

Flexor Tendon Rupture In Percutaneous Needle Fasciotomy for Dupuytren Contracture

N. Debaenst and I. Degreef



Introduction

Dupuytren's disease (DD) is a fibroproliferative condition affecting palm and fingers.

Percutaneous Needle Fasciotomy (PNF)

- Well described treatment for DD contractures
- Especially in mild to moderate disease
- Minimally invasive nature and rapid recovery time
- Complications: wound dehiscence, nerve injury, infection, and [flexor tendon rupture](#)

Recurrence rate of up to 85% in 5 years → adjuvant pharmacotherapy, e.g. [anti-TNF injection](#)

Patient

DD in 68-year-old right-handed man, progressive flexion contracture since 5 years

History PNF in his digit 5, two years prior, full extension was achieved

Clinical examination D5

- Pre-tendinous palmar fascial cord
- MCP joint 40-degree flexion contracture, PIP joint full extension

Uneventful surgical procedure

- Full correction of the flexion contracture
- Concurrent injection of 40ml/0.4ml adalimumab around the severed cords (ongoing trial*)
- No flexor tendon rupture observed during the surgery

Case



Clinical examination D5

- Inability to flex the DIP joint
- Weak and incomplete PIP joint flexion

Ultrasound examination D5

- [Flexor digitorum profundus \(FDP\) rupture](#)
- At zone 2

Surgery was scheduled the following day



WALANT anesthesia

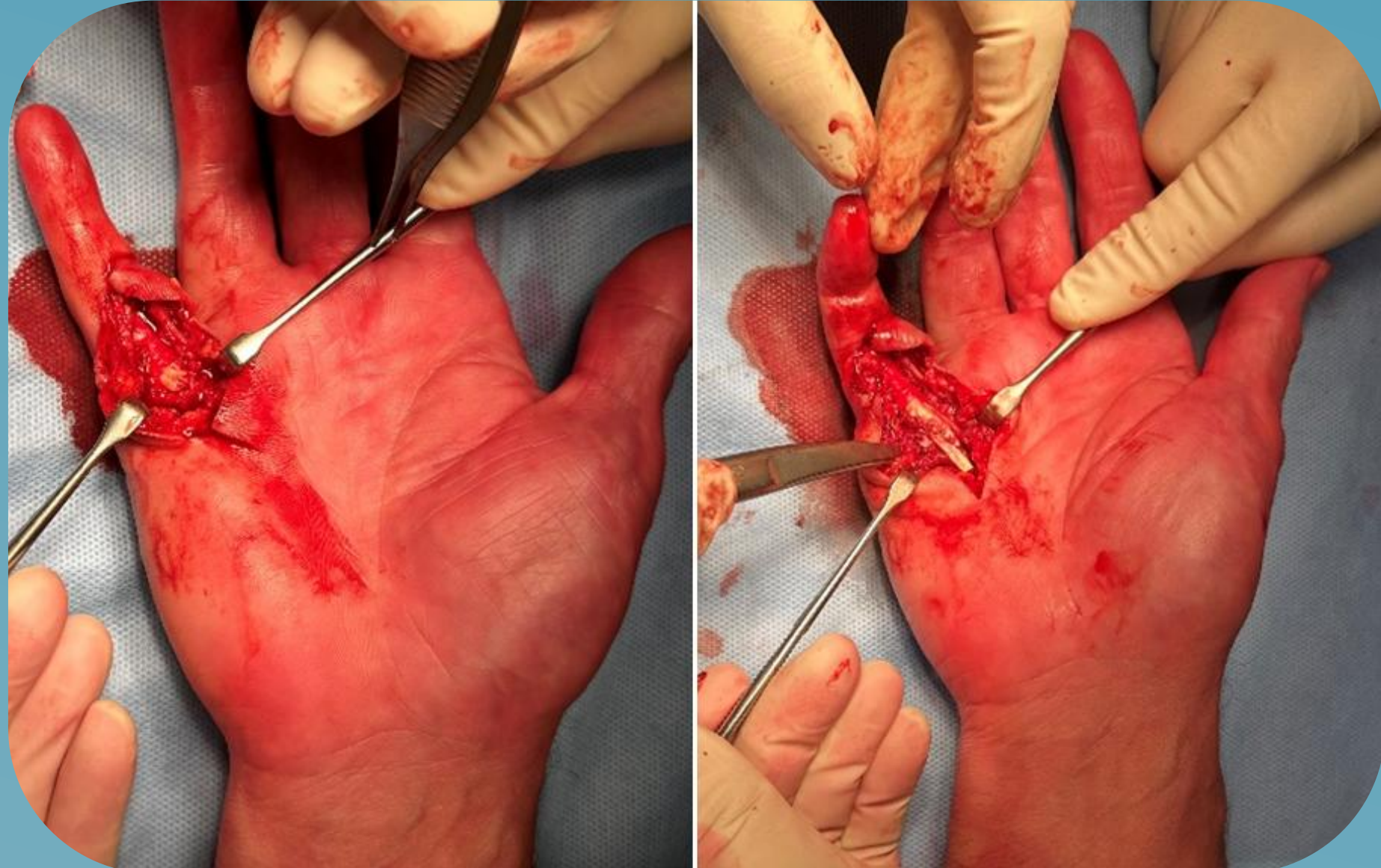
Brunner approach, observation of lesions:

- Sharp FDP laceration in zone 2
- Flexor digitorum superficialis (FDS) tendons intact
- Digital neurovascular bundles intact
- Mild inflammation and a limited hematoma

FDP tendon suture

- 6-strand Lim-Tsai with Fiberloop 4-0 suture
- Peritendinous Prolene 6-0 suture

Removal of remaining cord within the operating field



Post-operative protocol

- Early active mobilisation rehabilitation
- Slight [caution because of the anti-TNF injection](#)
- Protective thermoplastic splint in 20° of MCP flexion for 6 weeks

Excellent postoperative result

- [Quasi full flexion](#) was achieved (PPD 1 mm)
- Grip strength right hand 32 kg versus left hand 27 kg
- Full extension of the MCP joint was possible
- [Residual PIP joint flexion contracture](#) of 28° degrees.

No functional impairment during his acts of daily living



Discussion

Flexor tendon rupture after PNF is a [very rare complication](#) ¹⁻⁵

- Incidence in recent studies of 0 - 0.18%
- Two case reports

Repeat PNF with peri-cordal anti-TNF injection → [not](#) a delayed rupture [caused by the anti-TNF](#)

- The tendon rupture was sharp and seemed needle tip-induced
- No pathway can explain tendon disruption by anti-TNF ⁶

Technical pearls

- Caution with 19G needle, smaller 24G needles might be better suited, especially distal
- Pricking may be safer than sliding cutting technique
- Repeatedly ask the patient to fully relax hand
 - Decrease tendon tension and maximize tendon to skin distance
- Early detection by active flexion after performing PNF

Importance of informing patients about the possible complications of PNF

Conclusion

Flexor tendon rupture following PNF for Dupuytren's disease is a [very rare complication](#)

PNF is [generally a safe and effective](#) treatment

- Importance of a thorough informed consent
- Optimization of surgical technique to diminish complications

Prompt diagnosis and surgical treatment are vital for achieving successful outcomes in patients with this complication

Promising future role for **peroperative ultrasound imaging**

References

- * EU trial number 2023-503701-11-00
- 1. Elzinga et al. Hand Clin. 2018 Aug.
- 2. Therkelsen et al. Acta Orthop. 2020 May.

- 4. Molenkamp S et al. Plast Reconstr Surg. 2017 Jun.
- 5. Krefter et al. Hand Surg Rehabil. 2017 Oct.
- 6. Symes et al. J Hand Surg Br. 2006 Dec.
- 7. Nanchahal et al. Lancet Rheumatol. 2022.