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Grasping the Importance of our Hands

- Touching
- Grasping
- Holding
- Feeling
- Manipulating
- Caressing
Sports Injuries Wrist & Hand

- TFCC Tears
- Scapholunate Ligament Injuries
- Scaphoid Fractures
- Skier’s Thumb
- Mallet Injuries
- Rugger Jersey finger
- Acute Guyon’s Tunnel Syndrome – cyclists

Arm Pump
TFCC TEARS

• Common, twisting (tennis/spin bowlers/gymnasts)

• Majority settle without ever seeing a hand surgeon

• Treatment depends on traumatic vs degenerative

• Minority require surgery

• Some settle with steroid injections
Scapholunate ligament Injuries

- Ligament that stabilises the scaphoid and lunate

- Rupture results in instability

- Eventually Arthritis (SLAC wrist-scapholunate advanced collapse)
Signs & Symptoms

• Central wrist pain after fall

• Tenderness in scapholunate interface

• (can have) Minimal swelling/bruising

• Post-traumatic ganglion in SLI

• (can have) Normal XRs

• Special Tests:
  – Kirk Watsons
  – MRI
  – Wrist Arthroscopy
Scapholunate ligamentous injuries

- Medicolegal / often missed
- Early → repair
- Late (>6 weeks) → reconstruction
SKIER’S THUMB

• Ulnar Collateral Ligament (UCL) rupture

• Stabilises thumb – key pinch grip

• Hyperextension injury

• Cf Gamekeepers thumb
Treatment

NON – OPERATIVE

– Sprained ligaments, stable

• OPERATIVE
Scaphoid fractures

• “Awkward but important little bone” NICK BARTON 1996

• Does not want to heal
Scaphoid Fractures

- FOOSH
- Tenderness on radial aspect
- Clinical signs can be unimpressive
- Missed scaphoid fractures:
  - Common
  - Medical negligence
  - Don’t get XR’d
  - XRs miss #s
  - SNAC wrist → arthritis
- MRI/CT
The Scaphoid Fracture

- Common
- 70% of all carpal fractures
- Annual incidence 43/100,000
- 11% of all hand fractures

- Low energy
  - Sports (59%)
  - FOOSH (41%)

- Age 25 yr old, Male
  (age/male specific until age 60)
Presentation

• May not present initially!
  – Present to A & E
  – General Orthopaedic Fracture
  – Specialist Hand Surgeon

• Symptoms
  – Pain – can be unimpressive
  – Tenderness – may not have
  – Swelling/bruising – not often
  – Range of Movement – often good
  – Function – can’t load wrist
Scaphoid fracture - diagnosis

- MRI Gold Standard
  - Acute (24 hours)
  - occult
- CT
  - Anatomy/surgical planning
- Bone scan
  - 100 % sensitive but not specific
Treatment
SNAC WRIST
Mallet injuries

• Injury to extensor mechanism at fingertip

• Bony or non-bony

• Most treated with splint/hand therapy

• If unstable/subluxed → surgery
Rugger Jersey Finger-avulsed FDP

- Rugby /American football
- Player grabs shirt
- Forced hyperextension of flexed finger
- Ring finger most commonly affected (75%)
Rugger jersey finger

- Type 1 – FDP retracts to palm – poorest outcome

- Type 2 – retracts to level of first finger joint

- Type 3 – bony fragment, so cannot retract
Rugger jersey finger

- Commonly missed
- XRs can be normal ("soft tissue injury")
- Can require complex 2 stage reconstruction
- Early diagnosis/surgery essential
Guyon’s Canal Syndrome
Acute Guyon’s Tunnel Syndrome - Cyclists

- Numbness little/ring fingers
- Weakness hand
- Clumsiness
- Muscle Wasting

- Prolonged cycling
  - Wrists flexed / ulnar deviated
Arm Pump

- Chronic Exertional Compartment Syndrome (CECS)

- Intermittent forearm pain after exertion

- Swelling of muscles affecting the blood flow (ischaemic pain)
Arm Pump

- Young males
- Motor sports
- Weight lifting
- Rowers
  - Repeated vibration, forceful grip and repeated wrist movements on throttle
Arm Pump management

- **Diagnosis** – MRI, compartment pressures
- **Treatment**
  - Rest/ taping etc
  - Surgical decompression
Tennis

• Wrist injuries common, esp ulnar
• Single traumatic event vs chronic repetitive motions
• Dominant > non dominant
• Pain, clicking, snapping, swelling
• Kinetic chain
Kinetic chain

- Transfer of energy enhanced by stretch shortening cycle of muscle action

  - Involves active stretching of a muscle (muscle elongation) followed by a countermovement resulting in forceful shortening
Tennis Kinetic Chain

- Different parts of body act as a series of chain links to generate power
- Transferred from one link to the next
  - Leg drive
  - Hip rotation
  - Trunk rotation
  - Forearm extension, internal rotation and forearm pronation
  - Hand /wrist flexion
Kinetic chain
USWP Causes

• Bony
  – DRUJ arthritis
  – Ulno-carpal abutment
  – Madelung’s
  – Pisotriquetral arthritis
  – Ulnar styloid #
  – Pathologically long ulna
  – Hamate fractures
  – Pisiform fractures

• Soft Tissue
  – TFCC Tears
  – ECU Tendonitis
  – Snapping ECU
  – ECU subsheath tears
  – Lunotriquetral injury
  – Guyon’s pathology
Ulnar sided wrist pain (USWP)

- ECU tendonitis
- ECU subsheath tears
- TFCC Tears
Ecu subsheath
Ulnar head – procedures & pathology
Single or double backhand
Tennis injuries – why?

• Biomechanics of wrist in tennis
  – Wrist key in kinetic chain
  – Double backhand – ulnar deviated, supination to pronation under load
  – Topspin forehand – rapid alternation between supination and pronation under load
  – Effect of this on ECU – significant stress during rotation being tightly bound to ulnar head

  – ECU pulled at 30 degrees from it’s bony groove to reach base of 5th MC
  – tensioning and angulation of ECU – sudden acute tear of the ECU subsheath or miro tears to ECU → tendinopathy
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Function

• **Movement**
  – flexion / extension & translational movements of forearm
  – Stable rotation of radiocarpal unit about the ulnar axis

• Suspend ulnar carpus from the dorso-ulnar face of radius

• Cushions forces directed through the ulnocarpal axis
Tfcc compression test
MRI

Reliable esp arthrogram
Not a substitute for examination
Golfers USWP

- ECU tendonitis
  - Leading hand (left)
- ECU subsheath tears
- TFCC Tears
- Hook of Hamate fractures
- Hypothenar hammer syndrome
Golfers

- Poor technique
- Swing is complex
- Overuse
- Hitting the ground

- Avoid injuries
  - Core training
  - Warming up/stretches
Golfer’s injuries

Hook of hamate fracture
- Club hits the ground and handle fractures bony hook

Hypothenar Hammer Syndrome
- Damage to ulnar artery
Summary

• Sports injuries common
• Better prognosis with early diagnosis
• Specialist imaging MRI
• Delay results in poorer outcomes
• Get it right first time!
THANK YOU