Stiffness and pain of the thumb after sprain of the ulnar collateral ligament of the metacarpophalangeal (UCL)

Proposition of a rehabilitation protocol
Results on 15 cases.

Claude Le Lardic
PT - Orthosist

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Annual incidence of UCL injuries is approximately 50 in 100,000 individuals*

50% of UCL tears are due to sport activities

UCL was damaged in 86% of cases (1000 case studies)**

Gamekeeper’s thumb versus Skier’s thumb?


Most of the time, after UCL of MP thumb injuries, the recovery of hand function is easy with a self-mobilization education.

But sometimes (often? Few studies in literature) the results are left unsatisfied.

Patients keep painful thumb and deficient function longtime after injury.
INTRODUCTION

Biomechanic evocation

Rehabilitation protocol

Patient describes pains and inability to bend his thumb. In the case of the sprain of the UCL, sample global approach of the motion of the thumb is inadequate for this particular trauma.
The therapist have to do a precise testing of the extensor tendon gliding for diagnosing the blockage due to the fibrous healing of the UCL with the adductor aponeurosis.
MP thumb sprain: proposition of a rehabilitation protocol

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The understanding of the physiology of the metacarpo-phalangeal of the thumb and particularly the interlink between: the ulnar ligament, the adductor pollicis aponeurosis and the extensor pollicis longus, has permitted to improve the rehabilitation after UCL injury.
The adherence of the adductor aponeurosis blocks the gliding of the extensor pollicis longus tendon.

**Biomechanic’s evocation**: UCL of the thumb’s MCP is recovered by the interosseous fibers of the Adductor Pollicis which are inserted on the extensor longus.

The injury of the UCL is associated with a distress of the tendinous system and often with a hematoma.

The healing creates a fibrosis of all these structures responsible of the stiffness.
The aim of the protocol of rehabilitation is to recreate the selective active motion of the Extensor Pollicis Longus.

After a sprain of the UCL, with or without operated, the thumb is immobilized with a thermoplastic splint during 4 - 6 weeks (large consensus) *

* Efficacy of a radial-based thumb metacarpophalangeal-stabilizing orthosis for protecting the thumb metacarpophalangeal joint ulnar collateral ligament
The thumb orthosis must permit the early active mobilization of the extensor tendon. The wrist and the Interphalangeal must be self mobilized few times a day to keep the gliding of the extensor tendon during the healing.

Orthosis D1 to D14, anti-inflammatory action

Alpine Orthosis D15 to D30, only MP Protection
After immobilization time, the aim of the rehabilitation is to restore the active motion of the extensor pollicis longus and to obtain a selective active gliding of the interosseous fibers.

The active motion are teaching patient, the exercises are done several times per day.
All the patients have consulted for pain and stiffness of thumb few weeks after taken off the immobilization.

In our series:

15 patients: 6 Females 40%  9 Males 60%

• Age: 13 to 54 years.  Average: 37.53
• Post operative immobilization time: 3 to 6 weeks  Average: 3.5 weeks
• Time to care in rehabilitation: 4 to 108 weeks  Average: 18 weeks
• Number of rehabilitation sessions: 0 to 60  Average: 15
  (0 = self mobilization)
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Evaluation tools: PAIN VAS, PRTE, KAPANDJI

Pain VAS: 2 to 7 average: 3
(Pain released by motion)

Patient Rated Thumb Evaluation: 30 – 47. average 38,5 / 100

Kapandji thumb opposition score: 6 to 8 average 7
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PAIN VAS : 0

PRTE : 24,5 /100

Kapandji : Average 9
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**Biomechanic evocation**

**Rehabilitation protocol**

**15 case studies**

**DISCUSSION**

**Conclusion**

- In our series

   - 46 % of patients has been treated only with thermoplastic splint (7/15)
   - 54 % of patients has been operated and protected with orthosis 58/15)

- No correlation between the acute of the UCL tear and the deficient

- No correlation between operative and no operative people
Most of time the self mobilization has been sufficient to recover function.

We have taken time to explain to patient the biomechanical problem, and taught the protocol of rehabilitation.

The recovery time was shorter with patient who have been seen earlier.
The weakness of our case study is the poor number of patients, because the prevalence of this complication is low.

We have not done goniometric assessment.

We haven’t possibility to do a real study with 2 different groups of patients, one group with “classical” rehabilitation and the other with our rehabilitation protocol.
The good analysis of the injury allows to apply this specific protocol for painful after-effects. The recovery time is long, it’s depended of the fibrosis reaction.

This rehabilitation protocol is easy to apply and to teach
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Thank for your attention

No conflict of interest to declare
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• Bibliography