# OUTCOME FOLLOWING ACUTE SUTURE ANCHOR REPAIR OF THE ULNAR COLLATERAL LIGAMENT OF THE THUMB

William M. Oliver, Zach J. Place, Katrina R. Bell, Samuel G. Molyneux, Andrew D. Duckworth
***Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, UK***

## Background

- Acute injuries to the thumb UCL are common (50 per 100,000 ED attendances)[1]
- Non-operative management of complete thumb UCL tears yields inconsistent results, with a high rate of failure necessitating operative repair[2]
- Limited data exists regarding the longer-term outcomes of acute suture anchor repair in unselected active adult patients

## Aim

*To evaluate complications & patient-reported outcomes (PROs) following acute repair of the ulnar collateral ligament of the thumb metacarpophalangeal joint (thumb UCL) using a suture anchor technique*

## Patients & Methods

*Inclusion criteria*
- Adult patients (age >16yrs)
- Isolated, complete thumb UCL rupture
- Suture anchor repair within 6wks of injury

*Study cohort (n=40)*
- Mean age 37yrs (range 16 to 70)
- 68% (n=27/40) male
- 58% (n=23/40) sustained during sport
- 58% (n=23/40) associated avulsion fracture

*Surgical details*
- Mean injury-surgery interval 17 days (range 1 to 42)
- Repair performed using a 1.8mm non-absorbable suture anchor (Depuy Mitek Inc, Raynham, MA)

*Postoperative management*
- Patients immobilised for 6wks following surgery
- 90% (n=36/40) referred for specialist hand physiotherapy (4 patients opted against this)
- All patients were advised to avoid heavy lifting, impact activities and contact sports for 3 months postoperatively

*Outcome assessment*
- Complications determined from outpatient records
- PROs obtained via telephone survey
  - Abbreviated Disabilities of the Arm, Shoulder and Hand score (QuickDASH)
  - EuroQol Five-Dimension Three-Level Health Outcome score (EQ-5D) and Visual Analogue Scale (EQ-VAS)
  - Pain level (none, mild, moderate, severe)
  - Stiffness (0=no stiffness, 10=severe stiffness)
  - Return to work & sport
  - Satisfaction (0=very dissatisfied, 10=very satisfied)

**Figure**: Anteroposterior & lateral radiographs demonstrating a left thumb UCL injury, with associated avulsion fracture at the volar-ulnar aspect of the proximal phalanx (top); same patient following suture anchor repair (bottom) – note the avulsion fragment has been incorporated into the repair

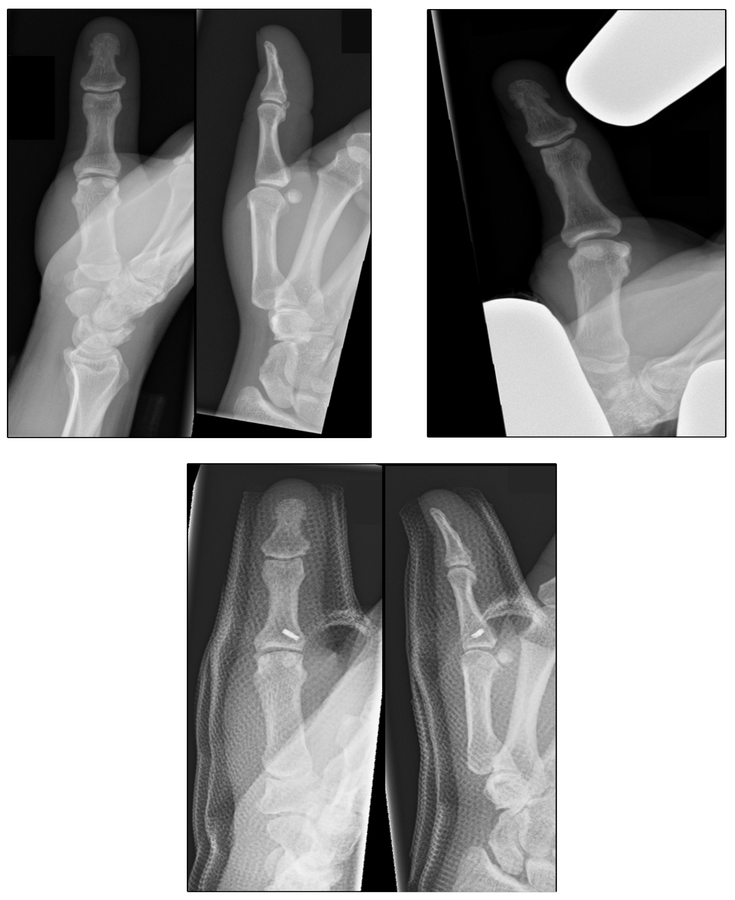

**Figure**: Anteroposterior & lateral radiographs demonstrating a right thumb UCL injury (top left), with a further anteroposterior radiograph taken during valgus stress, confirming thumb metacarpophalangeal joint instability (top right); same patient following suture anchor repair (bottom)

## Results: Complications *(n=40)*

| | |
|---|---|
| **Sensory disturbance** | **7.5%** |
| **Superficial infection** | **5%** |
| **Wound dehiscence** | **2.5%** |
| **Failure of UCL repair** | **0%** |

- Sensory disturbance consisted of reduced sensation or paraesthesia on the ulnar border of the thumb – this resolved in all cases
- Superficial infections resolved with oral antibiotics
- No failures of repair occurred

## Results: PROs *(n=33, mean 4.3yrs)*

| | |
|---|---|
| **QuickDASH** | |
| Mean ± SD | 3.7 ± 6.0 |
| (Range) | (0-27.3) |
| **EQ-5D** | |
| Mean ± SD | 0.821 ± 0.276 |
| (Range) | (-0.041-1) |
| **EQ-VAS (0-100)** | |
| Mean ± SD | 84 ± 10 |
| (Range) | (60-100) |
| **Thumb pain** | |
| None | 67% |
| Mild | 27% |
| Moderate | 6% |
| **Pain score (0-100)** | |
| Mean ± SD | 88 ± 17 |
| (Range) | (40-100) |
| **Thumb stiffness** | |
| No | 70% |
| Yes | 30% |
| **Stiffness severity (0-10)** | |
| Mean ± SD | 1.3 ± 1.9 |
| (Range) | (0-6) |
| **Satisfaction (0-10)** | |
| Mean ± SD | 9.8 ± 0.6 |
| (Range) | (8-10) |

- No additional surgical procedures were reported
- No relationship between time to surgery & QuickDASH (p= 0.310)
- Residual thumb pain common, but rated as mild by 27% (n=9/33) & moderate by 6% (n=2/33)
- Stiffness generally mild & non-limiting (mean stiffness severity 1.3/10, range 0 to 6)
- All patients satisfied with the outcome of their UCL repair (mean satisfaction score 9.8/10, range 8-10)
- All patients in employment prior to their injury (100%, n=32/32) returned to work at a median of 0.5wks (range 0-416)
- 96% (n=23/24) returned to sport at a median of 16wks (range 5-52)

## Conclusions

- *Acute thumb UCL repair using a suture anchor was associated with a low complication rate & no failures over 4yrs postoperatively*
- *The suture anchor technique appears to be effective up to 6wk post-injury*
- *Patient-reported upper limb function & health-related quality of life were excellent, and all patients were satisfied with their outcome*
- *Pain & stiffness were commonly reported but were generally mild & non-limiting*
- *All patients returned to work & the vast majority to sport*

**Bibliography**
1. Jones MH, England SJ, Muwanga CL, Hildreth T. The use of ultrasound in the diagnosis of injuries of the ulnar collateral ligament of the thumb. J Hand Surg Br. 2000;25(1):29–32.
2. Samora JB, Harris JD, Griesser MJ, Ruff ME, Awan HM. Outcomes after injury to the thumb ulnar collateral ligament--a systematic review. Clin J Sport Med. 2013;23(4):247–54.

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