Intramedullary Nail Fixation of the Fibula as a Treatment Alternative of Ankle Fractures in a High Risk Patient Population

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Introduction/Purpose:
Traditional plate osteosynthesis for ankle fractures in a high risk patient population can predispose to complications as a result of the necessary soft tissue dissection and periosteal stripping. Complication rates among patients with multiple comorbidities has been shown to be as high as 30% in those who undergo traditional plate and screw fixation. An alternative fixation construct, thought not widely used or recognized in the American literature is the locking intramedullary fibular nail. Intramedullary nails offer the theoretical advantages of stable fixation while utilizing smaller, percutaneous incisions and no periosteal stripping. The purpose of this study is to analyze the outcomes and complications of high risk patients who underwent ankle surgery using the intramedullary fibular nail.

Methods: The medical records of all high risk patients who underwent ankle fracture fixation with a locking intramedullary fibular nail from 1/2011 through 6/2015 at our institution were reviewed. Fracture patterns included unstable lateral malleolar, bimalleolar, and trimalleolar fractures. Patients were considered high risk if they had medical comorbidities at the time of injury that have been shown in current literature to increase surgical complication risk. These comorbidities include neuropathy, uncontrolled diabetes, peripheral vascular disease, congestive heart failure, etc. We recorded patient demographics, fracture type, period of post-op NWB, time until discharge, time to weight bearing, complications, tourniquet time, size and length of nail implanted, and estimated blood loss. Attempts were made to contact all patients to complete a follow-up questionnaire regarding their satisfaction.

Results: Twenty-two high risk patients with 23 ankle fracture were included. The average age was 64.8 years (SD 10.2, range 41-82). The average follow up was 5.7 months (SD 5.7, range 2-30). There were no surgical site infections, wound complications, or non-unions. Two (8.7%) required a return to the operating room for symptomatic screw removal. The average tourniquet time was 35.8 minutes (SD 20.1, range 0-72) and the average operative time was 49.3 minutes (SD 14.3, range 25-70) respectively. The Olerud & Molander average score was 77.9 (SD 17.7, range 40-100). Fourteen of the twenty two patients could be contacted for a follow up questionnaire and 13 of the 14 (93%) said they were either very satisfied (64%) or satisfied (29%) with their injury outcome.

Conclusion: The locking intramedullary fibular nail provides an alternative fixation technique that allows for protection of soft tissue, stable fracture fixation and satisfactory outcomes in the high risk patient population.

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