The Journal of Foot & Ankle Surgery 50 (2011) 216–220

Contents lists available at ScienceDirect

The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

Case Reports

Calcaneal Intraosseous Lipoma: A Case Report and Review of the Literature

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ARTICLE INFO

Level of Clinical Evidence: 4
Keywords:
bone
fat
foot
heel
neoplasm
surgery
tumor

ABSTRACT

Intraosseous lipomas are rare benign bone tumors. This benign neoplasm has been reported to occur in the calcaneus as well as the proximal femur. In the past, the relative absence of symptoms and radiographic similarity to a bone cyst has accounted for underdiagnosis of intraosseous lipoma. The case presented in this article was diagnosed with the help of computerized tomography and histopathologic analysis, after which the patient was treated by means of curettage and packing with calcium phosphate bone graft substitute. The purpose of this article is to increase awareness among clinicians of the existence of this unusual lesion.

The list of differential diagnoses for heel pain is long and varied, and includes such common culprits as plantar fasciitis, retrocalcaneal bursitis, gout, and stress fracture. This article describes a case of heel pain caused by an intraosseous lipoma (IOL), which is a rare benign bone tumor. IOL does not usually present as an expansive mass within bone, with the exception of the parosteal variant of IOL (1). The calcaneus is now recognized as the most common site of involvement for IOL, followed by the subtrochanteric region of the femur (2, 3).

Case Report

A 38-year-old male army recruit presented with the complaint of a dull, aching pain in his left heel of 3 months' duration. The pain was noted to increase after strenuous walking or other rigorous activities involving the left foot, and had been increasing steadily over the 3-month period, although there was no associated swelling observed in the foot. The patient's primary care physician at the army base hospital managed him initially with rest and analgesics (aceclofenac, 100 mg twice a day, for 1 week), which afforded temporary relief. The clinician also obtained blood laboratory tests, including an erythrocyte sedimentation rate, and measurement of the uric acid and C-reactive protein level, and no abnormalities were found. Plain radiographs revealed the presence of a radiolucent lesion interspersed with trabeculations in the anteroinferior portion of the left

Fig. 1. Preoperative radiograph (lateral view) of the left heel showing presence of intraosseous lipoma.

Financial Disclosure: None reported.
Conflict of Interest: None reported.

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doi:10.1053/j.jfas.2010.12.004

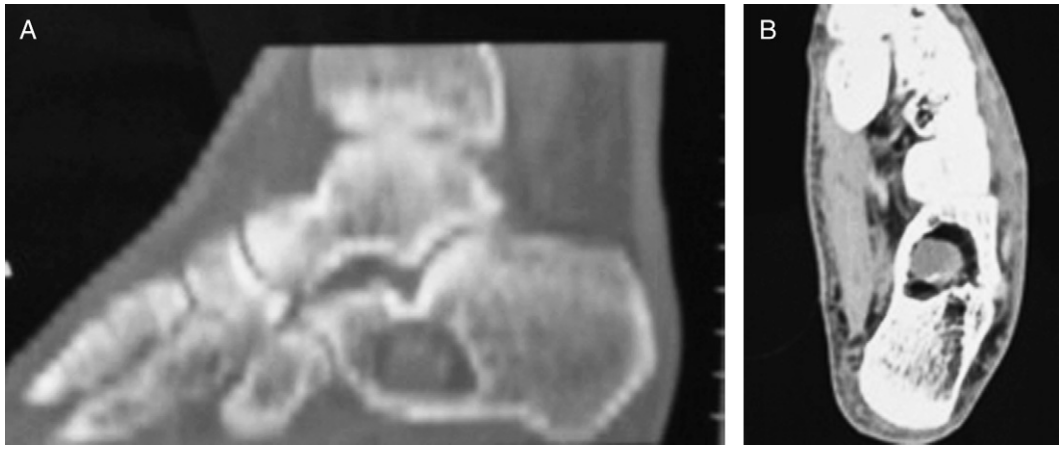

Fig. 2. (*A*) CT scan of sagittal section showing calcaneal intraosseous lipoma. (*B*) CT scan of axial section showing calcaneal intraosseous lipoma.

calcaneus underlying the subtalar joint (Figure 1). It was at this point that the patient was referred to our surgical service.

Upon gross examination, we noted that the patient walked with an antalgic limp, and preferred to walk on his left toes to avoid left heel contact with the ground. There were no obvious soft tissue masses, scars, sinuses or venous prominences overlying the affected area, and the ankle and subtalar joint motions were normal, and the left heel was tender to palpation. There was no past medical history that would increase the likelihood of bone infarction, such as corticosteroid use, infection, previous irradiation, lipid storage disease, collagen-vascular disease, or lymphoproliferative disorder. A computerized tomography (CT) scan of the left foot revealed the presence of a cyst in the anteroinferior portion of the calcaneus, with expansion of the inferior cortex. The cyst was subjacent to the subtalar joint and displayed soft tissue density without cortical breach (Figure 2), whereas the calcaneocuboid and talocalcaneal joints appeared normal. The report of the radiologist described a benign bone cyst of the calcaneus and advised further correlation.

Based on the clinical and diagnostic image findings, IOL was diagnosed and operative decompression of the cyst was subsequently undertaken. The calcaneus was approached from the lateral aspect through an incision overlying its long axis, after which the cortex overlying the cyst was exposed on the inferior and lateral aspects. When the cyst was decorticated, a greasy, yellow intraosseous lipoma-like "syrup" was identified and evacuated from the osseous cavity (Figure 3). The soft tissue contents of the intraosseous cyst were removed along with the greasy fluid (Figure 4), and the entire specimen was sent for histopathologic diagnosis. The cavity of the calcaneus was lavaged with normal saline before injection of calcium phosphate bone graft substitute (chronOs Inject, Synthes, West Chester, PA) to back-fill the resultant void (Figure 5). After filling the cavity, the wound was closed in anatomic layers and a sterile dressing applied, followed by application of a below-the-knee plaster splint for use during the initial postoperative period of non–weight-bearing ambulation. Subsequent histopathologic analysis revealed areas of mature lipocytes with the presence of medullary trabecular bone, interspersed with areas of hemorrhage (Figure 6). There was no cellular atypia or abnormal mitosis. These findings were consistent with the diagnosis of IOL.

The patient's heel pain subsided almost immediately after the operation, with the exception of surgical wound pain, which subsided in a normal fashion. Superficial breakdown of the surgical wound was noted at a dressing change on the fifth day postoperative, and this was treated with cleansing and secondary suturing that healed without incident by 2 weeks following the evacuation and packing of the calcaneus. Two weeks following suture removal, the plaster splint was

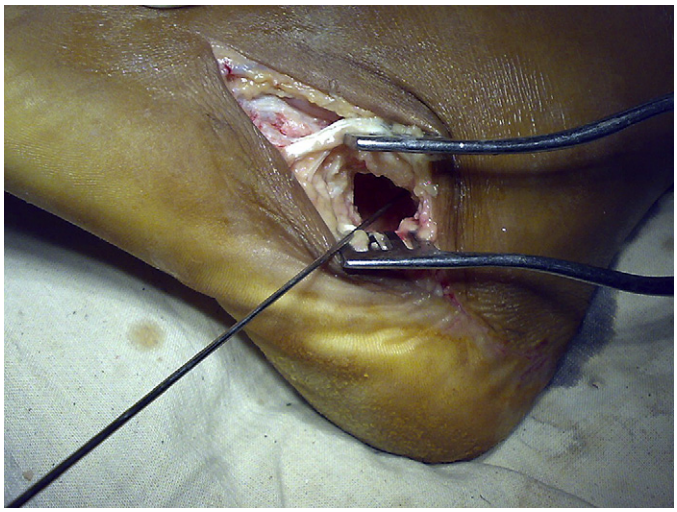

Fig. 3. Intraoperative photograph of the left calcaneus showing the cavity following removal of the intraosseous lipoma.

Fig. 4. Intraoperative photograph of the intraosseous lipoma after removal from the calcaneus.