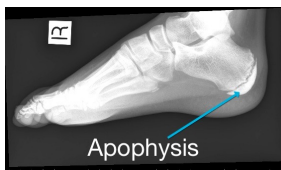


Calcaneal Apophyseal injury (Sever's Condition)



1. A condition which affects kids who exercise a lot

The apophysis of the posterior tuberosity of the calcaneus matures over variable timeframes, usually between age 8 & 15 years¹. Children who increase their activity load (running & jumping) suddenly during stage II (endochondral ossification) of the apophysis maturation phase, can develop the typical symptoms of pain on warm up & after exercise.

2. Diagnosis: rule out red flags

- Palpation: a two finger squeeze medial & lateral over the apophysis at the posterior calcaneus will elicit the patients typical tenderness. Pain will usually be present on full weight bearing stretch into ankle dorsiflexion after exercise.
- Careful questioning regarding symptoms will dictate the necessity of further investigation. Severe pain at rest, night pain or obvious oedema should be assessed further to exclude malignant, infectious or rheumatological conditions.
- X-ray can rule out avulsion if suspected with severe symptoms, but fragmentation has been shown to be a normal feature of a maturing enthesis³.



3. Treatment: load management is critical

Getting the young individual's exercise load at an appropriate level is key to a successful transition to mature apophyseal plate closure & full recovery. The exercise load should only be reduced enough for symptoms to settle⁵. Ceasing exercise completely will adversely affect the child's capacity to reload again once symptoms cease, plus can have negative psychosocial consequences². Reducing load might include exercise on non-consecutive days, with a limitation on jumping or running volume.

4. Symptom relief: compressive as well as tractional forces should be considered

Higher peak plantar heel pressures have been found in children with Sever's condition⁴. Issue of a soft heel cup to reduce the direct compressive force of ground impact can reduce symptoms, as well as addressing a heavy heel strike running technique. In a patient with Gastrocnemius equinus, a heel wedge in sports shoes to reduce the tractional load of the Achilles can reduce symptoms¹. Orthoses also have demonstrated benefit to reduce symptoms, if warranted after biomechanical assessment¹.



Other advice to reduce symptoms can include using ice after exercise & foam roller massage to reduce calf muscle tension without full stretch. Traditional static stretching can aggravate the symptoms & should only be performed if comfortable⁵.

case study:

An eight year old boy presents to physiotherapy with a six month history of gradually worsening bilateral posterior heel pain. His activity levels had increased nine months prior, when football (soccer) training increased from two to four afternoon's per week, plus the addition of four games of indoor soccer on one night per week.



dorsiflexion
stretch

Objective testing revealed tenderness over both calcaneal apophysis, pain on full weight bearing ankle dorsiflexion stretch & pain on single leg heel rising. Running gait displayed worse pain during sprinting with a forefoot strike, than jogging with a heel strike.

Calcaneal apophyseal injury (Sever's condition) was diagnosed. Treatment commenced with discussion about reducing activity load. It was agreed that indoor soccer would be left out of the weekly schedule, until symptoms settled. Foam roller massage was recommended daily with icing if required after sport. 8mm heel wedges were inserted in football boots to reduce Achilles load while symptoms settled.

On follow up two weeks later, symptoms had settled to a minor intensity over less duration on warm up & only infrequently after sport. Gradual re-introduction of indoor football games is planned in one month, followed by a physiotherapy review in two months to re-assess this load introduction. Heel wedges will then be removed if symptoms remain settled.

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