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MEDIAL TIBIAL SESAMOID BONE FRACTURE OF THE FOOT IN A COLLEGIATE FOOTBALL PLAYER: A CASE STUDY

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Background

The foot contains two sesamoid bones including a medial tibial sesamoid and lateral fibular sesamoid bone, in which both are embedded in the plantar ligament beneath the first metatarsal head. Medial sesamoid fractures are rare and are often misdiagnosed. Radiographs may be inconclusive because a bipartite sesamoid may be present (sesamoid bone is naturally divided into two segments). Sesamoid fractures usually occur due to forced hyperextension of the great toe and metatarsophalangeal (MTP) joint. Sesamoid fractures are often missed on initial diagnosis because the clinical presentation is similar to a turf toe injury. Pain in the ball of the foot and first metatarsophalangeal joint, swelling, and limited plantarflexion/dorsiflexion are common clinical signs of a sesamoid fracture. Conservative management may not always be effective due to the variable blood supply of the sesamoids which can delay or result in unsuccessful healing.

Patient

- 21-year-old male Division I collegiate football player.
- Diagnosed with a sesamoid fracture following a misdiagnosis of turf toe.
- Mechanism of injury: Foot was stepped on while running during a drill at practice during the push off phase.
- Chief complaint: Pain with activities that required pushing off his toes (i.e. sleds, running).
- Initial clinical examination showed no signs of deformity, structural trauma, or abnormalities.
- Preliminary injury diagnosis was turf toe.
- After failed management, MRI imaging was obtained which revealed sesamoid fracture and partial tearing of the flexor hallucis tendon.

Intervention & Treatment

After initial diagnosis, conservative management consisted of:

- Rehabilitative exercises and turf toe taping techniques.
- Activity modification, total rest, and anti-inflammatory medications.

After conservative management failed:

- Surgical resection of the fractured sesamoid.
- Surgical repair of the flexor hallucis tendon.
- Patient was placed in a boot and non-weight bearing for two weeks.
- Partial weight bearing and rehab exercises began after surgical wound had fully healed (approximately three weeks).

Outcome

Complete resolution of signs and symptoms occurred following surgical resection of fractured sesamoid and surgical repair of torn flexor tendons. The patient has returned to full activity with no restrictions, and reports minimal soreness with activity.

Conclusion

Medial tibial sesamoid fractures rarely occur. Conservative management may not always be effective and surgical interventions, such as resection or screw fixation have been described. Successful return to sport and improved patient function have been reported in literature following surgical intervention.

Clinical Bottom Line

If pain at the MTP joint does not improve or resolve following injury, further examination is warranted. Medial tibial sesamoid bone fractures are rare and commonly missed on initial diagnosis. Radiographs may not detect the fracture, therefore other imaging, such as MRI or CT scan, may be warranted to accurately assess the injury.