Radiography in SER II - IV Ankle Fractures
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Introduction/Purpose: SER lateral malleolar fractures are common. The assessment of the stability of the ankle fracture is crucial for decision making of treatment which is associated with the integrity of the deltoid ligament (SERII-III). Slight talar shift can lead to extensive decrease of tibio-talar contact area (Ramsey 1999). Several clinical tests have been proposed of which static weightbearing radiography is used to measure the lateral talar shift with the medial clear space to detect medial instability (SERIV). However, the correlation of a stable ankle joint under weightbearing load with the structural integrity of the deltoid ligament has not been shown yet which we want to investigate.

Methods: 17 patients with lateral malleolar fractures were investigated who underwent an MRI and weightbearing radiography examination. In the MRI, the deep deltoid ligament was assessed as intact, partial und complete rupture. The medial clear space was measured - distance between the lateral border of the medial malleolus and the medial border of the talus at the level of the talar dome (millimeter).

Results: 7 patients suffered from deep deltoid ligament rupture (4 partial; 3 complete). The medial clear space in patients with intact deep deltoid ligament was 2.96±0.41mm in mean, in partial rupture 2.8±0.38mm, in complete rupture 3.43±0.23mm. When counting the complete and partial ruptures together the mean was 3.07±0.45mm and in partial ruptures plus the intact ones 2.91±0.40mm.

Conclusion: Our results show no significant correlation between the medial clear space and the integrity of the deep deltoid ligament (figure1). A negative weightbearing radiograph does not exclude deep deltoid ligament rupture. This fact might indicate the importance of the intrinsic stability provided by the osseous contour of the highly congruent ankle joint. In our opinion, malleolar fracture with deep deltoid ligament rupture (SERIV) can therefore be treated conservatively as long as ankle stability is provided under physiological load.

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