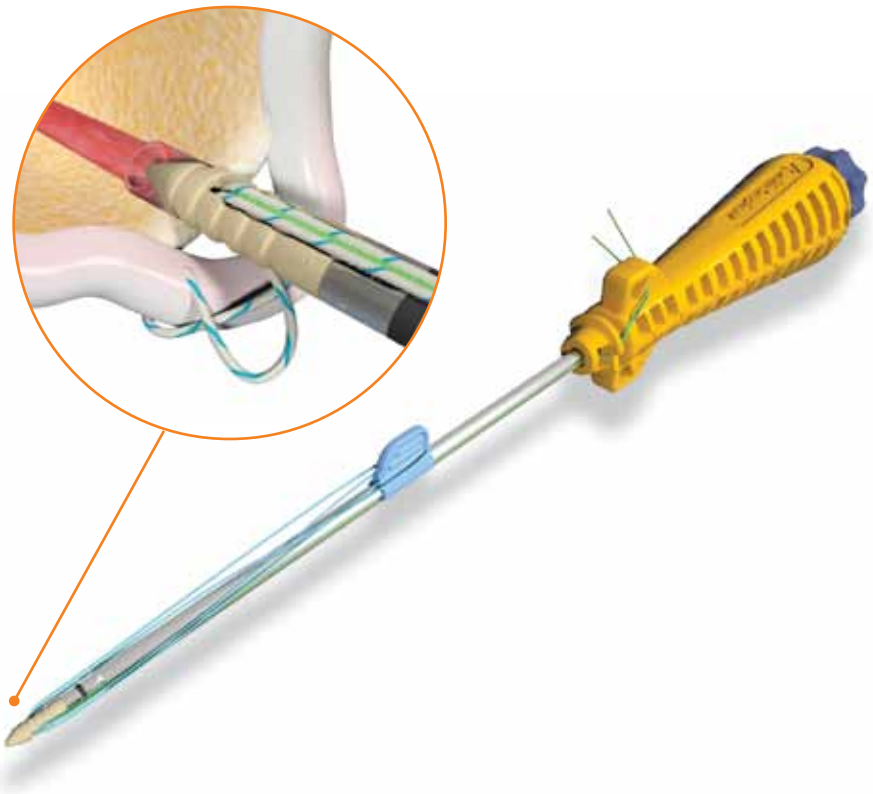


smith&nephew
BIORAPTOR◇
Knotless
Suture Anchor

BIORAPTOR◇ Knotless Suture Anchor

Arthroscopic Shoulder Instability Repair

Shoulder Series Technique Guide by:
Thomas Youm, MD



As described by:

Thomas Youm, MD
Clinical Assistant Professor
NYU Hospital for Joint Diseases
New York, New York

Arthroscopic Shoulder Instability Repair Using the Smith & Nephew BIORAPTOR◇ Knotless Suture Anchor

Introduction

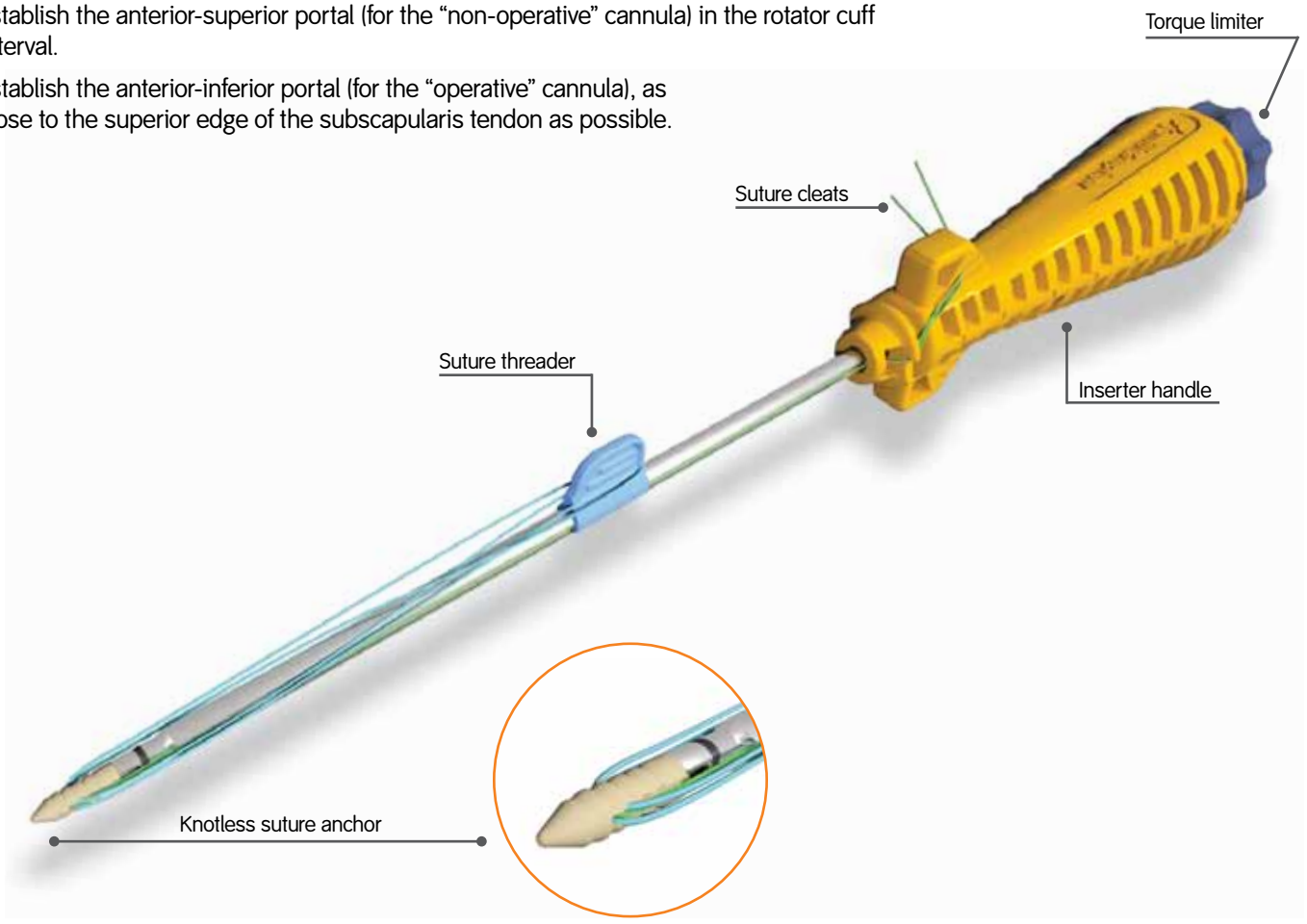
The Smith & Nephew BIORAPTOR Knotless Suture Anchor for shoulder instability is intended to provide secure fixation of soft tissue to bone. The anchor's unique design captures suture limbs that are passed through the labrum tissue and secured within the anchor by an inner plug. Suture tension is set after implantation and is independent of anchor depth. This technique offers the surgeon complete control over the amount of suture tension, as well as the desired tissue shift without knot tying or a knot stack in the joint.

Patient Positioning

Place the patient in either the beach chair position or the lateral decubitus position.

Portal Placement

1. Establish a standard posterior portal at the "soft spot." Typically, the posterior portal is used for arthroscopic visualization.
2. Establish the anterior-superior portal (for the "non-operative" cannula) in the rotator cuff interval.
3. Establish the anterior-inferior portal (for the "operative" cannula), as close to the superior edge of the subscapularis tendon as possible.



Technique

Step 1



1. Insert the ACCU-PASS® Suture Shuttle down the operative cannula and through the labrum and capsule to be repaired. Advance the monofilament suture loop into the joint space. Use a grasper to retrieve the monofilament suture loop through the non-operative cannula.

   Remove the ACCU-PASS suture shuttle, leaving the monofilament suture tails exiting from the operative cannula.

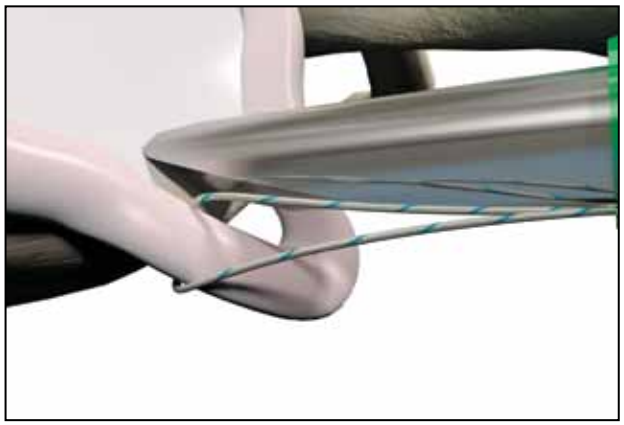
Step 2



2. Pass 4" of one limb of ULTRABRAID® Suture through the monofilament suture loop end. Shuttle the suture through the tissue by pulling the tails of the monofilament away from the operative cannula. Once the suture limb has been retrieved outside the operative cannula, remove the monofilament.

   Using a grasper, retrieve the other suture limb from the non-operative cannula and move it so that it exits the operative cannula. Clamp both limbs of the suture tail ends to prevent slippage.

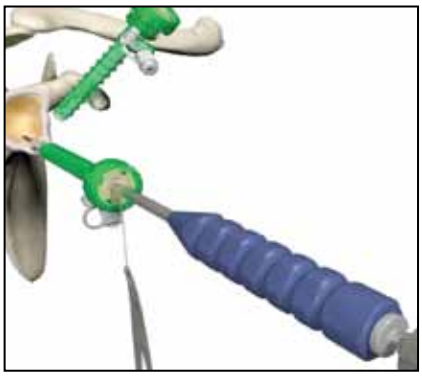
Step 3



3. Using the proper drill guide and obturator, place the distal tip of the guide onto the bone at the desired implantation site. Place the guide approximately 1–2 mm onto the face of the glenoid to aid visualization.

   Remove the obturator.

Steps 4 and 5

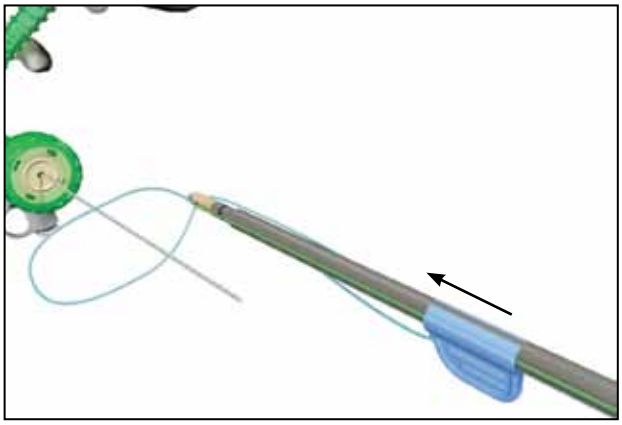


Note: *Bone quality determines which size drill bit to use. Use a 3.0 mm drill bit for predrilling hard bone. Use a 2.7 mm drill bit for predrilling soft bone. In all cases, surgeon judgment should prevail.*

4. While firmly holding the guide in place, use the appropriate drill bit to prepare the insertion site.
   a. The depth stop on the drill bit will bottom out on the proximal end of the guide when proper hole depth is reached.
   b. The wide viewing window on the guide can be used to gauge proper hole depth by advancing the drill bit until the black band on the drill is aligned with the center of the wide viewing window.
5. While holding the guide steady, remove the drill bit from the insertion site by backing the drill bit axially out of the hole. Remove the drill guide from the joint.

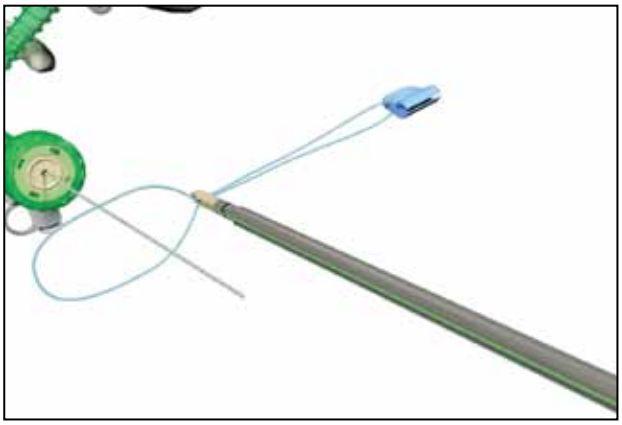
Technique (continued)

Step 6



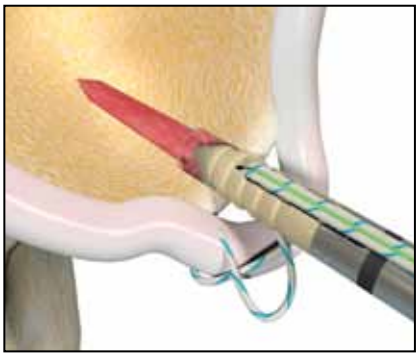
6. Remove the hemostat clamp from the suture tails. Using standard sterile technique, remove the BIORAPTOR® Knotless Suture Anchor from its packaging. While holding the anchor handle, push the suture threader tab forward to release the suture threader loop. Thread the free ends of the suture through the suture-threading loop.

Step 7



7. Remove the suture threader tab from the shaft of the insertion device, and pull to feed the sutures through the anchor eyelet.

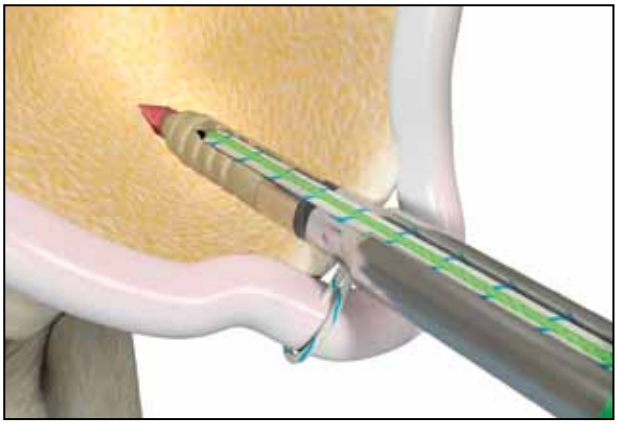
Steps 8 and 9



Note: *Ensure that the anchor is aligned with the drilled hole to achieve proper implantation.*

8. Advance the loaded suture anchor into the operative cannula. Leaving some suture slack in the suture, advance the anchor to the prepared bone site. Do not attempt to tension the suture at this time.
9. Orient the anchor such that the free limb sutures entering the anchor are facing the tissue. Ensure that the sutures are not twisted around the anchor.

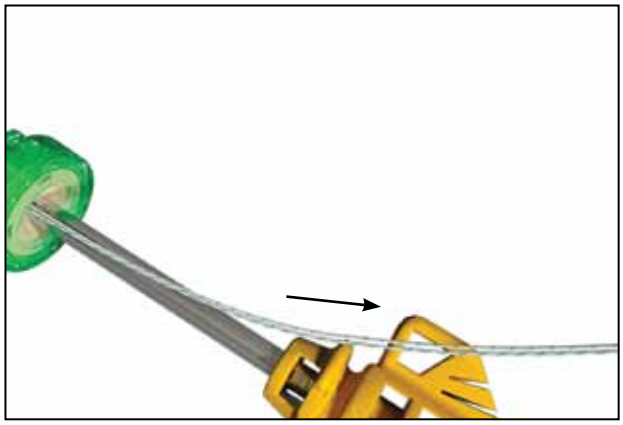
Steps 10 and 11



10. Establish and maintain axial alignment of the suture anchor with the prepared insertion site. Place the tip of the anchor into the prepared hole. Use a mallet to tap the inserter handle until the laser mark is flush with the cortical bone. This places the suture anchor approximately 2–3 mm below the bone surface.
11. Unhook both ends of the retention suture from the inserter cleats. Pull one end to remove the retention suture from the handle and discard. The retention suture must be removed prior to applying tension.

Technique (continued)

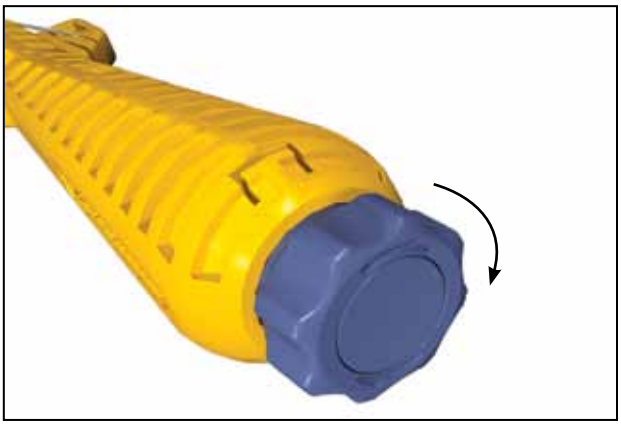
Step 12a



12a. Apply tension to the suture and lock the suture.

Maintain slight downward pressure on the inserter handle while manually pulling the free suture limb(s). Manually pull suture(s), individually or together, to apply the desired tension.

Steps 12b and 13



12b. If desired, secure the free ends of the suture using the cleats located on the inserter handle. While maintaining slight downward pressure on the inserter, locate the torque limiter on the proximal end of the inserter handle and rotate it clockwise approximately eight turns until several clicks are heard.

13. Slowly disengage the suture anchor from the inserter by pulling straight back or tapping the distal end with a mallet. Do not wiggle the handle to disengage it from the anchor.

Step 14



14. Discard the insertion device and cut the excess suture.

Step 15



15. Repeat with additional anchors until the desired final repair is completed.

Technique Pearls

1. After suture passing, prepare drill hole in a location to optimize desired tissue shift.

   Suggestion: Drill 1–2 mm superior to the suture and 1–2 mm onto the face of the glenoid.

2. To aid suture tensioning, secure one end of suture into inserter cleats and pull the other end to tension suture. Alternate securing suture ends and tensioning suture until the desired tension is achieved.
3. Do not wiggle the inserter handle during removal, simply pull it back straight or tap it out with a mallet. The inner driver runs down the entire length of the anchor and wiggling it could compromise anchor security.
4. If desired, minimize the time needed to locate the hole for anchor insertion by loading the suture through the anchor and clipping with a hemostat clamp prior to drilling the bone hole.

Additional Instruction

Prior to performing this technique, consult the Instructions for Use documentation provided with individual components – including indications, contraindications, warnings, cautions, and instructions.

Ordering Information

Some of the more common instruments for shoulder repair are listed below. Call +1 800 343 5717 in the U.S. or contact your authorized Smith & Nephew representative to order any of the following components.

REF Number	Product
72202403	BIORAPTOR° Knotless Suture Anchor, shoulder
72202399	BIORAPTOR Knotless Inline Drill Guide, spike tip
72202400	BIORAPTOR Knotless Inline Drill Guide, crown tip
72202793	BIORAPTOR Knotless Inline Obturator, cannulated
72202792	BIORAPTOR Knotless Inline Obturator, blunt
72201918	BIORAPTOR Knotless Drill Bit, 2.7 mm
72201395	BIORAPTOR Knotless Drill Bit, 3.0 mm

Caution: *U.S. Federal law restricts this device to sale by or on the order of a physician.*

Courtesy of Smith & Nephew, Inc., Endoscopy Division

°Trademarks of Smith & Nephew, registered U.S. Patent & Trademark Office.

Endoscopy
Smith & Nephew, Inc.
Andover, MA 01810
USA

www.smith-nephew.com
+1 978 749 1000
+1 978 749 1108 Fax
+1 800 343 5717 U.S. Customer Service

©2010 Smith & Nephew, Inc.
All rights reserved.

02/2010 10600633 Rev. A