“Carpal Tunnel, De Quervain and Trigger Finger”

Prof Abhilash Jain MSc, PhD, FRCS(Plast)
Associate Professor of Plastic and Hand Surgery
Highgate Private Hospital
University of Oxford and Imperial College NHS Trust London
E: ajainuk@protonmail.com

Academic

- Royal College of Surgeons Surgical Speciality Lead for Plastic and Hand Surgery
- Founded and Lead RSTN
- BSSH and BAPRAS (Chairman) Research Committees

NHS

- Extremity reconstruction
  1. Hand
  2. Lower Limb
- General Plastic Surgery

Elective Hand

Major Limb Trauma
Carpal Tunnel Syndrome (CTS)

- CTS common hand disorder.
- 3 X commoner in women
- Commoner over 55 years of age.
- 40,000 patients/year undergo surgical decompression in the UK

CARPAL TUNNEL SYNDROME
Pathology

- Carpal tunnel syndrome (CTS) - entrapment of median nerve within carpal tunnel.

- Symptoms
  - Numbness
  - Paraesthesias
  - Pain in the median nerve distribution.
  - Weakness
  - Disturbed sleep

Associated conditions

- Wrist fractures/injuries
- Space-occupying lesions (eg ganglions)
- Medical conditions such as diabetes, thyroid disorders, Rheumatoid etc
- Pregnancy (self limiting)
- Vocational eg repetitive motion, vibration etc

Assessment

Clinical
- History
- Sensory disturbance palmar aspect of the first 3 digits and radial one half of the fourth digit
- Motor weakness
- Tinels
- Phalens (60 seconds)
  - “Tap” for Tinels, “Flex” for Phalens

Nerve Conduction Studies
- Gold standard
- With clinical assessment improves accuracy of diagnosis to 85% compared to 40% on clinical assessment alone. (Leffler et al 2000)
- Graded
  - Mild
  - Moderate
  - Severe

Treatment

- Splints/ Hand Therapy
- Steroid injection
- Surgery

De QUERVAIN TENOSYNOVITIS
Pathology

- Entrapment tendinitis of tendons (APL, EPB) in 1st dorsal wrist compartment
- Pain during thumb motion
- Repetitive motion, direct trauma, arthritis, diabetes
- Women>men
- Tender and thickened over radial styloid.

The Finkelstein test

- Flexion of thumb across the palm and then ulnar deviation of the wrist
- Causes sharp pain
- Differentiate from CMCJ OA (grind test)

Investigations

- Clinical exam usually all that is required
- Xray to rule out OA CMCJ
- Ultrasound

Treatment

- Splints- important to incorporate thumb
- Steroid injection
  - Single injection effective in 50% of cases
  - Can be repeated 4-6 weeks later- effective in another 40%
- Surgery – release 1st dorsal compartment

Pathology

- Inflammation and constriction of retinacular sheath
- Irritation of the tendon
- sometimes nodule - impinges on the pulley.
- pain and restricted movement.

TRIGGER FINGER
Cause

- Multifactorial.
- Most common in the sixth decade
- Female > male
- diabetics
- dominant hand

History

- Symptom duration, frequency, and severity
- Which digit(s) affected? Handedness?
- Exacerbated by occupation, repetitive movements, and manual work
- Often idiopathic, but more common in diabetics or arthritis
- Has the digit ever locked in flexion? (Indicates severity).

Examination

- Swelling, arthropathy, or injury
- Examine digits in flexion and extension
- Palpate palms over the metacarpal heads-nodule
- Examine for carpal tunnel syndrome: Trigger digit and carpal tunnel syndrome often occur concurrently.

Treatment- steroids

- Corticosteroid injection into the tendon sheath is usually the first line treatment.
- Up to 57% of cases resolve with one injection, and 86% with two.
- Low complication rate and high patient satisfaction


Treatment- surgery

- Usually indicated if 2 corticosteroid injections 6 weeks apart have failed, or finger irreversibly locked in flexion.
- Day case through a palmar incision under local anaesthetic.
- Cure rates approach 100%.
- Complication rates low
- Surgical intervention is different in cases of rheumatoid arthritis; A1 pulley release is not indicated.
Treatment-splinting

- Splinting for six weeks can decrease inflammation.
- Option for those wishing to avoid injections or surgery.
- 47-70% success in cases of < 6 months duration
- Can cause stiffness

- Tarbhai K et al. J Hand Surg Am 2012;37:243-9
- Ramirez M, Wolf M. J Hand Surg Am 2006;31:115-41

Congenital triggering

- Usually presents in the first year of life.
- Digit locked in flexion or extension.
- Steroid injections have no role in management
- Refer to a hand surgeon

HOW TO INJECT.

Equipment

- Chlorhexidine wipe
- 2 × 1 ml insulin syringes with attached needle or 1 ml syringes with 25 gauge (orange) needles for injection
- 1 ml of 2% lignocaine
- Corticosteroid (betamethasone in aqueous solution 4 mg in 1 ml, or triamcinolone 10 mg in 1 ml).
- Betamethasone is preferred
  1. does not leave a chalky residue in the tissues, which can make subsequent surgery more difficult,
  2. less likely to cause atrophy of the palmar fat pad.

Contraindications

- Adverse reaction to steroid or anesthetic
- Uncontrolled diabetes
- Active local infection
- Compromised skin integrity over the area
- Immunosuppression

Injection Carpal Tunnel
Consent

- Risks of pain
- Failure of treatment
- Recurrence
- Further injection
- Nerve injury
- Infection and tendon rupture are exceptionally rare complications.
- Do not perform the procedure if the skin is obviously infected.

Markings

Complications

- Bleeding
- Infection
- Injury to nerve
- Tendon rupture
- Temporary paraesthesia
- Pain

Injection De Quervain
Markings
• Tendons form lateral border of anatomical snuff box
• Level of radial styloid
• Generally point of maximal tenderness
• Do not inject too superficial
• Do not inject into tendon

Complications
• Bleeding
• Fat atrophy
• Skin hypo/hyper pigmentation
• Infection
  • In diabetics, a transient elevation of the blood glucose
  • Allergic reactions
  • Transient anesthesia in the first web space of the dorsal hand.
  • Tendon weakening and rupture is rare.

Injection Trigger Finger

• A1 pulley arises from palmar aspect of metacarpal head
• Distal palmar skin crease marks this site.

Technique
• Inject local anaesthetic- midline digit in palmar crease
• Advance steroid syringe needle at 45° to the palm, over the tendon.
• Flex/extend finger to confirm needle is not intratendinous. If needle is in tendon, resistance will be too great to infiltrate; therefore withdraw slightly.
• When resistance decreases, infiltrate into flexor tendon sheath.
• Place small plaster over the puncture site.
Post injection - general

- Explain steroid will take at least 48 hours (up to 5 days) to work.
- Encourage movement of hand to distribute steroid.
- Avoid heavy manual work or lifting for 48 hours.
- Review patient in 4-6 weeks.
- If first steroid injection unsuccessful consider referring to hand surgeon.

Thank You

J Henton, A Jain et al., Adult Trigger Finger. BMJ 2012;345:e5743