Open Reduction and Internal Fixation with a Locking Plate for Lisfranc Joint Injuries

Tokyo Metropolitan Police Hospital

©Koki Ota    Naoki Haraguchi
Disclosure

• < Open Reduction and Internal Fixation with a Locking Plate for Lisfranc Joint Injuries >

• < Koki Ota: Tokyo Metropolitan Police Hospital >

• My disclosure is in the Final AOFAS Mobile App.

• I have no potential conflicts with this presentation.
Conventional Screw Fixation

• Percutaneous screw fixation is the common therapeutic method for Lisfranc joint injuries (the supposed subtle injuries).

• The clinical outcomes are considered relatively good\textsuperscript{1,2}), but in some cases, poor outcomes have been noted.
Osteoarthritic changes

- We thought that the screw could very likely damage the Lisfranc ligament itself and articular cartilages.
- Osteoarthritic changes are often found in the Lisfranc joint in the long term.
Previously reports

• We have previously reported that in sports that are performed barefoot, such as Judo, some patients could not return to the sports. (only 65.4% patients could return)


• So we started to use locking plates for this type of injury in 2011.
Our Method: Locking Plate Fixation

- By use of the locking plate (VariAx, Stryker), anatomical reduction of the Lisfranc joint (the joint between the medial cuneiform and the second metatarsal) is expected to maintain for a certain duration without damaging the Lisfranc ligament and articular cartilages.
Materials

- 6 patients: male 4, female 2
- Mean age: 26 years old
- Mean duration of follow-up period: 1 year

Post-op evaluations

- Japanese Society of Surgery of the Foot scale (JSSF scale) at 1 year after surgery
- State of reduction on X-ray (C1-M2, C2-M2, Cub-M4)
- Osteoarthritic changes on X-ray
- Numbness around skin incision
Operative procedures

- Longitudinal incision just above Lisfranc joint
- Longitudinal type injury shown in this picture
- Lisfranc joint reduction with clamp
- Confirmed by image intensifier
Operative procedures

- Fixation by bended T-shaped locking plate
Postoperative treatment

• 1-2 weeks: NWB by splint
• 3-16 weeks: FWB by walking cast
• Active ankle ROM exercise
• 16 weeks: plate removal, and FWB allowed
Results

• Mean JSSF scale: **99.6**
• Mulreduction: **0**
• Osteoarthritic change: **0**
• Numbness: **1**

Conclusions

• The clinical outcomes of locking plate fixation for this injury at 1 year after surgery were **favorable**.
• No considerable complications were noted.
• We believe that the surgical procedure described in this study could be useful for the treatment of Lisfranc joint injuries.
References


• 3) Okamura et al, The 36th annual meeting of the Japanese Society for Surgery of the Foot.