CASE STUDY.

Dr Ali
RAHNAMA

FOOTMOTION PLATING SYSTEM:

Managing a lisfranc fracture by primary arthrodesis

Physician profile.

Dr Ali Rahnama

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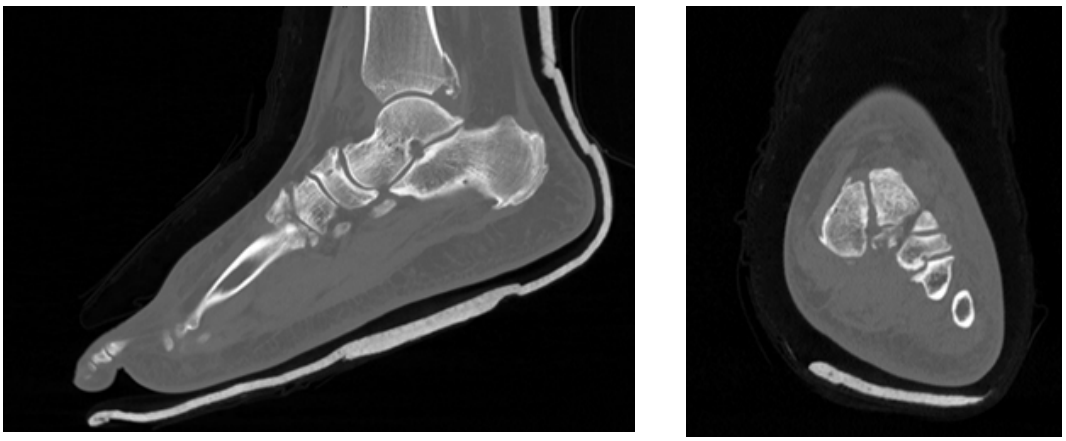
Patient history.

The patient is a 60-year-old woman with normal ambulatory activity before surgery, no pain, and only hypertension and hyperlipidemia as comorbidities.

She consulted because she suffered a lisfranc fracture. CT scan in addition to standard foot x-rays were used to evaluate the injury and for operative planning.



Pre-op CT-scan

Patient history.

With regard to the choice of surgical treatment, the preference is generally for primary arthrodesis to avoid the need for subsequent surgery in the form of material removal. This allows the patient to achieve a good result while minimizing the need for further surgery.

Alternatively, ORIF can also be considered to treat Lisfranc injuries, and is generally the preferred technique in cases of predominantly ligamentous injuries which may not require a joint destructive procedure..
In terms of choice of material and approach, it was agreed to use a two-incision approach for this patient.

A first incision on the medial side of the first tarsometatarsal joint and a second at the level of the second and third tarsometatarsal joints. This incisional approach minimized the risk to the neurovascular structures of the dorsal midfoot and also allowed direct visualization and reduction of the midfoot anatomy involved in the injury. The implants chosen were two 4.0mm partially threaded cannulated screws with washer to reduce the C1-M2 gap as well as the C1-M1 joint. A dorsomedial Lapidus plate and an isolated Lisfranc plate from Newclip Technics were also chosen to give further stability and compression across the first and second tarsometatarsal joints being fused. Finally, autologous bone grafting from the calcaneus was chosen to graft the first and second tarsometatarsal joints. This aids in the arthrodesis and appropriate healing of the joints that were aimed to be fused.

Pre-op x-rays

What about the surgical procedure ?

A first incision was made at the junction between the second and third tarsometatarsal joints, diverted towards the second tarsometatarsal joint. This allows direct visualization of the second tarsometatarsal joint with minimal risk to neurovascular structures in the immediate vicinity.

Once the joint had been cleared of cartilage and the bone graft placed in the joints, the C1-M2 gap was reduced using a large point-to-point forceps and then secured using an offset Newclip Technics isolated Lisfranc plate.

Following this, the second incision could be made, directly in the middle of the foot, above the first TMT joint. This joint was also prepared and cleared of cartilage, before being fixed with a 4.0mm partially threaded cannulated screw and a Newclip Technics dorsomedial Lapidus plate. Finally, an additional 4.0mm partially threaded cannulated screw and washer were used to fix the C1-M2 gap.

Post-operative follow-up.

In terms of post-operative protocol, total exclusion of weight-bearing was indicated for the first 4 weeks after surgery. Then, for a further 4 weeks, weight-bearing was tolerated in a tall CAM boot, before returning to conventional shoes 8 weeks after surgery.

Physical therapy began two weeks after surgery.

Three months after surgery, the patient was able to return to her job as a nurse without any pain, except for occasional swelling after long days, which resolved after 6 months.

Post-op x-rays

Physicians conclusion.

This surgical technique of primary reduction and arthrodesis of the first and second tarsometatarsal joints has the advantage of minimizing the likelihood of further surgery, which is higher for this patient population when they undergo ORIF instead of primary arthrodesis. A smooth return to all pre-injury activities is also an advantage.

As for the surgical procedure itself, the Newclip Technics material achieved the desired result of anatomical reduction and stable fixation of the fused joints, efficiently and anatomically, without the need to bend or modify the material in any way. This also saved time in the operating room at the time of surgery.