

Congenital Fibular Sesamoid Aplasia: A case report

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Congenital absence of the lateral sesamoid bone is a relatively rare condition. Literature review reveals very few case presentations relevant to this condition. We present a case of lateral sesamoid aplasia that was incidentally detected upon roentgenograms of a patient presenting with a fracture to the base of the proximal phalanx.

Key words: Lateral sesamoid, fibular sesamoid, phalangeal fracture, aplasia, absent sesamoid

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Case Report

A 31 year-old male hit his right foot during a rafting event. The patient presents with pain and swelling to the right foot. Previous treatment included cold compression and irregular use of analgesics for pain and swelling. The physical examination demonstrated edema around the first metatarsophalangeal joint, palpation-induced tenderness at the medial aspect of the joint, with complete and painful range of motion. Further examination with plane foot anteroposterior radiographs showed a medial, non-displaced fracture at the base of proximal phalanx. (Fig.1)

In addition, the lateral or fibular sesamoid appeared aplasic or absent in routinely-ordered foot axial sesamoid radiograph. (Fig.2) The patient was questioned about any previous problems relating to his right foot. The patients other sport activity included basketball once or twice a week. He denies any injury to his right foot from this activity and has had no previous foot surgery. Physical examination of the right foot was considered as normal except of the signs associated with the proximal phalangeal fracture. It was decided that this variation had no bearing on functional loss or activity for the patient. He was placed in a short leg circular cast, non-weight bearing for 2 weeks. The cast was then removed and partial weight bearing was provided through soft shoes. Complete weight bearing was allowed at 4 weeks and sport activities was permitted at the end of 2 months. A 6-month follow-up of patient demonstrated that the lateral or fibular sesamoid aplasia, considering his younger age, did not adversely influence his attendance to sport activities before or after injury.

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Figure 1 Radiograph showing medial, non-displaced, proximal phalangeal fracture. Aplasia or an absent fibular sesamoid is also seen.

Discussion

Sesamoid bones of the foot originate from a cartilage bud at the 12th gestational week.¹ Ossification usually occurs between 8 and 10 years of age.⁵ Inferior contact surfaces of metatarsal heads become flattened with compression and form the intersesamoid ridge called crista.²



Figure 2 Axial sesamoid radiograph reveals absent fibular sesamoid with a slightly visible ossified region central to the aplastic sesamoid.

The reasons for development of sesamoid aplasia are not fully understood but it is thought to be congenital. Congenital absence or aplasia of one or two of the sesamoid bones of toe is reported to be rare. It is reported that lateral or fibular sesamoid aplasia is rarer than medial or tibial sesamoid aplasia.^{6,7} It is known that sesamoid bone excision in hallux valgus surgery (i.e. McBride bunionectomy) may result in varus, valgus, and hallux extensus or cock-up hallux deformities by altering the biomechanics of the toe.^{2,4}

Similar to the reviewed literature, findings of physical examination of this aplasia was assessed to be within normal limits without rendering loss of function. The hallucal sesamoids, although small and seemingly insignificant, play an important role in the function of the great toe by absorbing weight-bearing stress, reducing friction, and protecting tendons.^{8,9} They are also known to exert biomechanical features similar to that of the patella by increasing the efficiency of flexor hallucis brevis muscle by elevating its lever arm.^{4,5} Secondary causes of aplasia may include infection. A case of sesamoid bone resorption secondary to infection was reported by Conway, et al.³ The reason for normal biomechanics of toe in congenital sesamoid aplasia may be the presence of a cartilaginous sesamoid, which is non-calcified, and hence not seen in direct roentgenogram.⁷

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