Pilot study

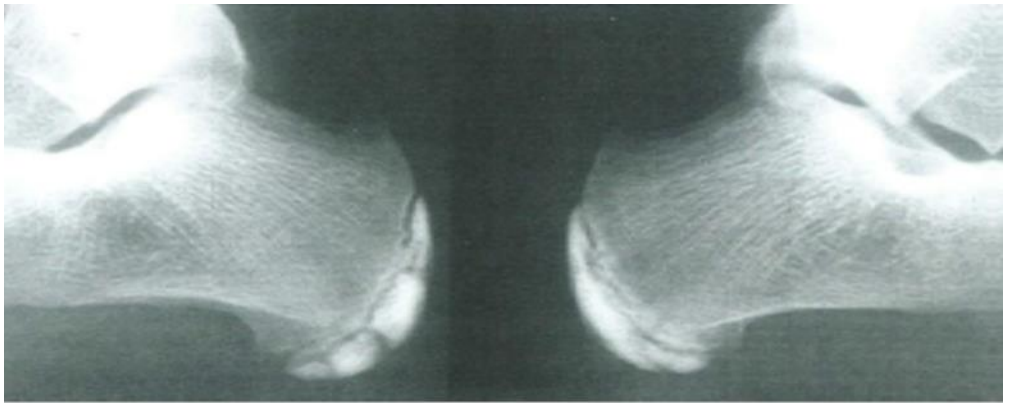
Extracorporeal shock wave therapy for treatment of **calcaneal apophyseal osteochondrosis ?**

Apophysitis calcanei (Sever's disease) is defined as osteochondrosis of the calcaneal apophysis due to overuse. Children (especially boys) between the age of 8 and 15 who intensively pursue sports are affected.

Symptoms frequently occur at the start of the prepubertal growth spurt (the so-called acral growth phase) and usually in connection with an intensification or increase in the scope of running or jumping athletic activities (track and field, football).

These children usually present at consultation under the (mis)diagnosis of achillodynia.

The diagnosis is supported by the typical triad: 1. appropriate age, 2. typical pain localisation on the dorsal calcaneus and 3. tenderness upon palpation (pinch) over the affected calcaneal apophysis. Imaging procedures such as x-ray, sonography and MRI can but do not always necessarily exhibit typical findings. The disease is, in principle, self-limiting; that is, a consolidation of the apophyseal growth cartilage occurs spontaneously over the course of 2 – 3 years and is then normally accompanied by a disappearance of the stress pain. The affected children (and their parents and coaches) are often very ambitious, however, and do not accept changing behaviour as a treatment.



Apophysitis calcanei (left) in a 12-year-old female gymnast. The symptomatic apophysis (left) exhibits a developmental delay (multiple unfused and abnormal osteochondral apophyseal growth centres) in comparison to the asymptomatic opposite side (right).

Treatment of calcaneal apophyseal osteochondrosis with (radial) extracorporeal shock wave therapy

There are no evidence-based proven treatments. Stress modifications, heel elevation, insoles and extension treatment (triceps surae), heat therapy and NSAIDs have regularly been indicated previously as part of conservative therapy.

Extracorporeal shock wave therapy of or over growth cartilage was considered a strict contraindication up until about 10 years ago. More recent animal experiment work has not been able to confirm a negative interference of extracorporeal shock waves with growth cartilage, however.

Consequently, we have carried out (radial) extracorporeal shock wave therapy (Duolith SD 1, Storz Medical AG; Switzerland) in individual cases, on 3 young female athletes and 2 young male athletes with chronic, therapy-resistant, sport-associated pain syndrome over the calcaneal apophysis, in 2-5 sessions of 2,000 impulses each (1.6 – 2.4 bar). Upon follow-up examination of these patients with the VISA-A-G questionnaire (validated for chronic Achilles tendon injury) 1 – 8 years after the shock wave application, the maximum value of 100 was achieved by all 5 patients. No side effects were observed.

This pilot study shows that (radial) extracorporeal shock wave therapy can also at least be considered to be a treatment alternative without side effects for sport-associated, osteochondritic apophyseal injuries. The scale of therapeutic efficiency must be examined in further controlled studies.

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