TENDINOSIS: TRIGGER FINGER
DE QUERVAIN’S TENOSYNOVITIS
Tendinosis vs Tendinitis

• Tendinosis:
  – Degeneration of the tendon’s collagen
  – Related to **chronic use**

• Tendinitis
  – Tendon **inflammation**
  – **Acute** overloading
  – Presence of microtears
DE QUERVAIN’S TENOSYNOVITIS
History

• First described in 1895 by Dr Fritz De Quervain (1868-1940)
• Later American surgeon Dr Harry Finklestein described the provocative test also in 1895
• Washerwomen’s sprain was reported in the 1893 edition of Gray’s Anatomy
**Floor:** groove of the radial styloid

**Roof:** transverse fibers of the dorsal ligament
De Quervain’s Tenosynovitis

- Tendon entrapment of the first dorsal compartment of the wrist
- Reactive thickening and fibrosis of the extensor retinaculum and of the tendon sheaths
- Histology: myxoid degeneration, fibrocartilagenous metaplasia and deposition of mucopolysaccharide
Etiology

- Micro-trauma from repetitive strain
- Also from unaccustomed activity e.g. “baby wrist”
- Possible association with pregnancy and lactation, as well as rheumatological conditions
Biomechanics

• Repetitive actions:
  – abduction of thumb with wrist in ulna deviation
  – wrist extension with ulnar deviation
  – thumb and finger work pinching and grasping in radial deviation
  – Pinch and quick pronation
  – Wringing action
Presentation

- Women in her 50s-60s or younger post partum / lactating women
- Pain over radial aspect of the wrist radiating to thumb or lateral forearm
- Weeks to months duration
- Weak pinch and thumb grip
Examination

- Radial sided localised swelling
- Pseudotriggering of the thumb
- Provocative tests:
  - Finkelstein’s (1930)
  - Eichhoff (1927)
Alexander et al. developed an EPB entrapment test
• 81% sensitivity, 50% specificity in identifying wrists with a separate EPB compartment
• 18/22 patients with 2 compartments tested positive
• Concluded that patients who failed non surgical management with a positive EPB entrapment test, correlates with a septum within the 1st compartment.

A: Resisted thumb MCPJ extension
B: Resisted thumb palmar abduction

Positive when A > B
Differentials for radial sided wrist pain

- Fractures
  - scaphoid, radial styloid
- Osteoarthritis
  - 1st CMCJ
  - STT
- Intersection Syndrome
- FCR tendinitis
- Wartenberg’s Syndrome
Management

• Conservative
  – Lifestyle modification
  – Splinting
  – H&L
  – NSAIDs

• Surgical decompression / release
There was no statistical difference when looking at pain, grip strength, disability or treatment satisfaction.
Corticosteroid injection alone was the best conservative option for the management of De Quervains.
• 9/10 patients injected reported complete relief with no recurrence within 1-6 days from injection
• 8/9 patients splinted found that symptoms resolved spontaneously within 2 – 6 weeks after cessation of breast feeding

Table 1. Distribution of Wrist to Therapy Groups

<table>
<thead>
<tr>
<th>Onset of Symptoms</th>
<th>Pregnancy</th>
<th>Lactation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cortisone injection</td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Splint</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>14</td>
<td>19</td>
</tr>
</tbody>
</table>
Complications of H&L

- Infection
- Hypopigmentation (5-10%)
- Fat necrosis
- Tendon rupture
- SRN injury
- Recurrence of symptoms
• **TRANSVERSE**
  - limited exposure
  - risk of nerve injury

• **LONGITUDINAL**
  - increased risk of scarring to cutaneous nerves
  - Larger scar

✓ **Important points:**
  - Identify a separate compartment for EPB
  - Do no excise entire tendon sheath for may result in volar subluxation post operatively
Complications

- Incomplete release (presence of extensor sub-compartment)
- Superficial radial nerve injury
- Tendon subluxation
- Tendon adherence from scarring
TRIGGER FINGER
Epidemiology

• Most common finger ailment
  – 2.2% in the general population > 30 years old
  – 10% in insulin dependent diabetes

• More common in the female population (2-6x)
  – 50 to 60 years old

• Higher prevalence in patients with:
  – Diabetes Mellitus
  – Rheumatoid Arthritis
  – Protein deposition systemic conditions (amyloidosis)
  – Renal disease

Epidemiology

- Multiple digit involvement is not uncommon

<table>
<thead>
<tr>
<th>Digit</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thumb</td>
<td>198</td>
<td>25.6</td>
</tr>
<tr>
<td>Index</td>
<td>85</td>
<td>11.0</td>
</tr>
<tr>
<td>Middle</td>
<td>266</td>
<td>34.5</td>
</tr>
<tr>
<td>Ring</td>
<td>189</td>
<td>24.5</td>
</tr>
<tr>
<td>Little</td>
<td>34</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Epidemiology of 1st presentation Trigger in NUHS HRM in 2014
Anatomy
Pathophysiology

- Mismatch between flexor tendon size and retinacular pulley
- Chronic repetitive forces causes:
  - Degeneration and thickening of pulley
    - Gross hypertrophy
  - Intra-tendinous swelling

Hueston Hand 1972;4:257–260
Clinical Presentation

• Pain over finger (especially over A1 pulley)
• Swelling
• Triggering with occasional need for passive manipulation
• Nodule felt over the A1 pulley
• Flexion deformity of the PIPJ
Grading

• I:  Tenderness over the A1 pulley
• II:  Demonstrable catching, but with the ability to actively extend the digit
• IIIA:  Demonstrable locking in which passive extension is required
• III B:  Unable to actively flex PIPJ
• IV :  Flexion contracture of the PIP joint
Management

• Conservative
  - Splinting
  - NSAIDs
  - Activity modification
  - Corticosteroids

• Surgical release
Corticosteroids

- Good therapeutic option
  - success rate lower if symptoms >6 mths
- Diminished response noted in patients requiring repeated injections
- Success rates 64 to 84% with single injections
- Complications:
  - Tendon rupture
  - Fat necrosis
  - Hypopigmentation
  - Digital necrosis

Marks, JHS 14(4), July 1989, 722-727
Murphy, J Hand Surg Am. 1995; 20(4):628-31
Overall efficacy was 66%
Statistically significant in the thumb versus the fingers
Reduced efficacy was noted in:
- Presence of nodule
- Increased severity
- Osteoarthritis / Diabetes
Our local data

- Looking at 66 trigger digits in 56 patients
- Average duration of symptoms of 3 months
- 79% had resolution of symptoms in 6 weeks
- Mean resolution for symptoms at 8.8 days
- No complications noted
- No statistical significant difference in the proportion of resolution and duration to resolution for DM patients

<table>
<thead>
<tr>
<th>Severity</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>Grade II</td>
<td>31 (47%)</td>
</tr>
<tr>
<td>Grade IIIA</td>
<td>27 (41%)</td>
</tr>
<tr>
<td>Grade IIIB</td>
<td>8 (12%)</td>
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</table>
RDN is most at risk of injury due to its ulna to radial course.

RDN is subcutaneous averaging 1.19mm deep to the dermis of the thumb MCPJ crease.
• Retrospective analysis of 483 digits in 373 patients over 1 year at SGH
• 82% had a non-surgical first line modality prior
• 1% surgical complication
  – superficial wound dehiscence
  – Extension lag
  – Residual stiffness

• Surgical release can be recommended with minimal morbidity for patients with failed conservative treatment and severe grades of triggering

Lim MH et al. JHSE 2007;32E:457-459
Other complications of release

• Digital nerve injury
• Tendon bowstringing
• A2 pulley injury
• Infection
• Incomplete release
Conclusion

• De Quervain’s and trigger fingers are commonly encountered in our clinical practice
• A clear understanding of anatomy is important to ensure that treatment is delivered effectively while minimising complications
• It is important to discuss with the patient the available treatments options, expectations and outcomes
THANK YOU!