

Syndesmosis Fixation with Rigid Synthesis in Weber B and C Ankle Fractures: A Retrospective Analysis of 100 Consecutive Cases Evaluating Screw Position and Reduction Outcomes

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Introduction: Ankle fractures involving syndesmotic disruption represent a significant challenge in orthopedic surgery. Weber B and C fractures frequently involve the tibiofibular syndesmosis, and inadequate treatment can lead to chronic instability and post-traumatic osteoarthritis. The objective of this study is to evaluate the outcomes of rigid syndesmotic fixation in Weber B and C ankle fractures, analyze screw-related complications, and assess maintenance of syndesmotic reduction.

Methods: Retrospective case series of 100 consecutive patients who underwent screw fixation for Weber B or C ankle fractures with syndesmotic instability. Parameters evaluated included screw position (suprasyndesmotic vs. transsyndesmotic), implant-related complications, hardware removal rates, and maintenance of reduction.

Results: The cohort comprised 43 Weber B (43%) and 57 Weber C (57%) fractures. Suprasyndesmotic placement was used in 39 patients (39%), transsyndesmotic in 61 patients (61%). Suprasyndesmotic screws had a 30.8% breakage rate compared with 3.3% for transsyndesmotic screws ($p = 0.0006$). Syndesmotic reduction was maintained in 98% of cases. Both cases of lost reduction occurred after screw removal.

Conclusion: Rigid screw fixation demonstrates excellent reliability for maintaining syndesmotic reduction. Transsyndesmotic placement significantly reduces implant failure rates. Hardware removal may compromise ankle stability.

Keywords: Ankle joint; Ankle fractures; Bone screw; Fracture fixation, internal.

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