

Needle Aponeurotomy: A Wide-Awake First Step Approach

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Standard Procedure

Limited Fasciectomy

Wide-awake, using lidocaine with dilute epinephrine



Decision making process

Surgery is the best option to achieve long term straight fingers with the least chance of recurrence.

However

- There can be significant complications of surgery and a long rehabilitation.
- Stage IV disease is very difficult to treat with surgery (Stage IV is loss of extension greater than 135 degrees)
- Patients can end up worse, even if the surgery is a success.

Complications of Dupuytren's Surgery

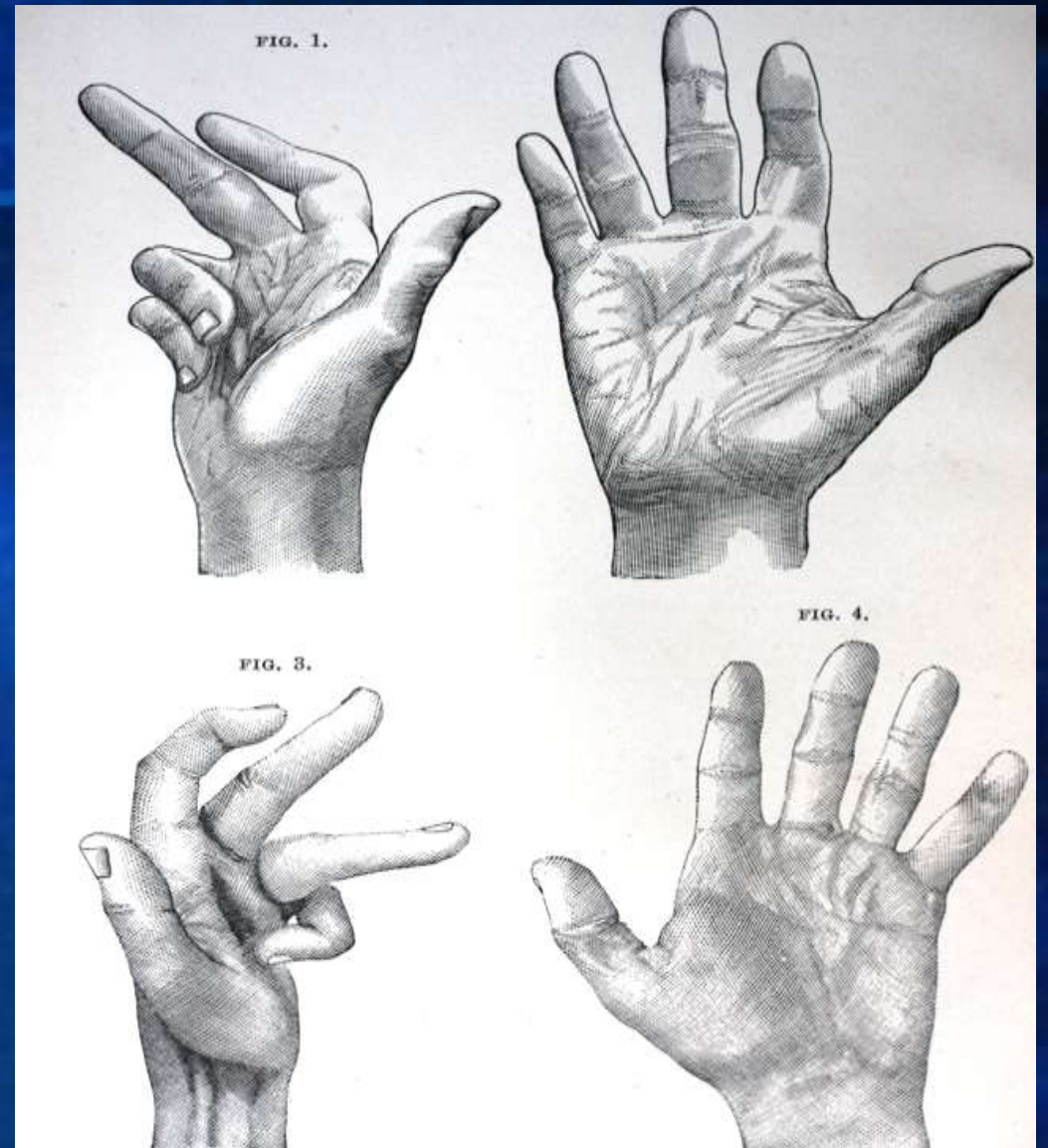
Meta-Analysis of the last 20 years of primary surgical fasciectomy:

Abstract, submitted to ASPS Seattle 2009

- Thousands of published surgeries
- 3.4% Digital nerve injury in primary
 - Sennwald 27% in repeat operations
- Digital vessel injury/hematoma 2.1%
- Infection or Wound healing complications 22%
- Stiffness 10%
- Flare Reaction and RSD 9%

Stage IV Fasciotomy 1884, Adams

Fasciotomy is not new, and excellent results in severe Dupuytren's were achieved as early as 1884.



Before

After

Fasciotomy

- Traditionally fasciotomy has been limited to the elderly and done proximal to DPC, for fear of spiral nerves
- Some fasciotomy patients have excellent results long-term
 - Rowley JHS (Br) 1984
- Needle Aponeurotomy (NA)
 - Uses distal to proximal release with 25 gauge needle
 - Superficial wheal of local anesthesia
 - Deep penetration to nerve can be felt by patient as electric shock when doing NA over a nerve
 - Developed by rheumatologists (Lermusiaux)
 - Repeat treatments and office visits are part of the procedure

Why Did We Stop Doing Fasciotomies?

- Was it too dangerous?
 - Too many complications
 - Not in my experience
- Was it because it did not work?
 - Physical therapy and splinting can help keep it straight
- Was it because of rapid recurrence?
 - Yes, this can happen. But how often?
 - Let the patient choose the second step
 - Repeat fasciotomy or open surgery
 - Second step can be years down the road

A Severe Dupuytren's After Surgery

- At one year F/U
- Comp. by 10 days hosp. for "pain control" and 1 yr. severe RSD
- Performed by fine surgeon at an excellent institution



This is the Other Hand! What to do?

- Left little finger
 - Total loss of 210 degrees of extension
 - Loss 60 MCP
 - Loss 90 PIP
 - Loss 60 DIP
- What do you offer her? Surgery? Pre-op blocks?



Result Immediately After Needle Aponeurotomy

- Local anesthesia with epinephrine
- Immediate Result
- Patient had no recurrence of RSD



Technique in Severe Stage IV

- Ulnar nerve blocks at the wrist allow for forced extension of finger and intrinsic muscles
- Infiltration of local anesthetic with epi over cords and at PIP joint
- 18 g. needle release of cords proximal to distal palmar crease
- PIP joint approached by 18 g. needle release of central cord just distal to PIP joint

Technique in Severe Stage IV

- PIP joint transverse cuts at dorsal line.
 - If disease is on that lateral side
- Release little finger abductor
- Release of natatory cords
- Forceful extension to complete break of cords
- Injection of Cortisone (Kenalog) into lumps and thickened areas

Traditional NA Technique Over Nerves

- Distal to proximal technique with 25 gauge
- Do initial wheal with 30 gauge needle
- “electric shock” if felt deep and hits nerve



Central Cord Release

- Safe central release over PIP joint, not lateral near nerves 18 g needle
- Go in at 45 degree or less angle
- Difficult in severe PIP contractures
- Break cord with forced extension



Needle Aponeurotomy Study Population

- In office procedures 2005-2009
- 163 consecutive digits with new primary stage IV disease
- No previous surgery or aponeurotomies
- Follow-up available on 153 digits (94%)
- Results of other digits not included (only Stage IV)
- Patients: 113 males, 20 females
- Average age 66; Median age 67

Average Extension Loss Pre-Procedure

- Average Loss MCP joint extension -65 degrees
- Average loss PIP joint extension -74 degrees
- Average Loss DIP joint extension -10 degrees



- Average total Loss of Extension -149 degrees

Results: 153 Stage IV Digits Average 8 Months F/U

- Average loss extension MCP -11 (from -65)
 - Gain 54 degrees
- Average loss extension PIP -38 (from -74)
 - Gain of 36 degrees
- Average loss extension DIP -3 (from -10)
 - Gain of 7 degrees
- Total extension gain 95 degrees

Patient showing slightly better than average result



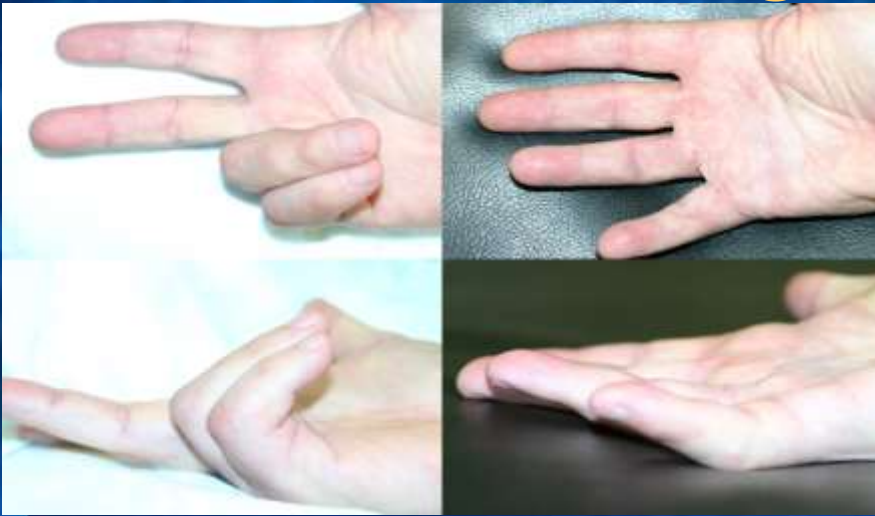
Patient with slightly worse than average result



Complications Out of 153 Digits

- No chronic numbness, nerve injury or pain
- No RSD or CRPS (0/153)
- Large skin tears in 4 patients (required skin grafts at PIP joint:
3/4 lost to infection)
 - One graft infection led to osteomyelitis and amputation at PIP
- One infection in absence of skin tear
- 1 patient developed a chronic sinus tract
- 1 patient developed stiffness of PIP joint flexion and 3 patients had stiff DIP joints
- Minor skin tears were sutured

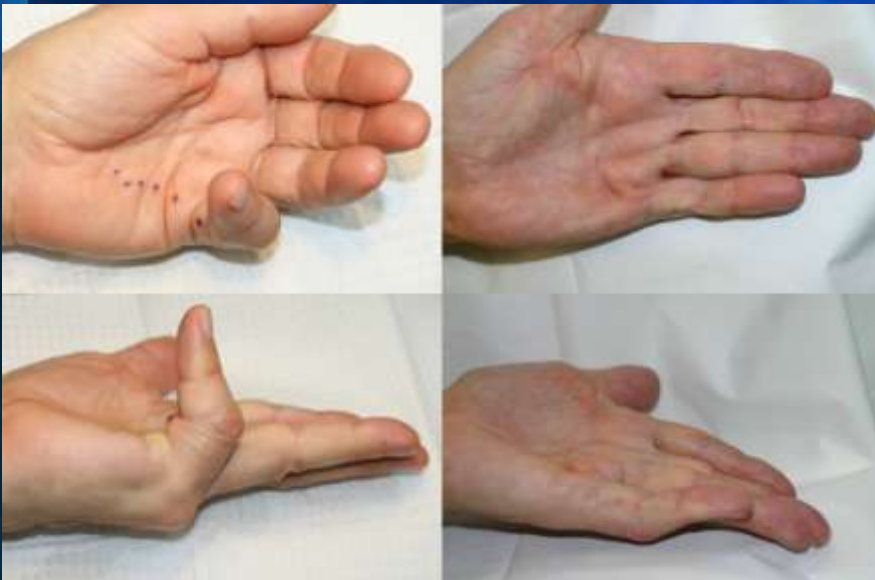
Long-term Results



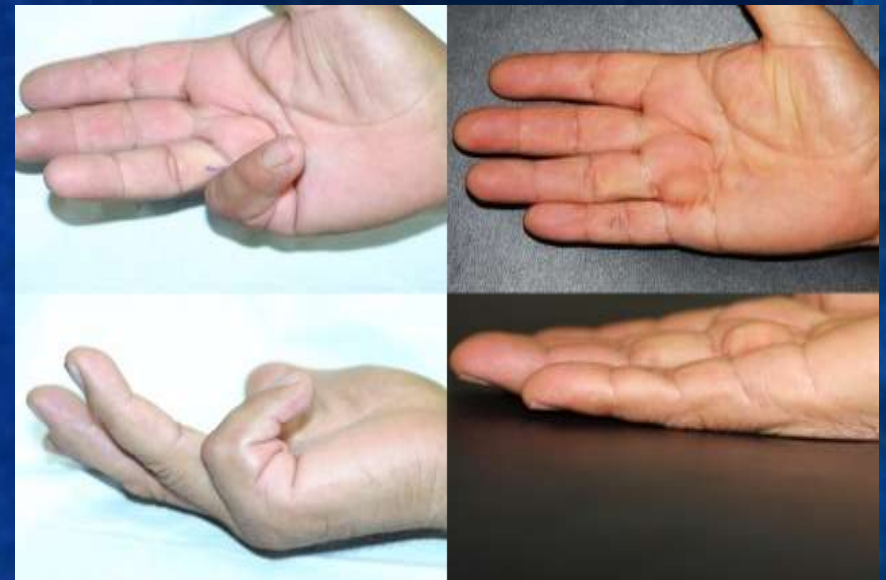
13 months F/U



19 months F/U



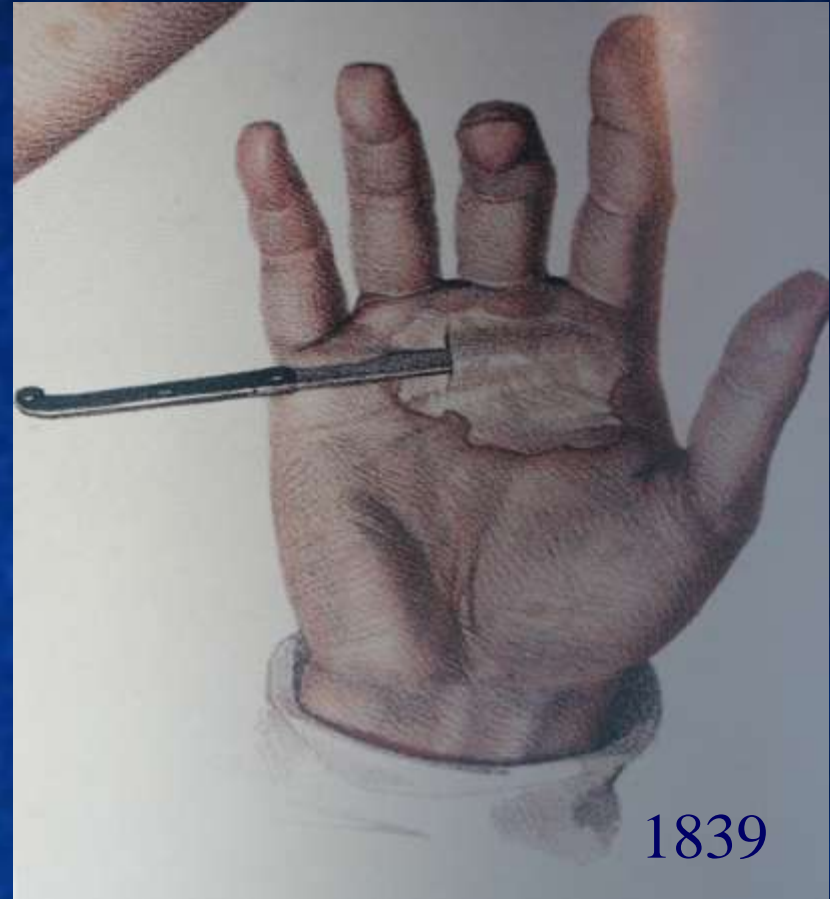
23.5 months F/U



17 months F/U

Conclusions

- Needle fasciotomy is a safe and effective procedure for Dupuytren's contracture
- Results in 153 cases show good improvement, low complication rate
- Worthwhile to consider as a "first step" in treatment of Dupuytren's



Thank you!

