Comparison of Operative Findings and Preoperative MRI in Patients with Ankle Instability

Presenting:

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Summary:
Preoperative MRI in patients with chronic ankle instability may miss a substantial number of associated lesions. These findings support routine ankle arthroscopy and inspection of the peroneal tendons in patients undergoing ligament reconstruction.

Abstract:

Introduction
Associated ankle pathology is common in patients with lateral ankle ligament instability. The role of routine concurrent arthroscopy to assess the joint at the time of ligament reconstruction remains under debate. The effectiveness of MRI as a proxy for intra-articular surgical examination is unclear. The purpose of this study was to assess the accuracy of preoperative MRI for diagnosing lesions around the ankle in patients with ankle instability warranting surgery.

Methods
A consecutive series of 157 patients with 159 lateral ankle ligament reconstructions in the practice of the senior author between 2003 and 2008 was retrospectively studied. Patients with neuromuscular disease, revision procedures, or other major concomitant deformity correction were excluded. If MRI was not already available, preoperative MRIs were routinely obtained. Five patients had large visible osteochondral lesions on plain x-ray and were not imaged further; and 19 patients were unable to obtain an MRI due to insurance issues, timing, or claustrophobia. There remained 133 patients who underwent 135 surgeries for lateral ankle ligament reconstruction and had both a pre-operative MRI and ankle arthroscopy. Mean patient age was 29 with 95 females and 38 males. The radiologists’ reports and attending foot and ankle surgeon’s reading of the MRIs were recorded, and comparisons were made between MRI and intraoperative findings.

Results
In 66 surgeries there were 72 associated lesions that needed to be addressed. There were 38 chondral injuries, 18 peroneus brevis tears, 7 loose bodies, 4 os trigonum injuries, 1 talar exostosis, 1 lateral malleolus stress fracture, 1 medial malleolus stress fracture, 1 posterior tibial tendon tear, and 1 impinging posterior talar process. Compared with intraoperative findings, the radiologists did not identify 61% (23) of the chondral injuries, 44% (8) of the peroneal tears, 43% (3) of the loose bodies, and the posterior talar process lesion. The attending surgeon did not identify 53% (20) of the chondral injuries, 29% (2) of the loose bodies, and 11% (2) of the peroneus brevis tears from reading of the MRI. MRI sensitivity for detecting any significant lesion was 65%.

Conclusions
These findings support routine ankle arthroscopy and inspection of the peroneal tendons in patients undergoing ligament reconstruction for ankle instability. In particular, lateral talar chondral injuries may have a thin or absent extension into the bone with minimal edema present on MRI months following injury. Preoperative MRI in patients with chronic instability may miss a substantial number of lesions, and both the images and the reports should be interpreted with caution. Conversely, less common stress reactions in the malleoli, os trigonum injuries, and posterior tibiialis pathology may be missed if MRI is omitted in patients with pain in these areas.