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Surgical treatment for calcaneal intraosseous lipomas

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ABSTRACT

Intraosseous lipoma is among rare benign tumors of the bone. The aim of the present study was to evaluate the long-term surgical results of calcaneal lipomas, representing a relatively rare localization for this type of tumors.

The present study included 21 calcaneal lipoma cases (22 feet) referred to our podiatry clinic between 1991 and 2001 with complaints of foot and heel pain resistant to conservative treatment for the last 3–6 months. In all cases, the diagnosis of calcaneal intraosseous lipoma was first confirmed radiologically, then histologically.

The mean age was 39 years (range 16–62), 15 were females (71%) and 6 were males (29%). One patient had bilateral disease, whereas 11 and 9 patients had right and left calcaneal involvement, respectively. None of the patients have a palpable mass in their foot. For pre-operative differential diagnosis, 3 patients had computerized tomography examination (CT scan) and 8 patients underwent magnetic resonance imaging (MRI). All lesions were totally curetted out with angled curettes. The defect was filled with cancellous autografts taken from the ipsilateral iliac crest. In only four patients, the amount of autograft was not sufficient, so a combination of cancellous allograft and autograft was used. No drain was used. An elastic bandage was wrapped around the foot and ankle, and cold packs were applied to the surgical site. The mean duration of follow up was 94 (45–143) months. Pain improved in 17 feet at 4 months, in an additional 4 feet at 8 months and in the remaining one foot at 12 months. The mean time to the graft consolidation was 5 months (range 3–7 months). There were no recurrences or pathological fractures during the follow up. No wound infection or necrosis was seen at the surgical sites. There were no neurovascular complications. Five cases experienced pain in the iliac bone for 1 month, due to grafting procedures.

Although calcaneal intraosseous lipoma accounts for a small portion of cases in the huge differential diagnosis chart for foot pain, it should be kept in mind as a possible diagnosis in unresolved cases. Most of the patients would benefit from non-surgical treatments. But if this is not the case, surgical treatment is indicated. In conclusion, curettage and autogenous bone grafting is an easy and effective method for the surgical treatment of calcaneal intraosseous lipomas.

1. Introduction

Intraosseous lipomas are benign tumors derived from mature lipocytes mostly seen at the metaphysis of the long bones in men. Foot and heel pain are the common symptoms of calcaneal intraosseous lipoma. Non-surgical options such as NSAIDs, cold compression, use of non-weight bearing devices such as cane, use of silicone sole plate and preventive measures for pathological fractures are the most commonly used treatment modalities for this condition. Surgery is indicated in the presence of pain resistant to conservative treatment methods, impending or pathological fractures and when a histopathological differential diagnosis is required for aneurismal bone cyst, giant cell tumor, pseudocyst formation or unicameral bone cyst. Although surgical treatment with curettage and autogenous bone grafting has been reported as a treatment choice, only small case series have been reported so far. In this study, we present 21 calcaneal intraosseous lipoma patients treated with curettage and autogenous bone grafting.

2. Patients and method

The present study included 21 calcaneal lipoma cases (22 feet) referred to our podiatry clinic between 1991 and 2001 with complaints of foot and heel pain resistant to conservative treatment

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methods for the last 3–6 months including NSAIDs, cold compression or the use of non-weight bearing devices (such as cane) and silicone sole plate. In all cases, the diagnosis of calcaneal intraosseous lipoma was first confirmed radiologically, then histologically. The mean age was 39 years (range 16–62), 15 were females (71%) and 6 were males (29%). One patient had bilateral calcaneal involvement, whereas unilateral right sided and left sided involvement was seen in 11 and 9 patients, respectively. Radiological examinations of all patients showed an expansile osteolytic lesion in calcaneus. For radiological staging, Milgram's classification [5] for intraosseous lipomas was used and the distribution of 22 feet was as follows: stage 1, 11 feet; stage 2, 9 feet and stage 3, 2 feet. None of the patients had a palpable mass. For preoperative differential diagnosis, 3 patients had computerized tomography examination (CT scan) and 8 patients underwent magnetic resonance imaging (MRI) (Figs. 1 and 2).

Prior to the operation, the lesion was localized fluoroscopically and its localization was marked on the skin. Under tourniquet control, a straight lateral skin incision was performed over the lesion and the periosteum was incised longitudinally. The lesion and a portion of the adjacent normal tissue were exposed at one end of the lesion using a 1 cm × 1 cm rectangular cortical window opened

Fig. 1. Plain radiograph of a calcaneal lipoma.

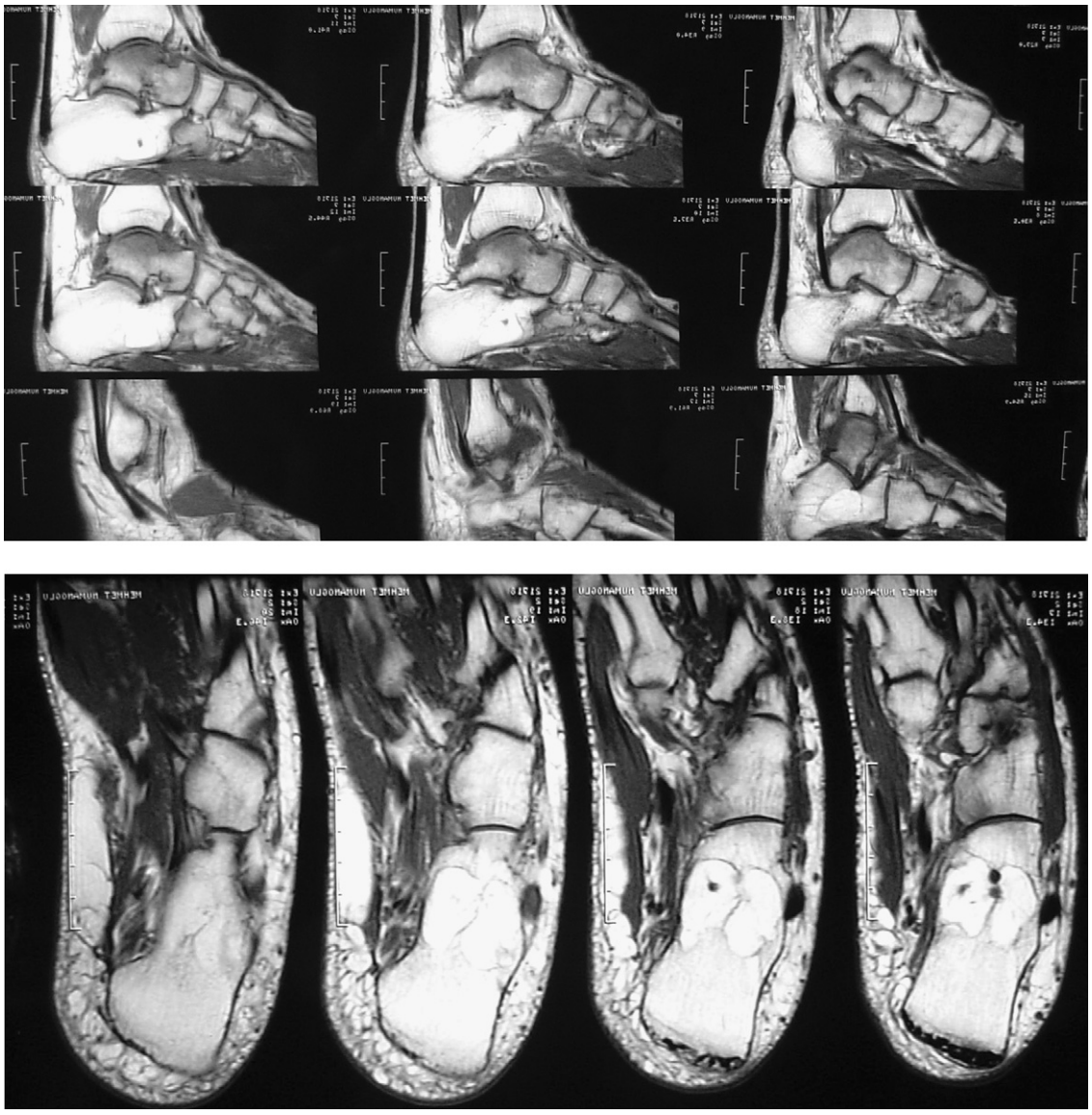

Fig. 2. MRI appearances of different calcaneal lipomas.