

## Technical Note

# Arthroscopic Resection of the Calcaneonavicular Coalition or the “Too Long” Anterior Process of the Calcaneus

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**Abstract:** Calcaneonavicular coalition and the “too long” anterior process (TLAP) of the calcaneus can manifest as lateral foot pain, peroneal spastic flatfoot, and repeated ankle sprain. Surgical resection of the bone bar is frequently required. We present here an arthroscopic approach that can be used to accurately assess pathoanatomy and resect the bone bar. A portal is established slightly dorsal to the angle of Gissane. This is the primary visualization portal. The working portal, which is identified under an image intensifier, is located at the space between the talonavicular and calcaneocuboid joints, directly over the TLAP or the calcaneonavicular coalition. With the 2.7-mm 30° arthroscope placed at the primary visualization portal, soft tissue around the TLAP or the calcaneonavicular coalition is cleared up with the use of an arthroscopic shaver at the working portal. After the TLAP or the calcaneonavicular coalition is clearly visualized, it can be resected with an arthroscopic burr through the working portal. The bone bar is resected proximally until the medial side of the calcaneocuboid joint, the lateral side of the talonavicular joint, and the plantar-lateral aspect of the talar head are clearly seen. Inversion stress should then be applied to the foot to prevent further impingement of the anteromedial process of the calcaneus to the plantar-lateral part of the talar head.

**Key Words:** Calcaneonavicular coalition—“Too long” anterior process—Calcaneus—Arthroscopy.

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Calcaneonavicular coalition is a congenital anomaly that is characterized by variable levels of union between the calcaneus and the navicular. Coalitions may be classified on the basis of completeness of ossification into synostosis (completely ossified bar), synchondrosis (partially cartilaginous bar), and syndesmosis (fibrous tissue). Generally, the patient with a calcaneonavicular coalition presents with pain

and dysfunction between the ages of 9 and 13 years. Frequently, an injury or sprain precipitates the onset of symptoms. “Too long” anteromedial process (TLAP) of the calcaneus is an anatomic abnormality in which the anteromedial process of the calcaneus is elongated and becomes interposed between the head of the talus and the cuboid far enough to cause impingement on the navicular.<sup>1</sup> It can present as recurrent ankle sprain, peroneal muscle spasm (Fig 1), or persistent tarsal pain in adolescents.<sup>1</sup> Oblique radiograph of the foot is the best view on which the calcaneonavicular coalition and the TLAP (Fig 2) can be seen. Surgery is considered when pain is a persistent problem and conservative treatment has failed. We present here an arthroscopic approach to resection of the calcaneonavicular coalition or the TLAP.

## DESCRIPTION OF TECHNIQUE

The patient is placed in a supine position with support provided underneath the buttock of the oper-

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**FIGURE 1.** Clinical photograph of a 14-year-old boy with TLAP. He developed peroneal muscle spasm of the right foot after inversion sprain.

ative side. A pneumatic tourniquet is put onto the thigh. A portal is established slightly dorsal to the angle of Gissane. This is the primary visualization portal. The working portal, which is identified under image intensifier, is located at the space between the talonavicular and calcaneocuboid joints, directly over the TLAP or the calcaneonavicular coalition. With the 2.7-mm 30° arthroscope placed at the primary visualization portal, the soft tissue around the TLAP or the calcaneonavicular coalition is cleared up with the use of an arthroscopic shaver at the working portal (Fig 3). After the TLAP or the calcaneonavicular coalition is clearly visualized (Fig 4), it can be resected with an



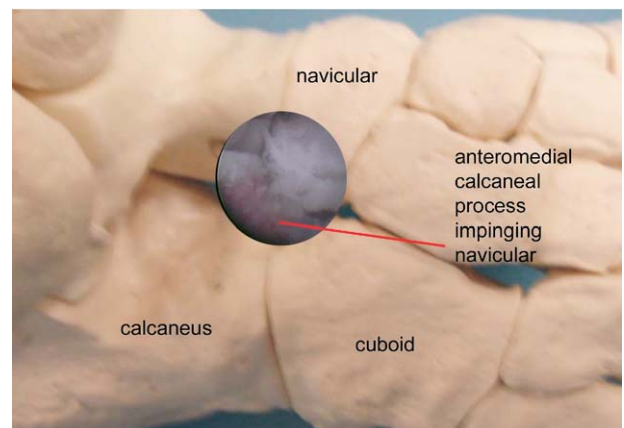
**FIGURE 2.** Oblique radiographic view of the right foot of the 14-year-old boy showing the anteromedial process of the calcaneus intruding into the talocuboid space.



**FIGURE 3.** Intraoperative photograph shows the arthroscope in the primary visualization portal and the arthroscopic burr in the working portal.

arthroscopic burr through the working portal (Fig 5). The bone bar is resected proximally until the medial side of the calcaneocuboid joint, the lateral side of the taloclavicular joint, and the plantar-lateral aspect of the talar head are clearly seen. At that time, the chondral lesion at the plantar-lateral side of the talar head (frequently occurs in cases of TLAP) can be seen and debrided (Fig 6). Inversion stress should then be applied to the foot to eliminate the possibility of further impingement of the anteromedial process of the calcaneus to the plantar-lateral part of the talar head.

Sometimes, the deep part of the anteromedial calcaneal process is not well seen at the primary visualization portal. Secondary visualization can be estab-



**FIGURE 4.** Arthroscopic view showing the anteromedial process of the calcaneus impinging into the navicular.

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