Osteochondral Cylinder Transplantation of First Metatarsal Head Secondary to Behçet's Disease (Delayed Radiographic Changes): A Case Report

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Abstract

Behçet's disease (BD) is a multisystem disease with typically non deforming articular manifestations. Erosive arthropathy is an uncommon condition in patients with BD. Radiographic studies alone, could be misleading in early stages of the disease.

An osteochondral defect of the first metatarsal head is a rare clinical finding leading to osteochondral dissecans. The majority of case series studies reported in the medical literature regarding osteochondral auto/allo-grafting deals with chondral lesions of the knee, shoulder and the ankle. We report such a case, where a calcium sulfate implant was used for the first metatarsal head lesion in a patient with Behçet's disease.

Introduction

An osteochondral defect of the first metatarsal head is a rare clinical finding leading to osteochondral dissecans. The majority of case series studies reported in the medical literature regarding osteochondral auto/allo-grafting deals with chondral lesions of the knee, shoulder and the ankle. We report such a case, where a calcium sulfate implant was used for the first metatarsal head lesion in a patient with Behçet's disease.

Case Presentation

A 36-year-old female patient presented with left foot first metatarsophalangeal joint pain. Upon initial examination and radiographic study no fracture or dislocation was noted. At that time the primary diagnosis was thought to be rheumatoid arthritis, which she was treated conservatively without any benefit. The patient was suffering from long lasting Behçet's disease that has developed recurrent oral ulcerations during the onset of the left foot symptoms. Clinical symptoms included: mono-articular pain, decreased range of motion of the left 1st metatarsophalangeal joint, localized edema. Initial radiographic study of the foot revealed no erosive and destructive changes in the 1st metatarsophalangeal (Figure 1).

However, subsequent MRI study revealed osteochondral erosion over the first metatarsal head...
at its central portion with marrow edema measuring 1.5 × 1.0 × 0.5 cm (Figure 2).

The patient was treated conservatively for a few months with no improvement. Decision was made for surgical treatment to relief symptomatic pain in daily activities. Patient was taken to the operating room for excision of the osteochondral defect and implantation of cartilaginous graft for osteochondral damage of the first metatarsal head. Upon careful dissection of the sub periosteum a circular osteochondral lesion was identified in the central aspect of the first metatarsal bone. The lesion was then reamed and the damaged cartilage was removed and replaced with a calcium sulfate implant (Figure 3 and 4).

The patient tolerated the procedure well and followed up as an outpatient. Post operatively radiographic study showed a sharply marginated, focal and tubular appearing defect in the central portion of the first metatarsal distal articular surface.

Patient was partial heel weight bearing with post-operative shoe. No soft tissue or osseous complications were encountered. Physical therapy for increased range of motion of the first MTPJ started 12 weeks postoperatively. At 12 months follow up, the patient had a functional metatarsophalangeal joint pain free range of motion (Figure 5).

**Discussion**

Behçet’s disease (BD) is a multisystem disease with typically non deforming articular manifestations. Erosive arthropathy is an uncommon condition in patients with BD. It was believed that there were no abnormal radiographic changes in patients with Behçet’s disease [1], especially in the foot. Joint manifestations are common in patients with Behçet’s disease, but destructive arthritis is rare, even though one has been reported in calcareous and in metatarsal bone [2]. Radiographic studies alone could be misleading in early stages of the disease [2,3]. Articular cartilage defects that do not penetrate subchondral bone (partial thickness defects) usually do not heal spontaneously [3,4]. Full thickness defects have an intrinsic repair response which results in fibro cartilaginous scar tissue [5]. Fibrocartilaginous repair tissue is a poor substitute for hyaline cartilage [6]. This type of intrinsic repair will eventually degenerate with time and result in further degeneration of the articular surface [7].

OATS’ (Osteochondral cylinder transplantation) procedure involves use of a single plug that usually fills the entire defect. This procedure may provide favorable results in some cases, but some complications have also been reported which include fracture of the osteochondral plug, postoperative hematoma, risk of surface incongruity and instability of the graft [5,8].

Few clinical studies are available that compare the results of osteochondral allo/autografting with other established therapies. The medical literature suggests OATS procedure might be appropriate for moderate lesions, between 1.1 and 2.5 cm² [9]. The improvement of symptoms appears to be time dependent. Clinical and radiographic results of medium term follow up seem promising.

**References**