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Endoscopic Flexor Hallucis Longus Tendon Transfer As a Treatment Modality In Acute Achilles Tendon Rupture. A Case Series With A Minimum of 6 Months of Follow-Up

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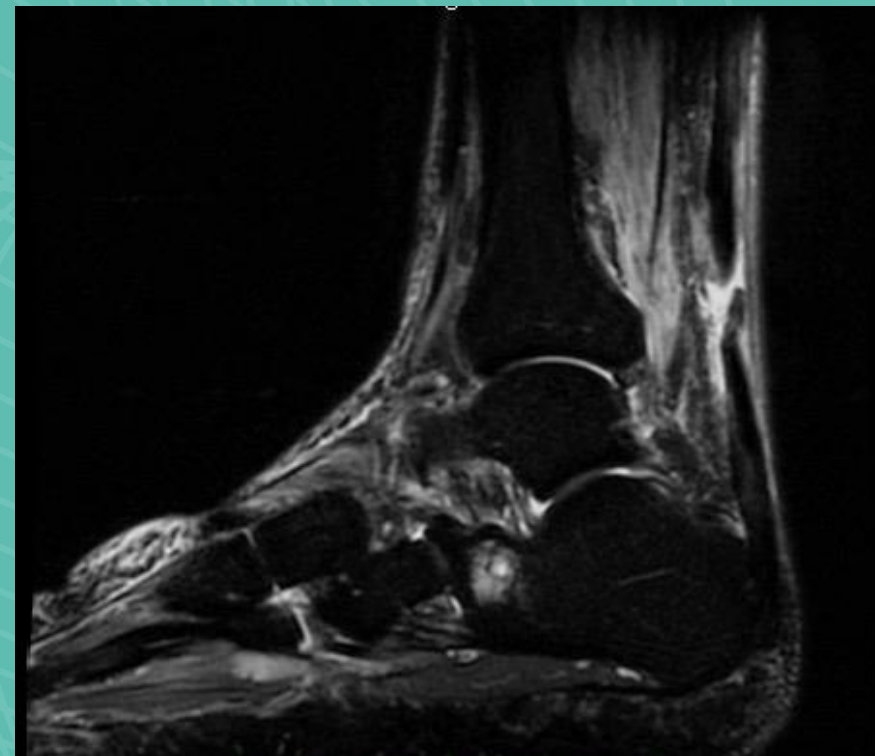
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No conflicts of interest
No disclosures



Patients

- Between 2014 and 2022, 25 patients with acute Achilles tendon rupture underwent endoscopically assisted FHL tendon transfer to the calcaneus
- 18 male – 7 female
- Mean age 56 years
- Mean BMI 29
- 14 Left – 11 Right feet



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Surgical Technique

- The patient is placed in a prone position with a soft bump under the ipsilateral calf; a thigh tourniquet is applied (Fig. 1). The leg is prepped with a disinfectant agent and draped with a waterproof fenestrated drape.
- A posterolateral (viewing) and a posteromedial (working) portal are established on either side of the torn Achilles tendon at the height of the tip of the lateral malleolus, as described by C. N. VanDijk (Fig 2).

A 2-portal endoscopic approach for diagnosis and treatment of posterior ankle pathology

C N van Dijk¹, P E Scholten, R Krips



Figure 1

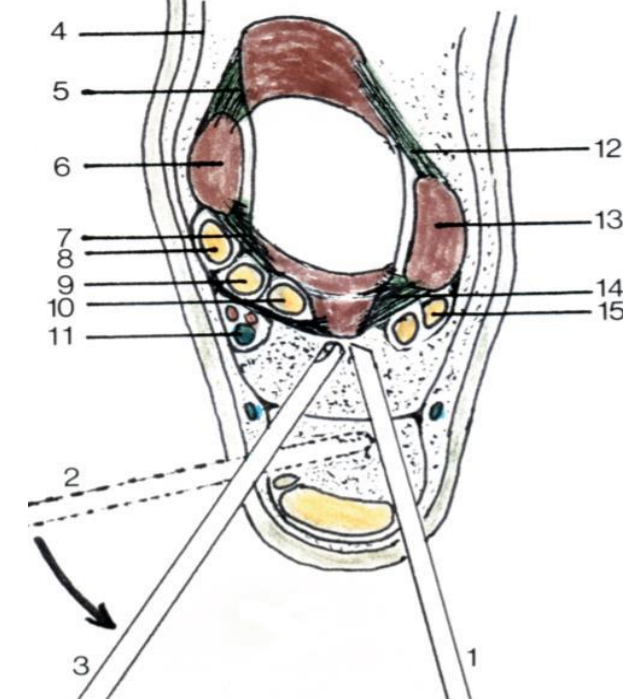


Figure 2



Surgical Technique

- After adequate debridement, FHL is identified, released from its sheath and fascia, and mobilized (Fig. 3, 4).
- The next step is FHL tendon harvesting with the tendon stripper (Fig. 5).
- The proximal FHL tendon stump is withdrawn outside the posteromedial portal, an absorbable suture is applied, and the diameter of the tendon stump is measured (Fig 6,7).



Figure 3

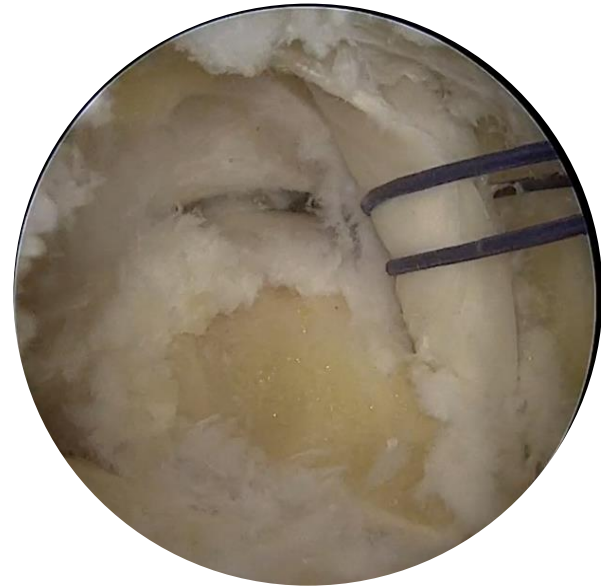


Figure 4



Figure 5

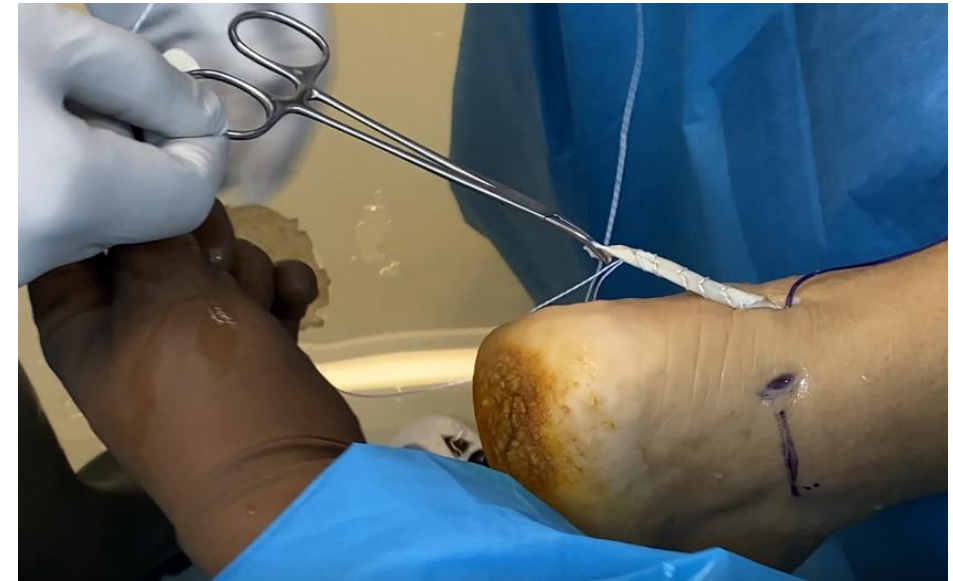


Figure 6

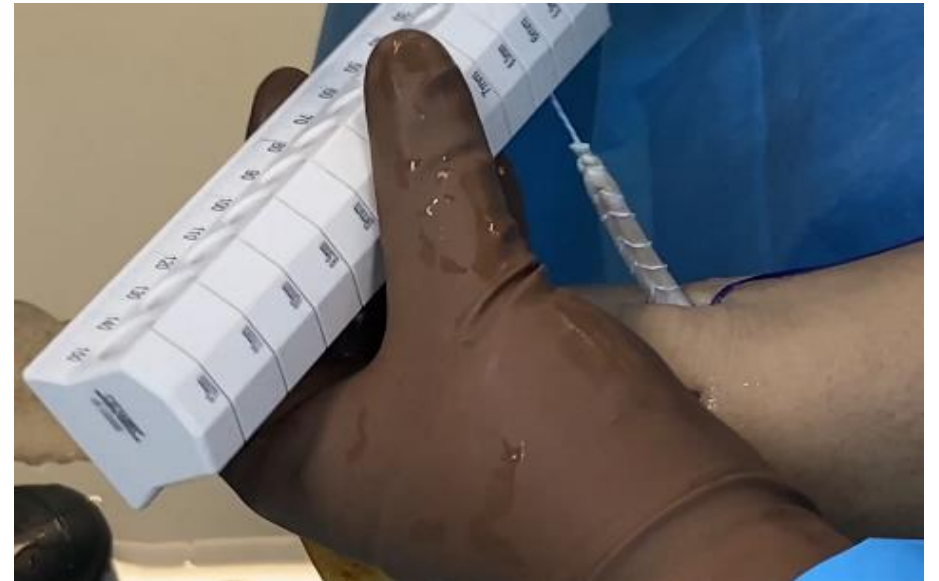


Figure 7

Surgical Technique

- Through a small posterior midline plantar incision, a guidewire is inserted as posterior and medial as possible in the calcaneus.
- Its position is confirmed under fluoroscopy (Fig. 8).
- A tunnel is established with a cannulated drill (Fig. 9).
- An eyelet guidewire is used for suture and tendon passage through the calcaneal tunnel (Fig 10).



Figure 8



Figure 9



Figure 10



Surgical Technique

- The tendon stump is fixed in the calcaneal tunnel with an interference screw (Fig 11, 12).
- The approximation of the Achilles tendon stumps is confirmed endoscopically (Fig 13).
- A debridement of the tendon stumps was performed, if necessary (Fig 13 – 15).



Figure 13



Figure 11



Figure 12



Figure 14



Figure 15

Postoperative protocol

- After skin closure, a below-knee cast in gravity equinus is applied for two weeks.
- All patients received antibiotics and antithrombotic prophylaxis.
- A physiotherapy protocol focused on early weight-bearing with functional rehabilitation is suggested for all patients.
 - 0-2 weeks: below knee cast in gravity equinus
 - 2-4 weeks: walking boot – ankle gradually to neutral
 - 4-8 weeks: Weight bearing as tolerated – Physiotherapy (PT) sessions
 - 8-12 weeks: Full weight bearing – PT



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Outcome evaluation

- Patient satisfaction was assessed with “The Achilles tendon Total Rupture Score” (ATRS).
- All the patients underwent an MRI control in six months post-op (Fig. 16).
Minor complications were reported in 2 patients
- Passive and active range of motion and calf and ankle circumference were also recorded and assessed.
- No significant complications were noticed.

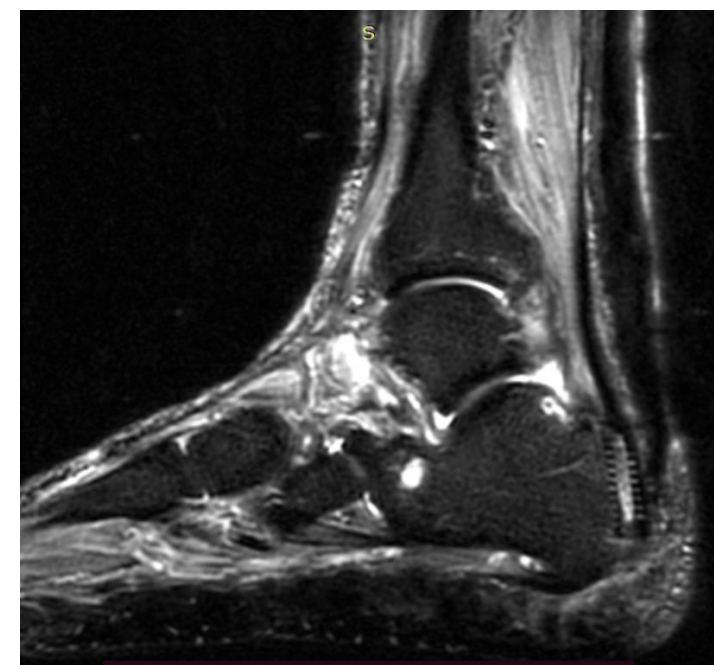


Figure 16

Outcomes

- Mean ATRS: $86,7 \pm 16,7$
- MRI control showed anatomical continuation of the Achilles tendon in all patients
- No significant difference of passive and active range of motion and calf and ankle circumference were noticed compared to the healthy limbs.
- No major complications were noticed, minor complications in 3 patients [ankle stiffness, tibial nerve numbness, and one intraoperative screw breakage, which required hardware removal (Fig. 17 – 20)].



Figure 19

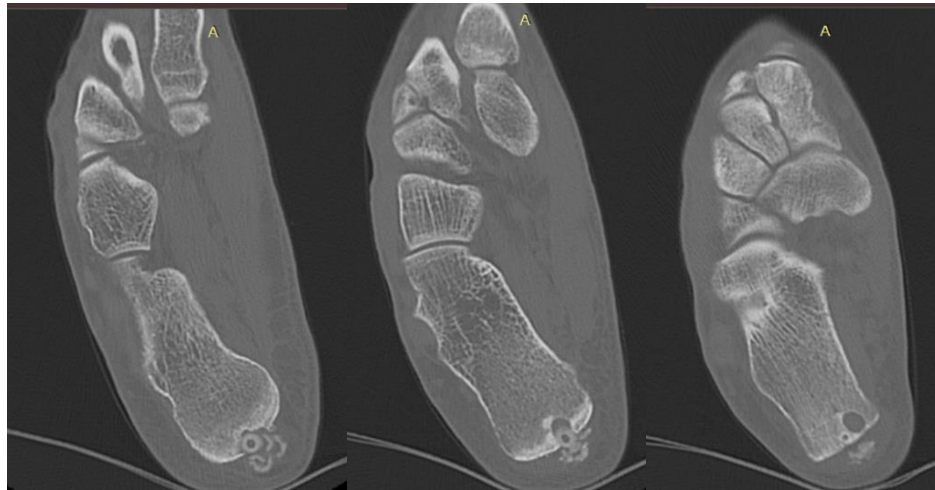


Figure 17



Figure 18



Figure 20



Outcomes

Even in this particular patient with such a technical complication, postoperative integrity of the ruptured Achilles tendon was confirmed in MRI at 6 months postoperative time (Fig 21, 22).

In conclusion, arthroscopic FHL tendon transfer for acute Achilles tendon rupture is a reliable and safe treatment modality with excellent results.

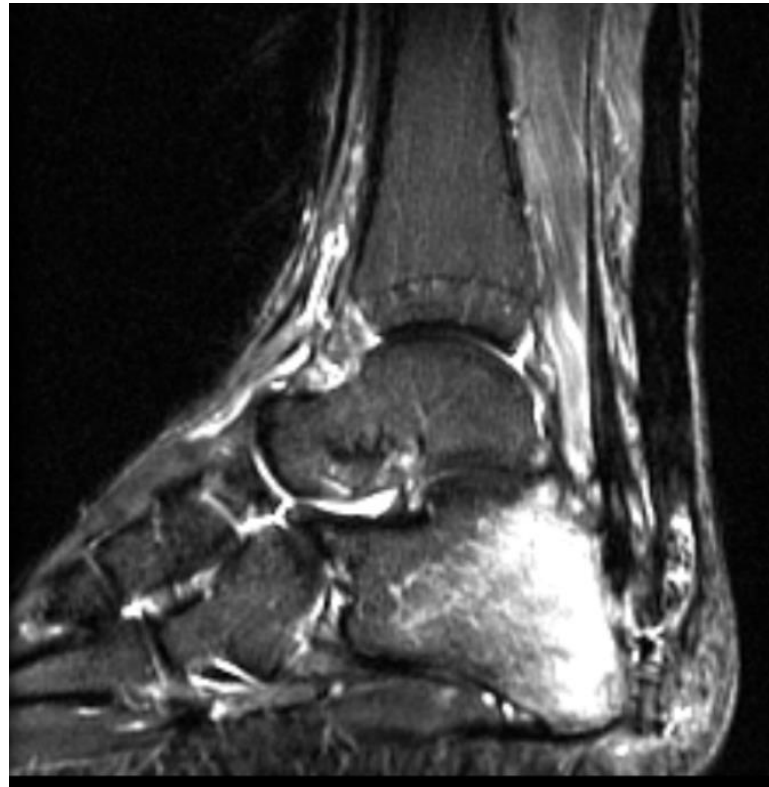


Figure 21



Figure 22



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