tendon. Squeezing the calf was seen to deform the fleshy soleus causing the overlying gastrocnemius tendon to bow away from the tibia resulting in plantar flexion (Fig. 1). There was no longitudinal movement of the soleus while the gastrocnemius muscle bellies moved about 1 cm proximally, confirming our ultrasound findings.

When the soleus tendon was divided the proximal movement of the gastrocnemius, due to direct pressure on the tapering bellies, produced only a small amount of plantar flexion. Division of the gastrocnemius tendon alone did not prevent full plantar flexion on calf compression.

**Conclusion.** The result of the Simmonds–Thompson test principally reflects the integrity of the soleus musculotendinous unit. Plantar flexion is caused by posterior bowing of the calf tendons and, to a lesser extent, by proximal displacement of the bellies of the gastrocnemius.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

**REFERENCES**


---

**PROMINENCE OF THE CALCANEUS: LATE RESULTS OF BONE RESECTION**

H. M. HUBER

Undue prominence of the posterosuperior edge of the calcaneal tuberosity (Fig. 1) can lead to mechanical irritation by footwear, and to painful bursitis. Haglund (1927) recommended radical resection of this part of the calcaneus when conservative treatment failed, but there is uncertainty about the amount of bone which should be removed.

**Patients and methods.** From 1970 to 1985 we treated 120 patients at the Orthopaedic University Hospital Balgrist in Zurich by resection of the posterosuperior calcaneal tuberosity. Their average age was 15.5 years (12 to 32); 72 were female, 48 were male and most had bilateral operations. We used a lateral approach 1 to 2 cm anterior to the calcaneal tendon (Inman 1973).

Of these, 98 patients completed a questionnaire after an average of 8.3 years (3 to 18). The 18 patients with some residual symptoms were also reviewed clinically and radiologically. We recorded the height of any bony ridge left after resection, measuring from the upper margin of the insertion of the calcaneal tendon (Fig. 2), which is seen on a lateral radiograph as a thickening of the cortex.

**Results.** Eighty of the 98 patients were completely free of problems in both feet, 14 had minor residual complaints, two had no improvement and two had been made worse. The average height of the ridge pre-operatively in all 98 patients was 28 mm (24 to 32); postoperatively it was 8 mm (0 to 32). In the 80 patients with complete relief of symptoms the mean height was 7 mm (0 to 13).

Of the 18 patients with residual symptoms, six had painful superficial scars. Seven had persistent pressure problems: five of these had an average postoperative ridge height of 18 mm (15 to 32), and two had calcification in the resected zone. The other five patients with pain had calcaneal tendinitis due to too steep a resection.
**Discussion.** The size of the ridge remaining after resection correlated well with the late results: the best results followed its complete removal. Chronic mechanical irritation often produces adhesions between the calcaneal tendon and the posterior surface of the calcaneus, with loss of the radiolucent retrocalcaneal recess (Pavlov et al 1982). At operation this gives the appearance of a higher tendon insertion, which may explain the incidence of incomplete resection. The amount of bone to be resected should be determined from pre-operative radiographs. This allows any adhesions between bone and tendon to be divided, without danger to the insertion itself. There is no evidence that the calcaneus is dangerously weakened by full resection.

During eversion and inversion of the foot the calcaneal tendon glides on the dorsal surface of the calcaneum. After resection, there should be no contact between the tendon and the bone above its insertion, even in full ankle dorsiflexion. If the line of resection is too steep, contact may occur and cause irritation of the calcaneal tendon and chronic tenosynovitis.

The aim of surgery is to produce a gently sloping, smooth surface above the level of the insertion of the Achilles tendon which does not make contact with the tendon (Fig. 2).

The author gratefully acknowledges the help of Mr Douglas McGeorge, Whiston Hospital, Merseyside, in correcting the manuscript.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

**REFERENCES**


---

**SPINDLE-CELL SARCOMA OF THE HAND MAY PRESENT AS A BENIGN RECURRENT NODULE**

R. A. POWER, S. MANEK, C. J. McCULLOUGH

Dupuytren's disease presents as fascial thickening with or without joint contracture, most commonly affecting the ring and little fingers. An isolated nodule at an atypical site is extremely unusual.

**Case report.** A 52-year-old woman presented with a 2 cm mass in the web between her middle and index fingers, showing induration and early ulceration. Excision biopsy indicated a highly cellular sarcoma with sheets of small spindle cells, occasional storiform areas (Fig. 1) and a high mitotic count. The immunopathological markers s.100, Desmin and Vimentin were negative and did not allow further classification of the tumour.

Ten years previously a subcutaneous nodule, thought to be a dermoid cyst, had been excised from the same site. Histological examination at that time showed broad bands of connective tissue, mainly hypocellular, but with focal areas of increased cellularity (Fig. 2). This was considered to be Dupuytren's disease.

**Discussion.** Spindle-cell sarcomas represent about half of all adult soft-tissue tumours (Coindre et al 1988). There are several histological types, but 20% remain unclassi-