
Lesser metatarsals – how to address deformity

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Lesser toe deformities



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Lesser toe deformities

- Mallet-/Hammer-/Claw-toes
- Instability of MTP joint

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Lesser toe deformities

- ill-fitting shoe wear
- Inflammatory arthritis
 - Trauma
 - Anatomy
- Neuromuscular disorders

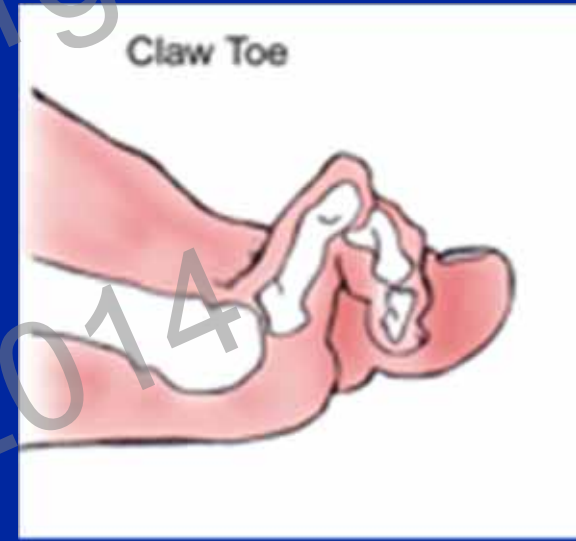
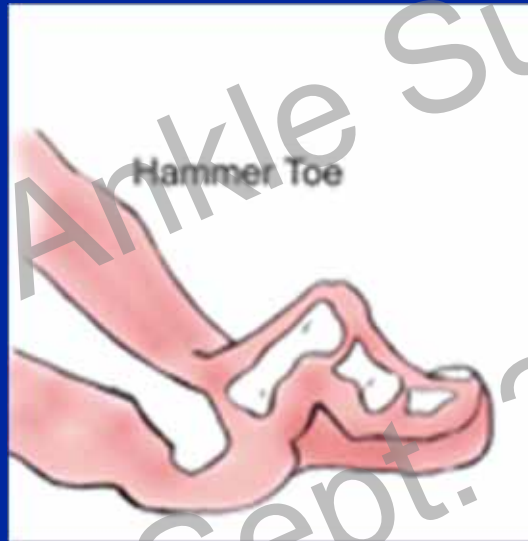
Conservative Treatment

- Shoes with wide toe box
 - Lower heel
- Softer materials of the shoe
 - Padding the lesion

Conservative Treatment



Operative Treatment



How to address the deformity?

Deformity flexible or fixed?

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Mallet toe deformity

Flexible: Release of flexor digitorum longus tendon

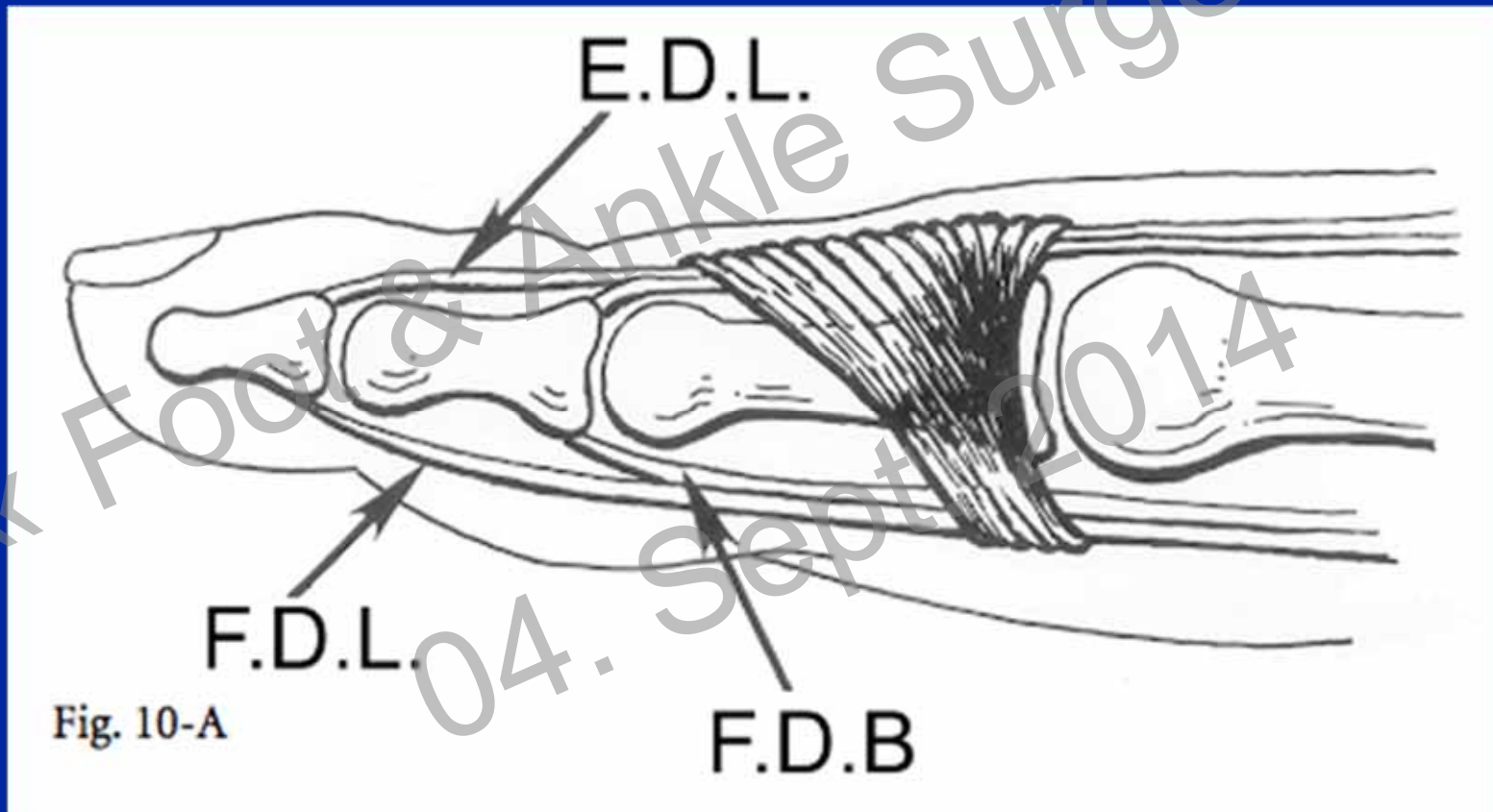
Fixed (frequent): Resection of the DIP joint,
Stabilization with Kirschner wire

Hammer toe deformity

Flexible: Flexor-To-Extensor-Tendon
Transfer

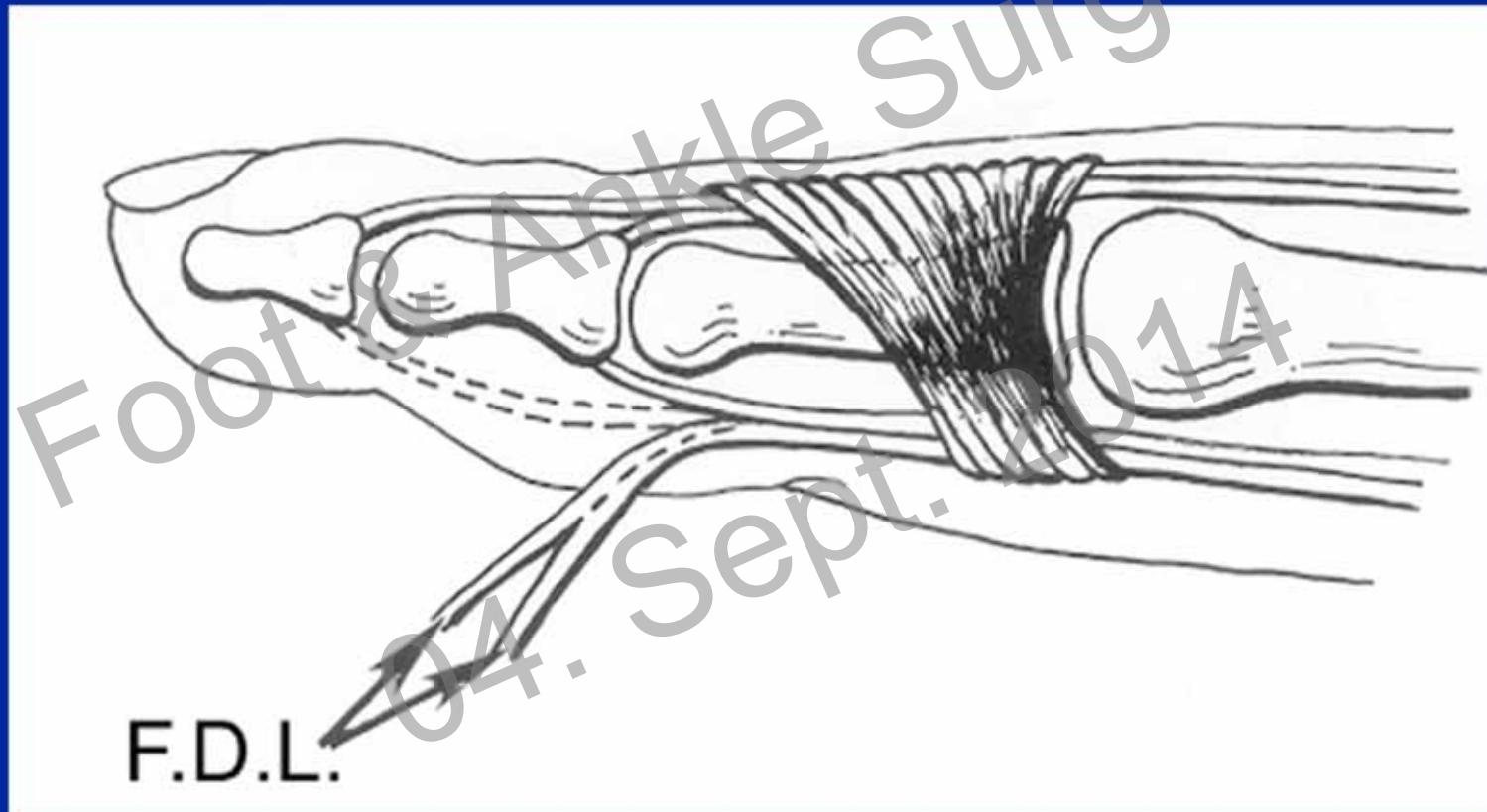
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Flexor-to-Extensor tendon Transfer



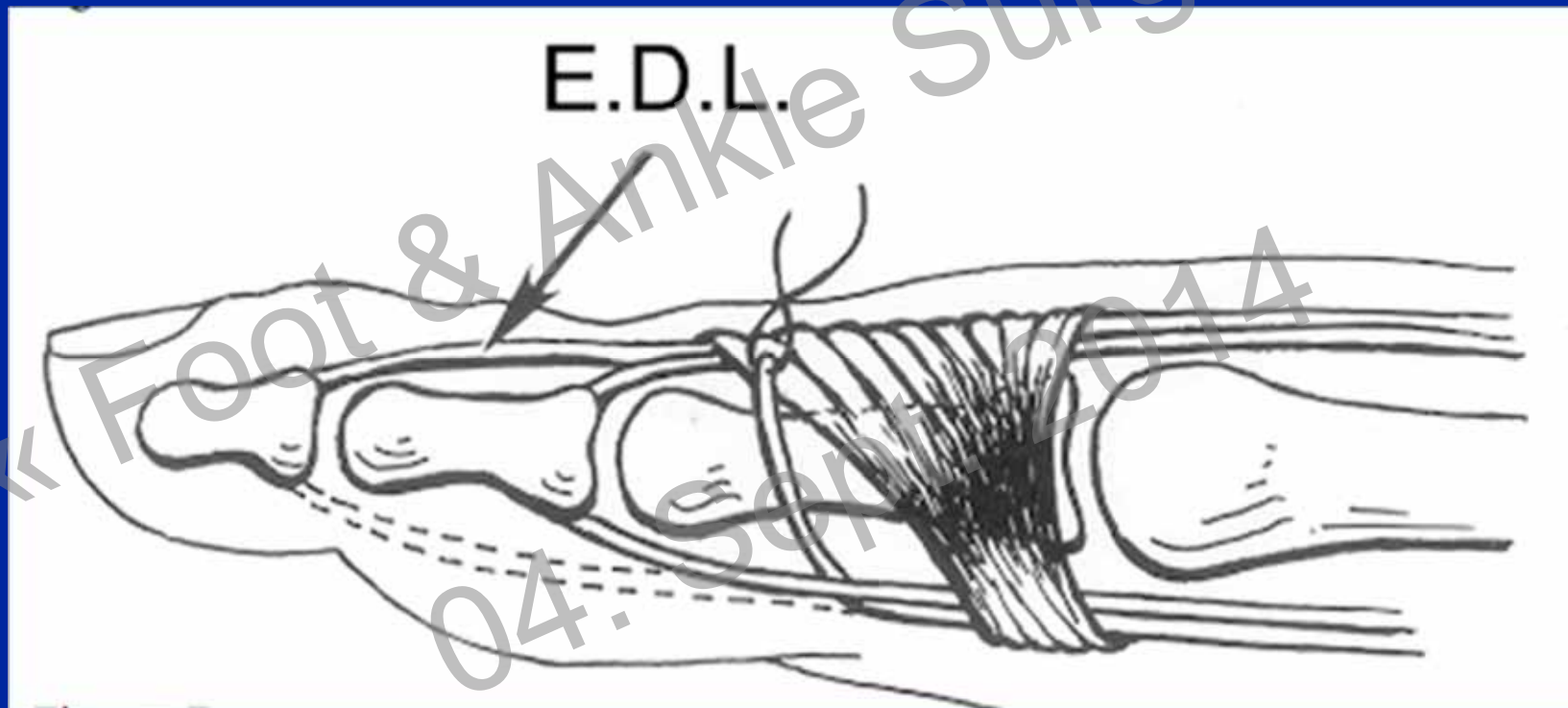
Coughlin MJ, Lesser toe abnormalities, JBJS Am 84:1446-1469, 2002

Flexor-to-Extensor tendon Transfer



Coughlin MJ, Lesser toe abnormalities, JBJS Am 84:1446-1469, 2002

Flexor-to-Extensor tendon Transfer



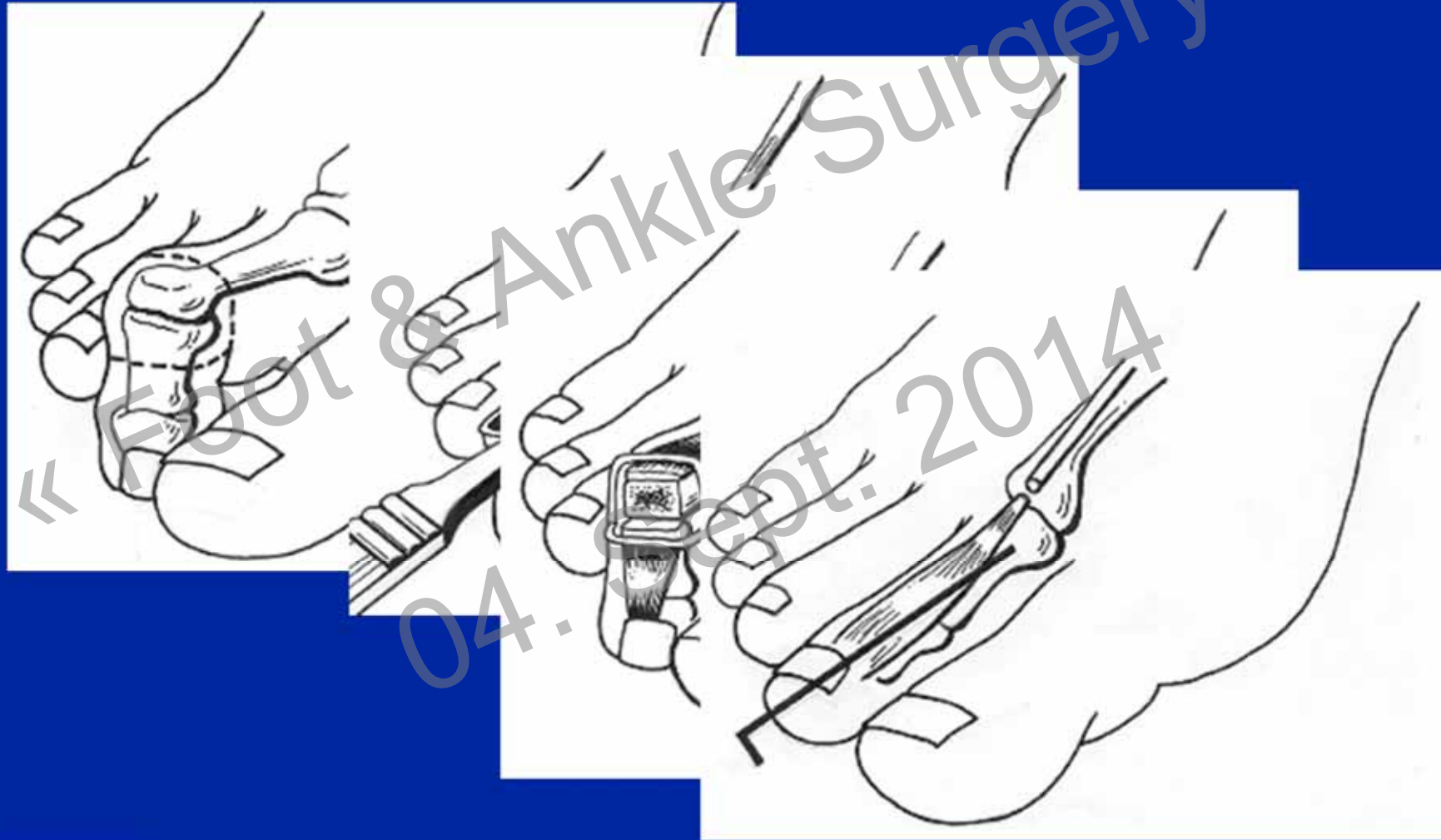
Coughlin MJ, Lesser toe abnormalities, JBJS Am 84:1446-1469, 2002

Hammer toe deformity

Fixed: PIP joint Arthrodesis (Hohmann-Procedure)

Shortening is important, due to contracted plantar neurovascular structures

PIP-Arthrodesis



Hammer toe deformity

Key joint: MTP

If hyperextended (frequent), it needs to be realigned

MTP joint realignment

- Metatarsophalangeal soft tissue release
- Extensor tenotomy and/or elongation
- Kirschner wire fixation across the joint

Claw toe deformity

- Combination of procedures
- MTP joint always hyperextended

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MTP joint instability



MTP joint instability - Treatment

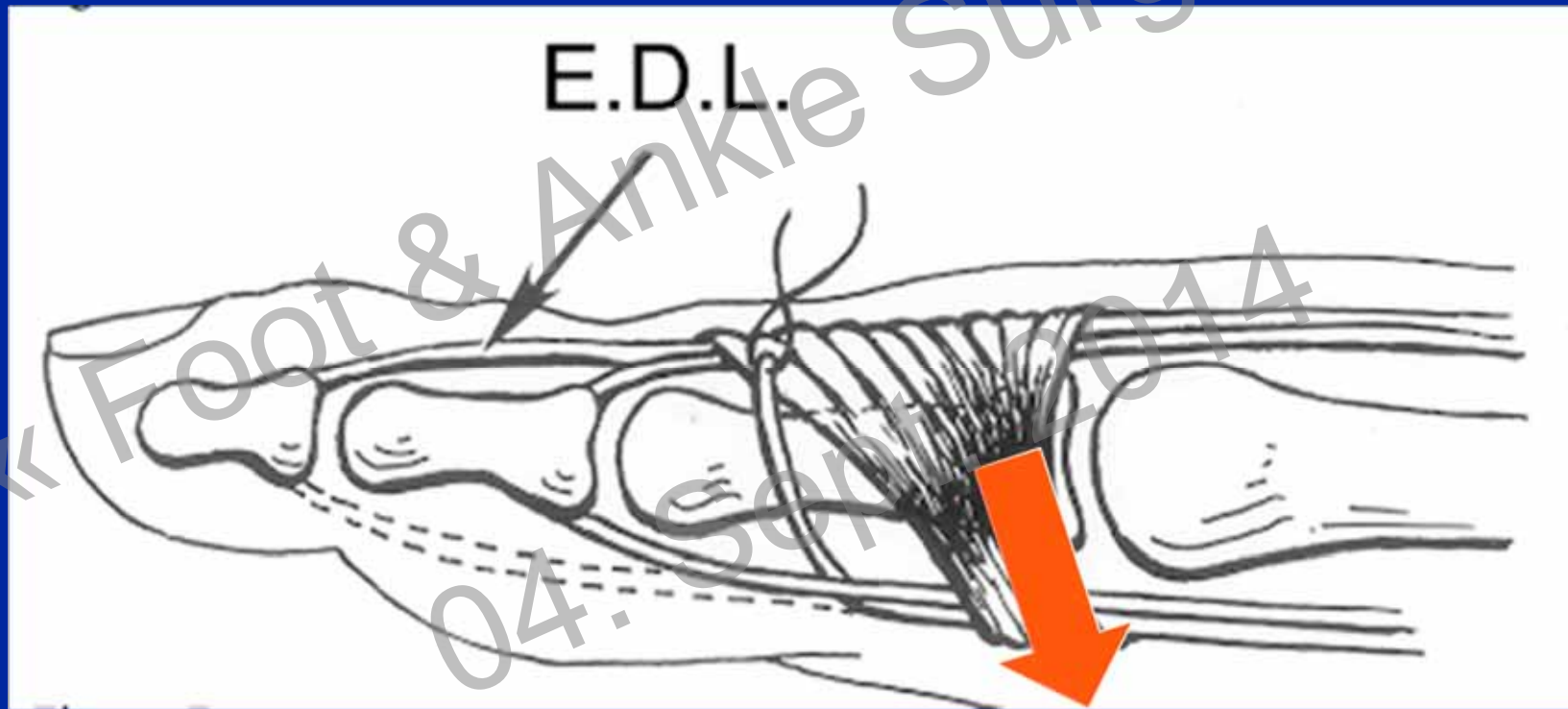
- Hallux valgus has to be corrected even if asymptomatic

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MTP joint instability - Treatment

- Release MTP joint
- Remaining deviation correct with tightening of collateral ligaments
- Flexor-to-Extensor transfer depresses proximal phalanx
- Kirschner wire fixation

MTP joint instability - Treatment



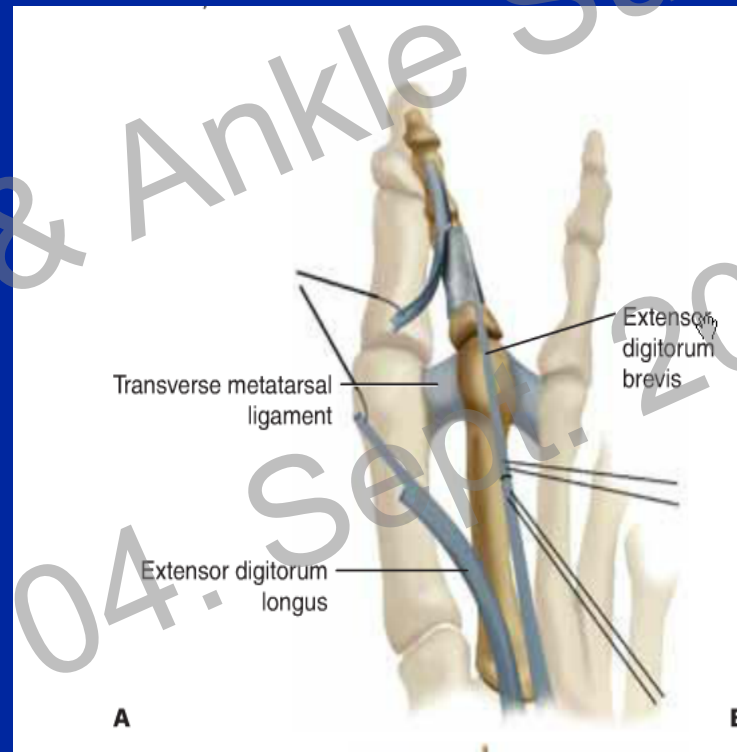
Alternatives

Stabilization with Tight rope® (Arthrex)



Alternatives

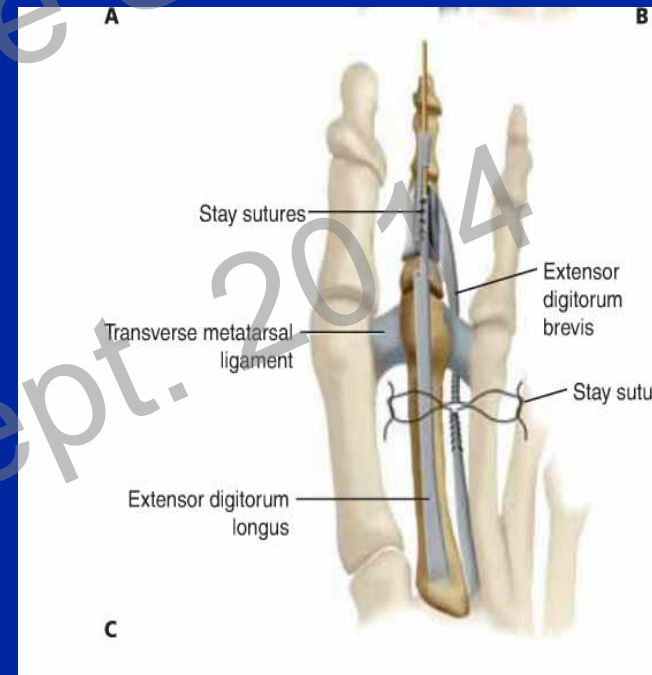
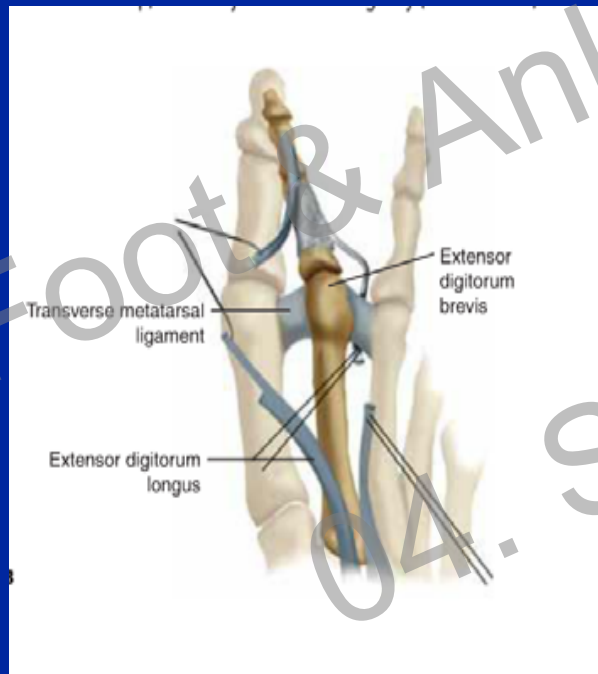
Extensor digitorum brevis transfer



From: Easy MEE et al., Operative Techniques in Foot and Ankle Surgery

Alternatives

Extensor digitorum brevis transfer



From: Easy MEE et al., Operative Techniques in Foot and Ankle Surgery

Severe instability

- Soft tissue correction not sufficient
 - Osseous decompression necessary
- Shortening osteotomy of the metatarsal

Severe/recurrent instability



Thank you

