Immediate Weight Bearing after Bi-planar Plantar Fixation of Lapidus: A Multi-centered Study

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Category: Bunion

Keywords: Lapidus, bunion, HAV, bi-planar, weight-bearing

Introduction/Purpose: There are many options when choosing to repair HAV (hallux abducto-valgus) deformity of the foot. The Lapidus procedure and its modifications are often selected to correct these deformities due to multiplanar correction at the CORA (center of rotational angulation). As with any surgical procedure, there are advantages and disadvantages when selecting the correct technique. One drawback often identified with the Lapidus procedure is the need for extended immobilization and the inability to weight bear for an extended period of time. The objectives of this study were to demonstrate a new, novel construct that can allow for immediate weight bearing after Lapidus arthrodesis with predictable outcomes.

Methods: This IRB approved study was comprised of 4 centers that performed a specific modification of the Lapidus procedure with an identical fixation construct. The construct consisted of 2 mini-plates that were applied across the first tarsometatarsal (TMT) joint. The plates were applied while the joint was held in compression. The plates were oriented dorsal and plantar-medial allowing for a greater than 90° spread between plates for appropriate distribution of the forces and a true multi-planar construct. This concept takes into account biplanar stability as described by Kolner[1] and micromotion to stimulate secondary bone healing as described by Perren[2]. All patients were placed into a protective, cushioned dressing with a rigid bottom shoe or boot depending on surgeon preference. The patients were allowed weight-bear as tolerated with walker or crutches for safety as soon as the regional anesthesia dissipated to allow for complete sensation in the operative limb.

Results: Twelve months of consecutive cases with immediate weight bearing and minimum follow-up of 6 months were included in the study. All cases that met inclusion criteria were included in the analysis; inclusion criteria were primary corrections of a HAV deformity with correction done via the described technique performed within the approved date range. Procedures not utilizing the described technique, revision procedures and procedures that extended the arthrodesis outside of the first TMT joint were excluded.

Conclusion: Preoperative and postoperative measurements of 50 patients were obtained in this study. Radiographic evaluation of the fusion site was used to determine if the arthrodesis demonstrated healing at a minimum of 6 months. Other studies have shown early weight bearing (<3 weeks) is possible after the Lapidus procedure [3], this study demonstrated that immediate weight bearing after a modified Lapidus procedure is possible with a decreased reported nonunion rate (4.0%). This modified procedure did not result in a recurrence of the deformity. We expect continuation of the study to demonstrate that there are no long-term issues.