GASTROCNEMIUS RECESSION FOR THE TREATMENT OF BILATERAL SYMPTOMATIC ADOLESCENT ACCESSORY NAVICULAR BONES

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Gastrocnemius recession for the treatment of bilateral symptomatic adolescent accessory navicular bones

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Our disclosures are in the Final AOFAS Program Book.
We have no potential conflicts with this presentation.
Supranumerary bones are very common in the foot
- Accessory navicular ossicles occur in 10-14% of general population\(^1\)-\(^2\)

Originally described by Bauhin in 1605\(^3\)

Accessory navicular has many different names
- Os tibial externum, os naviculare secundarium, prehallux,\(^3\)-\(^4\)
  accessory scaphoid\(^1\)
- Abundance of names likely due to the multiple theories of its origin, including:
  - Prehallux, or atavistic preaxial toe\(^3\)-\(^4\)
  - True sesamoid bone\(^1\)
INTRODUCTION

- Abundance of names likely due to the multiple theories of its origin, including:
  - Prehallux, or atavistic preaxial toe\(^3-4\)
  - True sesamoid bone\(^1\)
  - Cause of flat foot by weakening posterior tibial tendon\(^5\)
- Has been shown to have a genetic component
  - Autosomal dominant inheritance with incomplete penetrance\(^6\)
- Classification\(^1\)
  - Type I – sesamoid within the substance of the posterior tibial tendon
  - Type II – triangular shape, separated from navicular by 1-3 mm synchondrosis
  - Type III – cornuate navicular, likely result of bony bridging of accessory bone to navicular
CASE REPORT

- 14 year old male who had noted 6 months of bilateral medial sided midfoot pain
  - Atraumatic onset, no significant change in activity level
  - Both sides similar in severity
  - Pain worse with all activities, no relation to shoe wear
  - Pain was limiting participation in sports, as well as daily activities of living

- Had undergone several months of generalized stretching and strengthening with physical therapy after seeing PCP

- Tried medial-posted orthotics without benefit
Mild pes planus bilaterally with slightly increased hindfoot valgus of approximately 10° on left
  - Able to perform single leg heel raise with correction of hindfoot into varus
- Tender to palpation over posterior tibial tendon insertion bilaterally
  - No significant medial bony prominence
- Positive Silfverskiold test bilaterally
- Radiographs revealed Type I accessory navicular bilaterally
  - Rounded ossicles without a synchondrosis
**TREATMENT**

- Immobilization in bilateral walking boots for 4 weeks resulted in no improvement
- Cast immobilization as well as bony excision discussed with patient
- Gastrocnemius recession was offered as an option
  - Relieving the gastrocnemius equinus may decrease the forces and stresses throughout the foot
- Patient underwent bilateral gastrocnemius recessions
  - Posteromedial incision
  - Gastrocnemius tendon sharply released at gastrocnemius-soleus junction
  - Tendon left free to scar down in lengthened position
Patient allowed to weight bear in bilateral walking boots
Skin staples removed two weeks post-operatively
Physical therapy then begun, focusing on range-of-motion exercises and gentle strengthening
Noted to have complete resolution of bilateral pain by 4 weeks post-operatively
Able to resume full baseball activities by 6 weeks
At 30 month follow-up:
- No pain
- No orthotic use or medications
- No subjective weakness per patient
Symptomatic accessory navicular bones are a common cause of adolescent foot pain

- Most often Type II – may be a different etiologic cause and require different treatment
- Important to note this patient did not have medial bony prominence and associated difficulties with shoe wear

Traditional treatment involves excision of the ossicle, but requires a longer protected recovery period for tendon healing

- Gastrocnemius recession allows immediate weight bearing and quicker progression to unrestricted activities

A gastrocnemius equinus contracture has been shown to cause overload of various foot areas

- Relief of a gastrocnemius equinus contracture may dissipate forces experienced by the posterior tibial tendon

CONCLUSIONS
REFERENCES

1. Geist, ES. The accessory scaphoid bone. JBJS 1925; 7:570-4.