Use of an Aperture Fixation Device in the Treatment of Unstable Syndesmotic Injuries of the Ankle

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Purpose: Syndesmotic injuries occur in approximately 10% of all rotational ankle fractures. Unstable syndesmotic injuries require surgical stabilization and have historically been treated with either rigid screw fixation or dynamic suture button devices. The recent development of the FIBULINK Syndesmosis Repair System provides an alternative surgical option for these injuries, with the proposed benefit of providing both screw fixation and flexibility in syndesmotic repair. There are few studies available on the use of this newer aperture fixation device. We describe outcomes as they relate to treatment of ankle syndesmosis injuries with the FIBULINK system.

Methods: A retrospective chart review was conducted at our Level I trauma center for all cases of FIBULINK use in syndesmotic repair spanning December 2020 to November 2022. Demographic information, Lauge-Hansen classification, follow-up duration, time to weightbearing, and postoperative complications (including infection, wound healing issues, reoperation, and symptomatic hardware) were recorded. Patients with less than 6 weeks of follow-up were excluded.

Results: In total, 54 patients (30 male, 24 female, mean age 37 ± 17 years) underwent syndesmotic repair using the FIBULINK system. The average follow-up length was 4 months. Of patients with Lauge-Hansen classifications available, 60% were classified as supination-external rotation Stage IV, 33% as pronation-external rotation Stage IV, and 7% as pronation-abduction Stage III. Wound dehiscence was observed in 4 of 54 oatients (7.4%). This was treated with local wound care and oral antibiotics, and all healed uneventfully. There were no documented cases of deep infection, fixation failure, or reoperation. Patients were fully weightbearing at an average of 2.4 months after surgery and were documented to be walking unassisted at an average follow-up of 4.3 months.

Conclusion: The FIBULINK Syndesmosis Repair System provides a unique solution in the management of rotational ankle fractures with syndesmosis injuries. In our series, which is the largest series to date, early outcomes are promising, with high healing rates and low rates of complications. Long-term outcome studies are required to better characterize the utility of this implant.