REDUCTION TECHNIQUE FOR REPAIR OF THE THUMB ULNAR COLLATERAL LIGAMENT

Using a Mitek Sports Medicine MINILOK® Absorbable Anchor

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OVERVIEW

The treatment of thumb Ulnar Collateral Ligament (UCL) ruptures with tunnels and external button fixation is still widely referenced as the standard of care for thumb UCL repair. MINILOK Absorbable Anchors were developed for hand surgery applications and offer some benefits over tunneling techniques:

- Ease of use
- Reduced risk of infection with the elimination of the external button
- No additional procedure is required to remove button and sutures
- Eliminated risk of skin necrosis and sensitivity at external button site

Many surgeons however, continue to utilize a bone-tunneling technique because it enables them to pull the avulsed ligament into the desired bone site. The following technique describes a method, which allows the surgeon to reduce the ligament into the bone site utilizing a Mitek Sports Medicine MINILOK Absorbable Anchor.

Clinical Summary

We have utilized this technique described with great success for many years for the repair of grade III ruptures of the thumb ulnar collateral ligament. This procedure has been performed on a variety of patients including high school, college and professional athletes as well as the weekend warrior to achieve return to full activity and sports.

Incision & Dissection

A curvilinear incision is made centered over the ulnar aspect of the thumb MP joint (Figure 1). Subcutaneous tissue is bluntly and sharply dissected, and care is taken to make certain that the dorsal branch cutaneous nerve is identified and preserved. The incision is carried down to the adductor aponeurosis, which is sharply divided near its insertion along the extensor pollicis longus. The adductor aponeurosis is then gently dissected in a palmar direction to expose the ulnar collateral ligament. With a Stener lesion, the ligament may be found proximal to the adductor aponeurosis.

Ligament Tear Identification

The area of rupture of the ulnar collateral ligament is identified (Figure 2). Any fibrinous material or hemorrhagic tissue is gently excised. Inspection is done of MP joint to make certain there is no evidence of articular cartilage damage. Inspection is also done of the dorsal capsule to make certain that there is not evidence of an associated tear or rent.
Site Preparation
A small bony trough can be created using a 1mm burr over the planned area of insertion of the ulnar collateral ligament. Care should be taken not to make the trough too deep so that a cortical mantle of bone can be maintained for the oblique pilot hole. The 2.0mm drill bit, provided in the MINILOK Absorbable Anchor package, is then used to create a pilot hole (Figure 3). This is done in the oblique direction going from proximal to distal direction.

Anchor Delivery & Setting
The anchor is manually inserted (Figure 4b) and suture and needles are released from the inserter. The anchor is engaged in bone by applying gradual tension to the suture limbs to set the anchor (Figure 4a). A small click is often palpable which confirms good seating of the anchor.

Suturing Technique
Starting at the ruptured free end of the ligament, one arm of the suture is sewn (in a baseball stitch type pattern) through the dorsal aspect, then, in a continuous fashion, through the more volar aspect of the ligament ending back at the avulsed end. This creates a construct that has both volar and dorsal arms of suture capturing the ligament. The other limb of suture is left free directly from the anchor. ORTHOCORD® High Strength Orthopedic Suture, pre-loaded on the anchor, provides for superior strength and durability that will minimize suture breakage secondary to the suture being nicked by the needle.

Tear Reduction
To reduce the torn end of the UCL into the bone trough, the reduction technique is employed. When the free limb is pulled, the suture running through the anchor eyelet acts as pulley and reduces the torn end of the ligament into the shallow bone trough (Figures 5, 6a and 6b). With the thumb in an ulnar deviated position, the suture is tied allowing for a secure repair. Additional absorbable sutures may be used to reinforce the repair.
Closure and Casting
The adductor aponeurosis is then re-approximated with 3-0 absorbable sutures with the thumb in a slightly ulnar deviated position. Once good hemostasis is noted, running or interrupted 4-0 nylon suture can be used to close the skin. A thumb spica cast is then applied (Figure 7).

Post-Operative Care
The first cast is kept on for 2 weeks. This cast is removed, the skin sutures are removed and the patient is then placed into a second thumb spica cast, which is worn until the patient is 1 month out from surgery. At that time the thumb spica cast is removed and a removable thumb spica splint can be used and a therapy program is initiated.