Understanding Frontal Plane Correction in Hallux Valgus Repair

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KEYWORDS

• Frontal plane • Hallux valgus • Bunion • Lapiplasty

KEY POINTS

- Understanding the role that frontal/coronal rotation plays in the mechanics of the hallux-abducto-valgus (HAV) deformity and in the radiographic appearance is vital.
- As we begin to understand the more complex 3-dimensional deformity, it will likely push our understanding further.
- Although the initial concepts proposed are a radical challenge to current HAV dogma, classification systems such as this one will ultimately provide an improved understanding of the pathomechanics and pathogenesis of HAV.

INTRODUCTION

The goal of correction of the hallux-abducto-valgus (HAV) deformity should be to position the first metatarsal and metatarsophalangeal (MTP) joint in a position as close to normal anatomy as possible. The current technique that is discussed attempts to correct the deformity at the center of rotational angulation (CORA) in all 3 planes (coronal/frontal, transverse, and sagittal), and is adjustable to the degree of correction in those planes. There are no limitations to this technique based on severity of the hallux valgus angle (HVA) or intermetatarsal angle (IMA). The presence (or absence) of hypermobility, or sagittal plane malalignment, is not a factor in the use of the triplanar correction technique, and it may be used in either condition. This technique is appropriate for all

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ages as well. Both the adult and adolescent HAV deformities can be corrected via this approach.

The strength of this triplanar technique is the ability to reliably correct all 3 anatomic planes in hallux valgus deformities before committing to a permanent resection of bone. This includes correcting the coronal/frontal plane metatarsal rotation that is present in 87.3% of hallux valgus deformities when examined by weightbearing computed tomography scan.[1] However, the system is adjustable to correct all deformities, from zero rotation to maximum rotation.

This triplanar technique is contraindicated in the case of the unhealthy first MTP joint, or "degenerative bunion." As with other previously described HAV corrective techniques, an arthritic first MTP joint should be addressed by a first MTP joint arthrodesis.

TECHNIQUE

The patient's operative extremity is marked and consent confirmed. For anesthesia, the authors' preference is a regional extremity nerve block performed by the anesthesia team. Once the nerve block has been completed, the patient is taken to the operative suite. The patient is placed on a radiolucent operating room table. A tourniquet is applied to the operative limb, and the limb is prepped and draped in the usual fashion for the operative procedure. The leg is exsanguinated and the tourniquet inflated to the appropriate pressure.

The initial incision is made over the dorsal aspect of the first tarsometatarsal (TMT) joint, just medial to the extensor hallucis longus tendon (**Fig. 1**: initial exposure). It is

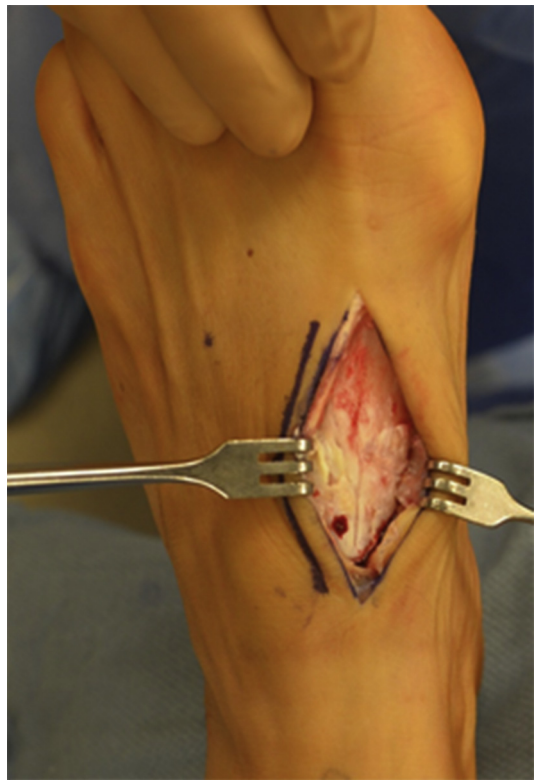

Fig. 1. Dorsal incision.