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Case Report

Bone scan findings in calcific tendinitis at the gluteus maximus insertion: some illustrative cases

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ABSTRACT

We describe the bone scan and single-photon emission computed tomography/computed tomography findings in calcific tendinitis of the gluteus maximus and discuss its pathophysiology. Although this tendinopathy is mostly self-limiting, awareness of this disease is important for 2 reasons. First, it may explain acute hip symptoms in patients in the resorptive phase of the calcifications. Second, it should be considered as a differential diagnosis for bone scan hot spots in the vicinity of the gluteus maximus tendon and for cortical erosion seen in that region on X-rays or CT.

Case reports

Case 1

A 52-year-old man presented to the emergency department with a painful left hip. The pain had progressively increased over the past week, despite treatment with nonsteroidal anti-inflammatory drugs. Physical examination of the left hip revealed painful mobilization and body support but no signs of fractures. A bone scan with oxidronate (Fig. 1A) revealed a marked hot spot dorsally on the proximal left femoral diaphysis. Hybrid single-photon emission computed tomography/computed tomography (SPECT/CT) showed that this spot corresponded with hydroxyapatite deposition at the insertion of the gluteus maximus tendon (Figs. 1B–F). This led to the diagnosis of hydroxyapatite deposition disease of the gluteus maximus tendon. The patient received 3 injections of corticosteroids at the involved tendon and his complaints disappeared quickly.

Case 2

A 75-year-old female patient underwent a bone scan because of continued discomfort in the left iliac crest and left fossa iliaca, 1 year after osteosynthesis of an acetabular and iliac

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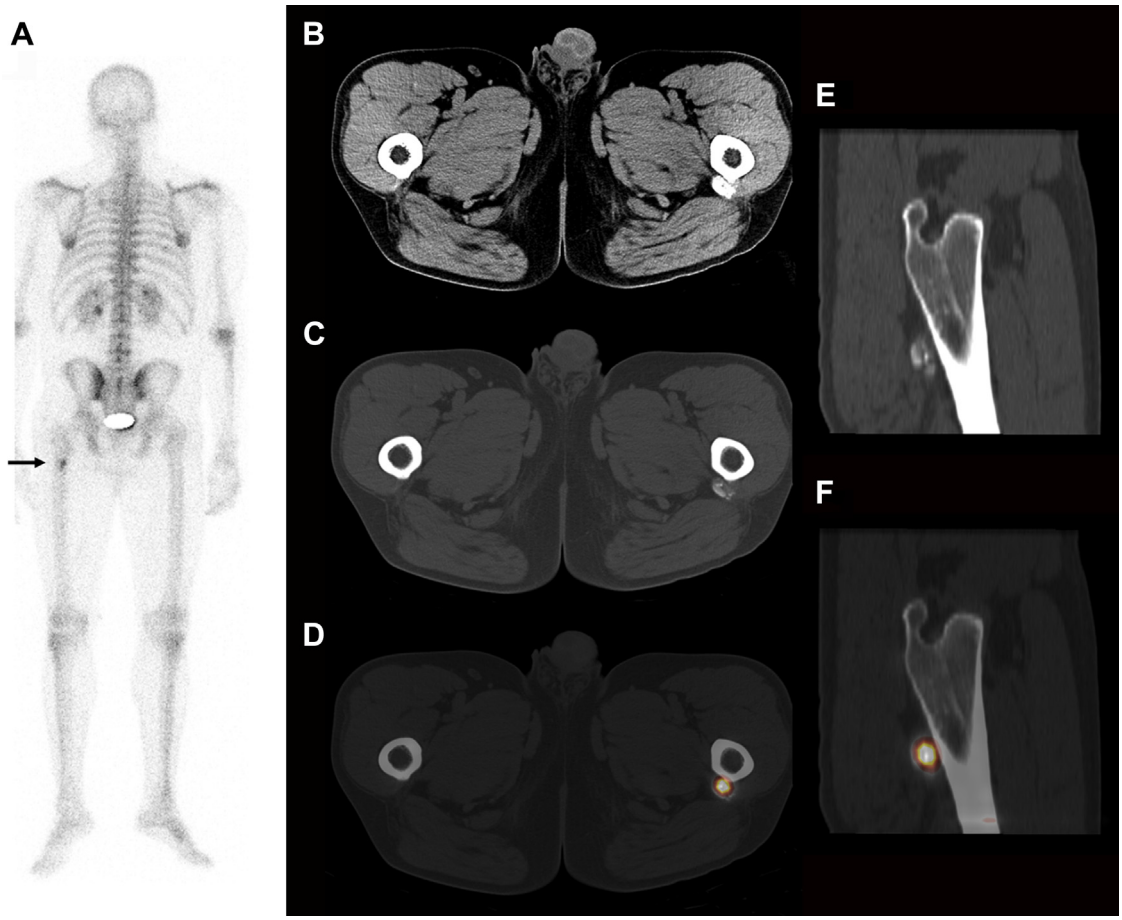

Fig. 1 – Acute pain. Posteroanterior whole body scan (A), axial CT slices (B, soft tissue window, C, bone window), and hybrid SPECT/CT slices (D), sagittal CT (E), and SPECT/CT (F) slices in a 52-year-old man with acute pain in the left hip. The whole body scan shows a hot spot (arrow) at the insertion of the gluteus maximum muscle on the gluteal line of the left femur. SPECT/CT shows this avid tracer uptake localizes in hydroxyapatite deposition at the insertion. SPECT/CT, single-photon emission computed tomography/computed tomography.

fracture. Apart from mild degenerative disease of the left hip, no relevant abnormalities were found. A faint hot spot was seen dorsally on the proximal part of the right femoral diaphysis (Fig. 2A). SPECT/CT revealed crumbly calcification at the insertion of the gluteus maximus (Figs. 2B–D), leading to a diagnosis of asymptomatic calcific tendinitis of the gluteus maximus.

Case 3

A bone scan was part of a metastatic survey in a 75-year-old female patient with a newly diagnosed mammary carcinoma. A hot spot was located proximally and posteriorly on the left femoral diaphysis (Fig. 3A). It corresponded to a bony outgrowth of the gluteal tuberosity, the structure onto which the gluteus maximus inserts (Figs. 3B–F). Such a projection is known as the third trochanter and is associated with short and robust femora [1]. In the patient presented here, inflammation of the tendinous insertion on the third trochanter was diagnosed.

Case 4

A 75-year-old female patient recently had received radiotherapy to a Merkel cell carcinoma in the left gluteal area. She presented with a painful right hip, with decreased body support and a tendency to sag through the knee. X-ray of the right hip showed a punched out lesion on the proximal femoral diaphysis, which was not seen on the whole body scan (Fig. 4A). A hybrid SPECT/CT was performed to elucidate the nature of that lesion (Figs. 4B–G). It turned out to be localized at an area of crumbly calcification and cortical erosion at the