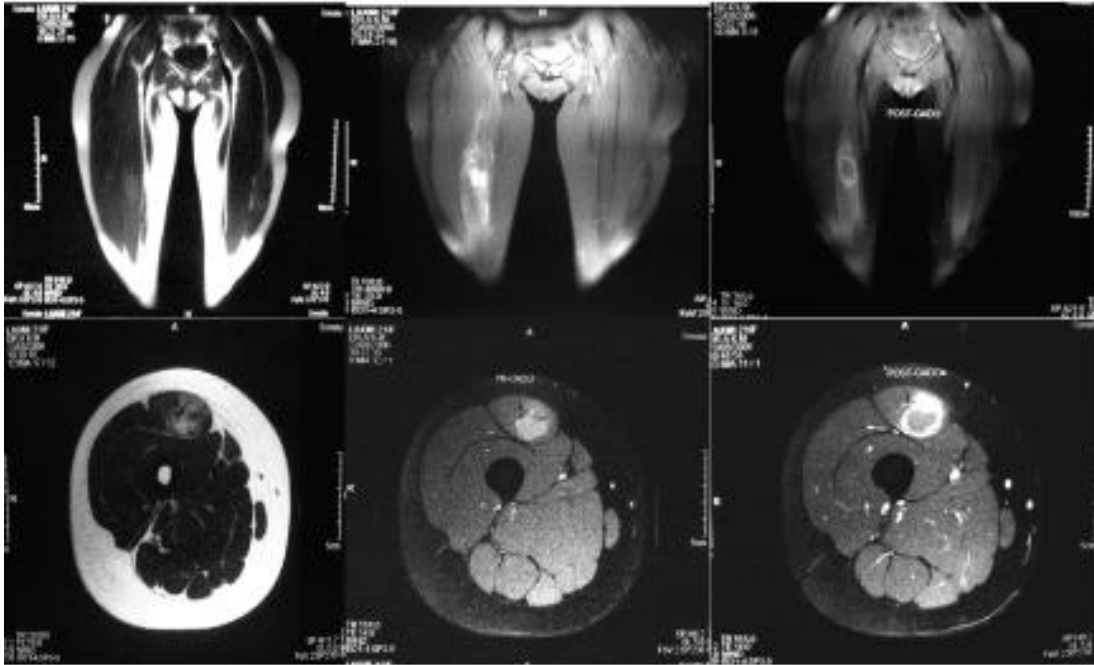
Radiographs were normal, showing intact femur (Fig 1). MRI scan was showed a cystic lesion in the rectus femoris muscle with peripheral rim enhancement in post-gadolinium contrast films (Fig 2).

Chest X-ray was normal. Blood counts were as follows: hemoglobin - 11.2 gm%; total leukocyte counts - 8800/mm<sup>3</sup>; differential count - 68% polymorphs, 32% lymphocytes; ESR - 32 mm in the first hour (elevated). Blood sugar, urine analysis, and renal function tests were within normal limits. Serology for HIV was negative.

**Figure 1.** AP and lateral radiographs of right thigh.



**Figure 2.** MRI with Gadolinium enhancement showing a well-defined mass contained in the substance of the rectus femoris muscle with peripheral enhancement on gadolinium contrast.



Ultrasound guided aspiration of the abscess showed the aspirated sample to be purulent. Microscopy showed necrotizing granulomas. The sample was positive for *M. tuberculosis* polymerase chain reaction (PCR). Later culture was also found to be positive (Bactec method).

The patient was started on a regimen of four-drug antitubercular chemotherapy (2HREZ/4HR<sub>3</sub>) and improved clinically with resolution of symptoms by three months. At the two-year follow-up, the patient had no signs of disease activity.

### Discussion

Soft tissue involvement in tuberculosis is generally associated with an underlying disorder (such as collagen vascular disease), immunosuppression therapy, or local injury [3]. Tuberculosis can involve skeletal muscles by extension from bone, synovial lining of joints or tendon sheaths; by direct inoculation; and, rarely, by haematogenous dissemination [4]. However, selective primary muscular involvement without osseous involvement is rare. It can occur probably by a hematogenous spread from an occult primary focus elsewhere. A few reports have indicated that primary tuberculosis in muscle may be transmitted by syringes [5,6]. Tuberculous abscesses may be frequent in patients with AIDS [7].

The rarity of skeletal muscle tuberculosis has been variously attributed to a high lactic acid content of muscles, absence of reticuloendothelial / lymphatic tissue, rich blood supply and the highly differentiated state of muscle tissue [8]; however, none of these possibilities seems to be an adequate explanation.

Intramuscular tuberculous abscess has been rarely reported in immunocompetent patients [4,9-14]. The abscess usually has a slow clinical course and simulates occurrence of a tumor [10]. It usually presents as swelling and pain. High index of clinical suspicion is key to diagnosis. Other possible differential diagnoses include intramuscular hydatid disease and pyomyositis and soft tissue tumors such as myxoma, hemangioma, etc. The possibility of tuberculous abscess should be strongly considered in endemic areas. A normal chest radiograph, absence of systemic symptoms, or the absence of other foci of active tuberculosis should not dissuade one from making the diagnosis.

MRI, especially with gadolinium enhancement, is very helpful in diagnosis of intramuscular abscess; however, tissue diagnosis is confirmatory. Needle aspiration and examination is usually sufficient. Incisional biopsy may be helpful if needle aspiration fails to establish the diagnosis. Polymerase chain reaction (PCR) is a tool for rapid confirmation of diagnosis [15] but biopsy and culture remains the gold standard. The prognosis is good with

appropriate chemotherapy. Surgical debridement may be necessary in patients not responding to chemotherapy alone.

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