A WEIGHT BEARING APPROACH TO THE LUDLOFF BUNIONECTOMY

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Statement of Purpose

The purpose of this retrospective case study is to correct the hallux valgus deformity and to evaluate the stability of a hybrid locked plate (compression and locking screws) to allow early weight bearing of patients who underwent Ludloff bunionectomies.

Methods

Patients with symptomatic hallux valgus deformities, with 1st intermetatarsal angle of 14 degrees or greater, as well as a stable 1st metatarsocuneiform joint, were selected in sequence as they presented to the authors’ offices. Two surgeons performed 106 procedures at two different facilities from September 2009 to December 2011. The average age of patients was 55.5 years; there were 87 females and 10 males. The average pre-operative Visual Analog Pain Scale was 5.2 (scale 1-10). The average pre-operative hallux valgus angle was 27.5 degrees and the 1st intermetatarsal angle was 14.3 degrees. Patients were allowed to weight bear immediately after the surgery in a boot. Serial radiographs were taken at 10 days, 6 weeks and 3 months post operatively.

Procedure

Ludloff bunionectomies with a hybrid locked plate fixation were performed on 106 patients. A linear longitudinal incision is made medial to the tendon of the extensor hallucis longus (F). The incision is deepened through subcutaneous tissues. The shaft of the 1st metatarsal is freed of its periosteum. Utilizing a bone saw a thinned and thus oblique osteotomy is created from medial to lateral, which is oriented from plantar distal to dorsal proximal along the 1st metatarsal shaft (G). The proximal half of the osteotomy is completed first and a 4-hole MetaFix Ludloff Plate is placed on the 1st metatarsal. A cannulated non-locking screw is inserted at the proximal half of the osteotomy without tightening the screw. The distal half of the osteotomy is then completed and the dorsal segment is displaced laterally (H). Once adequate correction is achieved, a non locking screw is inserted into the dorsodistal screw hole of the plate (I). The first screw was then tightened. Locking screws are inserted in the medial holes of the plate (J-K). The remaining medial bone shelf is then resected utilizing the bone saw. The wound is then irrigated and closed in layers.

Discussion and Literature Review

The use of a hybrid locked plate to fixate Ludloff bunionectomies provides excellent correction of hallux valgus deformity. The hybrid locked plate provides stability to allow immediate weight bearing. All patients reported minimal pain by 2 months and no loss of correction was noted on radiographs. Traditionally patients who undergo Ludloff bunionectomies are kept non weight bearing for at least 6 weeks. More recently, Chibou in 2004 and Bae in 2007 reported that they allowed their patients to bear weight as tolerated on the heel and lateral forefoot in a hard-soled split sole shoe for 6 weeks. In 2009, Trinka, et al, presented 111 cases in which modified Ludloff bunionectomies were fixed with 2 screws. Patients were allowed to weight bear immediately after surgery with a forefoot offloading shoe. They reported 100% union rate with no malunion or nonunions. Early weight-bearing after surgery improves health-related quality of life in the early postoperative period. We demonstrated 100% union rate in patients who were allowed to bear weight in a walking boot immediately after surgery.

Results

All patients reported minimal pain and discomfort by 2 months. Ninety five percent of patients returned to unrestricted activities by 3 months. Average post-operative HV angle was 6.1 degrees and IM angle was 5.9 degrees. Successful fusion was noted radiographically in 100% of the patients. Six patients reported complications, including painful hardware, recurrence of deformity and hallux varus deformity.

References

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Disclosures

Stephen Kominsky - Consultant and speaker for Merits
Seyen Neufeld - Developer and inventor
Roberto Bermudez - none
David Lee - none