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Subpectoral Biceps Tenodesis with MILAGRO™ Bioreplaceable Interference Screw

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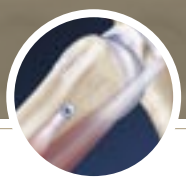

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TECHNIQUE OF BICEPS TENODESIS

Following any arthroscopic shoulder procedure or in case of previous rupture, subpectoral DePuy Mitek MILAGRO Bioreplaceable Interference Screw tenodesis of the long head of the biceps can be performed through a cosmetically appealing axillary incision

POSITIONING AND PORTALS

A "high" posterior viewing portal is established 1cm inferior and 1cm medial to the posterolateral corner of the acromion; an anterior working portal is established through the rotator interval, and a complete arthroscopic examination of the glenohumeral joint is performed. The long head of the biceps is identified and transfixed with an 18-gauge spinal needle at its entrance into the intertubercular groove. An arthroscopic biting device is used to release the biceps from its superior labral attachment, and any further arthroscopic procedures (either glenohumeral or subacromial) are completed. The exposed shoulder is then re-prepped prior to conversion to open exposure.

The preferred location for the tenodesis is at the inferior edge of the pectoralis tendon, and once this point is selected (and marked on the humeral shaft with cautery), appropriate tension is placed on the muscle of the biceps in order to restore appropriate myotension. The excess proximal tendon is resected, taking care to leave enough tendon to allow the biceps to be doubled (folded) upon itself and whipstitched with #2 ORTHOCORD™ High Strength Suture.

In cases where additional fixation is required, two 2mm drill holes are drilled approximately 1cm inferior to the humeral socket and two "passing" sutures are placed through these holes to exit the humeral socket. The two leading strands of ORTHOCORD suture that were used to whipstitch the biceps are passed through the humeral socket and individually out of the inferior drill holes. The biceps is then "pulled" into the socket by pulling on the sutures and gently delivering the whipstitched portion into the socket itself. Once the biceps is seated, and the screw is applied; the ORTHOCORD sutures are maximally tensioned and tied.

Figure 1. *Subpectoral axillary exposure: With the arm in abduction, a 2-3cm axillary fold incision is placed over the inferior edge of the pectoralis major tendon groove.*

Figure 2. *After subcutaneous dissection, the pectoralis is retracted proximally, and the short flexors (coracobrachialis and short head of the biceps) are retracted medially.*

Figure 3. *The tendon of the long head of the biceps is easily identified medial to the short flexors, and the tendon is completely exteriorized from the wound (after removal of the transfixing spinal needle, if placed) exposing the underlying humeral shaft and bicipital groove.*

Figure 4. *A pin driver is utilized to drive a standard drill guide pin at a perpendicular angle into the humerus to just engage the opposite cortex at the preferred location for subpectoral interference screw tenodesis.*

Figure 5. *At this point a standard 7 millimeter DePuy Mitek "acorn" reamer is placed over the guide pin and used to create a humeral socket to a depth of approximately 28mm.*

Figure 6. *The inferior portion of the socket is "chamfered" with a rongeur to allow for a smooth coaptation where the biceps will exit the socket inferiorly.*

Figure 6. *The biceps is grasped and "press-fitted" to the depth of the humeral socket. A 7x23mm MILAGRO™ Interference Screw is placed on a nitinol wire and placed superior to biceps tendon.*

Figure 7. *The screw is "engaged" in the socket with one or two gentle turns, taking care to insure that the biceps does not escape from the humeral socket.*

Figure 8. *As the screw is delivered into the socket, the shoulder is gently flexed and the elbow is slowly extended while the screw is placed to appropriately tension the biceps tendon and prevent iatrogenic tendon damage from the screw. Once the screw is completely flush with the humeral socket, the elbow is flexed and extended to confirm stable fixation of the tendon. The ORTHOCORD Sutures are finally cut.*

POSTOPERATIVE COURSE

Postoperative protocol is dictated by the presence or absence of a rotator cuff tear requiring repair. For all biceps tenodeses, the proximal arm (shoulder to elbow) is wrapped with an ace wrap for 2 weeks to help maintain the contour of the biceps muscle belly. If an isolated biceps tenodesis is performed, a simple arm sling is used as needed for 1 week for comfort only. Active and passive shoulder and elbow range of motion is begun immediately after surgery. At 6 weeks postoperatively, cord resistance is initiated with full unrestricted activity (including heavy manual labor and contact sports) at 12 weeks after surgery. If a rotator cuff repair was also performed, the postoperative course follows the rotator cuff repair protocol.

MILAGRO™ Bioreplaceable Interference Screw

MILAGRO™ INTERFERENCE SCREWS				
	size: 7 X 23	size: 8 X 23	size: 9 X 23	
MILAGRO Bioreplaceable Screw	231800	231810	231820	
MILAGRO™ INSTRUMENTATION				
Ratchet Handle w/ Jacobs Chuck	219215			
Modular Driver 23mm	229957			
Utility Bin-1/4	215140			
ORTHOCORD™ HIGH STRENGTH ORTHOPAEDIC SUTURE				
CordCutter	214646			
	with MO-6 Tapered Needles	*w/MO-7 Tapered Needles*	*w/OS-6 Reverse Cutting Needles*	*without needles*
ORTHOCORD Violet	223102	223104	223103	223105
ORTHOCORD Blue				223111
ORTHOCORD Violet /Blue	223115	223114	223116	223113
OTHER INSTRUMENTATION				
Shoulder Procedure System	215431			
Acorn Reamer Sterile 6mm	232400			
Acorn Reamer Sterile 6.5mm	232401			
Acorn Reamer Sterile 7mm	232402			
Acorn Reamer Sterile 7.5mm	232403			
Acorn Reamer Sterile 8mm	232404			
Acorn Reamer Sterile 8.5mm	232405			
Acorn Reamer Sterile 9mm	232406			
Guidewire, Nitinol 1.1mm (.042" x 15") 6/box	254514			
Guidewire Kit	232300			
VAPR® SYSTEM				
VAPR S90	225370			
VAPR SIDE ELECTRODE	225301			

For more information, call your DePuy Mitek representative at 1-800-382-4682 or visit us at www.mitek.com.

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