Early Diagnostic Value of 18F-FDG PET/CT in Spontaneous Spondylodiscitis

Dear Editor,

Spondylodiscitis is a destructive disease with high morbidity and mortality. Of a variety of causes, most notable are hematogenous infection and surgery [1]. Its incidence has been increasing because of higher life expectancy of older patients with chronic disease, and higher numbers of immunosuppressed patients, intravenous drug abusers, and spinal surgeries [2]. More than 90% of patients present with unremitting back pain, and 60–70% with fever [3]. Diagnosis in the early stages is very difficult because of its cryptic features, [4] and diagnosis is often delayed or mistaken [5]. Magnetic resonance imaging (MRI) has been the most accurate modality for the early detection of spontaneous spondylodiscitis, but abnormal findings typically do not appear until 2 weeks after onset of symptoms [6]. Repeat MRI, preferably with contrast enhancement, is recommended for suspected patients with persistent local back pain and fever after 1 or 2 weeks [7]. An alternative is fluorodeoxyglucose positron emission tomography with computed tomography (18F-FDG PET/CT) [8].

A 57-year-old male presented our department with neck and shoulder pain for 5 days on July 21, 2014. Physical examination revealed straightened cervical curvature, limitation of flexion and rotation, and tenderness in the neck. White cell count was normal, but C-reactive protein was causing bloody pleural effusion: Report of a case. Surg Today 2011;41:989–91.


Figure 1 PET/CT scan on the tenth day showed an increased FDG uptake at C6–7 and their adjacent soft tissues; consider the possibility of inflammatory lesions.
109.4 mg/L and erythrocyte sedimentation rate (ESR) was 105 mm/h. Cervical radiographs showed spondylodiscitis, and cervical CT revealed C5-6 disc space narrowing and protrusion with prominent degeneration. MRI showed left and posterior protrusion of the C5-6 intervertebral disc. Analgesics, non-steroidal anti-inflammatory drugs, methylprednisolone, and mannitol did not relieve the pain. On the tenth day, 18F-FDG PET/CT showed increased uptake at C6-7 and the adjacent soft tissues (Figure 1). Blood culture was positive for Staphylococcus aureus on day 15. On day 29, enhanced MRI showed C6-7 intervertebral space infection (Figure 2). The patient was treated with antibiotics for more than 20 days until the blood culture was negative, but his pain and the inflammation markers did not decline. After discectomy, culture of the disc material agreed with the blood culture.

18F-FDG PET/CT offers advantages over other imaging in the diagnosis of spondylodiscitis. It provides both metabolic and structural information about a lesion, requires significantly less time than whole-body MRI, is not contraindicated in patients with renal failure or implanted metal devices, and offers comprehensive evaluation for spinal infection in patients with persistent low back pain and raised ESR, with or without fever [9]. 18F-FDG PET/CT distinguishes between mild infection and degenerative changes, detects additional manifestations outside the spine in a substantial number of patients and shows a good correlation with the histological severity of infection [10]. Because of easy use, excellent imaging quality, and diagnostic accuracy, 18F-FDG PET/CT constitutes an attractive and cost-effective imaging method for patients with spondylodiscitis patients. It can be used as a routine tool to detect spondylodiscitis very early, within 1 week of onset of symptoms.

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References
Dear Editor,

A 52-year-old man with a diagnosis of multiple myeloma was admitted for chemotherapy. Due to immune suppression, he had been instructed to stay in his room and rest in bed during the whole treatment course. After 3 weeks of activity restriction, as he was getting prepared for discharge, he noticed severe left knee pain. He stated long-term discomfort on his left posterior knee, never causing difficulty in weight bearing like this episode. Based on his past history, he was referred for ultrasound (US) evaluation for gouty arthritis attack. Physical examination did not yield any swelling or redness but tenderness near the lateral tibial plateau.

Substantial US assessment showed normal knee compartments (including the posterior cruciate ligament). However, by repositioning the probe along the lateral-distal to medial-proximal direction below the posterior knee crease, we observed that a segment of the popliteus muscle (just inferior to the lateral tibial plateau) was swollen and that its fibrillary pattern was lost (Figure 1). With the diagnosis of popliteus strain, local anesthetic and corticosteroid injection was performed under US guidance with a direct in-plane approach (Video). The patient had immediate pain relief and was discharged 1 day after the intervention. The patient reported no recurrent pain on a follow-up phone interview 1 month after injection.

The triangular-shaped popliteus muscle originates from the lateral femoral condyle [2,3]. Its muscular part courses in an oblique fashion and attaches distally on the posterior tibial bone [1]. Another landmark would be the popliteal neurovascular bundle, separating the gastrocnemius (superficial) and popliteus (deep) muscles. Isolated injury to the popliteus muscle is rare but may develop following a twisting insult. The segment posterior to the lateral tibial plateau is vulnerable to a strain injury since its more proximal part is secured by the arcuate popliteal ligament [3].

In the present case, we considered that immobilization could have tightened his popliteus muscle, which eventually resulted in a strain following a twisting strike during weight bearing. Identifying a popliteus muscle lesion is challenging because the muscle is deeply situated and its pain can hardly be differentiated from that of adjacent structures—for example, gastrocnemius/soleus muscles, meniscus, and posterior cruciate ligament. The comparison of echo-texture with the asymptomatic side is definitely required for a prompt diagnosis. Injections to the popliteus muscle should be cautious and well planned even under US guidance because inferior lateral genicular and posterior tibial recurrent arteries course above the proximal portion of the muscle [2]. Finally, stretching exercises for knee flexors should also be emphasized for the prevention of repetitive popliteus strain.

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