

Differentiating Heel Pain

Calcaneal Apophysitis (Sever's Disease) in Children vs. Plantar Fasciitis in Adults



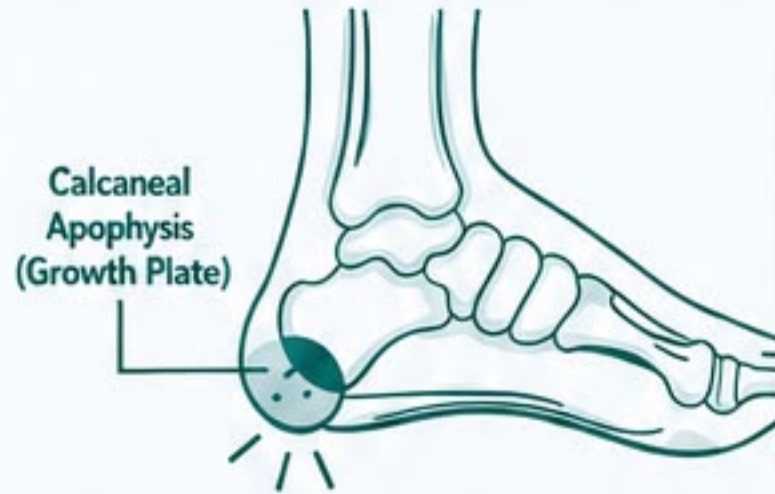
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INTRODUCTION

Heel pain is a common musculoskeletal complaint that affects people of all ages, but the underlying causes differ significantly between children and adults. Recognizing the key clinical differences between calcaneal apophysitis (Sever's disease) and plantar fasciitis is essential for accurate diagnosis, appropriate management, and effective patient education.¹

SEVER'S DISEASE (Calcaneal Apophysitis)¹



Pathoanatomy

The calcaneal apophysis is the growth plate at the heel. Repetitive traction from the Achilles tendon during growth can cause inflammation and pain.¹



AGE OF ONSET & RISK FACTORS

- 8–15 years, during growth spurts¹
- Common in active children: soccer, basketball, gymnastics, running¹
- More common in males than females¹
- Tight calf muscles may increase activity levels¹



LOCATION OF PAIN

- Back or bottom of heel¹
- Tender at calcaneal apophysis on sides of heel¹
- May be bilateral¹



PATHOLOGY

- Traction apophysitis of the calcaneal growth plate¹
- Repetitive pull of Achilles tendon on calcaneal growth plate causes microtrauma and inflammation¹
- Temporary condition; resolves with skeletal maturity¹



KEY CLINICAL SIGN & SYMPTOMS

- Positive Calcaneal Squeeze Test¹ (medial–lateral compression of heel)
- Pain with running, jumping, and sports¹
- Pain during or after activity¹
- May limp or walk on toes¹
- Improves with rest¹



IMAGING

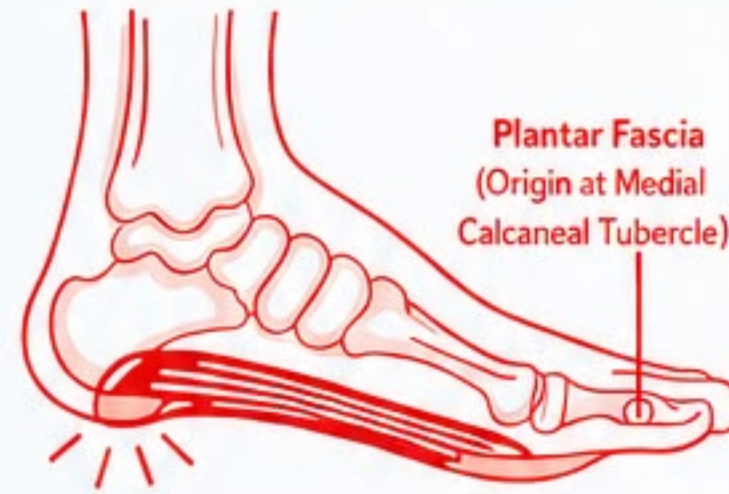
- X-ray usually normal¹
- Growth plate may appear irregular but not diagnostic¹
- Imaging used to rule out fracture, infection, or other pathology¹



TREATMENT FOCUS

- Activity modification — reduce high-impact activities¹
- Rest from painful activities¹
- Heel cups/inserts to reduce traction¹
- Calf & hamstring stretching¹
- Ice after activity (10–15 min)¹
- NSAIDs as needed¹
- Education & reassurance — self-limiting with skeletal maturity (months–years)¹

PLANTAR FASCIITIS (Plantar Fasciitis)²



Pathoanatomy

Degenerative changes (microtears, collagen degeneration, and thickening) occur at the origin of the plantar fascia due to repetitive overload and insufficient recovery.²



AGE OF ONSET & RISK FACTORS

- 40–60 years (peak 45–55)²
- Runners, prolonged standing, high BMI²
- Limited ankle dorsiflexion, flat feet or high arches²
- Poor footwear and sudden increase in activity²



LOCATION OF PAIN

- Bottom of heel, near medial tubercle²
- Tender at plantar fascia origin²
- Often unilateral (can be bilateral)²



PATHOLOGY

- Degenerative fasciitis²
- Microtears, collagen degeneration, and thickening of plantar fascia from chronic overload²
- Not an acute inflammatory process²



KEY CLINICAL SIGN & SYMPTOMS

- Sharp pain with first steps in the morning or after periods of rest²
- Improves with movement, worsens by end of day²
- Pain with prolonged standing or after exercise²
- Point tenderness at medial calcaneal tubercle²



IMAGING

- X-ray may show heel spur (not always present)²
- Ultrasound shows plantar fascia thickening (>4 mm)²
- MRI rarely needed; used for refractory cases²



TREATMENT FOCUS

- Plantar fascia & calf stretching (daily)²
- Night splints to maintain dorsiflexion²
- Orthotics, heel cups, supportive shoes²
- Activity modification & load management²
- NSAIDs, ice massage²
- Physical therapy (strengthening, manual therapy)²
- Refractory cases: shockwave, PRP, or steroid injection²



DIFFERENTIAL DIAGNOSIS

Sever's Disease:

- Calcaneal stress fracture
- Achilles tendinopathy
- Tarsal coalition
- Infection (osteomyelitis)
- Bone tumor
- Plantar warts

Plantar Fasciitis:

- Heel stress fracture
- Tarsal tunnel syndrome
- Baxter's nerve entrapment
- Achilles tendinopathy
- Fat pad atrophy
- Heel spur syndrome



CLINICAL PEARL

Sever's = traction apophysitis of the calcaneal growth plate¹ in active kids. Plantar Fasciitis = degenerative tissue changes in adults.² Correct diagnosis drives correct treatment.



REFERENCES

1. D'Angelo K, Piczutiello PD. Sever disease (calcaneal apophysitis). In: Bojrab MJ, ed. Pediatric Orthopaedics. 6th ed. Philadelphia, PA: Elsevier; 2022:177–178S.
2. Randal m. K, Radtke/Johnson, AJ S. Plantar fasciitis. In: Harris NS, ed. AAOS Comprehensive Orthopaedic Review. Rochester, MN: AAOS; 2021:2135–2147.
3. Forest Jr AL. Management of plantar fasciitis: a review of evidence. J Foot Ankle Res. 2019;12:17.
4. Marillett M, Boyens TE. Foot and ankle disorders in the pediatric and athletic population. J Orthop Sports Phys Ther. 2019;49(11):B27–B32.
5. Zionsg, L, Orr J. Plantar fasciitis: clinical practice guidelines in the International Federation of the Foot and Ankle Society and the American Academy of Orthopaedic Surgeons. Foot Ankle Int. 2017;38(1):16–34.



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