Effect of Arthroscopic Evaluation of Acute Ankle Fractures on PROMIS Intermediate-Term Functional Outcomes

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Summary
This study evaluates the utility of ankle arthroscopy at the time of ankle fracture open reduction internal fixation. Previous studies on this topic have reported high rates of osteochondral lesions. However, this study is the first to report the effect of arthroscopy on validated, patient-reported functional outcomes at intermediate-term follow up.

Introduction
Following anatomic reduction and stabilization of unstable ankle fractures, there exists a population of patients who continue to have persistent pain and poor outcomes. It has been proposed that this may be secondary to chondral injuries that occur at the time of fracture and previous studies have shown that these injuries occur in up to 79% of unstable ankle fractures. Ankle arthroscopy at the time of ankle fracture open reduction internal fixation (ORIF) has been proposed as a potential method to address these chondral injuries. However, there has been minimal investigation into whether ankle arthroscopy at the time of ORIF improves clinical outcomes, and therefore the role of ankle arthroscopy in this setting remains unclear. This study assesses the utility of ankle arthroscopy by comparing patient reported functional outcomes in patients who underwent ankle ORIF with and without ankle arthroscopy.

Methods
An institutional database was used to retrospectively identify 94 patients who underwent ORIF for an unstable ankle fracture with an intact medial malleolus between 2002 and 2013. 42 patients had ankle arthroscopy at time of ORIF and 52 did not. Functional outcomes between groups were compared using Patient Reported Outcomes Measurement Information System (PROMIS) Physical Function and Pain Interference computerized adaptive tests (CAT) at a minimum follow up of one year. Outcomes were also measured with the Visual Analog Scale (VAS) pain score and the Olerud and Molander ankle fracture outcome scale. A retrospective chart review of intraoperative findings and postoperative complications was performed.

Results
Average patient follow up was 67 months. PROMIS Physical Function and Pain Interference scores were not significantly different between the ankle arthroscopy and control groups (Physical Function 57.2 vs. 55.2, p=0.51; Pain Interference 45.2 vs. 45.6, p=0.88). Surgical time was significantly increased in the arthroscopy group (74 minutes vs. 61 minutes, p=0.05). Of the patients who had ankle arthroscopy, 59.5% (25/42) had chondral lesions of the talus, 7% (3/42) had chondral lesions of the tibial plafond, and 21% (9/42) had loose bodies requiring removal. No nerve injuries occurred secondary to establishment of arthroscopy portals (0/42).
Conclusion
At intermediate term follow up of patients with unstable ankle fractures and intact medial malleoli, functional outcomes were not significantly improved in patients who underwent ankle arthroscopy. However, there were no complications attributable to ankle arthroscopy and total surgical time was increased by an average of only 13 minutes.