What is your diagnosis?

A 48-year-old woman referred with right hip pain for 20 days without any trauma. She had a past medical history of unknown rheumatoid disease (Fig. 1).

Fig. 1. MRI of the pelvis showing a peripherally enhancing mass in the medial compartment of the upper right thigh with extension to adjacent structures which appears high in T2, proton density and T2 fat saturation. 
A. Axial T2 fat saturation. B. Sagittal T2W. C. Coronal proton density fat saturation. D. Axial T1W+GD.

What is your diagnosis?
Diagnosis: Deeply Located Abscess of the Medial Part of the Right Upper Thigh

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Soft tissue infections occur in any age with many risk factors such as age, immunosuppression, drug abuse, connective tissue and systemic diseases, obesity, trauma, burns, surgery, alcoholism and malnutrition. Soft tissue infections are classified as superficial (cellulitis, superficial fasciitis, infective bursitis or tenosynovitis) and deep (deep fasciitis, pyomyositis and infected myonecrosis) both of which could be diffuse or progress to phlegmon or abscess formation. There are different imaging modalities for diagnosis, but MRI is the modality of choice for the evaluation of the extent of soft tissue infections.

Pyogenic infection of muscle is termed pyomyositis, which frequently leads to abscess formation. A healthy muscle is usually resistant to the infection process of systemic disease, but connective tissue disorders, immunosupression, diabetes mellitus and trauma may be the underlying conditions.

MRI depicts the extent of the process and can detect coexisting osteomyelitis or septic arthritis. Characteristic findings in early phases of pyomyositis include muscle enlargement and edema with heterogeneous hyperintense signal in T2 and hypo-to hyper-intense signal on T1-weighted sequences with progression of abscess formation. Characteristic findings of a uniform to slightly heterogeneous high-signal intensity focal lesion on fluid-sensitive sequences and intermediate to high or low signal intensity on T1-weighted imaging (depending on the proteinaceous content and necrosis) with peripheral enhancement on post-contrast sequences are evident. These findings are 89% sensitive and 80% specific for diagnosis of soft tissue abscess. When abscess is chronic, it may contain areas of intermediate signal intensity surrounded by a low signal intensity rim of fibrous tissue.

The most important differential diagnosis is bursitis with the same appearance but different mechanism. It may be sterile or infected with S. aureus, fungi or tuberculosis. The inflammation may extend to an adjacent joint, muscle or another structure.

Our case was a 48-year-old woman with a history of seronegative unknown arthritis since 1 year ago who referred with right hip pain. On physical examination no definite finding or fever was noted. Mild leukocytosis (polynucleosis dominancy) with an erythrocyte sedimentation rate of 100 mm/hr was present. She had a history of right hip fracture at the age of 3 or 4 years.

US exam of the right hip was normal without joint effusion. After 4 days, a tender mass-like area was noted in the upper medial thigh without any erythema. On plain radiography a thickened cortex and deformed femur and soft tissue prominency containing small calcification in the medial upper thigh was seen. On US exam, a 90×50 mm heterogeneous hypoechoic mass containing septation with low vascularity on color Doppler exam was seen in the upper medial aspect of the thigh compatible with the most tender site (Figs. 2 A & B).

On MRI a peripherally enhancing spindle shape mass (90×50 mm) was detected in upper medial thigh in adductor compartment with surrounding edema extending to adjacent muscles (pectineous, external obturator) and also subcutaneous fat and medial skin thickening were present. Bone marrow signal appeared
normal but deformity of bone and cortical thickening with normal signal without any destruction was our incidental findings (Figs. 1 & 2C).

According to the above mentioned findings, a deeply located abscess with chronic osteomyelitis or bursitis (in underlying vasculitis disease with chronic osteomyelitis) were our differential diagnosis. Regarding the patient's history and above findings, deeply located abscess (bacterial or TB) was our first diagnosis. Surgical drainage and antibiotic therapy were considered. Cultural specimen and pathology revealed deeply located E. coli abscess.

Improvement occurred in the patient's condition after 2 weeks.

Our case was interesting because of not only the value of past medical history (fracture and trauma and chronic osteomyelitis), but also the non expectable progression of deeply located abscess in seronegative rheumatoid condition.

References