KEY PROCEDURES

OPEN REDUCTION AND INTERNAL FIXATION OF ACUTE LISFRANC FRACTURE-DISLOCATION WITH USE OF DORSAL BRIDGING PLATES

Are Haukåen Stødle, MD, Fredrik Nilsen, MD, Marius Molund, MD, Elisabeth Ellingsen Husebye, MD, PhD, Kjetil Hvaal, MD, PhD

Published outcomes of this procedure can be found at: Bone Joint J. 2018 Apr 1;100-B(4):468-74, Acta Orthop Bras. 2014; 22(6):315-20, and J Foot Ankle Surg. 2016 Sep-Oct;55(5):922-6.

Investigation performed at Oslo University Hospital, Oslo, and Østfold Hospital, Sarpsborg, Norway

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Abstract

Lisfranc injuries consist of a wide spectrum of injuries, ranging from subtle injuries to severe fracture-dislocations. Injuries with instability of the tarsometatarsal, intercuneiform, or naviculocuneiform joints should be treated with anatomic reduction and stable fixation. The best method of fixation is debated. Transarticular screw fixation has the disadvantage of damaging the tarsometatarsal joints. Bridging the tarsometatarsal joints with use of low-profile locking plates avoids the placement of screws through the joint and potentially reduces the risk of posttraumatic arthritis. Primary arthrodesis of the 3 medial tarsometatarsal joints is also an option in treating Lisfranc injuries and has been shown to lead to better outcomes compared with transarticular screw fixation in ligamentous Lisfranc injuries. In this article, we show the technique of open reduction and internal fixation of Lisfranc fracture-dislocation with use of dorsal bridging locking plates. The following steps are presented in the video: (1) incision technique with use of a dorsomedial incision and a dorsolateral incision, (2) open reduction and temporary fixation of the tarsometatarsal joints with use of Kirschner wires, (3) confirmation of anatomic reduction of the tarsometatarsal joints with direct visualization and fluoroscopy, (4) fixation of the medial 3 tarsometatarsal joints with dorsal bridging locking plates, (5) placement of a “homerun” screw from the medial cuneiform to the base of the second metatarsal, (6) fixation of the fourth and fifth tarsometatarsal joints with Kirschner wires, and (7) checking of reduction and fixation with use of fluoroscopy and performance of wound closure. Postoperatively, the foot is kept non-weight-bearing in a below-the-knee cast for 6 weeks, followed by 6 weeks of protected weight-bearing in a walker boot. Any Kirschner wires fixating the fourth and fifth tarsometatarsal joints are removed 6 weeks postoperatively. We prefer to remove the dorsal bridging plates 4 to 6 months postoperatively. Anatomic reduction and stable fixation is associated with better functional outcomes. Hardware failure and loss of reduction are potential complications that can lead to worse outcomes.

Disclosure: The authors indicated that no external funding was received for any aspect of this work. The **Disclosure of Potential Conflicts of Interest** forms are provided with the online version of the article (<http://links.lww.com/JBJSST/A271>).

Are Haukåen Stødle, MD^{1,2}

Fredrik Nilsen, MD^{2,3}

Marius Molund, MD^{2,3}

Elisabeth Ellingsen Husebye, MD, PhD¹

Kjetil Hvaal, MD, PhD¹

¹Section for Foot and Ankle Surgery, Division of Orthopaedic Surgery, Oslo University Hospital, Oslo, Norway

²Institute of Clinical Medicine, University of Oslo, Oslo, Norway

³Section for Foot and Ankle Surgery, Department of Orthopaedic Surgery, Østfold Hospital, Sarpsborg, Norway

Email address for A.H. Stødle: arhauk@ous-hf.no

ORCID iD for A.H. Stødle: [0000-0002-4173-2748](https://orcid.org/0000-0002-4173-2748)

ORCID iD for F. Nilsen: [0000-0001-5169-7993](https://orcid.org/0000-0001-5169-7993)

ORCID iD for M. Molund: [0000-0003-1683-8214](https://orcid.org/0000-0003-1683-8214)

ORCID iD for E. Ellingsen Husebye: [0000-0002-3297-3224](https://orcid.org/0000-0002-3297-3224)

ORCID iD for K. Hvaal: [0000-0001-7639-0381](https://orcid.org/0000-0001-7639-0381)

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