

Surgical Technique Guide

ROTATOR CUFF TEARS

Crossbridge
double row rotator
cuff repair



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Introduction

Rotator cuff tears are among the most prevalent causes of shoulder pain and disability, particularly in individuals over the age of 40 or those engaged in repetitive overhead activities. The rotator cuff, a group of four muscles and their tendons, plays a vital role in stabilizing the shoulder and enabling a wide range of motion. A major rotator cuff tear refers to a full-thickness rupture of one or more of these tendons, leading to significant functional limitations, weakness, and often pain.

These tears can result from acute trauma, such as falls or heavy lifting, or more commonly, from degenerative changes over time, especially in aging populations. The severity of a rotator cuff tear is classified based on the size of the tear, its location, and the degree of muscle involvement. Major tears typically involve large, complex ruptures that may require surgical intervention for optimal functional recovery. Left untreated, they can lead to irreversible muscle atrophy, shoulder stiffness, and persistent pain.

Surgical repair of major rotator cuff tears aims to restore the integrity of the tendon, promote healing, and preserve shoulder function. Over the years, numerous surgical techniques have been developed, ranging from traditional open procedures to advanced arthroscopic methods.

Featured Technology

Medial Row

- Large handle for stabilization of the anchor during insertion.
- Dual pitched screw thread for optimal strength of the anchor in cortical and cancellous bone.
- Wings on the distal portion of the handle to maintain specific tension of the **BIOFIBER® Tapes** during the repair.
- Stainless steel outer shaft to provide increased strength to overall anchor design.



Lateral Row

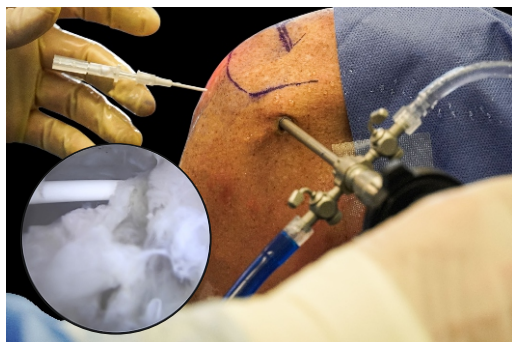
- Sharp titanium tip for easy anchor insertion into the bone.



Surgical Technique

Portal Establishment and Preparation

Step 1:



Establish a **lateral working portal**, placing a cannula within the portal for instrumentation.

Step 2:

Using a **tissue grasper**, gently grasp and pull the rotator cuff laterally to assess the lateral reduction capability.

Step 3:

Mark the **lateral border** of the cuff footprint using a **radiofrequency (RF) device** to serve as a landmark for lateral row anchor placement.

Step 4:

Utilize the **RF device** to clear soft tissue from the superior surface of the humerus, ensuring a clean fixation area.

Step 5:

Use a **burr** to create a bleeding bed on the humeral footprint to promote tendon-to-bone healing and enhance repair strength.

Medial Row Anchor Placement

Step 6:



Create a **superior lateral portal** just lateral to the acromion, ensuring a trajectory that aligns with the **medial aspect of the greater tuberosity**, just lateral to the articular cartilage.

Step 7:

Utilize the **BAS-9112 punch** through the superior lateral portal to create pilot holes for the anterior and posterior medial anchors. Use punch BAS-9103 for hard bone. Punch up to the 2nd laser line.



Step 8:

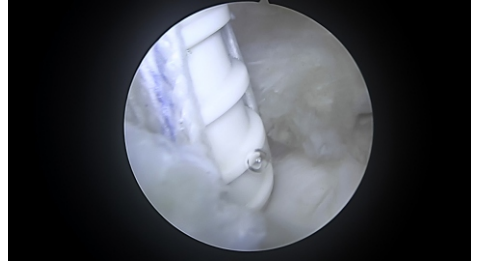
Anchor placement should follow a **U-shaped configuration**, with the open end of the U facing anteriorly:

- 8.1. Anterior Medial Anchor
- 8.2. Posterior Medial Anchor

- 8.3. Posterior Lateral Anchor
- 8.4. Anterior Lateral Anchor

Step 9:

Insert the **first BAS-9142.475F anchor (loaded with BF-2ST BioFiber tape)** into the pre-punched anterior medial hole, ensuring **bone contact with the anchor body** before advancing the anchor.



Step 10:



Advance the anchor by holding the anchor handle with one hand and turning the dial at the back of the anchor with the other hand, until the **inserters meets the bone**. Release and remove holding sutures if not required for repair.

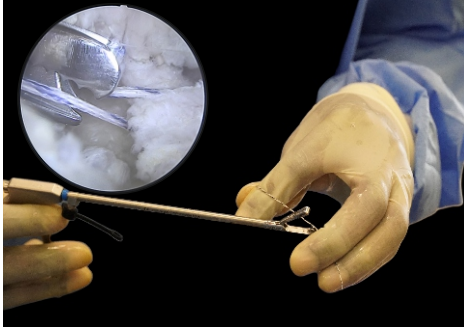
Suture Passage Through the Cuff

Step 11:

Retrieve the **2mm BIOFIBER® Tapes** from the anterior medial anchor via the **lateral portal** using a **suture retriever**.



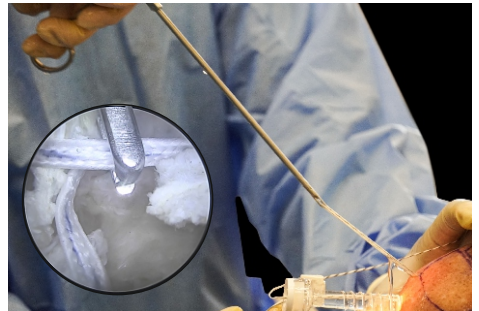
Step 12:



Load one tape into a **shuttle ferry** and pass it through the **rotator cuff** just medial and parallel to the anterior medial anchor.

Step 13:

Retrieve the passed **BIOFIBER® Tape** via the **anterior portal** for suture management.



Step 14:

Repeat the process for the **second BIOFIBER® Tape (BF-2ST)**, passing it posterior to the first tape.

Step 15:

Repeat **anchor insertion and suture passage** for the **posterior medial anchor (loaded with BF-2BST BIOFIBER® Tape)** following the same technique. Except retrieve the first BIOFIBER® Tape Limb out the **Superior Lateral Portal**.

Suture Passage Through the Cuff

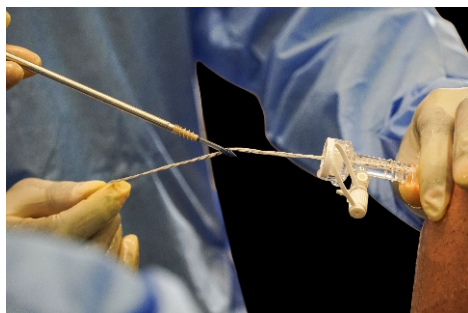
Step 16:

Keep the **posterior BIOFIBER® Tape** from the **posterior medial anchor** in the **lateral portal**.

Step 17:

Retrieve **posterior BIOFIBER® Tape** from the **anterior medial anchor** through the **lateral portal**, ensuring two tapes are available for lateral row fixation.

Step 18:



Load the retrieved tapes into a **BAS-9136.55F lateral row anchor** and position it **posterior laterally** on the greater tuberosity where the lateral border of the rotator cuff was marked.

Note: Manipulate the arm into abduction and internal rotation for great access to the posterior lateral part of the greater tubercle.

Note: The **VIMFIX®-LRP** anchor can also be used for Lateral row fixation. Use punch BAS-9112 or punch/tap BAS-9103 to create a pilot hole prior to anchor insertion.

Step 19:

Mallet the anchor to ensure the titanium tip engages the bone.



Step 20:

Tension the tapes one at a time to ensure compression of the cuff onto the humeral footprint.

Step 21:

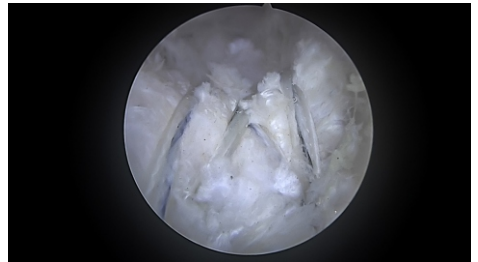


Mallet anchor until anchor body touches the bone then secure the anchor by screwing it fully into the bone and then cut excess tape using a **suture cutter**.

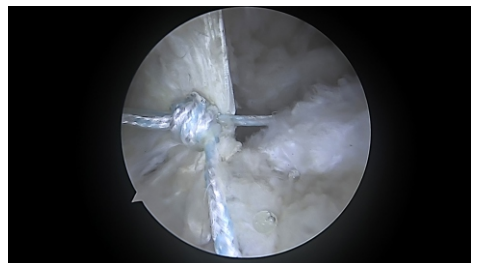
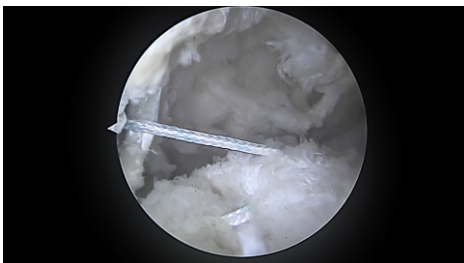
Step 22:

Repeat the same process for the **anterior lateral anchor**, securing the remaining two tapes and ensuring proper tensioning and fixation.

Note: Manipulate the arm abduction and external rotation to access the anterior lateral part of the greater tuberosity.



Step 23:

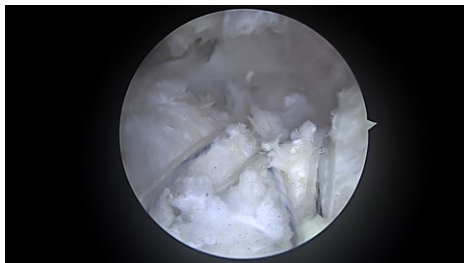


Holding sutures may be used to correct dog-ear deformities if necessary.

Completion of Repair

Step 24:

This concludes the **Crossbridge Double-Row Rotator Cuff Repair** procedure.



Ordering information – Instruments

Cat Code	Description
BAS-9169	SHUTTLE FERRY® II, Suture Passer for Rotator cuff repair
BAS-9085	Suture Cutter
BAS-9025	Suture Retriever
BAS-9112	Punch for VIMFIX-PK® Dia 4.5mm & 5.5mm and VIMFIX®-LR Dia 4.75mm & 5.5mm
BAS-9103	Punch / Tap for VIMFIX-PK® Dia 4.5mm & 5.5mm and VIMFIX®-LR Dia 4.75mm & 5.5mm
10756	Punch For BIO-VIM®-LRP Bioabsorbable Ligament Anchor, Dia. 4.75mm & 5.5mm
10755	Punch / Tap For BIO-VIM®-LRP Bioabsorbable Ligament Anchor, Dia. 4.75mm & 5.5mm

Ordering information – Implants

Cat Code	Description
BAS-9170	Needle for SHUTTLE FERRY® II- suture passer (Nitinol)
10090	BIOFIBER® Fiber Tape, Size 2 with MO-6 needle White-Blue, Len. 39"
10091	BIOFIBER® Fiber Tape, Size 2 with MO-6 needle White-Black, Len. 39"
10159	BIO-VIM® -LRP Bioabsorbable Ligament Anchor, Knotless, PEEK Tip, Dia. 5.5mm
10160	BIO-VIM® -LRP Bioabsorbable Ligament Anchor, Knotless, PEEK Tip, Dia. 4.75mm
10411	BIO-VIM® -LRT Bioabsorbable Ligament Anchor, Knotless, Self-tapping, Titanium Tip, Dia. 4.75mm
10412	BIO-VIM® -LRT Bioabsorbable Ligament Anchor, Knotless, Self-tapping, Titanium Tip, Dia. 5.5mm
BAS-9092.55F	VIMFIX®-LRP Ligament Anchor, PEEK knotless, Dia. 5.5mm
BAS-9136.55F	VIMFIX®-LRT Ligament Anchor, PEEK knotless, self-tapping, metal tip, Dia. 5.5mm
BAS-9142.475F	VIMFIX®-LRP Ligament Anchor, PEEK knotless, Dia. 4.75mm
BAS-9143.475F	VIMFIX®- LRT Ligament Anchor, PEEK knotless, self-tapping, metal tip, Dia. 4.75mm
BF-2ST	BIOFIBER® Fiber Tape Size 2 White-Blue, Len. 39
BF-2BST	BIOFIBER® Fiber Tape, Size 2 White-Black, Len. 39



Disclaimer:

The information in this document is for educational purposes only. It is not intended to serve as comprehensive medical advice or a full description of the procedure. It is the responsibility of the operating surgeon to determine and utilise the appropriate products and techniques in accordance with their clinical experience and evaluation of each patient. Review and understand all product and safety information including indications for use, contraindications, effects, precautions and warnings.



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