

USE OF THE EDB TENDON FOR MUSCLE-TENDON BALANCE OF THE LESSER MPJ

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Repair of luxation and/or dislocation of the lesser metatarsophalangeal joint is one of the most challenging surgical conditions of the human foot. To date, no one surgical technique has been advanced to consistently repair and restore stable function to the lesser metatarsophalangeal joint once it has lost its intrinsic ligamentous and muscle-tendon balance and stability.

A variety of techniques for reconstruction of this joint are being presented at this meeting. These case studies present two other manipulations around this joint. Hopefully, their presentation will stimulate innovation and creativity in the search for an answer to this continuing surgical dilemma.

TECHNIQUE #1

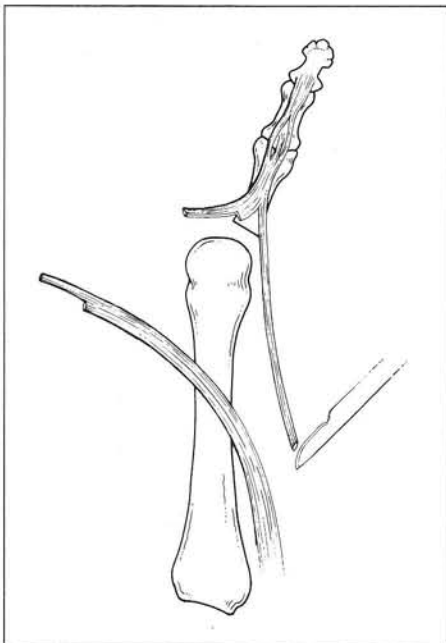


Figure 1. Lateral dislocation of the lesser metatarsophalangeal joint of the right foot. Base resection of the proximal phalanx. "Z"-plasty lengthening of the EDL tendon. Proximal sectioning of the EDB tendon to create a long tendinous strap that may be used for reconstruction of the medial collateral ligament.

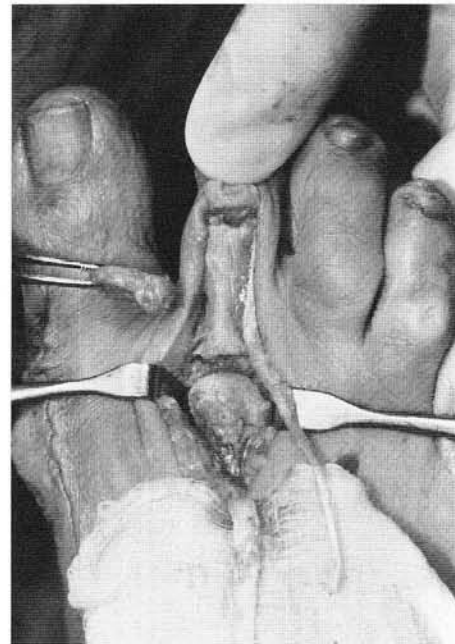


Figure 2. Base resection of the proximal phalanx to relax tension on the joint. The EDL tendon has been retracted proximally. The EDB tendon has been sectioned proximally and is demonstrated prior to transfer.

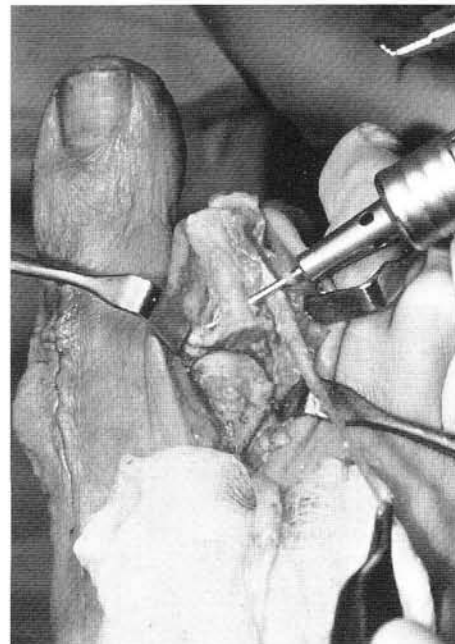


Figure 3. A 2.0 mm drill hole is created from lateral to medial through the base of the proximal phalanx.

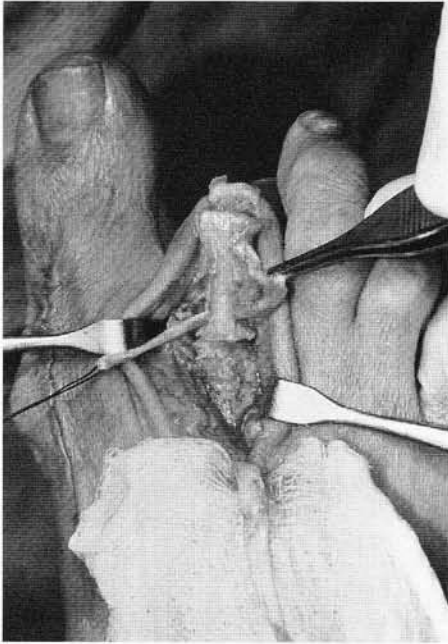


Figure 4. The EDB tendon is delivered through the drill hole in the proximal phalanx to the medial aspect of the metatarsophalangeal joint.

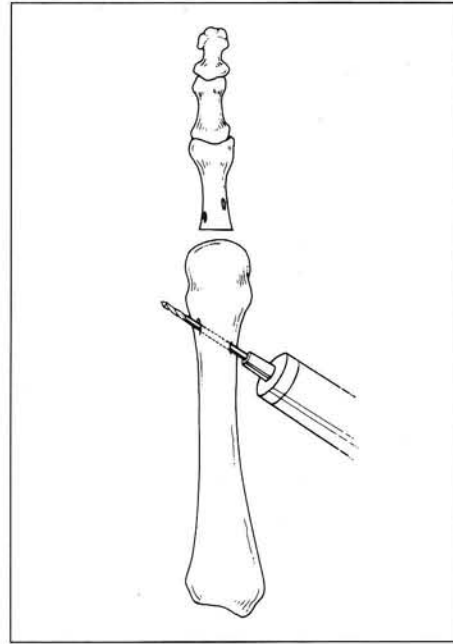


Figure 5. A 2.0 mm drill hole is created from medial to lateral through the neck of the metatarsal for anchoring of the transferred EDB tendon.

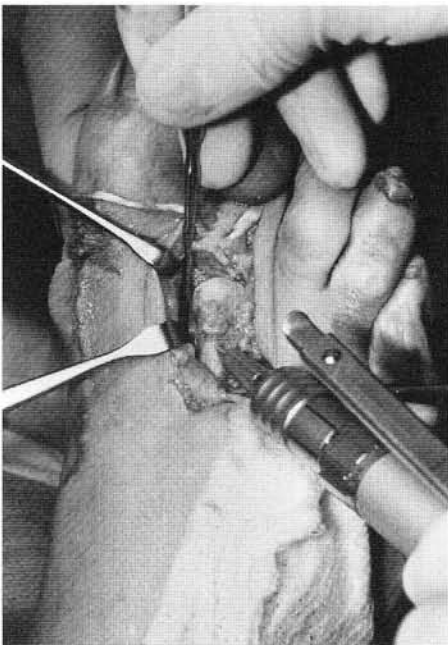


Figure 6. Drill hole through the neck of the metatarsal with a plantar-medial entry to create a strong plantar medial ligament to stabilize the metatarsophalangeal joint.



Figure 7. Routing of the EDB tendon through the metatarsal neck to create the new medial collateral ligament of the metatarsophalangeal joint.

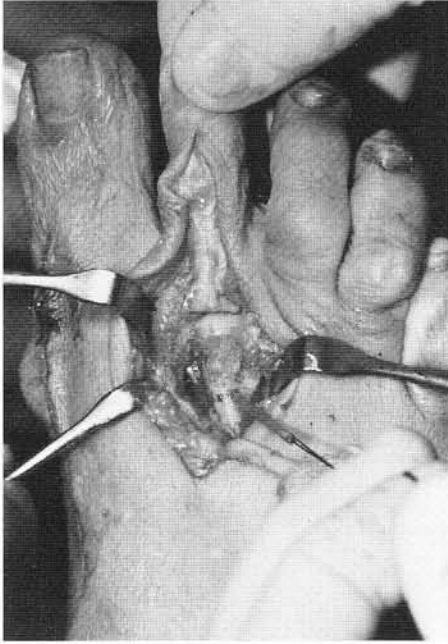


Figure 8. Delivery of the end of the EDB tendon through the metatarsal neck, creating a new medial collateral ligament of the metatarsophalangeal joint.

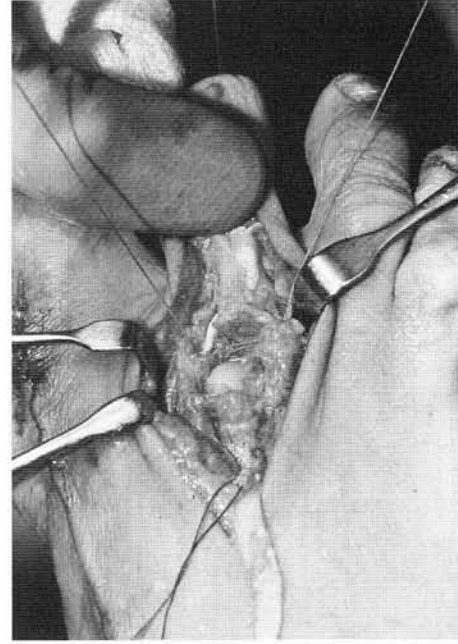


Figure 9. Initial "purse-string" suture used to interpose capsular tissue between the resected surface of the proximal phalanx and the head of the metatarsal.

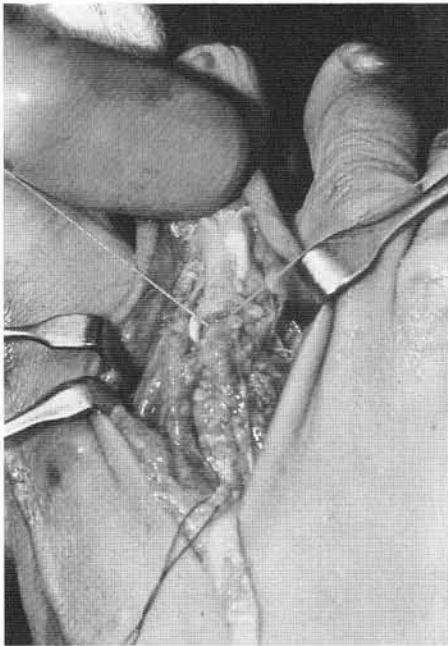


Figure 10. Closure of the capsule at the arthroplasty site of the MPJ. The transferred EDB tendon is then anchored under tension to stabilize the medial aspect of the joint.

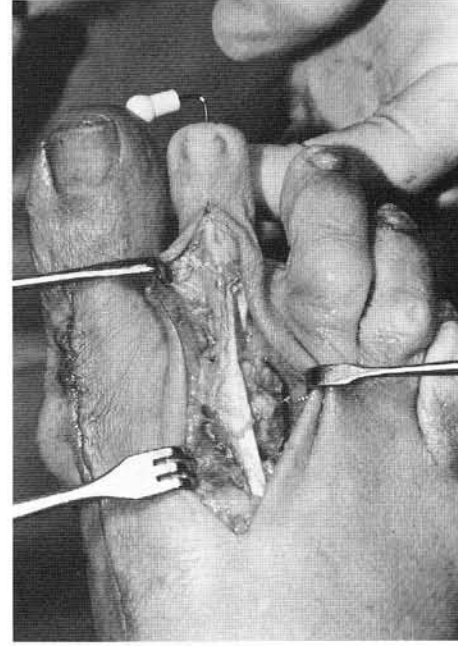


Figure 11. Repair of the EDL tendon.

TECHNIQUE #2

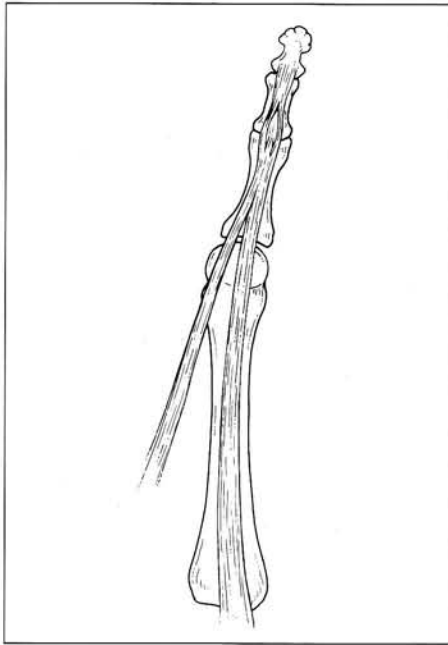


Figure 12. Medial luxation of the lesser metatarsophalangeal joint of the left foot

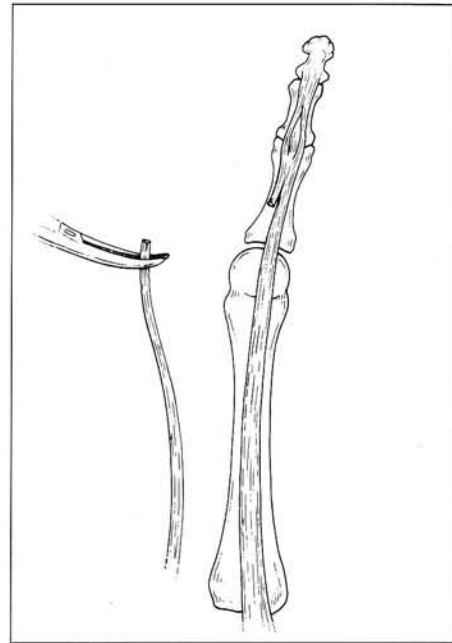


Figure 13. EDB tendon is isolated and detached from the proximal phalanx.

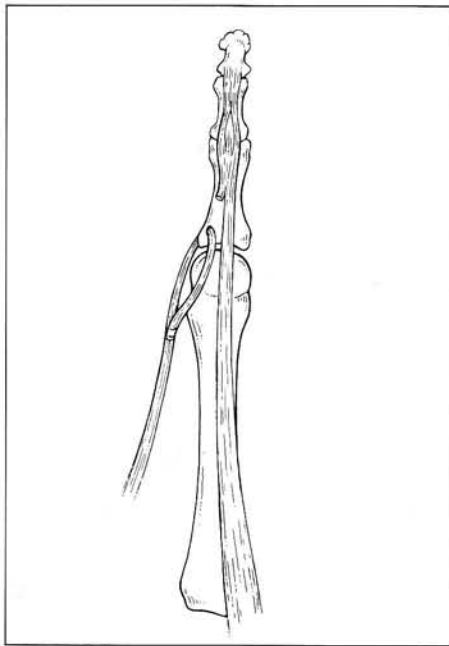


Figure 14. EDB tendon is secured through capsular tissues at the plantar-lateral aspect of the base of the proximal phalanx.

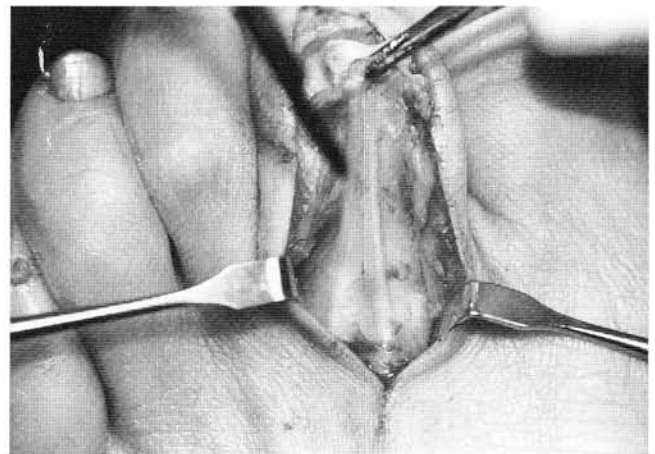


Figure 15. EDL and EDB tendons are isolated over the proximal phalanx.

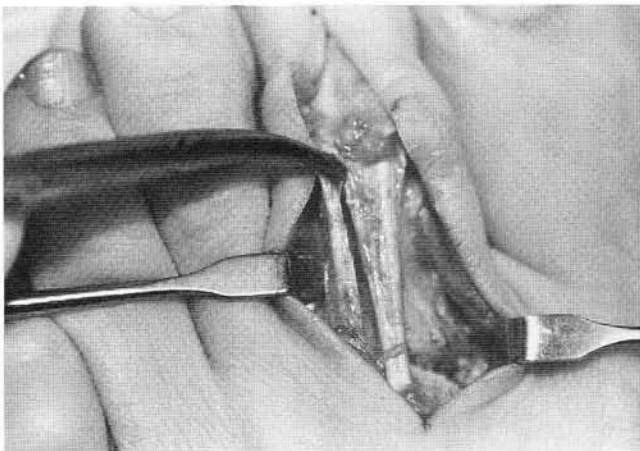


Figure 16. EDB tendon is isolated and detached from the EDL and dorsal aspect of the proximal phalanx



Figure 17. EDB tendon is retracted proximally. A puncture is made through the capsular and ligamentous structures at the plantar-lateral aspect of the base of the proximal phalanx.

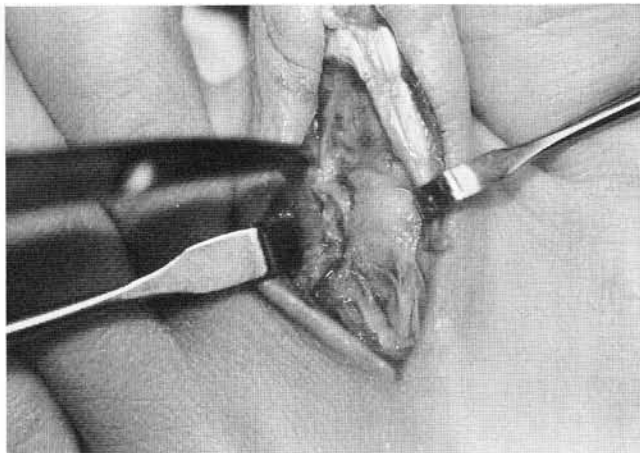


Figure 18. EDB tendon is drawn through the plantar-lateral structures at the base of the proximal phalanx.

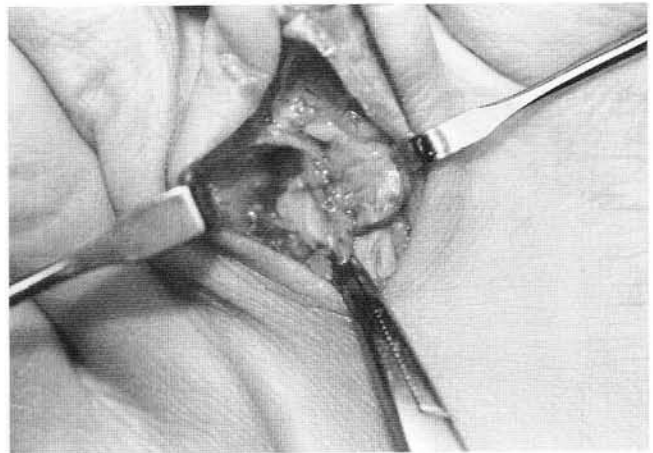


Figure 19. EDB tendon is sutured back onto itself under tension to provide lateral stabilization to the metatarsophalangeal joint.