

Case Study

Sever's Disease

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Practice: PodiatryMed, Christchurch, NZ
Patient: 10 Year old male

Sever's disease (also known as a calcaneal apophysitis) is one of the most common causes of heel pain in growing children, usually occurring between the ages of 8-15 years. It is an inflammation of the growth plate in the calcaneus (heel) caused by repetitive stress to the heel usually during a growth spurt. It is more likely to be seen in children who are active in sports such as football (soccer).

Current Situation

Sever's disease or calcaneal apophysitis is the most common cause of heel pain in the growing athlete. It is due to overuse and repetitive micro trauma of growth plates of the calcaneus in the heel. It occurs in children aged 7 to 15, mostly presenting between the ages of 10 to 14.

The patient presented with painful heels on both feet, which are much worse after prolonged activity. He has also experienced knee pain in the past. The patient is a very active 10-year-old boy, he plays representative football and training has recently increased to about 8 hours a week.



Patient walking

He claims walking on the side of his foot helps relieve the pain and Ibuprofen gel makes a small difference when massaged into the area.

The patient is very frustrated with the situation as he is passionate about loves football and playing at his very best. I undertook a range of tests to identify what was causing the patient's pain.

Assessment

Balance Test

This relates to proprioception and postural stability, it also provides a good indication of the level of pronation a patient has.

This test clearly identified the patient significantly over pronates which influences his lower limb alignment negatively. This also puts a lot of stress through his achillies tendon which connects into the back of his heel.

Supination Resistance Test

This test involves the Subtalar Joint Axis, the test is graded 1-5 in regards to how hard it is to supinate the foot. The patient scored a 4 indicating a heavily pronated foot type.

Over pronating increases the loading on muscles and associated structures in the heel area and creates a higher chance of overuse symptoms.

Squeeze Test

This test involves squeezing the heel along the area of the growth plate. A positive test will be uncomfortable for the patient, eliciting the same symptoms associated with the injury, which was the case for the patient.



Carrying out the Squeeze Test

Diagnosis

The tests I conducted confirmed my initial opinion of Sever's Disease.

Sever's is a traction apophysitis in which inflammation of the calcaneal apophysis (growth plate) occurs as a result of overuse or micro trauma.

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Severs Disease

The apophysis is where growth of the calcaneus/heel bone begins from. Prior to the age of 14 before this plate fuses into bone, it is prone to overuse and micro trauma.

Causes

The patient is an over pronator, mainly through the rear foot. This over pronation is causing increased tension at the achillies insertion into the heel bone which is pulling on the growth plate leading to inflammation and pain. Increase in frequency, intensity and duration of activity. The sudden increase in football training didn't allow the patient's growing body time to adapt. This put a lot more strain on his legs and feet.

Footwear also played a big role in the patient's injury. Football boots do not have much arch or heel support. On natural turf the sprigs sink into the ground unevenly putting additional strain on the growth plate area.

The patient's running/training shoes were also worn and lacking in inappropriate support.

Treatment

Footwear

First, we had to get the patient into some more appropriate shoes for his everyday use. Front Runner Bush Inn fitted the patient with Asics Torrانا. These have inbuilt medial support which will reduce some of his over

pronation, they are also a great base for Formthotics to work from.

The Asics Torrانا is an "off road" shoe which is more durable than your standard running shoe – ideal for the rough and tumble lifestyle of a 10-year-old boy.



ASICS Torrانا shoe

Formthotics

The patient was fitted with Original Hard Dual Formthotics in both his running shoes and football boots. I added rear and mid-foot postings to gain better control and support of his feet. I also fitted Formthotics Heel raisers in his football boots to directly offload his achillies tendon relieving tension on the growth plate.



Fitting Formthotics to new soccer boots

Running Technique

Due to the rapid acceleration needed in football, the patient had developed a forefoot running style. This puts the calf muscles and achillies tendon under too much strain, landing on the mid foot would remedy this. Mid foot striking would also allow the orthotic to work better as the base in this area is much more stable.

I undertook running technique analysis and retraining with the patient to help achieve this.

Stretching and Strengthening

- Stretching of the calf muscles and achillies tendon
- Strengthening of the calf muscles

In addition I have recommended:

- Icing the area after practice and game to relieve inflammation
- A reduction in training load over the next month to let the injury settle down



Carrying out recommended stretches

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