

O7

What happens to the initial bone marrow oedema in the natural history of Charcot osteoarthropathy?

ME Edmonds, NL Petrova , AE Edmonds, DA Elias.

Diabetic Foot Clinic and Department of Diagnostic Radiology,
King's College Hospital NHS Trust, London, UK

The aim of the study was to monitor the evolution of bone marrow oedema that is seen on Magnetic Resonance Imaging (MRI) in the initial stages of Charcot osteoarthropathy.

We studied 12 diabetic patients with Charcot osteoarthropathy presenting with a hot swollen foot, hot isotope bone scan and normal radiograph. Sites of increased radionuclide uptake were metatarsal-tarsal (9), metatarsal-phalangeal (2) and ankle (1). Mean age was 55 ± 10.6 years (mean \pm SD) and mean duration of diabetes was 32 ± 13.7 years. There were 8 females and 4 males; type 1 diabetes (8) and type 2 diabetes (4). MRI was performed at presentation and at a median time of follow-up of 6 months (range 3-25 months). Offloading consisted of total contact casting in 8 patients and Aircasts in 4.

The patients were divided into 3 groups; group 1 consisted of 6 patients with bone marrow oedema alone. On follow-up, 3 of these patients showed resolution of bone marrow oedema. In the remaining 3, one progressed to subchondral cysts, one to subchondral fracture and one to bony erosion with reduction of oedema in all 3.

Group 2 comprised 3 patients with bone marrow oedema already associated with subchondral fracture. On follow-up, all 3 patients showed reduction of oedema and healing of fractures.

Group 3 comprised 3 patients with bone marrow oedema already associated with subchondral cystic change. On follow-up, definite subchondral cysts were seen with resorption of surrounding bone marrow oedema.

On follow-up of all patients, radiographs showed no subluxation and there was no clinical deformity.

We conclude that in the Charcot foot presenting with no radiological changes, bone marrow oedema, seen as the first lesion on MRI, may resolve completely or lead to subchondral fracture, subchondral cysts or erosions with eventual reduction of marrow oedema. This study gives new information on the natural history of the Charcot foot.