Fixation Technique for Lapidus Arthrodesis with Early Weight Bearing: A report of 10 Cases

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Purpose

Several interna il fixation techniques have been attempted in effort to facilitate early weight bearing following a Lapidus arthrodesis. 1,2,3 Particularly, in an effort to reduce the potential for non-union and improve fusion rates, surgeons have described techniques to allow early weight bearing. 1,2,4-11

Introduction

The first metatarsal-cuneiform (Lapidus) arthrodesis is a common procedure for the correction of moderate to severe hallux abducto-valgus (HAV) deformity. Though the Lapidus is a powerful procedure for the correction of HAV, the orientation of the fusion is intricate whenever with weight bearing forces typically requiring 6-8 weeks of non-weight bearing to allow for fusion. 12

Early weight bearing following Lapidus arthrodesis is designed to reduce the morbidity of a prolonged non-weight-bearing period. 4,5 It can be achieved through several techniques, including the use of a toe splint, the use of a brace, or the use of an interfragmentary screw. 6

The current study reports the outcome of a novel and simplified technique to allow for early weight bearing, which is described here.

Patients and Methods

This retrospective study reviewed the charts of 10 patients who underwent a Lapidus arthrodesis with early weight bearing. All patients were reviewed for minimum 1 year follow up.

Results

Pre-operative analysis and discussion

Post-operative protocol

Post-operatively all patients were immediately placed in a well padded posterior splint to allow for immobility. At 1 week, the patient was allowed to try walking with the use of a crutch or a walker crutch with 3 kilograms of weight across both feet.

Surgical Technique

A subcutaneous incision was made starting dorsomedially at the 1st metatarsocuneiform joint (MCJ) extending distally medial to the EHL tendon to allow the image to be free of muscle. 12,13 An anatomic positioning was performed before addressing the metatarsocuneiform joint in three planes. Following fixation of the distal metatarsal osteotomy attention was directed to the 1st MCJ. Following careful anatomic dissection the 1st MCJ was resected using a sagittal saw freeing the joint to allow for possible osteonecrosis. The plate was placed on the k-wires on either side of the joint (Figure 1). Subchondral bone was then aggressively fenestrated using a 2.0 mm drill bit. The distractor was then removed and using the k-wire as a styk the position of the 1st ray was corrected in all three planes (Figure 2). Positional correction was confirmed under fluoroscopy and a k-wire was placed across the fusion site. A standard AO principles of a 4.0 mm partially threaded interfragmentary screw was driven from distal-dorsal-medial to proximal-planter-lateral across the fusion site. Finally, to increase stability, a two-hole locking compression plate was placed dorsally across the fusion site (Figure 3-4).

Complications

The fusion site was observed on postoperative radiographs at 2 and 3 months postoperatively. Each case was observed for complications such as non-union, pseudarthrosis, or delayed union.

Discussion

The literature is largely lacking any comprehensive study comparing the outcomes of different techniques for achieving early weight bearing following a Lapidus arthrodesis.

Conclusion

Limitations

A limitation of this study was the short follow up duration. Most of the studies that have compared different techniques for early weight bearing have been less than 1 year, and to date no study has looked at 10 year outcomes. A longer follow up duration may allow for a more thorough evaluation of the subjective and objective outcomes of the two techniques.

Future research

Future research should focus on long term follow up of patients early weight bearing following Lapidus arthrodesis. This will allow for a more thorough evaluation of the subjective and objective outcomes of the two techniques. Additionally, a randomized controlled trial comparing the outcomes of early weight bearing following Lapidus arthrodesis with different techniques is needed. This will allow for a more thorough evaluation of the subjective and objective outcomes of the two techniques. Additionally, a randomized controlled trial comparing the outcomes of early weight bearing following Lapidus arthrodesis with different techniques is needed. This will allow for a more thorough evaluation of the subjective and objective outcomes of the two techniques.

References


