

Ulnar Collateral Ligament Injuries of the thumb - An overview of the injury and treatment.

Anna L. Pratt¹ & Nikki Burr²,

¹ School of Health Sciences and Social Care, Brunel University, UK ² Royal Free Hospital NHS Trust, London, UK

Background

- The thumb is extremely important in daily functional activities and is used in all functional grips with the exception of the hook grip.
- The ulnar collateral ligament (UCL) is a major stabiliser for the ulnar side of the thumb and injury can cause long term functional instability (Azad et al. 2001).
- Injury often results from sport or falls when a forced radial deviation of the thumb occurs (skiers thumb) (Bostock and Morris 1993, Kahler and McCue 1992) or prolonged repetitive damage (gamekeepers thumb) (Kozin and Bishop 1994, Roh et al. 1994).
- Diagnosis of a rupture can be difficult (Boscheinin-Morrin and Conolly, 2001).

Assessment

Literature discusses the difficulty of accurately assessing and diagnosing UCL injuries due to the normal varying degrees of laxity at this joint in extension and flexion. No absolute consensus of opinion was found on the best method of assessment but some pointers are discussed regularly.

- Complete rupture may be less painful than incomplete ruptures (Boscheinin-Morrin and Conolly, 2001).
- Oedema, bruising and tenderness can make an accurate diagnosis difficult (Glickel et al. 1999) and a local anaesthetic may assist diagnosis.
- Range of motion (ROM) of the contra-lateral thumb should be compared to the injured to determine individual normal movement (Azad et al. 2001, Bostock & Morris 1993, Kahler and McCue 1992, Roh et al.1994).
- The metacarpophalangeal (MCP) joint should be tested for stability in both flexion and extension. Instability in extension and flexion indicates rupture of the accessory and UCL proper (Fricker and Hintermann, 1995)

Splintage

There is a lack of detail regarding the splints used for rehabilitation of these injuries but most clinicians would utilise a thumb spica design. This immobilises the MCP joint whilst allowing inter-phalangeal (IP) joint flexion.

- When fabricating splints to protect the ligament therapists must be aware of the patient's normal ROM.
- During splint fabrication opposition to the middle finger, for example, may position the MCP joint in an unwanted abducted position (figure 2a).
- Therefore care should be taken to avoid abduction whilst trying to maintain a small degree of flexion of the MCP joint (figure 2b).

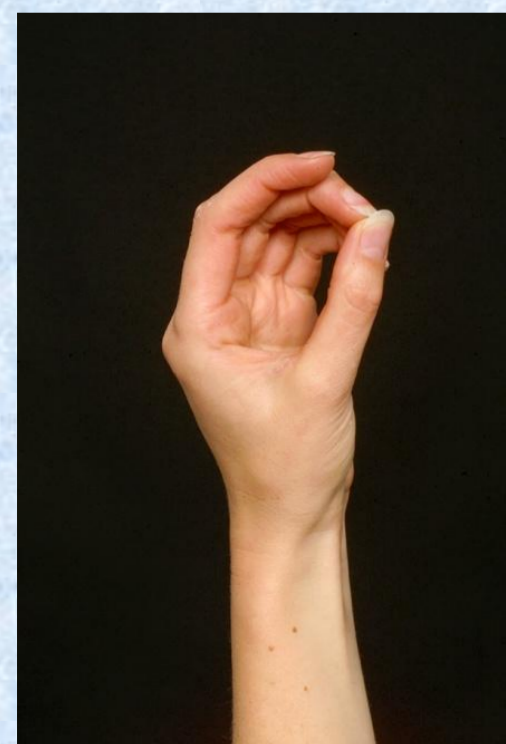


Figure 2a MCP joint with the thumb opposed to the middle finger

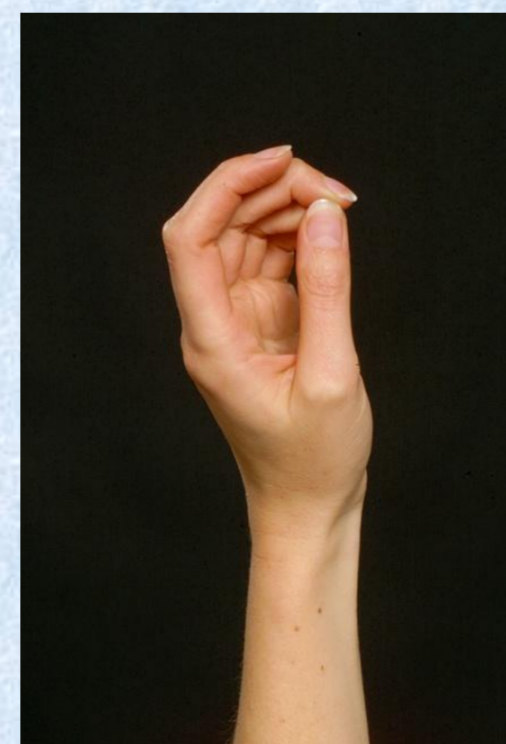


Figure 2b MCP joint flexed ensuring no abduction

Anatomy

The UCL bridges the ulnar aspect of the first metacarpal and the proximal phalanx. It originates from the metacarpal head and inserts into the lateral tubercle of the proximal phalanx (see figure 1).

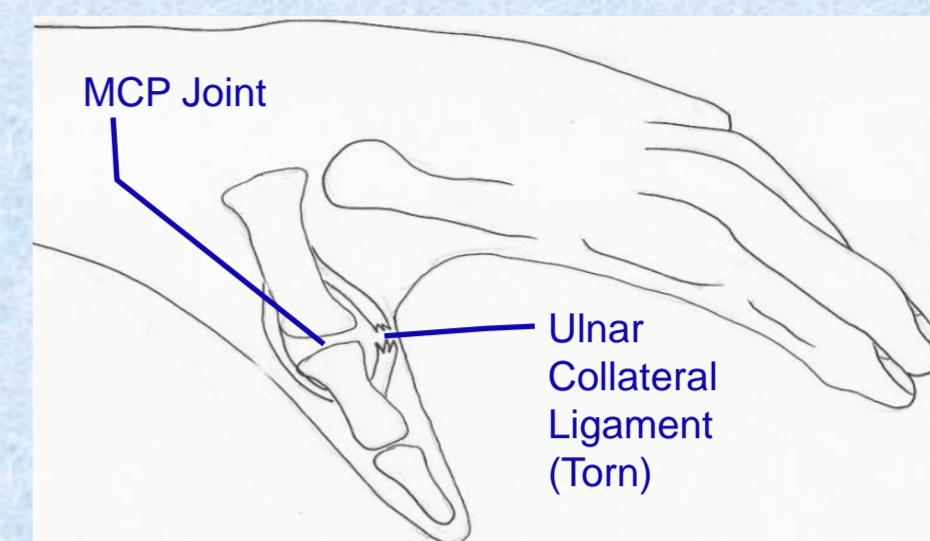


Figure 1 Anatomy of the UCL

Treatment

- Complete tears and Steiner lesions of the UCL should be treated with surgical repair (Azad et al. 2001, Firoozbakhsh et al. 2002)
- Partial tears of the UCL are successfully managed conservatively with splints (Kahler and McCue, 1992).
- Immobilisation of the MCP joint is the treatment of choice for both conservative and surgical management.
- There is little literature on the ideal MCP joint immobilisation position or duration.
- General consensus within clinical practice and texts is that the MCP joint should be immobilised in slight flexion for at least 4 weeks although outcomes after this rehabilitation are rarely reported..

Table 1 Joint position and immobilisation period for UCL injury treatment

Author/s	Degree of MCP joint	Immobilisation period of joint (weeks)	Management	Mean outcome
Azad et al. (2001)	Not specified	4	Surgical and conservative	Not specified
Downey et al. (1995)	Not specified	4 + 2 protection	Surgical	22.8° less than contra lateral (42 months)
Fricker and Hintermann (1995)	Slight flexion and ulnar deviation	3 to 4 wks protection until 6 weeks	Conservative	Not specified
Glickel et al. (1999)	Normal alignment and slight flexion	4 + 2 weeks protection	Conservative	Not specified
Kahler and McCue (1992)	20° flexion	3 to 4 + protection until week 5 or 6	Surgical and conservative	Not specified
Perko (1998)	20° flexion	4 + 2 weeks protection	Surgical and conservative	Not specified
Roh et al. (1994)	Not specified	4	Conservative	Not specified
Sollerman et al. (1991)	Prevention of deviation	5-8	Surgical and conservative	ROM °54 (15 months)

Summary

- From available literature the authors can confirm that the period of MCP joint immobilisation should be at least 4 weeks. Many clinicians assess functional stability and joint pain at 4 weeks and then protect the ligament for a further two weeks before increasing function.
- Stability at the thumb MCP joint is more important than mobility for many patients so a period of extra immobilisation until the ligament is more stable may be wise.
- If a UCL injury remains untreated, weakness of tip and key grip will be noted due to the resistance of the thumb to force abduction (Roh et al. 1994).
- Reduced grip is a reported complication after this injury and may lead to joint fusion at a later date (Bostock and Morris, 1993).

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