

# Treatment of Bilateral and Recurrent Calcaneal Intraosseous Lipomas

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## Purpose & Literature Review

This case study details an unusual case of bilateral and recurrent calcaneal intraosseous lipomas (IOL) treated surgically with curettage and packing of bone matrix. Of the small population diagnosed with calcaneal IOLs there are only a few documented bilateral and/or recurrent cases.

Intraosseous Lipomas are benign tumors occurring most commonly in the lower leg (71%) and the calcaneus (32%). Typically, greater than 30% of IOLs are asymptomatic. However, the leading symptom associated with such tumors is pain, as seen in this case presentation. The peak age of recognition is 4/5th decade of life with males having a slightly higher rate of occurrence than females.

There are countless case studies involving intraosseous lipomas of the calcaneus with surgical excision and no re-occurrence however, studies lack in regards to re-occurrence. One such study in 2001 showcased 11 IOLs of the calcaneus. 7/11 required surgical intervention. All 7 resulted in no tumor re-occurrence.

## Case Presentation

This case details the clinical course of one male over an 8 year time period presenting with heel pain. This pain alternated bilaterally over the years, with the initial presentation being right heel pain in 2010. After imaging revealed an intraosseous lipoma to the right foot it was surgically resected. Incidentally around this time a left calcaneal IOL was found on plain film due to other pedal issues. The left foot lipoma was monitored throughout the years with the first clinical presentation of mild pain in January of 2018, however, MRI revealed it unchanged in size. In June 2018 the patient presented with bilateral heel pain, right greater than left. A CT of the right foot revealed a large IOL abutting the cortex of the calcaneus warranting surgical intervention performed in August 2018.



Right Ankle MRI July 2010



Left Ankle MRI January 2018

## Procedures

Initial treatment of the right intraosseous lipoma in 2010 included windowing the lateral cortex of the calcaneus, curettage, filling with demineralized bone matrix, and reapplying the lateral cortex. In 2018 the same procedure was performed, however, instead of reapplying the original lateral cortex, an iliac crest graft was used to fill the gross defect and augmented with allograft bone substitute with osteoconductive, osteo-inductive, and osteogenic properties. A porous polycaprolactone and polyurethane urea bio-textile covering was applied to the previous lateral cortex site.



Right Ankle CT July 2018



Calcaneus after removal of IOL 2018



Insertion of bone graft 2018



Application of polycaprolactone and polyurethane urea bio-textile covering 2018

## Results

The patient recovered without incidence from both surgical procedures. After the first procedure in 2010 the patient had 7 years of pain free ambulation. After the second procedure the patient has remained pain free with ambulation. In both cases post-op the patient was non-weightbearing in a posterior splint and slowly transitioned to weight bearing in the following weeks without incidence. Pathology results for both surgical specimens revealed intraosseous lipoma as the major pathology in each case.

## Discussions

Due to the rarity of recurrent calcaneal intraosseous lipomas this case study provides an opportunity to directly compare surgical technique and biomaterials used to pack IOLs. Most previously published case studies, and retrospective studies revealed surgical techniques like ours. Curettage was noted in every published literature piece reviewed, while the augmentation was mixed. Most used demineralized bone matrix as we did in our first surgical case. The use of a porous polycaprolactone and polyurethane urea cover has not been introduced in any literature to date as an alternative to replacing the lateral cortex is damaged, or inability to re-apply intra-op. Reoccurrence of this IOL in the calcaneus has not been documented in any recent literature.

## Resources

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