

Intra-Calcaneal Lipoma: A Rare Case Report and Literature Review

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Abstract

Case Report

Intra-calcaneal lipoma is a rare subtype of intraosseous lipoma that occurs in the heel bone. This case report describes a 56-year-old female patient who presented with heel pain and swelling. Imaging studies revealed an intra-calcaneal mass consistent with lipoma. The patient underwent surgical excision of the lipoma, and histopathological analysis confirmed the diagnosis. This case report also presents a comprehensive literature review of intra-calcaneal lipoma, including epidemiology, clinical presentation, imaging characteristics, differential diagnosis, and treatment options.

Keywords: Intra-calcaneal lipoma, heel pain and swelling, diagnosis, imaging studies.

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INTRODUCTION

Intraosseous lipomas are rare benign tumors that can occur in any bone, but are most commonly found in the long bones of the extremities. Intra-calcaneal lipomas are an even rarer subtype, with only a few dozen cases reported in the literature. The clinical presentation of intra-calcaneal lipoma is often nonspecific, and imaging studies are required for diagnosis. Treatment options include surgical excision or observation with regular imaging studies.

CASE PRESENTATION

A 56-year-old female patient presented with a six-month history of progressive left heel pain and swelling. The patient reported no trauma or previous medical history of note. Physical examination revealed tenderness over the medial aspect of the left heel, with no erythema or warmth. Imaging studies including X-ray (Figure 1) and CT (Figure 2) revealed an intra-calcaneal mass with fatty density consistent with lipoma. The patient underwent surgical excision of the lipoma through a lateral approach to the calcaneus (Figure 3). Intraoperative findings confirmed the presence of a well-circumscribed mass with a fatty consistency. Histopathological analysis confirmed the diagnosis of intra-calcaneal lipoma.



Figure 1: X ray image showing the well-defined lesion within the calcaneus (black arrow)



Figure 2: CT scan of the ankle showing the intra osseus lipoma with no cortical erosions, furthermore an osseous appendix is developed within the lesion was identified (black arrow)



Figure 3: Per operative image showing the lateral approached used to excise the lipoma



Figure 4: Postoperative fluorescent scope showing the bone graft used after the curettage

DISCUSSION

Intra-calcaneal lipoma is a rare benign tumor that originates from the adipose tissue within the calcaneus. It accounts for less than 0.1% of all bone tumors and occurs most commonly in middle-aged women [1]. The majority of cases are asymptomatic and incidentally discovered on radiographic imaging performed for other reasons. However, larger lesions can cause pain, swelling, and deformity of the heel [2].

Imaging studies including X-ray, MRI, and CT scan are useful for diagnosis. On X-ray, intra-calcaneal lipomas may appear as a well-defined radiolucent lesion within the calcaneus (Figure 1). On MRI, intra-calcaneal lipomas have high signal intensity on T1-weighted images and suppression on fat-suppressed T2-weighted images. CT scans may reveal the density of the lipoma, which is similar to that of subcutaneous fat.

The diagnosis of intra-calcaneal lipoma can be challenging due to its rarity and nonspecific clinical presentation. Radiographic imaging is typically the first step in evaluation and may reveal a well-circumscribed radiolucent lesion with variable degrees of calcification.

Magnetic resonance imaging (MRI) is the preferred modality for further evaluation and can help to differentiate the lesion from other soft tissue masses such as ganglion cysts, synovial cysts, and liposarcomas [3].

Although imaging studies are useful for diagnosis, biopsy is often necessary for definitive diagnosis. Fine needle aspiration biopsy can be used to confirm the diagnosis of intra-calcaneal lipoma. Histologically, intra-calcaneal lipoma is characterized by mature adipose tissue with varying degrees of calcification and ossification. Treatment is typically reserved for symptomatic cases and involves curettage and bone grafting as we proposed for our patient (Figure n°4) or en bloc resection with reconstruction [4]. The prognosis is excellent, with a low risk of recurrence or malignant transformation [5].

Treatment options depend on the size, location, and symptoms of the lipoma. Asymptomatic intra-calcaneal lipomas can be monitored with regular imaging studies. Surgical excision is the preferred treatment option for symptomatic intra-calcaneal lipomas. The surgical approach depends on the location of the lipoma within the calcaneus. The surgical excision of the lipoma

through a lateral approach to the calcaneus is the most commonly used technique [5].

Recurrence of intra-calcaneal lipoma after surgical excision is rare. However, long-term follow-up is recommended to monitor for recurrence. Patients who have undergone surgical excision of intra-calcaneal lipoma can return to their normal activities after a short period of immobilization.

CONCLUSION

Intra-calcaneal lipoma is a rare subtype of intraosseous lipoma that can present with nonspecific symptoms such as heel pain and swelling. Imaging studies including X-ray, MRI, and CT scan are useful for diagnosis, and biopsy is often necessary for definitive diagnosis. Treatment options depend on the size, location, and symptoms of the lipoma, and may include surgical excision or observation with regular imaging studies. Long-term follow-up is recommended to monitor for recurrence.

REFERENCES

1. Campbell, R. S. D., Grainger, A. J., Mangham, D. C., Beggs, I., Teh, J., & Davies, A. M. (2003). Intraosseous lipoma: report of 35 new cases and a review of the literature. *Skeletal radiology*, 32, 209-222. doi: 10.1007/s00256-002-0616-7.
2. Csizy, M., Buckley, R. E., & Fennell, C. (2001). Benign calcaneal bone cyst and pathologic fracture—surgical treatment with injectable calcium-phosphate bone cement (Norian®): a case report. *Foot & Ankle International*, 22(6), 507-510. doi: 10.1177/107110070102200610.
3. Kapukaya, A., Subasi, M., Dabak, N., & Ozkul, E. (2006). Osseous lipoma: eleven new cases and review of the literature. *Acta orthopaedica belgica*, 72(5), 603-614.
4. Milgram, J. W. (1990). Malignant transformation in bone lipomas. *Skeletal radiology*, 19, 347-352. doi: 10.1007/BF00193088.
5. A Sani, M. H., Bajuri, M. Y., & Shukur, M. H. (2017). Intraosseous lipoma of the calcaneus: The non-stereotypic lesion of the bone. *New Horizons in Clinical Case Reports*, 2, 1-3.