G Disease
Open Limited Fasciectomy

Don Hoang, MD
11.05.14
63 yo Left Handed F, homemaker, with 10 mos progressive left 5th finger contraction, palm nodules/cords

- PMH: Menopause
- PSH: face lift, tonsillectomy, rhinoplasty, breast implantation, LASIK surgery
- All: None  Meds: Biest / Sonata / Xanax
- SH: Denies T/E/D
X-Ray
Indications for Surgery

• MP J contracture (>30%?)
• Progressive PIP J contracture (>20%?)
• Functional hand complaints
Goals of Surgery

- Release joint contractures at MP & PIP
- Improve hand function
- Resect tissue affected by Dupuytren’s disease

Tx Options Presented to Patient
Operation Performed
11/05/14

- **Open Limited Fasciectomy WITHOUT skin closure (McCASH Technique)**
  
  - Central Cords along 3\(^{rd}\) and 5\(^{th}\) ray,
  
  - Spiral cord along 5\(^{th}\) digit
Post-op
- Palmar transverse incision – covered in xeroform
- Short arm plaster splint; wound care
- Active ROM
Figure 5.5 A-D, Dupuytren’s disease—central cord. CC, central cord; FT, flexor tendon; L, lumbrical; NVB, neurovascular bundle; PCC, proximal central cord; SL, Skoog’s ligaments. (Courtesy of School of Medicine, SUNY Stony Brook, NY.)
Figure 5.6 Dupuytren's disease—spiral cord. FT, flexor tendon; L, lumbrical; NVB, neurovascular bundle; SC, spiral cord. (Courtesy of School of Medicine, SUNY Stony Brook, NY.)
Figure 5.9 Four basic skin incision patterns for Dupuytren’s fasciectomy. 

A, Zigzag-plasty incision with linear extension proximal to palmar flexion crease. In the finger, there can be one oblique incision between flexion creases (e.g., fifth finger) or two oblique incisions between flexion creases (e.g., fourth finger).

B, Littler-Bruner incision (zigzag plasties), which can be closed with a “V-Y” plasty or left open in honeycomb fashion.

C, Longitudinal incision, which is closed by “Z”-plasties (oblique incision lines).

D, Transverse incisions of McCash’s open palm technique. (Courtesy of School of Medicine, SUNY Stony Brook, NY.)
Figure 5.12 Dupuytren’s enzymatic fasciectomy. A, Collagenase, 0.58 mg in 0.25 mL of diluent is injected into a central cord. B, Collagenase (green) diffuses in cord. C, One third of 0.58-mg dose placed in three separate areas in cord. (Courtesy of School of Medicine, SUNY Stony Brook, NY.)

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<tr>
<th></th>
<th>CORD I</th>
<th>CORD II</th>
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<tbody>
<tr>
<td>Arthralgia</td>
<td>n = 8 (3.9%)</td>
<td>Lymphadenopathy, n = 11 (12.4%)</td>
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<td>6/8 on first injection</td>
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<td>Paresthesia, n = 4 (8.9%)</td>
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<td>2/8 on third injection</td>
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<tr>
<td>Lymphadenopathy</td>
<td>n = 20 (9.8%)</td>
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<tr>
<td>Most on first injection</td>
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<tr>
<td>Lymph node pain</td>
<td>n = 21 (10.3%)</td>
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<tr>
<td>Paresthesia</td>
<td>n = 3 (1.5%)</td>
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</tr>
<tr>
<td>Hypoesthesis</td>
<td>n = 3 (1.5%)</td>
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<tr>
<td>Tendon ruptures</td>
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<tr>
<td>2 (fifth finger PIP joint) occurred before revised injection technique</td>
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<td>1 in CORD I and one in pharmacokinetics study</td>
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Note. To date, >2600 injections have been given to >1000 patients with a tendon rupture occurrence rate of 0.2%
CRITICAL POINTS: INDICATIONS AND TIMING OF OPERATIVE TREATMENT

Indications
- MP joint contracture 30 degrees or more
- PIP joint contracture 20 to 30 degrees or more with progression
- Functional disability; interferes with activities of daily living or leisure activities (e.g., golf, piano)
- Acceptable comorbidities for planned surgery and anesthesia

Preoperative Evaluation
- Perform a thorough history and physical examination.
- Consider the condition of the hand tissues, the rate and extent of the contracture, and the patient’s capacity to participate in a hand therapy program.
- Consider the severity in the context of the whole patient (i.e., is this a simple procedure under local anesthesia or a recurrent case needing skin graft and 3 hours under general anesthesia).
- Communicate bluntly with the patient about potential complications, but place the statistical likelihood in practical terms. ("It is more dangerous to drive on the Lie in the rain than to have a Dupuytren’s surgery.")

Pearls
- Understand that the normal fascial anatomy is the precursor. Anatomy defines the pathologic cords, which follow predictable patterns.
- Surgery can release the contracture, but surgery can never cure Dupuytren’s disease.
- The aim of surgery is release; Dupuytren’s tissue cannot be totally excised.
- Make digital incisions after palmar release.
- Expect recurrence, but in an older patient without a diathesis, recurrence may not interfere with function.
- Perform dissection proximal to distal.
- While protecting underlying neurovascular structures, transect the cord at the level of the superficial arch.
- Complete excision does not reduce recurrence.

Technical Points
For MP Joint Contracture
- Preserving transverse fibers of the palmar aponeurosis is optional. The neurovascular bundles are under these fibers.
- Partial fasciectomy and segmental fasciectomy are both effective. No evidence exists that more extensive surgery reduces recurrence.
- Release tourniquet, and avoid hematoma.
- Place a drain if needed within patient’s dressing.

For PIP Joint Contracture
- Excise fascia in the proximal digit using a zigzag-plasty.
- Slightly oblique incisions may become longitudinal as the contracture is straightened, so define angles after proximal release.
- Use a dermofasciectomy for recurrent disease.

Identify the neurovascular bundles (likely to be displaced).
- Dissect and preserve neurovascular bundles by blunt and sharp dissection in the distal palm first.
- Close zigzag incisions or do “Z”-plasties or “V-Y” advancements, or replace with full-thickness graft.
- Gentle traction on the nerve proximally with a nerve hook can help identify the nerve location distally.

Fixed Joint Contracture Despite Fasciectomy
- If there is less than 30 degrees of persistent PIP contracture, accept.
- If there is more than 30 degrees, consider PIP joint release.
- Check flap capillary refill and hemostasis at tourniquet deflation.
- Digital vascular tolerance of corrected PIP joint position should be checked at the time of tourniquet deflation.

Pitfalls
- Nerve division: Repair cut digital nerves immediately. The neurovascular bundles can be displaced proximally, superficially, and centrally. Dupuytren’s disease does not adhere to nerve.
- Artery division: Critical ischemia may occur if both digital arteries are damaged, or if severe PIP joint contracture is forced to stay in extension (i.e., pinned).
- The surgery is often more difficult, recovery is longer, and recurrence is more common than the surgeon imagines or the patient understands.

Postoperative Care
- The amount of rehabilitation required is very variable.

Functional Use
- The patient is advised not to work or do sports requiring gripping for 3 to 6 weeks. Functional recovery and return to work and sports are also highly variable.
Figure 5.1  

A, Palmar and sagittal views of a hand with Dupuytren’s disease of the palm and fifth finger. Note nodules (red arrows) and cord (yellow arrows).  

B, Positive tabletop test—the palm and fingers cannot be simultaneously placed on the flat surface of the tabletop (dark gray line). The distance marked by the double-headed arrow should be zero in a normal hand and with a negative tabletop test.  

(Courtesy of School of Medicine, SUNY Stony Brook, NY.)
Figure 5.2 Dynamic flexion contracture often seen in Dupuytren’s disease when a central cord crosses MP and PIP joints. When MP joint is kept at neutral (0 degrees of extension and flexion), PIP joint flexion contracture measures 66 degrees (top image), but when MP joint is flexed, PIP joint contracture is only 36 degrees (bottom image). (Courtesy of School of Medicine, SUNY Stony Brook, NY.)