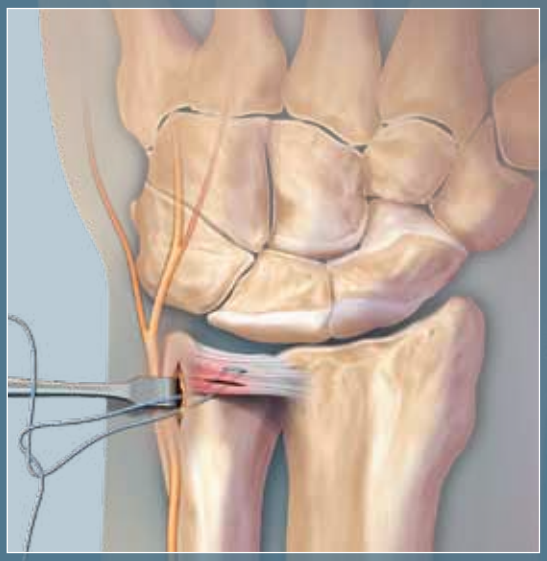
Arthrex®

Arthroscopic Repair of the Triangular Fibrocartilage Complex (TFCC) with the Micro SutureLasso™

Surgical Technique



Arthroscopic TFCC Repair

Arthroscopic TFCC Repair with the Micro SutureLasso

Introduction

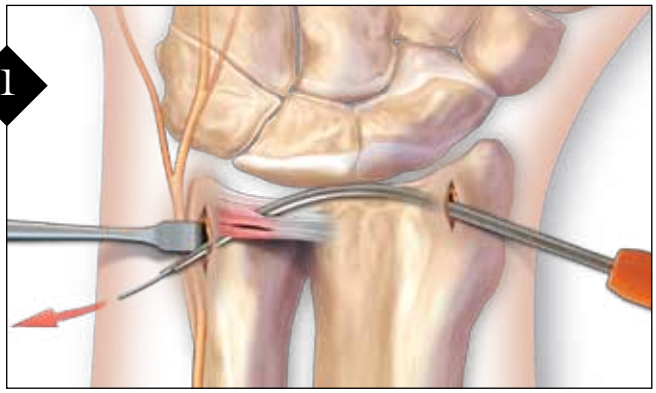
Triangular Fibrocartilage Complex (TFCC) injury is an increasingly recognized problem that can significantly affect wrist function, even for activities of daily living (ADLs)[1]. Diagnosis and treatment of ulnar-sided wrist pain has improved with advances in technology in imaging and arthroscopy[2,3]. Several techniques have been described for arthroscopic repair of the TFCC[2,4] and the Micro SutureLassos were designed to facilitate repair of the TFCC, whether the dorsal or palmar capsular ligament portion is torn. Each Micro SutureLasso has a 20-gauge tip designed to be less traumatic to the TFCC and surrounding ligament during passing. Both inside/out and outside/in techniques can be used, as well as a double needle technique. Use of the Micro SutureLassos will facilitate the repair by increasing the control and speed with which the suture can be passed, when compared with previously described techniques.

Preoperative Planning

History, clinical examination, and adjunctive tests such as arthrogram or MRI determine the presence of TFCC injury. The surgeon's experience is used to assess the patient's suitability for surgical intervention. Appropriate equipment is essential in the operating room. Anatomic landmarks and neurovascular structures at risk must be familiar to the surgeon[1,5].

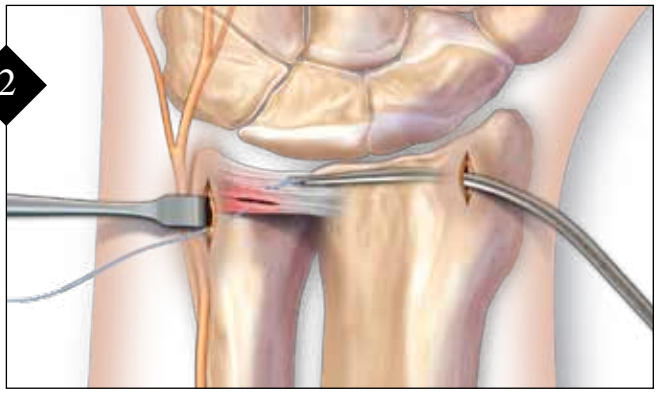
Technique I: Inside/Out Repair

1



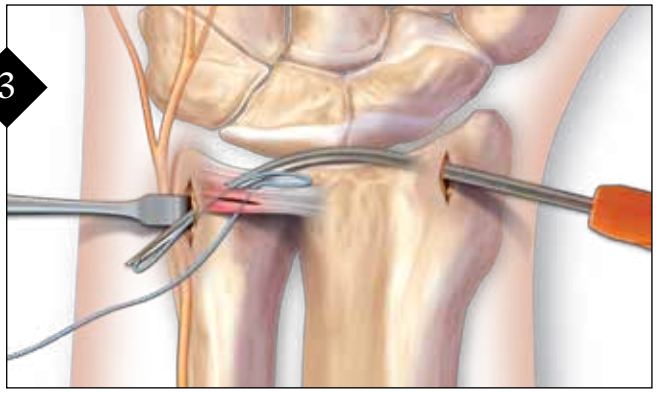
A Micro SutureLasso is introduced through the working portal. Under arthroscopic visualization, the SutureLasso is passed through the TFCC near the tear and advanced until the skin is tented on the ulnar side of the wrist. A small incision is made over the tip of the needle. 2-0 FiberStick™ suture is passed directly through the SutureLasso. The SutureLasso has passed completely through the wrist and the suture is exposed out both ends of the lasso needle.

2



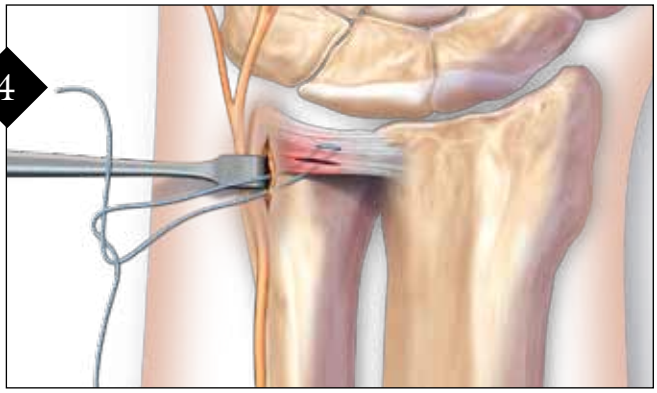
A clamp is placed on the tip of the suture on the ulnar side. Under arthroscopic visualization, the SutureLasso is withdrawn until the tip is inside the joint. The suture remains through the TFCC.

3



The SutureLasso is redirected and passed through the TFCC in a second location to form a horizontal mattress stitch. It is advanced again until it can be exposed out the ulnar side, lengthening the incision if necessary.

4



The suture is retrieved from the SutureLasso, withdrawn and pulled tight. If this demonstrates that the repair could be improved, an additional suture is placed in the same fashion. Through the ulnar incision, blunt dissection is used to isolate suture tails on the wrist joint capsule. Assuring that the dorsal sensory branch of the ulnar nerve is not between the tails, they are tied snugly against the capsule and the repair is complete.

Patient Positioning

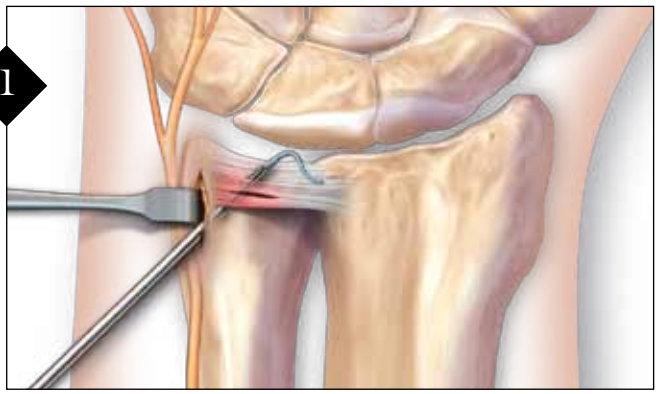
The patient is supine and a pneumatic tourniquet can be applied to the ipsilateral biceps region, although not usually needed. Typically, the table and patient are rotated 90˚ after anesthesia is induced. The surgeon stands or sits at the patient's shoulder and the video screen is placed on the ipsilateral side by the patient's feet. After prepping and draping, the limb is placed in the Wrist Traction Tower under appropriate tension and the portals are marked. The radiocarpal joint is insufflated and arthroscopy is initiated as usual. When the determination is made that the TFCC is reparable, a motorized shaver or OPES® radiofrequency wand is introduced into the wrist through the working portal to prepare the injury site for repair. The TFCC is then repaired according to one of the following techniques.

Rehabilitation

The patient is placed into a gauze dressing and then a sugar tong splint. This limits pronation and supination and protects the repair. Duration of immobilization is up to the treating surgeon. After the sutures and postoperative splint are removed, a Muenster cast should be considered for up to four weeks. A splint is worn after that period which protects and limits pronation and supination but is removed for self-care, therapy exercises, and controlled situations where the repair is not put at risk. The use of the splint is weaned as the motion and comfort out of the splint increase. Referral to Occupational Therapy or a Certified Hand Therapist is recommended to maximize rehab potential.

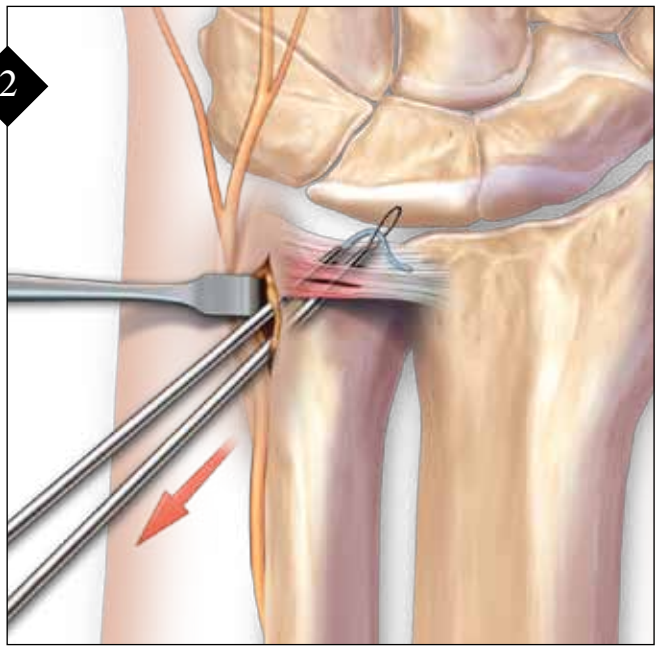
Technique II: Outside/In Double Needle Repair

1



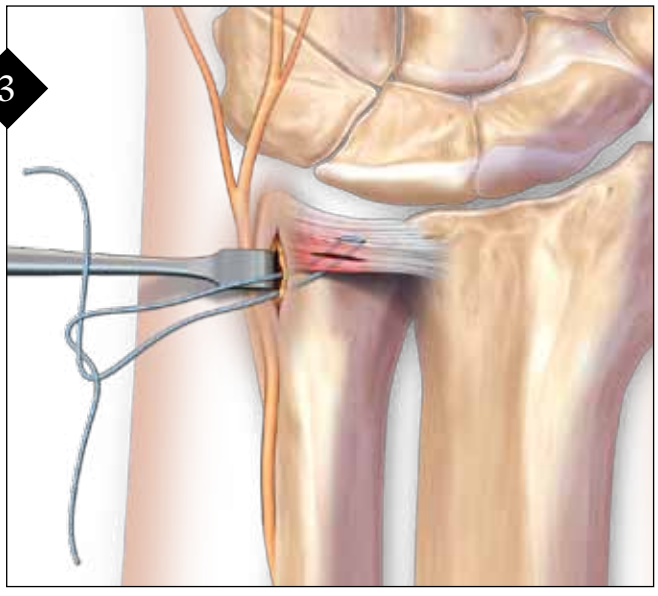
A 25-gauge needle may be used to localize the optimal site for the center of the repair. A skin incision is made on the ulnar side of the wrist approximately the same size as an arthroscopic portal. Blunt dissection is used to clear the soft tissue down to the capsule. A wire loop is removed from the Micro SutureLasso and preloaded with 2-0 FiberStick suture prior to putting it into the joint. A SutureLasso is passed through the capsule and the TFCC, under arthroscopic visualization, via the ulnar incision.

2



A second SutureLasso is placed into the joint through the capsule in the ulnar incision in the desired location. The wire loop is deployed and the suture is advanced passing the tip through the wire loop. This may be facilitated by using a small joint instrument grasper or a hook probe. Once about 3 cm of the suture is through the loop, the wire is pulled back through the SutureLasso, bringing the suture with it. If the suture does not pass into the SutureLasso, the wire loop is maintained under tension controlling the suture and the SutureLasso and wire are withdrawn together. This will result in the suture passing out in the second location.

3



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The suture tails are placed under tension and the adequacy of the suture is assessed. If this demonstrates that the repair could be improved, an additional suture is placed in the same fashion. Assuring that the dorsal sensory branch of the ulnar nerve is not between the suture tails, they are tied snugly against the capsule and the repair is complete.

Ordering Information

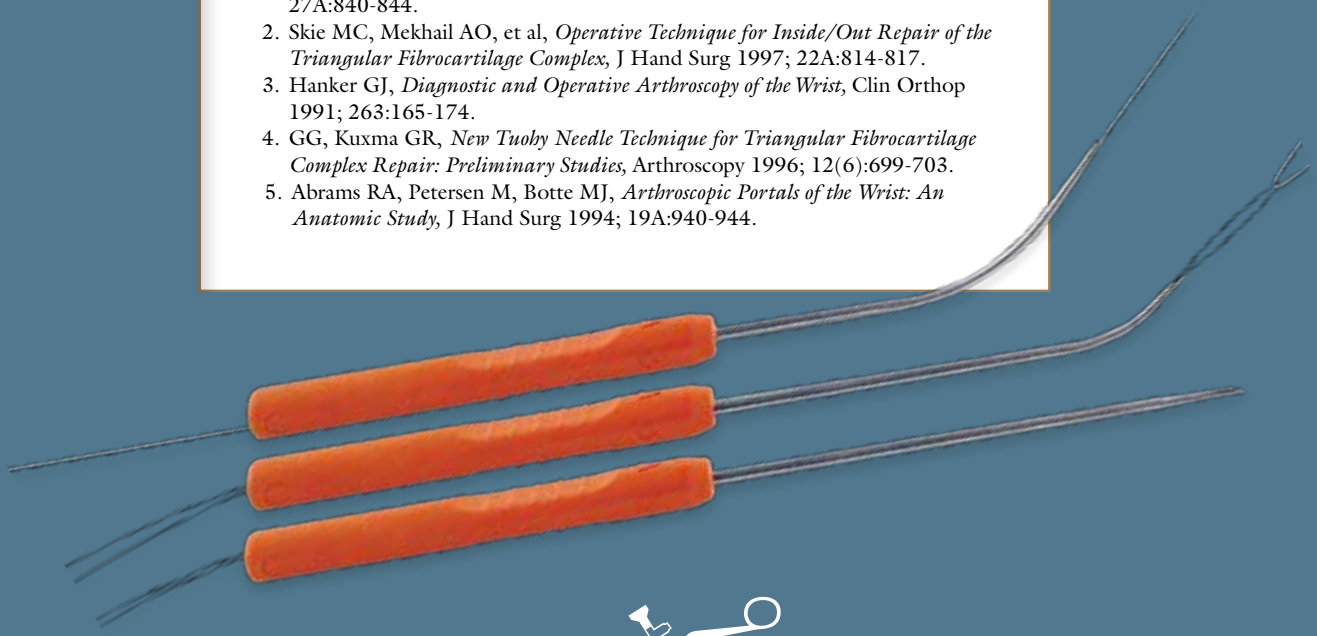
Micro SutureLasso, minor bend	AR-8701
Micro SutureLasso, major bend	AR-8702
Micro SutureLasso, straight	AR-8703

Optional Accessories:

2-0 FiberStick, 2-0 FiberWire, 50 inches (blue), one end stiffened, 12 inches	AR-7222
Wrist Traction Tower	AR-1611S
Finger Distraction Attachment	AR-1614
Foam Insert for Countertraction Boom, qty. 5	AR-1615
Finger Traps, 1 ea., sterile, qty. 5	AR-1616-S, M, L, X
Foam Hand Pads, sterile, qty. 5	AR-1617
OPES Ablator, Small Joint, 90°	AR-9601SJ-90

References:

1. McAdams TR, Hentz VR, *Injury to the Dorsal Sensory Branch of the Ulnar Nerve in the Arthroscopic Repair of Ulnar-Sided Triangular Fibrocartilage Tears Using an Inside/Out Technique: A Cadaver Study,* J Hand Surg 2002; 27A:840-844.
2. Skie MC, Mekhail AO, et al, *Operative Technique for Inside/Out Repair of the Triangular Fibrocartilage Complex,* J Hand Surg 1997; 22A:814-817.
3. Hanker GJ, *Diagnostic and Operative Arthroscopy of the Wrist,* Clin Orthop 1991; 263:165-174.
4. GG, Kuxma GR, *New Tuohy Needle Technique for Triangular Fibrocartilage Complex Repair: Preliminary Studies,* Arthroscopy 1996; 12(6):699-703.
5. Abrams RA, Petersen M, Botte MJ, *Arthroscopic Portals of the Wrist: An Anatomic Study,* J Hand Surg 1994; 19A:940-944.



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This surgical technique has been developed in cooperation with John J. Faillace, M.D., OIC, Hand Surgery Service Tripler Army Medical Center, Honolulu, HI

U.S. PATENT NOS. 6,716,234; 6,991,636 and 7,147,651