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CASE STUDY

Complex Hallux Interposition Revision Arthrodesis after Hallux Arthrodesis Non-union

The Surgeon

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Prof. Valderrabano is an internationally recognized expert in orthopedics and traumatology. He has many years of experience in the field of orthopaedics, sports orthopaedics and foot and ankle orthopaedics and has published more then 200 scientific papers in the field of foot & ankle.

The most commonly used procedure to treat a painful end-stage first MTP joint is arthrodesis. When MTP fusion has failed due to infection or nonunion, for example, MTP revision interposition arthrodesis is often the last option.

The Case

Patient Profile

A 56-year-old woman with an extensive history of surgery underwent MTP revision of the right foot in December 2021. In 2013, she underwent a double first ray metatarsal osteotomy, Weil II osteotomy, and resection arthroplasty of the PIP joint. Eight years later, a hallux arthrodesis with tibial cancellous bone, a PIP arthrodesis on the second toe, and a Weil osteotomy on the second ray were performed. Two months later, an infection occurred and the hallux plate was removed, debridement was performed, and the patient received antibiotics for 8 weeks.

Clinical Findings/Preoperative Analysis

Clinical findings revealed chronic painful nonunion of the hallux arthrodesis non-union and metatarsalgia at the second and third MTP joints with excess length metatarsalia II-III and osteoarthritis of the MTP joint II on the right foot.

Figure 1

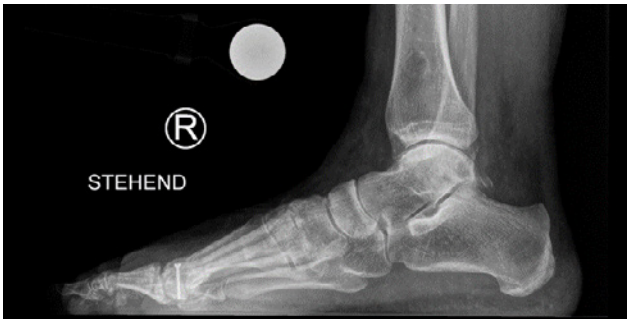

Figure 2

Surgical Treatment

A straight medial incision of approximately 12 cm was made from the proximal phalanx of the first ray to the middle of the first metatarsal. The nonunion was debrided (Figure 3), and a biopsy of the metatarsophalangeal joint was performed. Tricortical bone was harvested from the right iliac crest to restore the length of the first ray (Figure 4). A 2.8 MTP revision fusion plate with 5 degrees of dorsiflexion was used and temporarily fixed with olive K-wires (Figure 5). The plate is initially fixed on the distal side with locking screws. Valgus and varus alignment is adjusted and the plate is finally fixed proximally with an excentric screw. For final stabilization of the interposition iliac crest bone, a 2.8 cortical screw is inserted from distal to proximal (Figure 6-7). The old screw is then removed from metatarsal II. The EDB tendon II-III was released and two Weil osteotomies II-III were performed and fixed with 2.0 screws. See intraoperative X-rays.

Figure 3

Figure 4

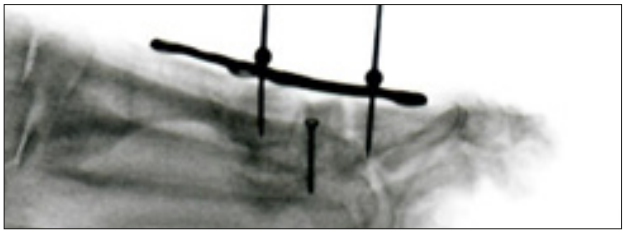

Figure 5

Figure 6

Postoperative treatment

Walker with partial weight bearing 15kg for 6 week. Lymphatic drainage.

Figure 7

Conclusion

Revision interposition arthrodesis with autologous iliac crest graft is a powerful method to restore function, length of the first ray, and pain after MTP joint non-unions. See 3months postoperative X-rays (Figure 8-9).

Figure 8

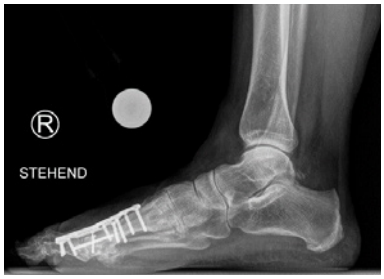

Figure 9

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