

# Clubfoot with supernumerary soleus muscle

## Report of 2 cases

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**In 2 cases of clubfoot with severe and rigid varus deformity, an accessory soleus muscle with attachment on the medial side of the calcaneus was found. After cutting the distal attachment of this muscle, the deformity diminished. The accessory soleus muscle is not interpreted as the primary cause of the clubfoot, but as a highly contributing cause to the rigid varus deformity.**

### Case 1

A girl with a unilateral right-sided clubfoot was initially treated with repeated manipulation and an above-the-knee cast. Because of a persistent, severe, rigid deformity (Figure 1), she was operated on at the age of 3 months. At surgery a supernumerary tight soleus muscle was found. The muscle ended in a 2-cm-long and 4-mm-broad tendon attached to the medial side of the calcaneus. The distal part of the supernumerary soleus muscle was dissected free, the tendon cut, and the muscle allowed to retract. As soon as the tendon was cut, the varus deformity was considerably diminished. The procedure continued, with lengthening of the Achilles tendon and the tibialis posterior tendon, as well as posterior, medial, and subtalar release. After that, full correction was achieved. Owing to the very tight skin after stitching the wound, the foot could not be kept fully corrected in the cast. Full correction was gradually achieved after repeated manipulation and application of a cast under general anesthesia. The foot was immobilized in an above-the-knee cast for 6 weeks after which a plastic splint was applied day and night until the pa-

tient was walking independently at the age of 10 months. The plastic splint was then used as a night splint.

At reexamination at the age of 10 months, the child was walking independently. The ankle joint was in slight valgus, plantar flexion was normal, and extension was 20° (25° on the normal side).

### Case 2

A boy with a unilateral right-sided clubfoot had initially repeated manipulations and an above-the-knee cast. The foot was very rigid, and the conservative treatment was unsuccessful. Therefore, surgery was recommended at the age of 3 months. The parents postponed surgery, so that conservative treatment with manipulation and a cast had to be continued until aged 1 year when surgery was accepted.

At surgery, a supernumerary tight soleus muscle without any tendon was found directly attached to the medial side of the calcaneus. The distal part of the supernumerary soleus muscle was dissected free and cut close to the calcaneus, and was allowed to retract. As soon as the muscle was cut, the varus deformity was considerably diminished. The procedure continued with elongation of the Achilles tendon and the tibialis posterior tendon, as well as posterior, medial, and subtalar release. After that, full correction was achieved. Owing to the very tight skin after stitching the wound, the foot could not be kept fully corrected in a cast. Full correction was gradually achieved after repeated manipulation and applica-

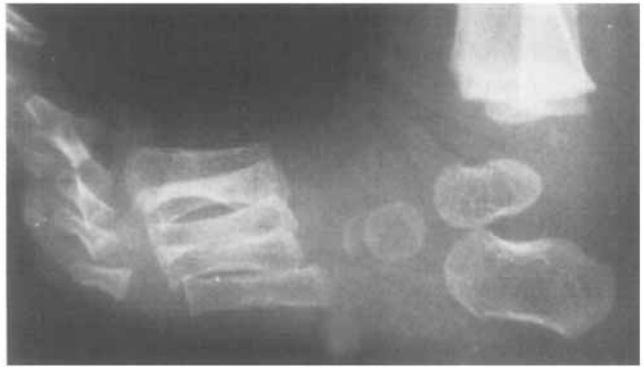
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Figure 1. Case 1. Severe foot deformity at the age of 2 months.



Nearly normal conditions at aged 10 months.

tion of a cast under general anesthesia. A minimal skin necrosis healed within 6 weeks postoperatively. After this, a plastic night splint was applied.

The patient started to walk independently as soon as the cast was removed. At reexamination at the age of 15 months, the ankle joint was in slight valgus, plantar flexion was normal, and extension was 20° (25° on the normal side).

## Discussion

Two cases of a supernumerary soleus muscle have been reported by Dunn (1965), and 1 case by Danielsson and Theander (1981). No case of a supernumerary soleus muscle in clubfoot has previously been reported. In this condition, there is a rigid varus and, to some extent, a rigid equinus deformity of the hindfoot.

A supernumerary soleus muscle is extremely rare, and may thus not be the primary cause of clubfoot. If a supernumerary soleus muscle is found in a clubfoot, it may, however, increase the deformity and prevent correction, especially of the varus, but also of the equinus deformity. This was seen in our cases, especially in Case 1, which was totally rigid and resistant to manipulation. In both cases, just cutting the muscle or tendon at the attachment to the calcaneus directly diminished the varus deformity.

## References

- Danielsson L, Theander G. Supernumerary soleus muscle. *Acta Radiol (Diagn) (Stockh)* 1981; 22 (3B): 365-8.
- Dunn A W. Anomalous muscles simulating soft tissue tumors in the lower extremities. Report of three cases. *J Bone Joint Surg (Am)* 1965; 47 (7): 1397-400.