TUBERCULOUS ABSCESS OF THE THIGH MUSCLE IN A PATIENT WITH SYSTEMIC LUPUS ERYTHEMATOSUS MR FEATURES IN AN UNUSUAL PRESENTATION OF TUBERCULOSIS

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ABSTRACT

Infections are a major cause of morbidity and mortality in systemic lupus erythematosus patients. Although these patients are susceptible to infection, soft tissue infections are rare. We report a case of tuberculous abscess and myositis involving the left vastus lateralis muscle but with no pulmonary manifestation of tuberculosis. The rare localization of tuberculosis to skeletal muscle in this case is likely to be related to immunosuppression from chronic steroid therapy and the underlying autoimmune disease.

CASE REPORT

A 59 year old lady with a history of systemic lupus nephritis,on long term (more than 18 years) low dose steroids, presented with left thigh swelling and pain of 1 year's duration. she was on prednisolone 7.5 mg om prior to her presentation. There was no history of fever, chills, sweats or antecedent trauma during the previous year. Clinically, the patient was afebrile. A fluctuant swelling was seen on the lateral aspect of the left thigh. No skin erythema was present. The white blood cell (WBC) count was $4.8x10^9/l$ with an essentially normal differential count. No infective change was seen on the chest radiograph. Radiograph of the left femur did not show significant abnormality.

Magnetic resonance imaging (ME 1.5 T) images showed a large cystic collection in the left vastus lateralis muscle; the lesion is hypointense on T1 weighted [Fig. 1(a) and 2(a)] and hyperintense on T2 weighted images [Fig. 1(b) and 2(b)]. T1-weighted image also shows a subtle high signal intensity surrounding a large cystic hypointense collection in the left vastus laterlis muscle. The lesion measured approximately 7 cm by 5 cm by 19 cm in size. There was adjacent inflammatory change in the left vastus lateralis muscle, seen as infiltrative areas of hyperintensity seen on T2 weighted images [Fig. 1(b)]. Following intravenous Gadolinium, there was intense peripheral rim and adjacent muscle enhancement [Fig. 1(c) and 2(c)]. The adjacent muscle enhancement corresponded to the areas of hyperintensity noted on the T2 weighted images [Fig. 2(c)]. The overlying skin or subcutaneous tissue was not involved. No osteomyelitis was seen in the left femur.

During open biopsy, the left vastus lateralis muscle appeared pale and oedematous. The cyst in the left vastus lateralis muscle was thick walled. Biopsy and drainage of the cystic structure was performed. Histopathological examination of the cyst wall showed fibrous tissue with multiple epitheloid granulomas with many Langhans type multinucleate giant cells. Caseation necrosis was seen. The adja-

om = every morning

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cent muscle was also involved. Acid fast bacilli (AFB) and fungus were not seen. The pathological diagnosis was of necrotising granulomatous inflammation suggestive of tuberculosis.

on follow-up, the patient was found to be Mantoux positive (24mm). The AFB culture from the biopsy specimen of the left vastus lateralis grew Myco Tuberculosis Complex sensitive to Streptomycin, Rifampicin, Isoniazid and Ethambutol. The findings were conclusive that this systemic lupus patient had tuberculous abscess in the left vastus laterlis muscle with adjacent myositis. She was started on anti-tuberculosis treatment post-operatively.

DISCUSSION

The common presentation of tuberculous abcesses is with localized pain and swelling, in the involved muscle. There may be accompanying fever, malaise, leucocytosis and elevated erythrocyte sedimentation rate. Serum muscle enzymes may be raised but are frequently normal in infective myositis despite extensive myonecrosis.[1] A negative chest radiograph in an adult patient, like in this case, does not exclude the possibility of musculoskeletal tuberculosis.[2]

The differential diagnosis of the inflammatory cystic lesion in the thigh muscle include pyogenic abscess and granulomatous abscess. Staphyloccocus aureus is the most common causative organism in pyogenic abscesses,[1] others include streptococci and gram negative organism. Granulomatous tuberculous abscess of the muscle is more often reported in psoas abscesses, seen in 5% of case of tuberculous spondylitis.[2] Rarely, such abscesses develop in the absence of bone abnormalities.[2] The isolated localization of tuberculosis in the skeletal muscle of the thigh in this patient is unusual.

The predisposing factor to tuberculous infection in this patient with underlying systemic lupus erythematosus is postulated to be chronic steroid therapy. Corticosteroid therapy is known to reactivate latent tuberculous infection. Postulated mechanisms include suppression of microbiocidal activity, macrophage and monocyte response to lymphokines and lymphopenia.[3] The mechanisms of musculoskeletal spread include hematogenous spread and

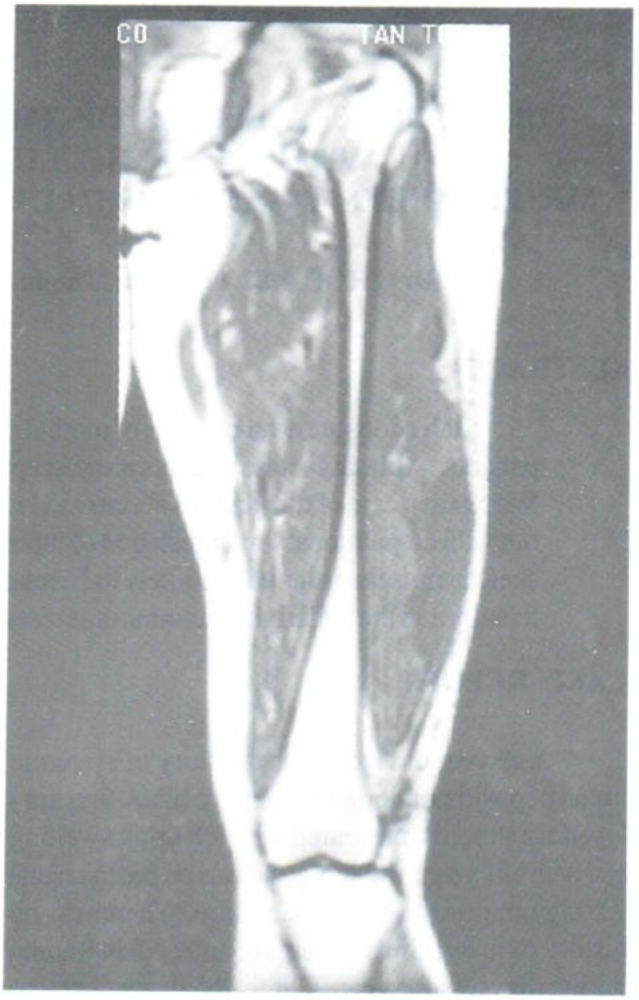

Fig.1 Coronal MR images of the thigh of the patient. (a)T1-weighted image illustrates the subtle high signal intensity surrounding a large cystic hypointense collection in the left vastus lateralis muscle

contamination after local injury. As skeletal muscle generally is highly resistant to metastatic infections, the pathogenesis of tuberculous localization in muscle with the development of abscesses is not clear, although it is suggested that an initial muscular insult is required to allow such localization. Concurrent diseases including diabetes, HIV (human immunodeficiency virus), connective tissue disorders and varied haematologic disorders further predispose individuals to the development of a muscle infection.[4] It is hypothesized that these systemic processes. Which result in varying degrees of immunosuppression, like local muscle trauma, make the muscle more suscep-

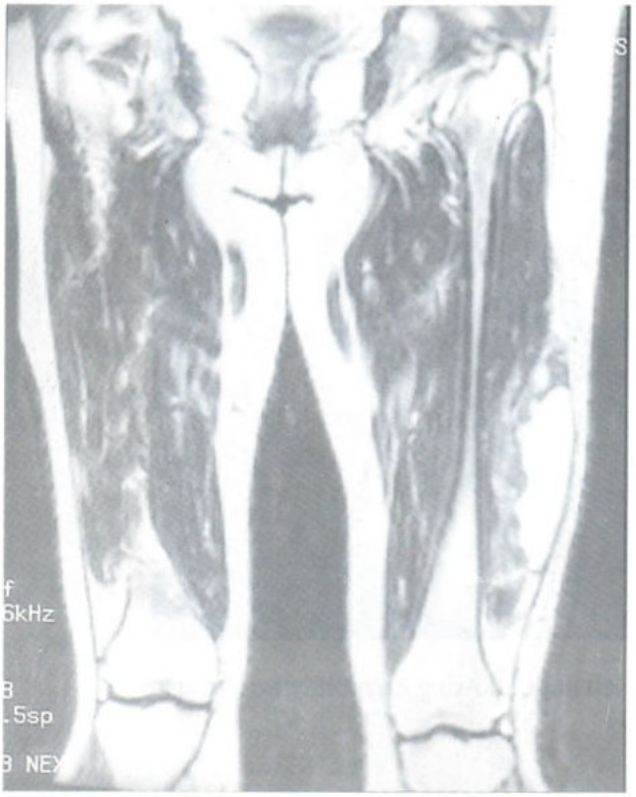

Fig.1(b) Coronal T2-weighted images demon strates a high signal intensity fluid collec tion in the left vastus lateralis. Adjacent inflammatory change in the left vastus lateralis muscle, seen as infiltrative areas of hyperintensity.

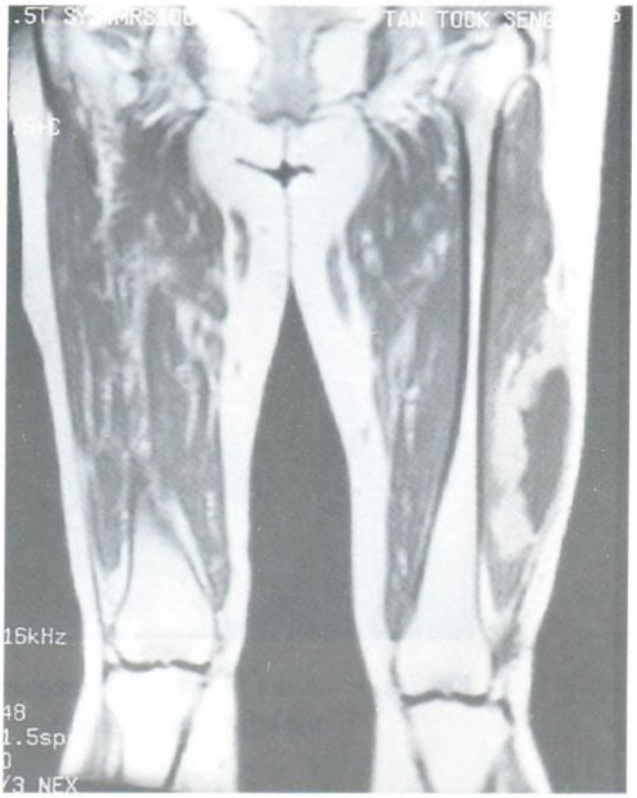

Fig.1(c) Gadolinium enhanced coronal T2-weighted image shows enhancement of the wall of the abscess.

tible to infection especially in the setting of transient bacteremia.

As plain radiography provides little clinical information regarding the proper diagnosis or the ideal site of tissue aspiration, attention has been directed towards other imaging techniques. ultrasound, computerized tomography (CT) and MRI have proved helpful in the diagnosis of pyomyositis. discrete abscess collection may be seen on ultrasound; their internal echoes and through transmission varying with the extent of debris.[5] Sonographically or CT guided percutaneous drainage may be helpful in the diagnosis and management of muscular abscesses. CT findings indicative of muscular abscess include enlargement of the muscle(s), effacement of intramuscular and intermuscular fat planes, fluid or gas collections within the involved musculature and a 'rim' sign (consisting of a rim of increased tissue attenuation that enhances after intravenous contrast administration).[6] MR imaging findings include muscle enlargement. abscesses characterized by a peripheral rim of increased signal intensity on T1-weighted spin echo MR images and a central region, representing fluid, of intense signal on T2-weighted spin echo MR images and by peripheral enhancement after intravenous Gadolinium, and associated abnormalities of subcutaneous edema in some cases.[7] The imaging findings of pyomyositis is not specific for the causative organism and aspiration or surgical drainage is often required to diagnose the causative organism.

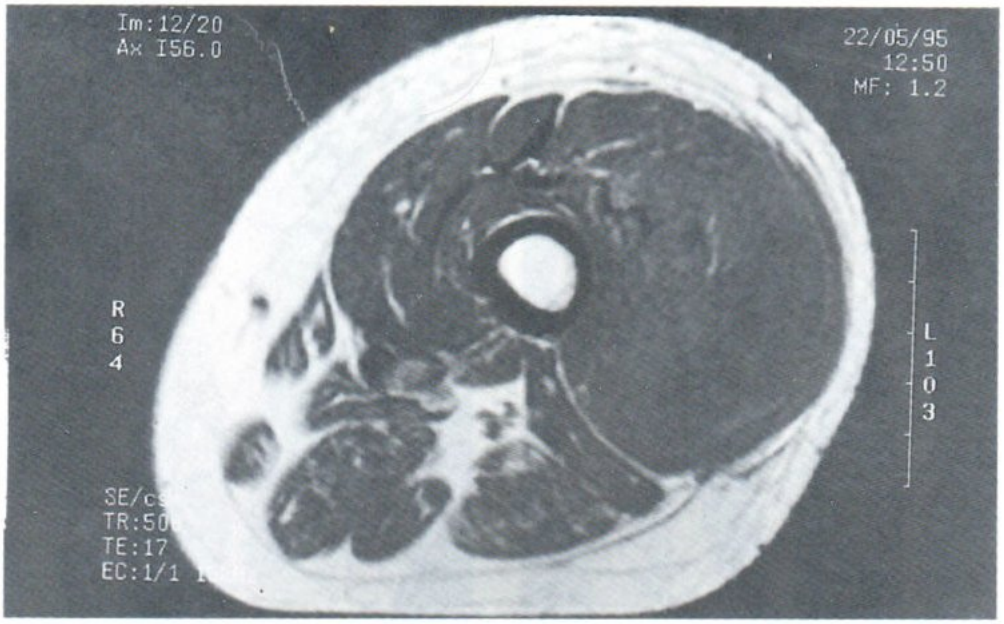

Fig.2(a) Axial T1-weighted image of the left thigh showing a hypointense lesion in the left vastus lateralis

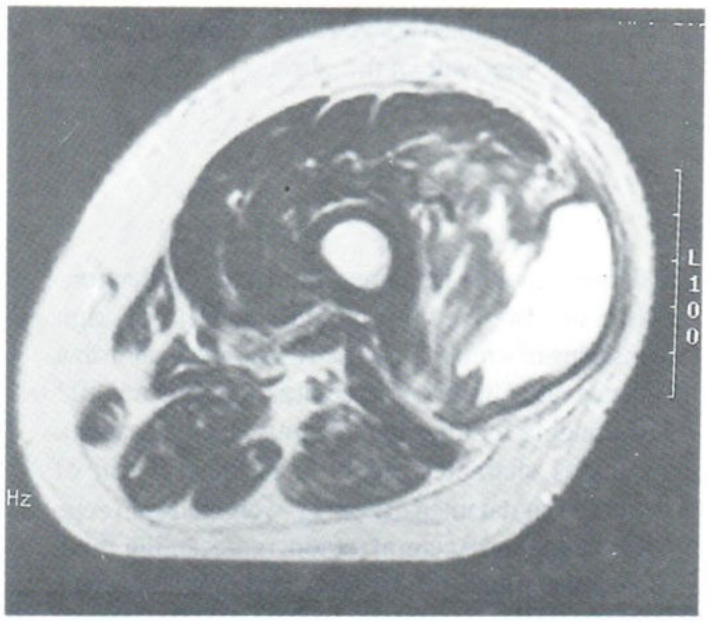

Fig.2(b) Axial MR image of the left thigh demonstrates a high signal intensity fluid collection in the muscle and increase signal intensity in the adjacent muscle.

Radionuclide studies with gallium[8] or indium[9] are helpful in defining additional nearby or distant abscesses.

Surgical procedured including myotomy and abscess drainage, when combined with antimicrobial therapy, usually ensure resolution.[10]

CONCLUSION

This case illustrates that tuberculosis abscess and myositis, though uncommon, needs to be considered in the differential diagnosis of localised limb swelling, especially in immunocompromised patients. MRI is a sensitive diagnostic aid, enabling precise identification of the tissues affected and the extent of the involvement.

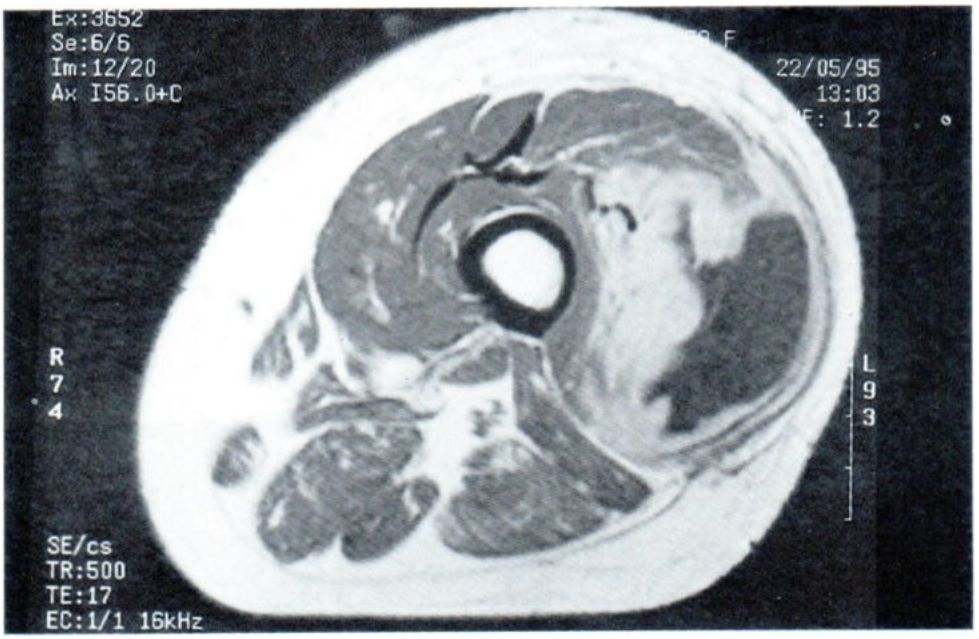

Fig.2(c) Gadolinium enhanced axial image shows enhancement of the wall of the abscess and the adjacent muscle which corresponded to the areas of increase signal intensity in the T2-weighted image.

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