



## ***Tenolysis: Surgeon Prospective***

Jason C. Saillant, MD  
Philadelphia Hand Center, PC  
Philadelphia, PA

### **BACKGROUND**

- Restoration of digital function and range of motion remains one of the most difficult challenges in hand surgery
- Substantial advances in last 50 years
- Residual dysfunction is not uncommon

### **ADHESIONS**

- Proper function requires smooth gliding
  - Tight pulley system
  - Over bone
  - Under skin
  - Between FDS/FDP
- Tendon surface Injury
  - Laceration
  - Surgery
  - Crush
  - Infection
  - Fractures



## **PREOPERATIVE CONSIDERATIONS**

- Examination
  - Passive motion > Active motion
  - Full passive ROM
  - Healed fractures
  - Non-arthritic joints
  - Stable soft tissue envelope
  - Well motored, intact tendons
  - Complaint, motivated patient
- Access to an experienced therapist
- Active participant in AROM/PROM modalities with failure to progress

## **CONCOMITANT PROCEDURES CAN COMPROMISE OUTCOME**

- Osteotomies
- Tendon surgery
- Pulley reconstruction
- Capsulectomy
- Contracture release

## **TIMING**

- General guideline indicating 3-6 months

*ALLOWS*

Assessment of patient commitment

Elongation of adhesion

Maturation of soft tissue

## **INFORMED CONSENT**

- Realistic goals
- Risks
- Intraoperative findings may alter plan

Devascularized tendon

Pulley rupture

Tendon rupture



## ANESTHESIA

- Local Anesthesia with IV sedation
  - ✦ Allows assessment of lysis and tendon integrity
- Tourniquet paralysis  
25-30 min  
Deflate and re-inflate  
Inflate mid-forearm then release proximal tourniquet (*Strickland 1985*)
- General or Axillary block  
Extensive dissection  
Restless, anxious patient  
Wrist or palmar incision "Traction flexor check" (*Whitaker JH, Strickland JW 1977*)
- Injection of local with epinephrine  
Safe  
Bloodless field  
No use of tourniquet  
No IV sedation necessary

## TECHNIQUE

- Wide exposure of flexor tendon system  
Volar Zig-Zag (Bruner)  
Midlateral
- Start in unaffected zone  
Tendon borders  
Critical annular pulleys  
Neurovascular bundles
- Raise both tendons en bloc
- Lyse adhesions between FDS/FDP
- Sacrifice FDS slip as needed
- Dissection to free tendons from pulley system  
Knee Arthroscopy blades (*Schreiber*)  
Meals tenolysis knives  
Modified #69 Beaver blade (*Stern*)  
Suture Technique
- Widening pulley  
Pediatric Urethral Dilators (*Strickland*)
- Access your work  
Pull through proximally  
Active patient participation  
Joint contractures

- Tendon System Health



Scar filled gap  
>30% tendon lost  
Pulley system  
Staged Reconstruction with silicon

### **ADJUNCT MODALITIES**

- Steroid preparations to bathe tendon bed
  - Minimal evidence
  - Risk v. Benefit
- Interpositional devices
  - Mechanical barriers
  - Cellophane, polyethylene film, silicone sheeting, paratenon, amniotic membrane, gelatin sponge, etc.
  - Mixed results
- Indwelling Catheter
  - Local anesthesia
  - Risk infection
  - Oral analgesia sufficient

### **POSTOPERATIVE REGIMEN**

- Critical Importance
  - Postoperative program dictated by intraoperative findings
- Essential to maintain close relationship with therapist  
Tendon quality, vascularity, intraoperative AROM/PROM
- Timing
- Delay for soft tissue edema  
Immediate motion to prevent adhesions

### **RESULTS**

- N=78 (All tendons protected for 5wk) (*Foucher 1993*)
  - TAM improved 135→ 205 in 84%
  - No improvement in 4
  - Worse in 9
  - 2 tendon ruptures
- 50% improvement in 64% of tendons (*Strickland 1989*)
  - 20% no improvement
  - 8% tendon rupture





Jason C. Saillant MD