CHAPTER 14

Plantar Condylectomy Of The Intractable Plantar Keratosis

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Many procedures and modifications have been described for the treatment of plantar calluses. For the last five years, the author has been utilizing the plantar condylectomy procedure as originally described by DuVries. This procedure affords an effective means of dealing with a painful plantar hyperkeratosis, with the benefits of a short recuperative period and limited surgical complications.

The plantar condylectomy is not appropriate for all patients with plantar callosities, and its indiscriminate use will leave both the surgeon and patient disappointed. Plantar lesions are produced by either biomechanical or structural abnormalities. Biomechanically induced calluses will typically display one of the following lesion patterns: sub-metatarsal 1 and 5, sub-metatarsal 2 and 5, sub-metatarsal 2, or sub-metatarsal 5. Although identifying and treating the underlying dysfunction should eliminate the callus, more often than not, the theoretical application does not translate to practical success.

Indiscriminate use of metatarsal osteotomies for biomechanical lesions can further destabilize the forefoot and result in transfer lesions, which are often more difficult to treat than the original condition (Figs. 1, 2). The plantar condylectomy is preferred in treating this type of lesion because it will not structurally alter the biomechanics of the foot. Although the chance of recurrence exists, transfer lesions are not likely.

This procedure is best suited for stance phase lesions, which are typically well-circumscribed calluses directly beneath the third or fourth metatarsal head. No significant deviation in the metatarsal parabola is appreciable on the anterior posterior radiograph. Condylectomy, however, is not as effective in the diffuse, propulsive phase tylomas, which are typically found distal to and associated with a long metatarsal.

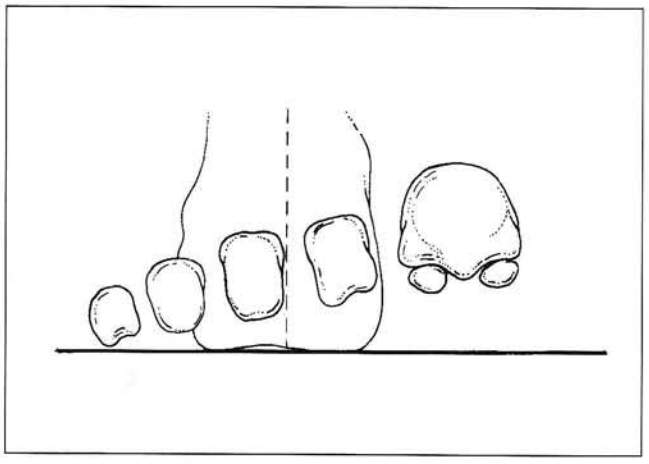

Figure 1A. Forefoot varus with neutral calcaneus at heel contact.

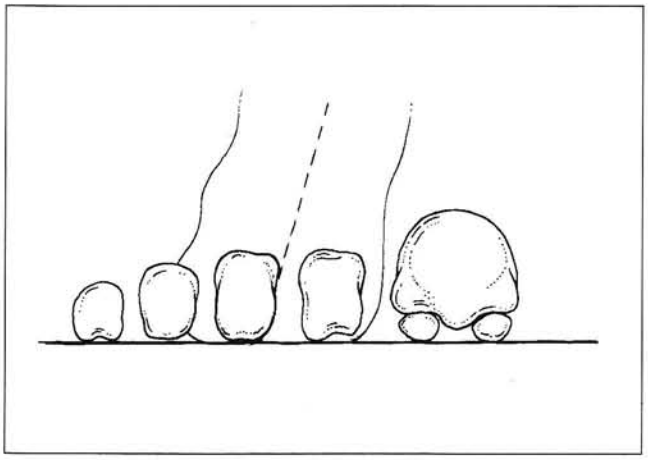

Figure 1B. As the foot becomes loaded, the calcaneus everts.

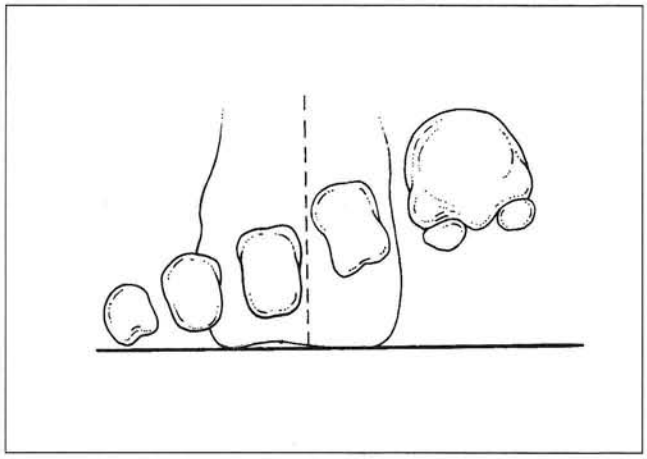

Figure 2A. Following second metatarsal DFWO, the forefoot varus has been structurally increased.

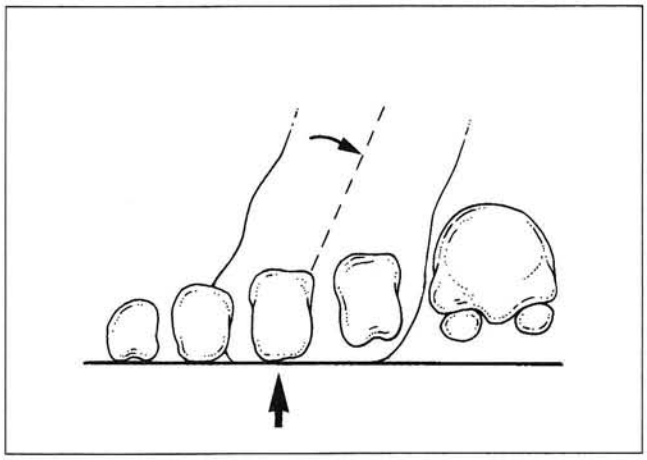

Figure 2B. As the forefoot is loaded, the calcaneus everts greater than what was seen in Figure 1B. Further pronation is limited by the third metatarsal where a transfer lesion is likely.

PROCEDURE

A 3 cm skin incision is centered over the metatarsophalangeal joint. The digit will need to be significantly plantarflexed to expose the plantar condyle of the metatarsal, which will displace the incision distally. Therefore, two-thirds of the incision should be placed proximal to the metatarsophalangeal joint (Fig. 3). The hood fibers are then released medially, and the long and short extensors tendons are retracted laterally. The capsule is then incised linearly and reflected medially and laterally. A metatarsal elevator is inserted into the joint, plantarflexing the toe, and exposing the metatarsal condyles (Figs. 4, 5). The condyles can be resected with either a power saw or an osteotome. Care must be taken to direct the cut parallel to the supporting surface to prevent splitting of the metatarsal shaft (Fig. 6). All sharp edges are rasped smooth, and the wound is irrigated and closed. The patient is placed in a postoperative surgical shoe for approximately two weeks.

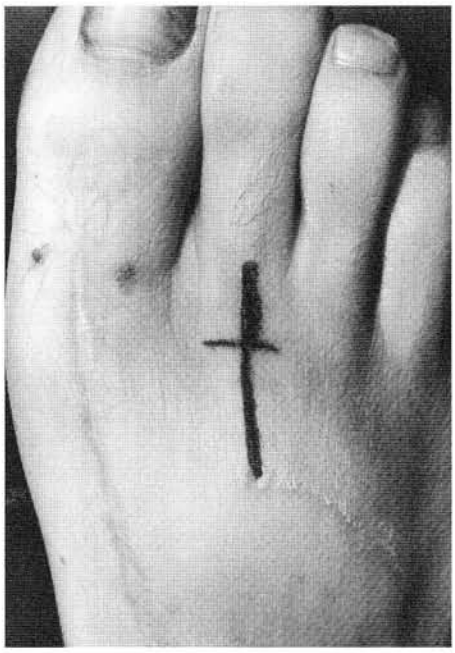

Figure 3. The skin incision is centered proximal to the metatarsophalangeal joint.

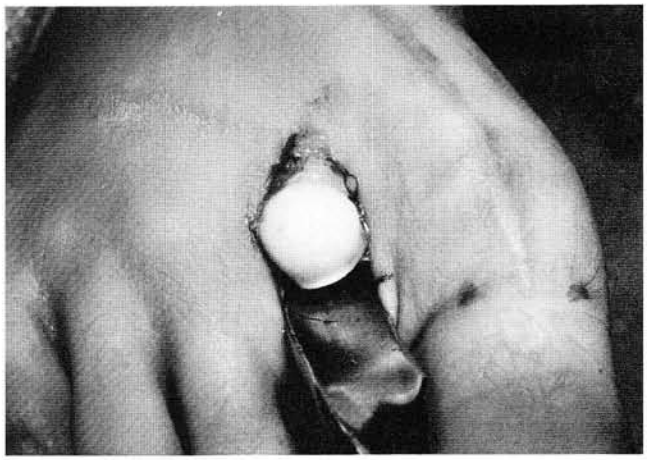

Figure 4. The capsule is linearly incised and reflected. The plantar condyles are exposed with a metatarsal elevator.

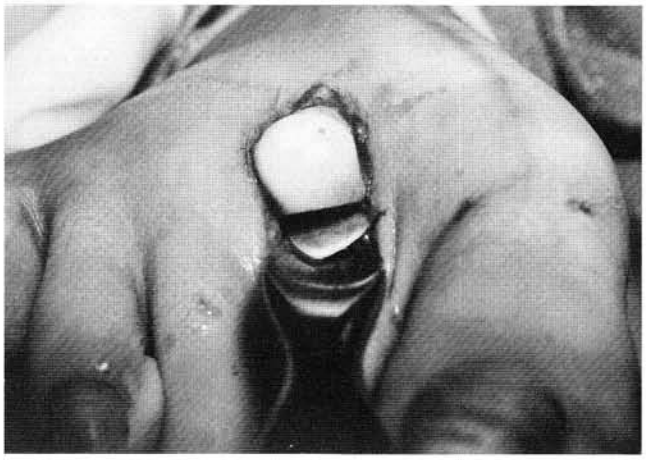

Figure 5. The plantar condyle is resected.

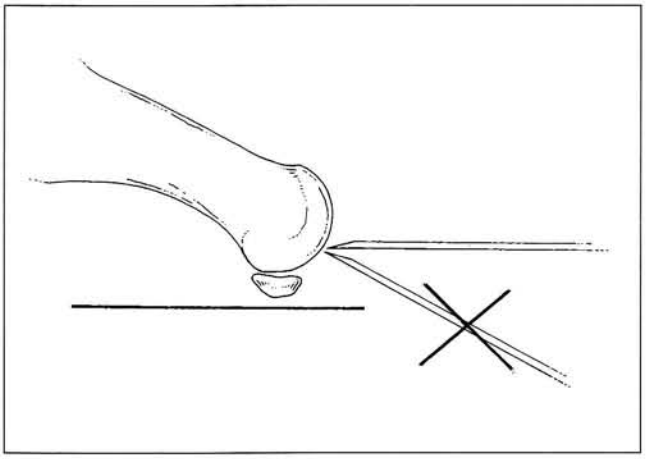

Figure 6. If the osteotomy is held parallel to the long axis of the metatarsal, the shaft will be split. Proper orientation holds the osteotome parallel to the weight bearing surface.

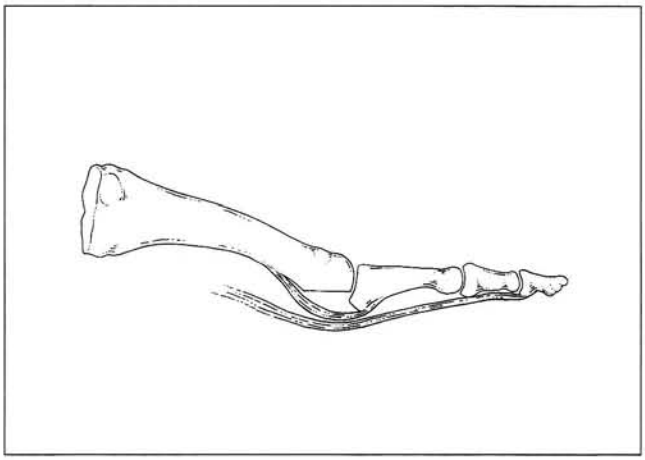

Figure 7. The long flexor tendon is inferior to the plantar pad making a floating toe unlikely.

DISCUSSION

Although there have been no cases resulting in transfer lesions, recurrences do occur. Occasionally, a prolonged capsulitis develops requiring a local steroid injection. Some authors believe that removal of the condyles decreases the cubic content of the joint, resulting in laxity of the flexors and subsequent dorsal migration of the digit. However, this scenario is unlikely because the long flexor passes below the flexor plate, which is a thick fibrocartilageous structure interposed between the long flexor tendon and the metatarsal head. It is unlikely that the plate would deform enough to reduce flexor function (Fig. 7).