Surgical Technique:
Scapholunate Surgical Technique Using the DePuy Mitek 2.0mm TACIT Threaded Anchor

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Scapholunate Surgical Technique

Using the Deup Mitek 2.0mm TACIT® Threaded Anchor

Complete tears of the scapholunate interosseous ligament (SLIL) can lead to instability of the carpus. This injury most commonly occurs by longitudinal force on the outstretched hand. Patients present in the office with pain, swelling and occasional clicking within the wrist. On physical examination, there is usually a swelling over the dorsum of the wrist. Palpation of the wrist reveals pain that is centered over the scapholunate interval, which is distal and slightly ulnar to Lister’s tubercle. If these symptoms persist, then an evaluation is warranted. Plain x-rays and wrist motion studies may either be normal or show a dorsal intercalated segment instability pattern. Another finding on the x-ray may be an abnormal gap between the scaphoid and lunate. Triple compartment arthrograms in many cases may confirm the clinician’s suspicion that there is a tear of the SLIL. Diagnostic arthroscopy of the radial carpal joint can confirm a tear of the SLIL. This tear typically is seen as a detachment of the ligament from its insertion into the scaphoid. Arthroscopic assessment should also confirm that the ligament can be repaired. Midcarpal arthroscopy can assess the degree of instability between the scaphoid and lunate. Surgical repair is indicated when clinical symptoms persist in spite of immobilization and activity modification, and workup of this problem reveals a repairable tear of the scapholunate ligament. Other causes of wrist pain should be ruled out.

One method of surgical repair of this lesion is to suture the SLIL back to the bone by means of drill holes placed through the scaphoid, as well as doing a dorsal capsulodesis to the scaphoid by using pull-out wires. These surgical procedures have been described by Blatt’ and Lavrenia et al. This operation can be facilitated by the use of the Deup Mitek 2.0mm TACIT Threaded Anchors.

Surgical Procedure

A 6-8cm longitudinal incision is made over the dorsal aspect of the wrist. This incision is centered over the Lister’s tubercle (Figure 1). The subcutaneous veins are coagulated. The extensor retinaculum is then identified and the third dorsal compartment is located. An incision is made through the extensor retinaculum and is then reflected radially and ulnarward. The extensor tendons are then retracted, exposing the dorsal capsule of the wrist. The wrist is then flexed and the scaphoid, lunate and scapholunate interval can be palpated. Two longitudinal incisions are made in the
dorsal capsule approximately 1 cm apart, centered over the central portion of the scaphoid. These incisions are connected distally at the level of the distal pole of the scaphoid. This creates a proximally based capsular flap that will be used for the dorsal capsulodesis portion of the procedure (Figure 2). The dorsal wrist capsule ulnar to this flap is carefully dissected and separated from the SLIL. When this portion of the procedure is complete, the dorsal aspect of the scaphoid and lunate should be well visualized and the torn SLIL should also be seen. In the majority of cases, the ligament remains attached to the lunate and is avulsed from the scaphoid. Two .062 in. K-wires are then inserted from dorsal to volar, one into the scaphoid and the other into the lunate. These then act as joysticks to manipulate the scaphoid and lunate. A C-arm is then brought into the surgical field and under fluoroscopic control, two .045 in. K-wires are inserted percutaneously through the anatomic snuffbox. The K-wires are then drilled through the scaphoid and directed so as to pass through the scapholunate joint and into the lunate. These K-wires are left in the subchondral bone underneath the articular surface of the scaphoid at the scapholunate joint. A third .045 in. K-wire is inserted through the snuffbox, but directed through the scaphoid toward the body of the capitate. At this point in the procedure, this K-wire is left in the scaphoid and should not traverse the scaphocapitate joint (Figure 3).

At this juncture, the wrist is flexed and the scapholunate joint distracted by use of the joysticks. The insertion of the SLIL where it was avulsed from the scaphoid is debrided to subchondral bone. Three drill holes are made into the prepared site on the scaphoid with the Depuy Mitek 1.7mm anchor drill. These drill holes are placed so that one is in the dorsal aspect of the scaphoid, one is in the midportion of the ligament and the third is in the volar portion of the ligament (Figure 4). The anchor is then prepared and a 3-0 suture is placed on the anchor. The 2.0mm TACIT Threaded Anchor is then inserted into the prepared drill hole in the scaphoid (Figure 5). The sutures are placed through the ligament by the use of free needles. The sutures are positioned so that the knots are on the proximal surface of the ligament. After the sutures are placed, the wrist is extended to neutral (Figure 6). Under fluoroscopic control, the scapholunate interval is reduced and the two K-wires are passed across the scapholunate joint into the lunate. Fluoroscopy should confirm that there is no gap between the scaphoid and lunate, no malrotation between the two carpal bones and the anchors are positioned appropriately. The wrist is then flexed and sutures in the SLIL are then tied so as to appose the ligament to the subchondral prepared bone of

![Figure 4](image1)
![Figure 5](image2)
![Figure 6](image3)
![Figure 7](image4)
the scaphoid *(Figure 7)*. The C-arm is then used and the position of the scaphoid is reduced by means of the joysticks, so that a normal relationship between the scaphoid, lunate, radius and capitate is maintained. When this is confirmed on the C-arm, the third K-wire, which was previously inserted, is advanced across the scaphocapitate joint into the capitate. Further fluoroscopic views should confirm that normal anatomic relationships have been restored and that the K-wires are appropriately placed. The .062 in. K-wires that were used for joysticks are then removed.

Another DePuy Mitek 2.0mm TACIT Threaded Anchor is prepared using 3-0 suture. This anchor is placed in the distal dorsal aspect of the scaphoid just proximal to the distal pole of the scaphoid *(Figure 8)*. The suture is then passed through the previously prepared dorsal capsular flap. The suture is placed so that when the capsular flap is brought down to the insertion site of the anchor, it is taut. The suture is then tied thus creating a capsulodesis, as described by Blatt *(Figure 9)*. The remaining dorsal capsule is then closed with nonabsorbable sutures. The extensor retinaculum is then repaired back to itself using absorbable sutures. The tendon of the extensor pollicus longus is left out of the extensor retinaculum to facilitate closure of this structure. The subcutaneous tissue is then closed and the skin is closed following this. The K-wires that were used to hold the position of the carpal bones are then cut and left protruding through the skin. At the end of this procedure, a sugartong splint is applied.

Approximately one week after the procedure, the patient is brought back to the office, the sutures are removed and the patient is placed in a thumb spica muenster cast. This cast is left on for three weeks. The cast is then changed to a short arm thumb spica cast. The patient is kept casted for a period of eight weeks from the time of surgery. At the end of this immobilization period, the patient is sent to physical therapy for a progressive rehabilitation program that initially includes active exercises and then gradually progresses to passive and resistive exercises and strengthening.

**References:**
