Recalcitrant Foot and Ankle Entities: Sever’s Disease

ATPC
Special thanks to Ryan Freedman
Lecture Objectives

• Case presentation of Sever’s disease
• Pathophysiology of Sever’s disease
• Current discussions in Sever’s disease
• Future considerations in Sever’s disease
Case Presentation

**HPI:** 10 year old male who plays basketball and soccer presenting with bilateral heel pain. Pain began 2 months ago. Parents initially tried rest which was somewhat helpful, but pain recurs when he returned to his sports.

**Physical Exam:**
- Point tenderness upon palpation of the Achilles insertion and most posterior aspect of the calcaneus. Pain with performing toe raises, pain with forced dorsiflexion. — Swelling or ecchymosis.
- Neg Calcaneal squeeze test if squeeze is directed to body of the calcaneus, tender if more posterior

**DDX:** Sever's apophysitis, Plantar Fasciitis, Painful Heel Pad Syndrome, Achilles Tendinitis, Retrocalcaneal Bursitis, Calcaneal Stress Fx
- Rare: Bone Cyst, Bone Tumor, Osteomyelitis
Case Presentation

**Workup:**
- X-Ray
  - “fragmentation” of the calcaneal apophysis seen on contralateral films
  - Not diagnostic, but can be used to exclude fracture or tumor

**Treatment:**
- Rest from inciting activity
- suggest use of heel lifts in shoes and address lack of support and/or cushioning in cleats
- PT- stretching and eccentric loads?
- Cold packs
- NSAIDs
- May consider short leg cast/boot for immobilization if more severe
Apophysitis

• Painful inflammation of a bony outgrowth and especially the area of active growth at the end of bone (as of the heel or shin) where a muscle or tendon attaches.¹
Epidemiology

- Most common cause of heel pain in young athletes and accounts for 8% of all pediatric overuse injuries.
- M>F, most commonly 10-12 years old (8-14 yo range).
- Seen in athletes participating in sports requiring running, jumping, and plantar-flexion activation and often in cleated sports.
- Basketball, soccer, track, gymnastics, dance.
Pathophysiology

• Classified as an “Overuse Injury”
• Maturing apophysis is subject to significant loading and tensile stress
• Apophysis is structurally weak compared to other structures
• Thought to be due to rapid growth spurts
• Repetitive traction from the gastrocnemius-soleus complex leads to “micoavulsions”
• Self limited and resolved with closing of calcaneal physis
• In <1%, can progress to calcaneal avulsion injury
Current Discussions

- Imaging needed to diagnose Sever’s apophysitis?
- Reducing Inflammation vs. changing biomechanics
- Is immobilization necessary?
- Is there a role for surgery?
What imaging is needed?

• No imaging is needed if presentation is typical (i.e. age 10-12, bilateral, active patient)

• X-ray is not diagnostic, but can rule out other causes of heel pain (tarsal coalition, fracture, cyst)

• Study by Hosgoren et al. of 21 symptomatic heel pain showed equal sensitivity/specificity of radiographs versus ultrasound for diagnosis of Sever’s
  • Ultrasound is a good method to avoid unnecessary radiation

• MRI reserved for ruling out conditions such as osteomyelitis or stress fracture
Modalities of Treatment

• Study by Wiegerinck et al. compared 101 patients divided into three treatment modalities of wait and see, heel raise inlay, and eccentric exercises
  • Early improvement with heel raise inlay (P<0.01), but all three equivalent at final follow up
• James et al. in the British Journal of Sports Medicine found in a study of 133 children that at the endpoint of the study this was no clear advantage to any of their interventions
Modalities of Treatment

- Systematic review completed by James et al. found that there is no consensus on the most effective treatment between minimizing inflammation (Rest, NSAIDs) or changing biomechanics (heel lifts, orthoses, taping)
  - Authors felt that there is limited high quality evidence to support current treatment approaches
Immobilization?

• Can be used effectively in refractory cases, but only after more testing to rule out other more serious causes of heel pain
Surgery?

- There are no studies to suggest that surgery plays any role in the management of Sever’s disease
Information For Patients


• Nice summary of key points for patients to know about Sever’s disease and its treatment.
Summary Points

• Sever’s disease affects adolescents and is characterized as an overuse injury
• It is usually self-limiting, but symptoms can be improved with a combination of rest, ice, NSAIDs, orthoses or heel lifts
• Chronic (or possibly the more severe presentations) “Sever’s disease” may require further evaluation to rule out more serious causes of heel pain
• Future studies should continue to focus on efficacy of specific treatment protocols and limiting unnecessary diagnostic testing
Citations


