

Intersesamoid Ligament Rupture and Repair: A Case Study

Samuel Kellner, DPM¹, Emily Curley, DPM², Donald Adams, DPM, FACFAS²

¹ Second Year Resident, MetroWest Medical Center, Framingham, MA

² Third Year Resident, MetroWest Medical Center, Framingham, MA

³ Attending, MetroWest Medical Center, Framingham, MA

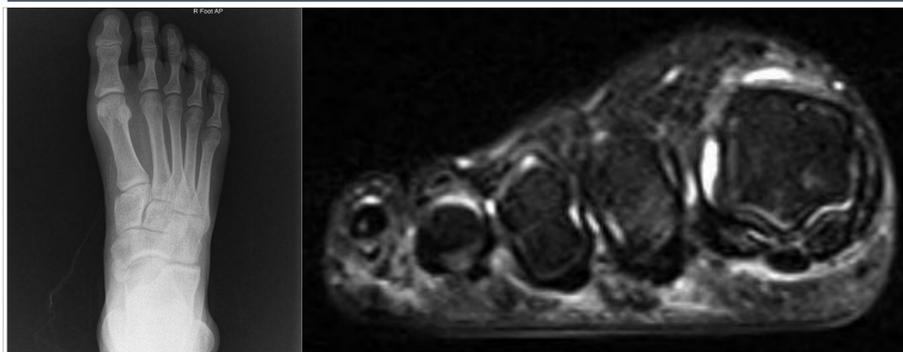
PURPOSE & LITERATURE REVIEW

Acute rupture of the intersesamoid ligament is a relatively rare finding. However this can be a detrimental injury in an athlete. This case study intends to describe the diagnosis and treatment of an adolescent athlete via open primary repair of the intersesamoid ligament. Classically these injuries have been associated with dislocation of the 1st metatarsophalangeal joint (MTPJ), originally described as the Jahss classification system.¹ However there are very few reports regarding isolated injuries of the intersesamoid ligament without associated dislocation.^{2,3}

CASE STUDY

A fifteen year old female presented to the office with an acute injury noted to her plantar 1st metatarsal head. On clinical exam there was tenderness to the sesamoid complex, however no subluxation. The patient underwent conservative care with off-loading in a walking boot. Initial x-rays demonstrated no fracture, however noted proximal subluxation of the fibular sesamoid (Fig 1a). At the 3 month mark the patient had an MRI study which confirmed increased widening of the intersesamoid interval, increased intrasubstance signal intensity, and fiber discontinuity, indicating rupture of the intersesamoid ligament. The patient elected for total reconstruction of the intersesamoid complex after discussion of risks, benefits, and alternatives.

FIGURE 1a, 1b – PRE-OPERATIVE IMAGING



OPERATIVE PROCEDURE

The patient was brought into the operating room and put under light sedation and a local block was administered. An ankle tourniquet was applied. Intra-operative fluoroscopy was used for incision planning, and a serpiginous incision was made directly plantar to the sesamoid complex. Sharp and blunt instrumentation carried the dissection deeper to the flexor hallucis longus tendon and the sheath was released. The intersesamoid ligament deep to this was visibly torn. The tibial sesamoid was then mobilized and repositioned and a 2-0 mini-suture anchor was placed into the lateral aspect. The fibular sesamoid was noted to be retracted proximal and lateral into the 1st intermetatarsal space. The fibular sesamoid was mobilized and reduced into a better anatomic position and another 2-0 mini-anchor was implanted into the medial aspect. Intra-operative fluoroscopy was used to confirm reduction of the sesamoids and surgical hand ties secured the position between the 2 anchors. Layered closure was performed and the patient was in a CAM boot and to initially remain non-weightbearing until suture removal.

FIGURE 2a, 2b, 2c – POST-OPERATIVE IMAGING



RESULTS & DISCUSSION

One open primary repair of the intersesamoid ligament using a suture based anchor system is described in this study. There are a multitude of 1st MTPJ injuries associated with athletes. To the author's knowledge, recently there have been very few reports involving open repair of the intersesamoid ligament. We present a case involving a fifteen year old female soccer player who endured a traumatic injury with associated pain and dysfunction of her 1st MTP joint. While conservative therapy involving analgesia and off-loading may typically be successful, continued inability to return to activity warrants surgical intervention. An innovative technique is presented in this case with total reconstruction of the intersesamoid ligament using a suture based anchor system for a dislocated fibular sesamoid. The patient did encounter a problem with surgical wound dehiscence however healed uneventfully via conservative care by the 2 month mark. Return to full activity occurred at six weeks.

REFERENCES

1. Jahss M.H.: Traumatic dislocations of the first metatarsophalangeal joint. *Foot Ankle* 1980; 1: pp. 15-25
2. Capasso et al. Rupture of the intersesamoidal ligament of a soccer player's foot. *Foot Ankle* 1990 Jun;10(6):337-9
3. Ashimolowo et al. Turf Toe Update and Comp Review. *Rad Clin of N Amer* 2018;56(6):847-58