Accessory Navicular
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Introduction:
- First described by Bauhin in 1605\textsuperscript{10}
- Numerous other names in literature (Accessory Scaphoid, Prehallux, Os Naviculare)\textsuperscript{6}
- Incidence 5-14%\textsuperscript{1,7,12}, only small percentage are symptomatic
- Up to 90% are bilateral\textsuperscript{26}
- Autosomal dominant inheritance pattern\textsuperscript{1}

History:
- Medial midfoot pain with activities, often exacerbated by shoe wear
- Minor trauma cited\textsuperscript{10}
- Flexible flat foot deformity (debated)
  - Although Kidner\textsuperscript{10} felt that the altered pull of the PTT led to flattening of the arch, others, such as Kanati et al\textsuperscript{9}, have found no association b/t flexible flatfoot deformity and the presence of an AN
  - If the presence of an AN does not cause the flattening, it could be that the flatfoot increases the likelihood that an AN becomes symptomatic

Physical Examination:
- Tender medial prominence
- Pain with resisted inversion, which places tension on the synchondrosis
- Often flexible flat foot deformity is noted

Radiographic Evaluation:
- Plain Radiographs: best visualized and classified on the external oblique view
- MRI: not necessary for the diagnosis, but allows for evaluation of concomitant pathology
- Ultrasound: hyperechoic, heterogeneous appearance of the synchondrosis
- Bone Scan: sensitive, but lacks specificity; 50% of asymptomatic ANs may show increased uptake

Geist Classification\textsuperscript{7}:
- Type I: small 2-3mm sesamoid within PTT; no bony attachment to navicular; rarely symptomatic
- Type II: large accessory ossicle with intervening synchondrosis; most likely to be symptomatic
- Type III: bony bridge; the “cornuate” navicular; rarely symptomatic

Non-surgical Management:
- Doughnut Padding, Orthotics, UCBL Orthosis, Cast Immobilization
- Poor results reported in the literature: successful less than 10% of the time\textsuperscript{8}

Surgical Management:
- Excision: with (Kidner) or without PTT advancement
  - Good to Excellent results in 85-90% of patients\textsuperscript{1,20,21,27}
  - No significant difference in outcomes b/t Kidner and simple excision\textsuperscript{16}
  - Multiple modifications of the Kidner: Bony Tunnel\textsuperscript{3}, Suture Anchors\textsuperscript{5}, Interference Screw\textsuperscript{21}
- Fusion / ORIF: 2 technique papers have been published\textsuperscript{13,17}; one case series\textsuperscript{6}; one comparative study\textsuperscript{22}
  - No apparent diff in outcome; but nonunion and painful hardware have been noted in fusion pts.\textsuperscript{22}
- Drilling: Nakayama paper\textsuperscript{18}
  - 97% Good to Excellent results; 58% achieved a bony union
-My preferred technique (excision and a suture anchor)
-Potential Sources of Failure
  -Medial Pain – Painful scar, neurona, tendinosis of or damage to PTT, incomplete bony resection, nonunion or prominent hardware (s/p fusion surgery), persistent pes planovalgus
  -Lateral Pain – Subfibular impingement from incomplete correction of pes planus deformity

**Adjunctive Procedures:**
- Percutaneous TAL or Strayer
- Caleaneal Osteotomy (Medializing Osteotomy or Evans)
- Cotton Osteotomy
- Subtalal Arthrod express
- Very little literature to guide selection. Really at the surgeon’s discretion.

**References:**
22. Scott, AT; Sabesan, VJ; Saluta, JR; Wilson, MA; Easley, ME: Fusion versus excision of the symptomatic Type II accessory navicular: a prospective study. Foot Ankle Int 30:10-15, 2009.