

Statement of Purpose

Ganglion cysts are one of the most common benign soft tissue masses of the ankle. These lesions can limit activity level, restrict ankle joint motion, and overall negatively impact quality of life. This case study highlights use of a novel arthroscopic technique for complete excision of ganglion cysts in the ankle.

Literature Review

Ganglion cysts are jelly-like fluid filled sacs, that are associated with joints and tendon sheaths. They are theorized to be the result of a traumatic event or repetitive microtrauma. Aside from their appearance, the cysts are typically asymptomatic. However, as the mass increases in volume, some patients have difficulty with footwear or develop tingling or burning sensations.

Conservatively, these lesions can be aspirated and potentially injected with a corticosteroid, per provider preference. Often times, the cyst recurs, requiring a more definitive treatment approach. Open excision of pedal and ankle ganglion cysts is a common practice for surgical management. However, recurrence rates have been reported as high as 43% with this technique.¹ This low success rate has stimulated surgeons to re-evaluate how this pathology is surgically managed.

Arthroscopy has become a surgical tool that is increasingly utilized for various foot and ankle pathology including, soft tissue and bony impingement, synovitis, septic arthritis, fractures, osteochondral lesions, tendinitis, ligamentous instability, and end stage arthritis. However, its use in soft tissue mass excision is limited in the literature. Arthroscopy for dorsal carpal ganglion excision has been a long standing approach by hand surgeons with high success. The recurrence rate in arthroscopic hand literature is 0% to 7%, with smaller

Literature Review (continued)

incisions, less post-operative pain, less scarring, and earlier return to function.^{2,3}

Lui arthroscopically removed eighty nine foot and ankle ganglion cysts and experienced similar results to the hand surgeons. He found the less invasive approach had the added benefits of visualizing other intra-articular pathology and a recurrence rate of only 12% after a 31 month follow up period. Additionally, no patients experienced wound complications.⁴ A handful of case reports have been published involving arthroscopic excision of ganglion cysts at the FHL tendon^{5,6}, EDL tendon⁷, tarsometatarsal joints⁸, and first metatarsophalangeal joint⁹ with no recurrence during a short term follow up period. From the limited literature available, this approach is infrequently utilized for foot and ankle ganglion cyst excision.

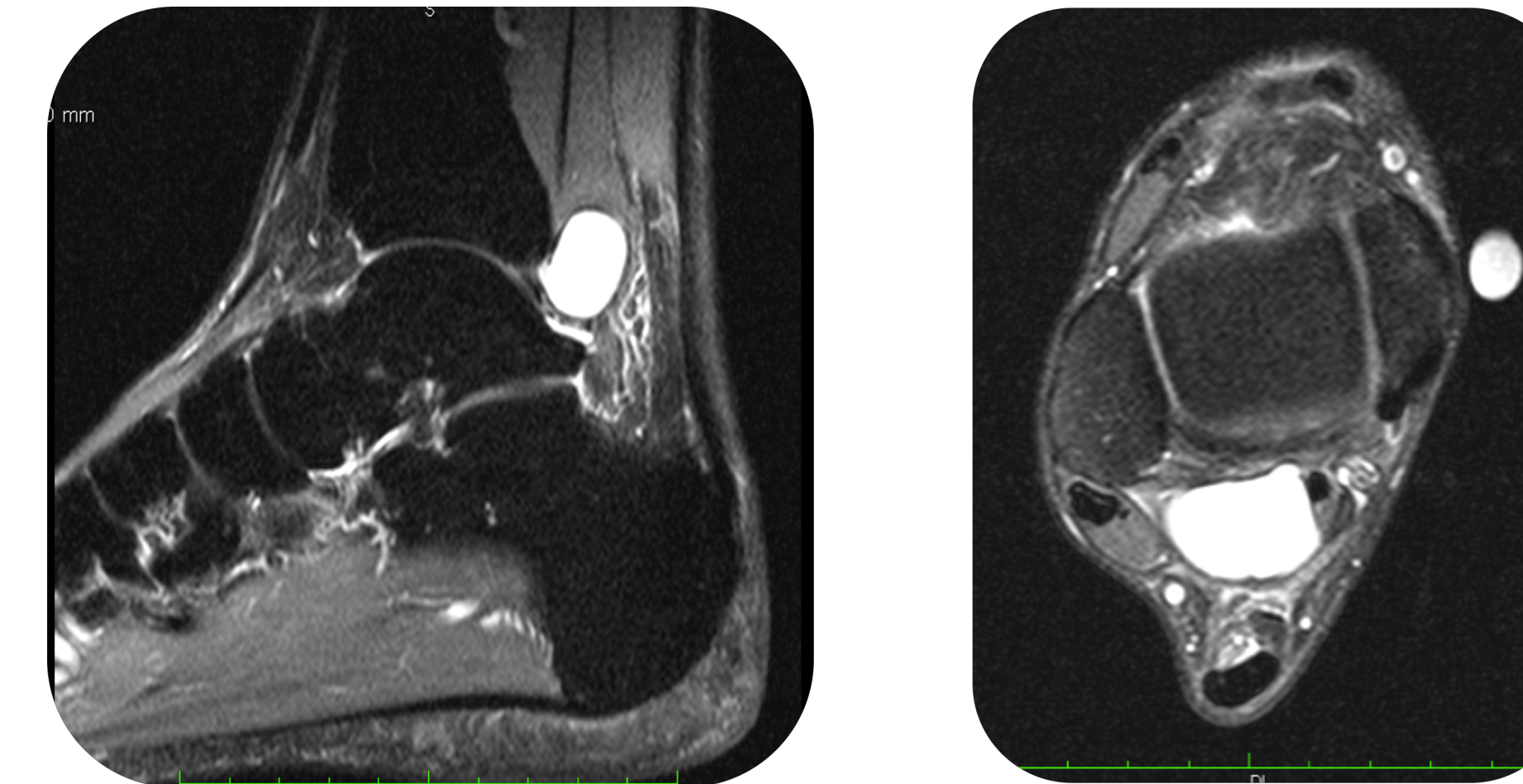
Case Study

A 39-year-old otherwise healthy male presents for evaluation of gradually increasing right ankle pain and stiffness. Denies history of trauma and states that this has been an ongoing issue for approximately six years. Patient is an avid cyclist. However, as a result of his pain, his activities were negatively affected. Physical exam revealed pain and limitation with ankle plantarflexion and palpation of the posteromedial ankle. As patient's physical exam was relatively benign compared to his subjective symptoms, the patient was further evaluated with an magnetic resonance imaging (MRI).

The ankle MRI demonstrated mild anterior joint synovitis and a large ganglion cyst from the flexor hallucis longus tendon at the posterior ankle joint (Figures 1, 2). At that time, the patient elected for conservative management involving anti-inflammatory medication and soft tissue mass aspiration. The

Case Study

Figures 1 (T2 Sagittal MRI) and 2 (T2 Axial MRI): Hyperintense soft tissue mass extending from FHL tendon along posterior ankle joint



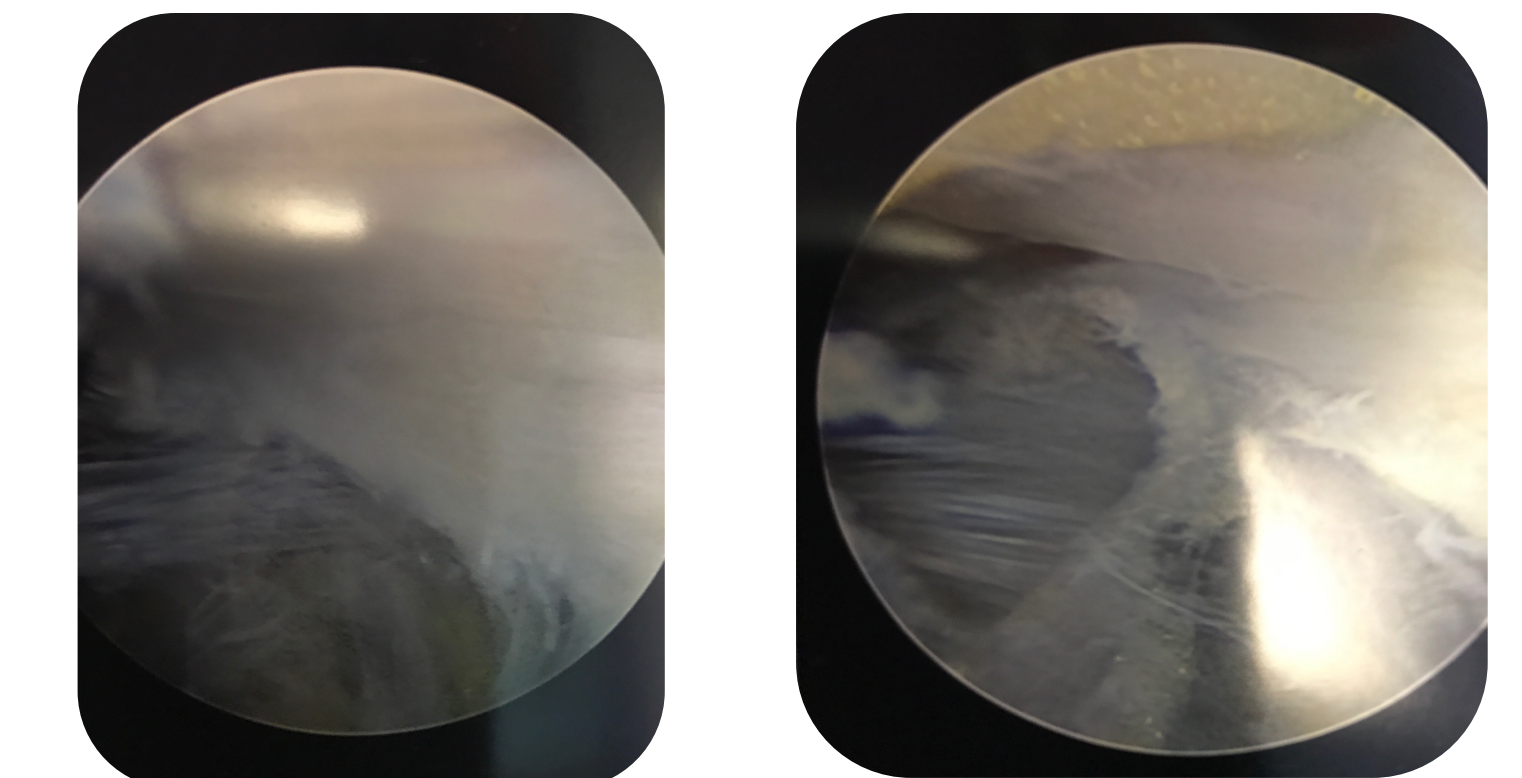
first soft tissue mass aspiration was performed under ultrasound-guidance and injected with 2.5 milligrams of dexamethasone. Eight months later, the cyst recurred and the same procedure was performed. However, after only two months of relief, the patient returned to clinic with his initial complaints. At that time, it was decided to pursue arthroscopic excision.

A standard posterior arthroscopic approach with a posterolateral portal for 2.7mm 30 degree arthroscope, and posteromedial portal for other instrumentation was utilized. Complete cyst excision was performed with the pseudocapsule intact (Figures 3, 4). The mass stalk remnant was cauterized to prevent recurrence. The specimen was sent to pathology, which confirmed the patient's diagnosis.

One week post-operatively, the patient ambulated in regular footwear. He returned to high mileage bicycling three weeks post-operatively. No neurovascular complications occurred. Patient denied pain or stiffness of the ankle joint after the procedure and no recurrence was noted upon clinical exam eighteen months postoperatively.

Analysis & Discussion

Both conservative and open surgical management have high risks of cyst recurrence. Additionally, with the traditional open approach, there is risk of scar tissue formation and neurovascular injury. Whereas, arthroscopic excision of ganglion cysts involves smaller incisions, less postoperative pain, decreased scar tissue formation, and earlier return to function, with near equal results in dorsal carpal ganglion excisions. The case reports found in the literature and demonstrated in this patient illustrate the benefits to this minimally invasive technique. Prospective studies comparing open and arthroscopic excision of ganglion cysts need to be performed to delineate if there are similar benefits with the arthroscopic technique in the foot and ankle.



Figures 3 and 4 – Intra-operative arthroscopy images demonstrates cyst pseudocapsule

References

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