

Syndesmotic Fixation in Supination–External Rotation Ankle Fractures: A Prospective Randomized Study at a Minimum of 4 Years of Follow-up

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Background/Purpose: This study compared midterm functional and radiologic results of syndesmotic transfixation versus no fixation in supination–external rotation (SER) ankle fractures with intraoperatively confirmed syndesmosis disruption. We hypothesized that early-stage good functional results would remain and unfixed syndesmosis disruption in SER IV ankle fractures would not lead to an increased incidence of osteoarthritis.

Methods: This was a prospective study of 140 operatively treated patients with Lauge-Hansen SER IV (Weber B) ankle fractures. After bony fixation, the 7.5-Nm standardized external rotation stress test for both ankles was performed under fluoroscopy. A positive stress examination was defined as a difference of >2 mm side-to-side in the tibiotalar or tibiofibular clear spaces on mortise radiographs. 116 patients had a stable syndesmosis compared to the uninjured side. The other 24 patients were randomized to either syndesmotic screw fixation (13 patients) or no syndesmotic fixation (11 patients). After a minimum of 4 years of follow-up (mean, 58 months), ankle function and pain (Olerud-Molander, 100-mm visual analog scale [VAS] for ankle function and pain) and quality of life (RAND-36) of all 24 patients was assessed. Ankle joint congruity and osteoarthritis were assessed using mortise and lateral projection plain weight-bearing radiographs and 3-T MRI scans.

Results: Improvement in Olerud-Molander score, VAS, and RAND-36 showed no significant difference between groups during the follow-up. In the syndesmotic transfixation group, improvements in all functional parameters and pain measurements were not significant, whereas in the no syndesmotic fixation group Olerud-Molander score improved from 84 to 93 ($P = 0.007$) and pain (VAS) score from 11 to 4 ($P = 0.038$) from 1 year to last follow-up. Radiographs or MRI showed no difference between groups at the follow-up visit.

Conclusion: Syndesmosis transfixation in SER (Weber B)-type fracture patterns had no influence on the functional results or radiological findings after a minimum of 4 years follow-up compared to no syndesmosis fixation.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an “off label” use). For full information, refer to page 600.