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Instability of the Thumb

Wessex Hand Course
Chilworth June 2013

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THE HAND CLINIC
HAND • WRIST • ELBOW • NERVE

Summary

- MCP
 - Anatomy
 - Acute
 - Chronic
- CMCJ
 - Anatomy
 - Acute
 - Chronic

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Thumb Anatomy

Extensor pollicis longus tendon
Extensor pollicis brevis tendon
Abductor pollicis longus tendon
Radial artery
Radial sensory nerve
1st dorsal interosseous muscles
Adductor pollicis
Flexor pollicis brevis
Opponens pollicis
Abductor pollicis brevis
Median nerve
Radial artery
Flexor pollicis longus

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Acute Injuries

- Ulnar collateral tear
 - Skier's thumb
- Radial collateral tear
- Volar plate tear

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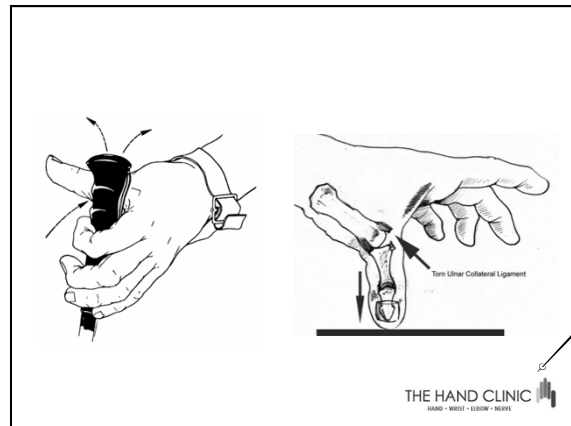
Skier's thumb Anatomy

Rotated avulsion fracture of proximal phalanx base
Intact but lax UCL
Intact radial collateral ligament
Narrow abductor aponeurosis interposed between torn ligament
Distal abductor aponeurosis
Proximal part of torn UCL
Intact radial collateral ligament

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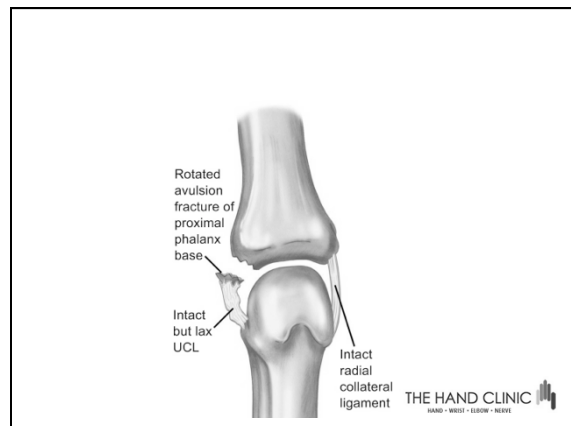
Skier's Thumb

- Fall on the slopes
 - The thumb jams into the ground and arrests the fall
 - Like an Ice pick
- Presentation
 - Painful thumb
 - Tender over ulnar collateral ligament
 - Usually too painful to stress test
- Advice
 - Immediate referral to hand surgeon
 - Best results are surgery within 2 weeks.



Patterns of injury

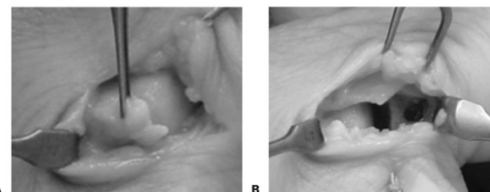
- Avulsion fracture
- Diffuse tear
- Distal avulsion
 - Undisplaced
 - Minimally displaced
 - Stener lesion



Adductor Pollicis



Avulsion UCL Stener



A B



Diagnosis

- History
- Examination
 - LOOK
 - Swelling
 - Bruising
 - FEEL
 - Tenderness
 - MOVE
 - Instability
 - Flex to 30 degrees
 - Lidocaine anaesthesia



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Imaging

- Plain X-ray
- Fluoroscopy
- Ultrasound
- MRI



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Stener reattached with Mitek



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Bone anchor



Rehabilitation

- Do not put in plaster
- Removable splint
- UCL is isometric
 - Early flexion extension
 - Avoid intrinsic tightness
- Protection in splint
 - 6 weeks constant
 - 6 weeks at risk



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Complications

- CRPS
 - Beware small dorsal nerve
- Infection
- Stiffness

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Acute Injuries

- Ulnar collateral tear
 - Skier's thumb
- Radial collateral tear
- Volar plate tear



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Radial Collateral ligament

- Assessment
- Bone avulsion (rare)
 - POP if undisplaced
 - Fix if displaced
- Sprain
 - Analgesia
 - Splint 6 weeks until settled
- Unstable tear
 - ? Splint 6 weeks
 - ? Repair

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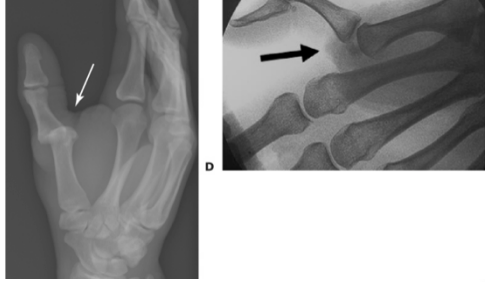
Acute Injuries

- Ulnar collateral tear
 - Skier's thumb
- Radial collateral tear
- Volar plate tear



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Unstable MCP volar plate



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Volar plate

- History
 - Forced hyperextension
 - May feel snap
- Assessment
 - Examine
 - Xray

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Chronic instability- UCL


- Ulnar collateral ligament
- Cause
 - Missed acute trauma
 - Gamekeeper's thumb



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Treatment Chronic UCL instability

- Fusion
 - Rigid plate
 - Early mobilisation
 - Reliable stability and pain relief
 - Minimal loss of function
- Reconstruction
 - Tendon graft
 - Drill holes
 - Interference screw

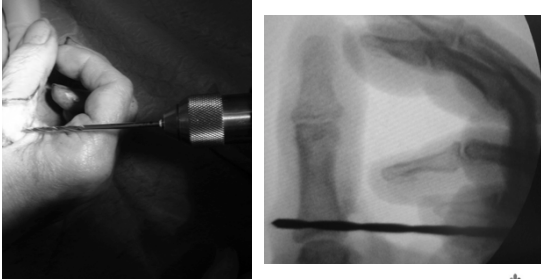


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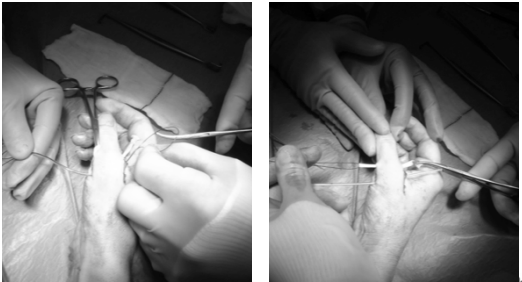
Drill holes



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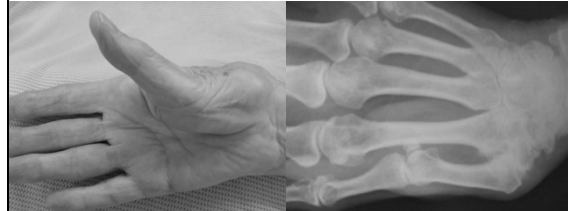
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Chronic MCPJ Volar plate instability

- Causes
 - Generalised laxity
 - Past trauma
 - Rheumatoid
 - Nailbuff
 - Adducted thumb CMCJ (OA)

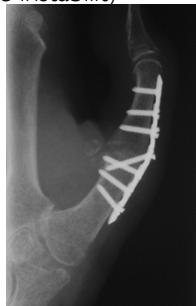


MCP hyperextension
CMC adduction from OA

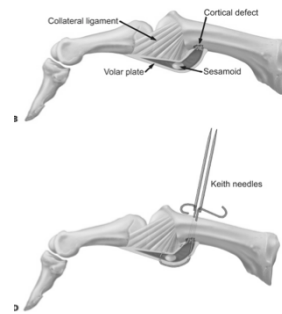


Treatment
Chronic volar plate instability

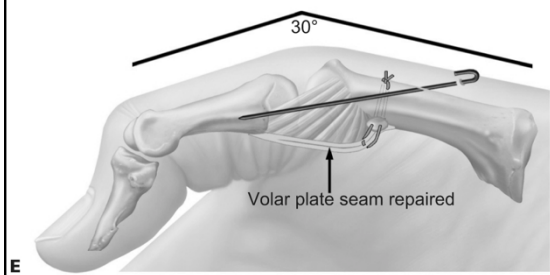
- Fusion
 - Rigid plate
 - Early mobilisation
 - Reliable stability and pain relief
 - Minimal loss of function
- Reconstruction
 - Sesamoid arthrodesis
 - Bone suture
 - K wire 5 weeks
 - Dorsal blocking splint 8 weeks
 - Interference screws



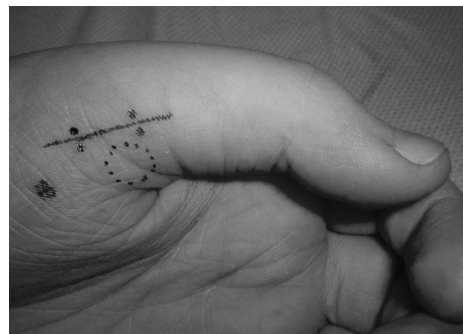
Sesamoid Arthrodesis

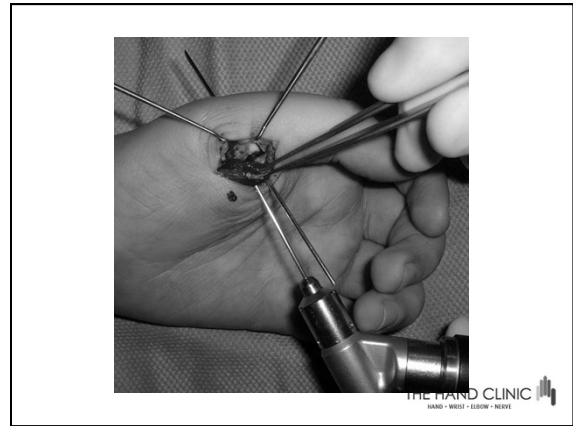
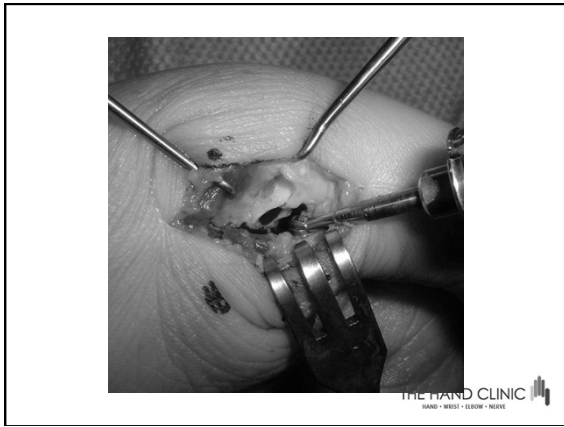


Sesamoid arthrodesis



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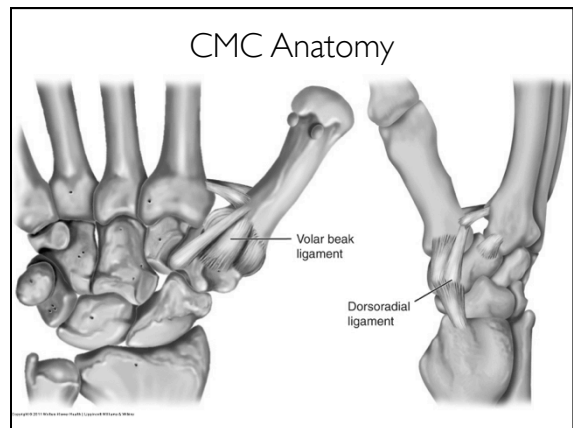




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Trapezium-metacarpal joint

- Saddle shaped joint
- Very mobile
 - Therefore potentially unstable
 - Relies on ligaments
- Large moment arm

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Acute CMC dislocation

- History
 - Fall on outstretched thumb
 - Painful
- Examination
 - Bruising
 - Swelling
 - Tenderness
 - Lidocaine stress
 - Often missed
- Investigation
 - Plain xray
- Management
 - Reduce
 - Hold in place
 - POP 6 weeks
 - Kwire

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X-Ray- fracture (Bennet's)



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Causes CMC instability

- Constitutional
 - Generalised laxity
 - May predispose to early OA in females
- Previous Trauma
 - Treated well
 - Or missed.....

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Assessment Chronic CMC instability

- History
 - Generalised laxity
 - Trauma
 - Rheumatoid
- Examination
 - Stress joint

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Investigation

- X-Rays
 - Plain
 - Unstable
 - Secondary OA
 - Stress
 - Lidocaine
- MRI Scan



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Treatment Chronic CMC instability

- Hand Therapy
 - Splint
 - Proprioception
- Surgery
 - Osteotomy
 - Fusion
 - Ligament reconstruction

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Osteotomy Mild instability with pain


- Mechanical re-alignment
 - Offsets volar forces
- Options
 - Wires
 - Plate
- Good Outcomes
 - Wilson and Basley 1983; JBS(Br): 65B: 479-81
 - Hobby Lyall Meggatt 1998 JHS (Br): 80: 508-512
 - Molitor et al 1999 JBS(Br): 16: 424-7
 - Pellegrini 1993
- 80% good to excellent



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Fusion

- Technically difficult
 - Complication rate
 - Pain
 - Non-union
 - metalwork
 - Position of function vs loss of opposition
- Only option
 - Ehlers Danlos
 - Failed soft tissue surgery

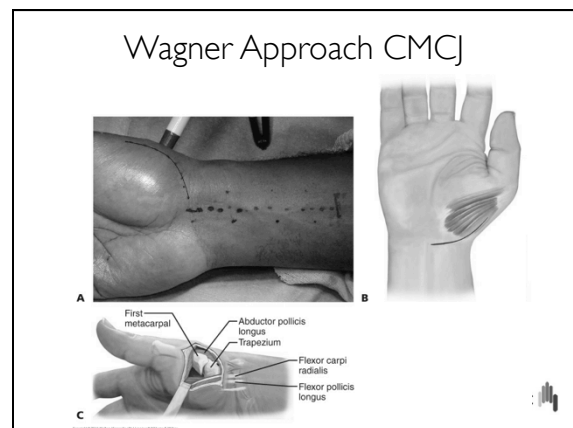
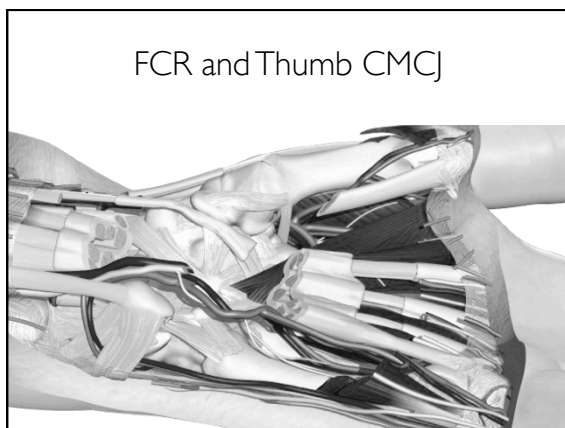


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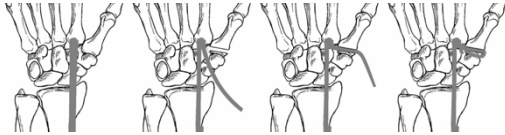
Ligament Reconstruction

- Various tendons
 - FCR (Littler & Eaton)
 - APL (Brunelli)
 - ECRL
 - PL

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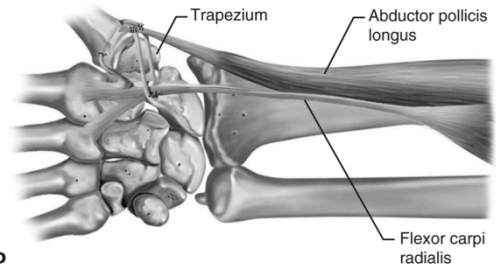
Stabilisation (FCR)



Eaton & Littler. JBJS 1973, 55A, 1655.



Eaton Littler CMC reconstruction



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