Thumb Ulnar Collateral Ligament Repair and Rehabilitation

Surgical Indications and Considerations

Anatomical considerations: The ulnar collateral ligament (UCL) attaches to the transverse carpal ligament proximally and to the palmar-ulnar base of the thumb distally. It is a stabilizer of the thumb on the ulnar side, along with the adductor aponeurosis, the adductor pollicis muscle, and the volar plate, to radially applied forces. With a complete rupture of the UCL the adductor aponeurosis can come to lie between the UCL and its distal attachment resulting in a "Stener lesion". This type of lesion may prevent healing and lead to chronic instability of the thumb metacarpophalangeal (MCP) joint. Most ligamentous stress testing for the UCL are performed at 30° of MCP joint flexion, with a valgus stress, because this isolates the UCL.

Pathogenesis: When a valgus stress on the UCL of the MCP joint exceeds the amount of what the tissue can bear, you get a partial or complete rupture of that ligament, with or without boney avulsion. This commonly occurs in skiers during a fall when the handle of the pole applies a valgus force to the thumb.

Epidemiology: It is estimated that 40% of all skiing injuries to the thumb involve the UCL. Injuries to the ulnar aspect of the thumb MCP joint are 10 times more likely than radial aspect injuries. UCL injuries not associated with sports injury can be attributed to chronic stress to the MCP joint from repetitive trauma, often associated with occupational stresses.

Diagnosis:

- Most patients describe an injury from falling with some hyperabduction to the thumb
- Palpable tenderness or lump at the ulnar aspect of the MCP joint of the thumb.
- Laxity in excess of 35° and/or 15° greater than the contra lateral thumb on valgus stress testing
- Radiographs and MRI to determine extent of the injury and presence of a Stener lesion.

Nonoperative versus Operative Management: Most authors recommend surgical repair, especially with a complete tear of the UCL. It is estimated that 80% of complete UCL ruptures are identified as Stener lesions. With surgery there is more consistency with outcomes in relation to instability. The complications with surgical management include any risks associated with surgery, especially infection, and re-rupture. For some complete and non-complete tears, nonoperative management includes functional bracing for 4-12 weeks with daily active range of motion (ROM) exercises. Problems with nonoperative management include chronic instability of the joint.

Surgical procedure: Surgical repairs vary greatly between physicians. Most procedures can be divided into two general categories. The first are dynamic procedures in which stability is restored by tendon transfer or adductor tendon advancement. The second are static procedures in which the ligament is reconstructed using a tendon graft fixed to the thumb metacarpal neck and

proximal phalangeal base. When ROM exercises can be initiated depends on the type of procedure.

Preoperative Rehabilitation

- Functional bracing to prevent further injury
- Control pain and edema
- Patient education of surgical procedure and post-operative rehabilitation

POSTOPERATIVE REHABILITATION

Note: These are general rehab guidelines as described by Brotzman and Wilk. With some dynamic repair procedures, a therapist can initiate ROM exercises sooner after surgery.

Phase I: 0-6 weeks following repair

Goals: Protect repair

Intervention: Wear thumb spica splint continually

Phase II: 6-8 weeks following repair

Goals: Continue to protect the repair
Control pain and edema
Minimize deconditioning

Intervention:

- Begin gentle AROM and PROM exercises three times a day
- Avoid any lateral stress to the thumb
- Begin dynamic splinting to increase ROM
- Use of modalities if needed for pain control

Phase III: 8-12 weeks following repair

Goals: Full ROM
Limit scar formation
Strengthen hand and wrist muscles

Intervention:

- Wear splint only during sports related activities and heavy lifting
- Progress strengthening exercises

Phase IV: 12 weeks and on

Goals: Return to unrestricted activity

Decision of when to allow patients to return to sports are dependent on estimated healing of the repair, pain, swelling, strength, and the ability to perform the specific requirements of their sport

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