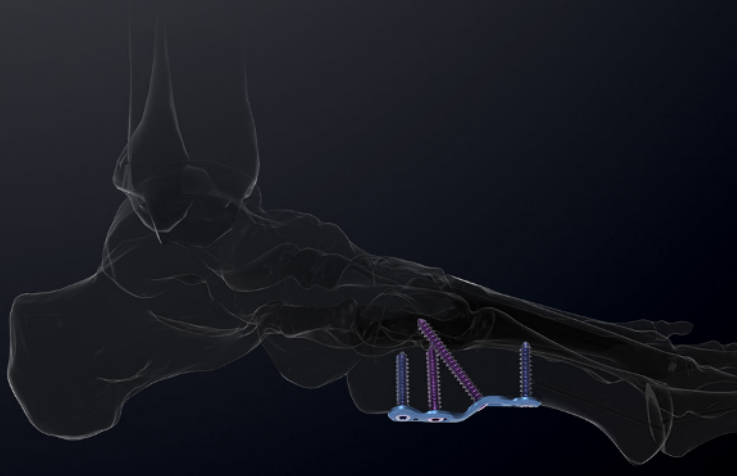

CASE STUDY

HALLUX VALGUS WITH LARGE INTERMETATARSAL ANGLE AND TOE MALROTATION CORRECTED WITH OSTEOTOMY AND LAPIDUS-ARTHRODESIS WITH SMALL PLANTAR PLATE

PHYSICIAN PROFILE

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PATIENT HISTORY

The patient is a retired woman of 55 kgs, practicing physical activities such as biking, hiking and travelling. She has never undergone surgery, but suffers from Hashimoto's thyroiditis, osteoporosis and a history of venous thrombosis.

She consulted as she suffered a distinct hallux valgus with a large intermetatarsal angle of 21°coupled with an instability of the 1st ray and a forefoot metatarsal pain evaluated between 2 and 5.

Pre-op situation

SURGICAL TREATMENT

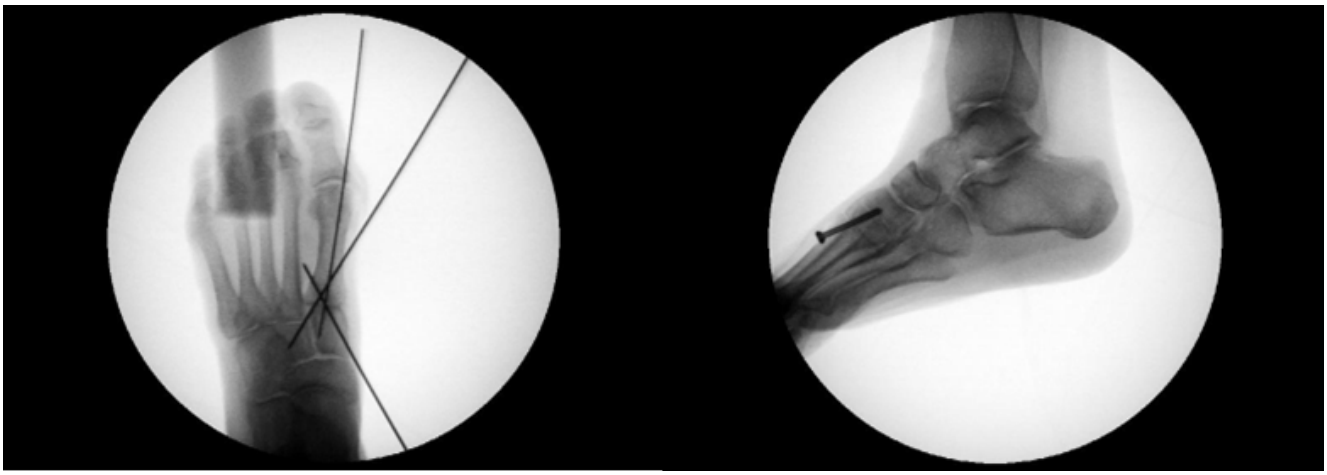
Because of her large intermetatarsal angle and her medial instability, a proximal correction with a Lapidus arthrodesis was necessary. In order to implement the highest primary stability and a dynamic compression, it has been chosen to use a plantar Lapidus plate.

The first step to prepare the surgery was to run a first digital X-ray of the foot full weight bearing and a second one strictly lateral, followed by a physical examination and a discussion with the patient to take in consideration her different complaints. The digital X-rays allowed to do digital measurements in order to ensure the great correction.

In addition to that, additional distal corrections were planned if necessary as well as soft tissue (such as Reverdin-Green-Laird and Akin osteotomies), and capsular balancing.

The procedure began with a medial approach, preserving vessels and nerve structures, followed by a medial arthrotomy and a dorso-medial cheilectomy. The lateral release of the first metatarsophalangeal joint was operated with a McGlamry elevator.

Then, the TMT-1 was prepared carefully to preserve the fibers of the tibialis anterior tendon and the sparing resection of the joint was made under consideration of the needed correction. At this moment, the drilling and cross-chiseling of the arthrodesis surface began, and a temporary fixation of the arthrodesis in 3D corrected position with Ø1.4 k-wires was made. The position of the wire guide for the Ø4.0 compression cannulated screw was controlled by X-ray, and then the length was measured in order to choose the right screw length. Before tightening the screw completely, the k-wires that eventually blocked were taken out, and a X-ray control was conducted to check the correct positioning and length.



X-rays during surgery controlling the positioning of the pins and the compressive screw

The medio-plantar plate was positioned and a first retrograde drilling for the Ø3.5 non locking screw in the oblong hole, from MT 1 to the medial cuneiform bone, was made and then the screw was inserted (average 22-24mm length).

The second drilling concerned the proximal semi-oblong hole, perpendicular to the medial cuneiform, for another Ø3.5mm non-locking screw which was shorter than the first one : average of 18-22mm length. Finally, the last proximal and distal holes were drilled, and some others Ø3.5mm locking screws were inserted (14mm-length for the distal one, and 16mm-length for the proximal one). The mounting was then controlled with X-rays.

The MTP-1 capsular was closed with a self-resorbing suture material and the toe was held in a flexion position. Sometimes, a Redon drainage can be used if needed, before closing the tissues layer per layer.

Final x-rays

Post-op photos

POST-OPERATIVE FOLLOW-UP

The day after the surgery, the drainage was removed and the dressing was also changed, positioning the big toe correctly. The patient had a full-weight bearing in a forefoot offloading boot (VACOped), allowing the non operated foot to not protrude beyond the operated one for 2 weeks. After two weeks post-surgery, there were no more scabs, and the stitches were removed.

4-weeks post-surgery

The patient wore the shoe for 6 weeks in total, and was asked to do active and passive flexion of the toe to regain and obtain a greater mobility. At the end of 6 weeks, the patient had a full mobility, no pain under the metatarsals anymore, a normal walking and normal sport activities.

8-weeks post-surgery

PHYSICIAN CONCLUSIONS

Lapidus-arthrodesis procedure is the most reliable and sustainable one for severe hallux valgus deformities, vertical instabilities and revision surgery. The plantar plating system is the most stabile fixation procedure as the patient won't lose its mobility, as well as bone and muscle tissues thanks to the very small immobilization phase afterwards.

However, it is possible to have complaints regarding the implants (about 4-5%), but they can be taken out easily.

Manufacturer : Newclip Technics - Case Study EN - Footmotion Plating System - MTP - ED1- 06/2024 - Medical device EC: class IIb – CE1639 SGS BE

Newcliptechnics.com