

Bilateral Sesamoid Pain of the Great Toe in a Collegiate Gymnast

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Personal Data/Medical History

An 18-year old, 5'5", 147 pound female Division I gymnast while performing on the vault apparatus in February 2000, landed awkwardly, causing injury to the left, 1st metatarsophalangeal joint. The athlete finished the meet and competed for the remainder of the season, but on a limited basis due to pain. As the season progressed the athlete developed pain bilaterally in the area of the 1st metatarsophalangeal joints. However, the left extremity was more painful. Athlete presented with mild bilateral hallux valgus deformity. Athlete stated history of bilateral 1st metatarsophalangeal/sesamoid joint pain.

Physical signs and symptoms

Upon examination the athlete presented with minimal edema, no ecchymosis or obvious deformity, and generalized pain over the 1st metatarsophalangeal joint. ROM and strength measurements were painful, but normal when compared bilaterally. Athlete walked with a slight antalgic gait while walking bare-foot, but symptoms were reduced in athletic shoes. The athlete was treated conservatively for metatarsophalangeal joint/sesamoid pain with limited improvement. Treatment included NSAID's, rest, stretching & strengthening exercises, various modalities (cryotherapy & ultrasound), and protective padding (douser pads, and orthotics with sesamoid cut-out) for pressure reduction. Athlete was seen by the team orthopaedist and continued conservative treatment for bilateral sesamoiditis. Physician prescribed iontophoresis, massage with ketacam gel, and Vioxx (25 mg/day). Athlete reported limited improvement over the summer with extended rest and conservative treatment.

Differential Diagnosis

1. sesamoid fracture
2. bipartite sesamoid
3. sesamoiditis
4. 1st metatarsophalangeal sprain
5. flexor hallucis brevis tendinitis

Results of Diagnostic Imaging

MRI, bone scan, and x-rays suggested bilateral symptomatic, bipartite tibial sesamoids.

Clinical Course

The final decision for treatment was surgical intervention of the left extremity to remove the tibial sesamoid and soft tissue repair. The decision for treatment of the tibial sesamoid on the right extremity will be determined at the conclusion of the 2001 season. After surgery the athlete ambulated with crutches in a hard-soled shoe for the first week, was full-weight bearing in the hard-soled shoe at two weeks, and continued to wear the hard-soled shoe for six weeks. The goals for the initial two weeks were to treat edema and pain with cryotherapy and anti-inflammatory medication. Active and passive range of motion began at two weeks post-operative. Strengthening exercises were started at four weeks. At six weeks the athlete began wearing tennis shoes with orthotics with a sesamoid cut-out and began a walking progression program. As walking increased without pain, light jogging in tennis shoes was implemented which progressed to sprinting and agility drills in tennis shoes. As activity levels increased without symptoms sport specific tasks were incorporated. Presently, the athlete has begun light activities on the balance beam, uneven bars, and vault apparatus without the aid of tennis shoes and is asymptomatic.

Deviation from the expected

Bilateral, bipartite sesamoids is a relatively rare condition present in only 5-30% of patients. A review of the literature confirms that this is an unusual and difficult problem to treat in the athletic population, given the significant loads placed on the sesamoids with athletic endeavors.