Hip labral repair

Tips and tricks with Q-FIX

A hip technique
guide as described by

J. W. Thomas Byrd, MD
Nashville Sports Medicine and
Orthopaedic Center

smith&nephew

Q-FIX◊
All-Suture Anchor

Introduction

The Q-FIX◊ All-Suture Anchor is a small diameter, all-suture product that "stands out in terms of its reliability and pullout strength, as evidenced by its exceptionally low failure rate"† in the work published by J. W. Thomas Byrd, MD (Byrd JWT, et al. Arthroscopy [2018]). Anchor placement in the hip encompasses some technical challenges, and is designed to minimize the frustration that can be experienced when successfully seating an anchor only to have it pull out while tying the suture.

Q-FIX All-Suture Anchor implants

The Q-FIX All-Suture Anchor implants provides the benefits of an all-suture implant with higher fixation strength than traditional anchor designs.[1-5‡]

Recommended for hip labral repair, the Q-FIX All-Suture Anchor is available as 1.8mm Q-FIX MINI All-Suture Anchor or the standard 1.8mm Q-FIX All-Suture Anchor. Both anchors are single-loaded with #2 MAGNUMWIRE◊ Suture. A double loaded 2.8mm Q-FIX All-Suture Anchor is also available for additional applications.

Portal Establishment

Various portals have gained popularity for hip arthroscopy. Labral restoration generally revolves around a standard workhorse anterolateral portal and some variation of an anterior portal. Curved drill guides add versatility to standard portals. Alternatively, percutaneous drill guide placement allows precise positioning without limitations imposed by the standard portals. A distal site equidistant between the anterolateral and the anterior portals (comparable to a DALA portal) allows divergence from and avoiding perforation of the acetabular surface from the 3 o'clock (right hip) to 12 o'clock position (**Figure 1**). Far medial anchors may be placed from the anterior portal or a percutaneous site just distal to the anterior portal, allowing a more anterior to posterior trajectory, avoiding perforation of the medial cortex of the pelvis.

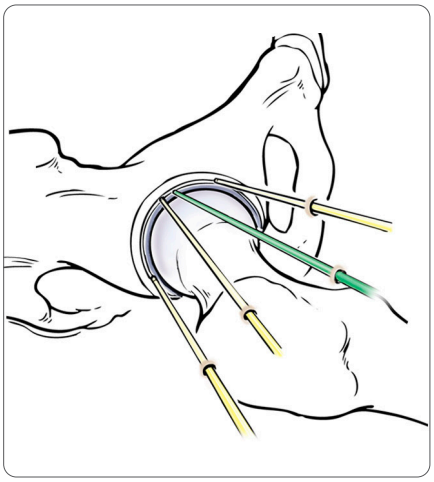

Figure 1. Percutaneous drill guide site in green

†Quoted by Dr. Bryd. ‡As demonstrated in benchtop testing; compared to Zimmer Biomet JuggerKnot, 1.45 Conmed Y-Knot Flex 1.3 and Stryker Iconix 1.

The following technique guide is provided for informational and educational purposes only and is not intended to serve as medical advice, nor endorse any named institution. It was prepared under the guidance of Dr. Thomas Bryd in collaboration with the physician. It contains a summary of medical techniques and opinions based upon his training and expertise in the field, along with his knowledge of Smith+Nephew products. The views and opinions expressed in this technique are those of the physician and may not reflect the position, opinion, or guidelines for clinical care of any other person, institution, scientific association, or product manufacturer, including Smith+Nephew.

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Figure 2. EFLEX Probe Black

Capsulotomy

A standard capsulotomy is performed connecting the anterior and anterolateral portals, leaving a 1–1.5cm capsular cuff on the acetabular side. Lengthening the capsulotomy can improve mobilization of the distal leaf and better exposure of a cam lesion.

NOTE: Smith+Nephew now offers the CAP-FIX◊ Blade, available in straight or curved blade configurations. The CAP-FIX Blade is also available as part of the Hip Pac for the convenience of the OR Staff.

Preparation of acetabulum

The labrum is mobilized only as necessary to expose the portion of the acetabular pincer lesion to be recontoured. This is mostly determined by the bony architecture evident on the preoperative imaging (i.e. 3-D CT scan) and how the rim of the acetabulum seems to be negatively impacting the labral pathology at arthroscopy. Sharp dissection with an arthroscopic knife can expose the bony margin of the rim, and a shaver can denude the outer margin of the acetabulum. Smoothing of frayed edges with the EFLEX◊ ablation probe serves nicely for optimal visualization of the bone to then be recontoured with a 5.5mm burr (**Figure 2**). Alternatively, the HIPVAC◊ or EFLEX probe can be used to dissect soft tissues away from the pincer lesion.

Figure 3

Figure 4

Labral repair with Q-FIX◊ suture anchor

If labral function is to be restored, it is imperative to restore the labral anatomy. Anchors should be placed as close to the rim of the acetabulum as safety allows. The small size of the 1.8mm Q-FIX anchor allows the anchors to be placed adjacent to the rim.

Viewing from the anterolateral portal, a CLEAR-TRAC◊ cannula is placed in the anterior portal for suture management. Repair begins from anteromedial to lateral; as the anteromedial anchor is the most technically challenging because of the thin bony surface to navigate between the subchondral surface of the acetabulum and the medial cortex of the pelvis.

1. Insert the appropriate drill guide with obturator through the skin incision. Once the drill guide is positioned at the desired implant location remove the obturator from the drill guide. (**Figure 3**)

   CAUTION: Do not advance the drill guide into the bone. Doing so may compromise the cortical surface of the bone and reduce implant retention capability. (**Figure 4**)

2. Insert the appropriate drill (2mm for the 1.8mm implant) into the drill guide and drill the bone hole. Advance the drill until the drill bottoms in the drill guide. Three passes of the drill through the drill guide is generally adequate to clear bone debris from the drill hole.

   CAUTION: Do not use the drill without the drill guide as the bone surface can be damaged.

   CAUTION: Care must be taken to not create too deep or too shallow a bone hole. To accomplish this, be sure to drill the hole until the drill bottoms in the drill guide.

   Care must be taken to not advance the drill guide into the bone as the implant retention force may be compromised.

3. Remove the drill.

   CAUTION: Do not attempt to insert the implant into the bone without first creating a bone hole.

   NOTE: If placing more than one implant, ensure bone holes are at least 7mm apart.

Figure 5

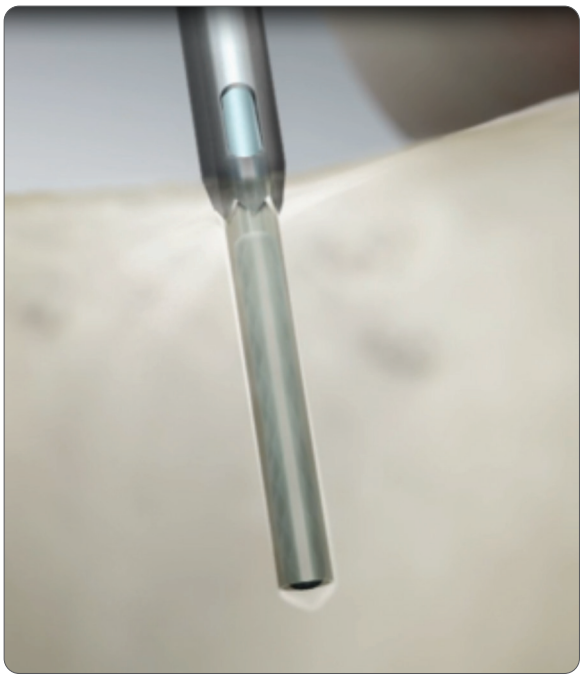

Figure 6

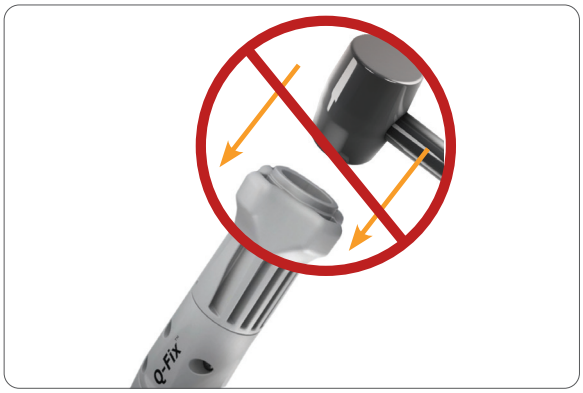

Figure 7. Do not hammer or tap on the back of the anchor

Deploying the Q-FIX® implant

1. Insert the Q-FIX implant (**Figure 5**) through the drill guide into the bone hole. Be sure that the implant inserter is fully engaged with the drill guide throughout the deployment of the anchor. This can be accomplished by holding the drill guide and inserter together by hand or by applying downward pressure to maintain the engagement during deployment. Also, be sure to maintain the alignment of the drill guide to the bone hole during insertion. Generally, the anchor should easily slide into the drill guide with little more than gentle pressure and a slight twisting motion. (**Figure 6**)

   CAUTION: Do not use excessive force or pound the inserter into the bone hole as damage to the inserter/implant may occur or result in injury to the patient. (**Figure 7**) If resistance is met on insertion, turn the inserter handle clockwise while keeping a loose hold on the drill guide. If continued resistance is met, remove the inserter and re-drill the existing bone hole.

   CAUTION: Use care to properly align the implant and inserter handle with the bone hole during insertion. Do not bend or twist the inserter handle during and after insertion as damage to the implant or incomplete insertion may result. Do not deploy bent or damaged inserter.

   CAUTION: Be sure to advance the inserter fully into the bone hole. Incomplete insertion or poor bone quality may result in implant pullout.

2. Rotate the activation knob clockwise on the proximal end of the implant inserter to deploy the implant (this is similar to using a pepper grinder). (**Figure 8**) Rotate the knob until a hard stop is reached and the suture cleat is exposed at the proximal end of the inserter.
3. Release the sutures from the cleat and remove the inserter and drill guide. Pull on the suture tails to ensure the implant is set in the bone hole.

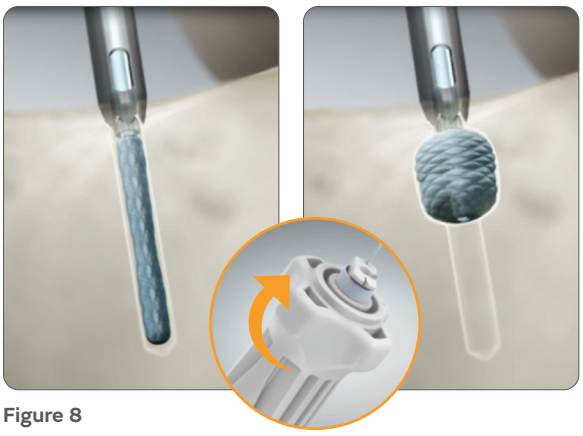

Figure 8

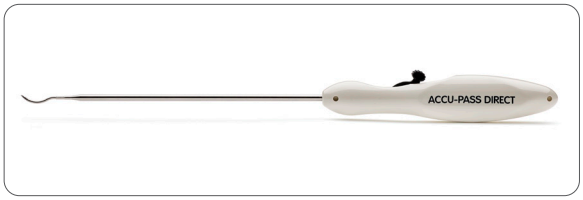

Figure 9

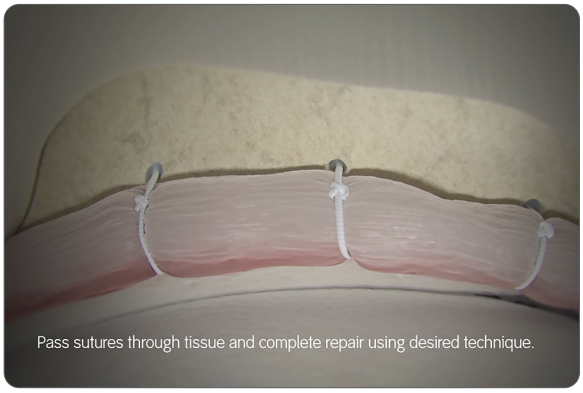

Figure 10

Figure 11. SPEEDSTITCH Suture Device

Suture passage

If the labral tissue is robust, the ARTHRO-PIERCE◊ works well for suture passage. For a smaller labrum, the ACCU-PASS◊ DIRECT CRESCENT XL is preferable due to its small diameter. (**Figure 9**)

Depending on the pattern of labral tearing, quality of the labral tissue, and size of the labrum, there are three different suture pattern options. In the presence of good quality labral tissue and disruption of the chondrolabral junction, a labral-based suture best restores the chondrolabral junction and the anatomic morphology of the labrum. If the quality of the labral tissue is poor or the labrum is diminutive, a loop suture may be preferable. In the presence of pincer correction when the chondrolabral junction is patent, a simple suture can be placed through the peripheral margin of the labrum, simply rolling it up onto the acetabular rim. Anchors are placed 8-10mm apart, as determined to best restore the anatomy and stability of the labrum. The number of anchors typically ranges from 3-6 with an average of 4.5. (**Figure 10**)

Capsule closure

The SPEEDSTITCH Suture Device provides a tool for capsular closure. (**Figure 11**) These sutures are placed through the anterior 8.5mm CLEAR-TRAC◊ cannula with the hip flexed approximately 30°. The iliofemoral ligament portion is the most critical for capsular restoration. The medial capsule is often quite thin, and the lateral portion of the capsule is usually the most mobile. Three sutures usually suffice for capsuar restoration, although more can be used when it seems to enhance the repair.

References

1. ArthroCare 2019. Comparative Testing of Bone Anchor Devices, 1.8mm Q-FIX Mini Soft Suture Anchor P/N 49193-02 Rev.B. **2.** Barber FA, Herbert MA. All-Suture Anchors: Biomechanical Analysis of Pullout Strength, Displacement, and Failure Mode. *Arthroscopy*. 2017;33(6):1113-1121. **3.** Douglass NP, Behn AW, Safran MR. Cyclic and Load to Failure Properties of All-Suture Anchors in Synthetic Acetabular and Glenoid Cancellous Bone. *Arthroscopy*. 2017;33(5):977-985 e975. **4.** Nagra NS, Zargar N, Smith RD, Carr AJ. Mechanical properties of all-suture anchors for rotator cuff repair. *Bone Joint Res*. 2017;6(2):82-89. **5.** Ruder JA, Dickinson EY, Peindl RD, Habet NA, Trofa DP, Fleischli JE. Cyclic and Load-to-Failure Properties of All-Suture Anchors in Human Cadaveric Shoulder Glenoid Bone. *Arthroscopy*. 2019;35(7):1954-1959 e1954.

Ordering information

Q-FIX◊ All-Suture Anchor	
Reference #	Description
25-1800	1.8mm Q-FIX All-Suture Anchor
25-1811	Disposable Kit Hip for 1.8mm Q-FIX
Q-FIX◊ MINI All-Suture Anchor	
72290123	1.8mm Q-FIX MINI All-Suture Anchor
72290126	1.8mm Q-FIX MINI XL Disposable Kit
SPEEDSTITCH Suture Device	
OM-7000	SPEEDSTITCH Suture Device
ACCU-PASS◊ Direct Suture Device	
23-2005	ACCU-PASS Direct Crescent XL
CLEAR-TRAC Cannulas	
72200439	CLEAR-TRAC 7.0mm x 110mm
72200436	CLEAR-TRAC 8.5mm x 110mm
72200440	CLEAR-TRAC 7.0mm x 90mm
72200902	CLEAR-TRAC 8.5mm x 90mm
72200424	CLEAR-TRAC FLEXIBLE 8.0mm x 90mm
72200445	Reusable Obturator 7.0mm x 110mm
72200442	Reusable Obturator 8.5mm x 110mm
72200446	Reusable Obturator 7.0mm x 90mm
72200913	Reusable Obturator 7.0mm x 90mm
72200899	Reusable Obturator 8.0mm x 90mm

SPEEDSTITCH Cartridges	
Reference #	Description
OM-8850	SPEEDSTITCH Needle Cassette Insert
OM-8085	SPEEDSTITCH MAGNUMWIRE◊ Suture Cartridges, white, 6 per box
OM-8086	SPEEDSTITCH MAGNUMWIRE Suture Cartridges, cobraid-blue, 6 per box
OM-8087	SPEEDSTITCH MAGNUMWIRE Suture Cartridges, cobraid-black, 6 per box
OM-8088	SPEEDSTITCH MAGNUMWIRE Suture Cartridges, Mixed: white, cobraid-blue and cobraid-black, 6 per box (2 of each color)
COBLATION◊ Plasma Technology	
72290004	AMBIENT◊ HIPVAC◊ 50
72200681	DYONICS◊ EFLEX◊ TAC-S Probe with integrated cable
72200682	DYONICS EFLEX LIGAMENT CHISEL Probe with integrated cable
72200683	DYONICS EFLEX ABLATOR Probe with integrated cable
7209687	Split Electrode Parts
7209646	LIGAMENT CHISEL Hook Probe
7210438	GLIDER™ Articular Cartilage Probe

EFLEX probes are used in combination with the Smith+Nephew VULCAN◊ Generator

CAP-FIX◊ Blades*	
72205314	CAP-FIX BLADE Straight, with Handle
72205315	CAP-FIX BLADE Curved, with Handle
72205316	CAP-FIX BLADE Straight
72205317	CAP-FIX BLADE Curved
72205318	CAP-FIX Blade, Straight, with Hip Pac
72205319	CAP-FIX Blade, Curved, with Hip Pac

*CAP-FIX products manufactored in Andover

Additional instruction

For more information on the application of any products discussed in the presentation, as well as indications for use, contraindications, and product safety information, please consult the Instructions for Use (IFU) for such product. To order these instruments, call **+1 800 343 5717** in the U.S. or contact an authorized Smith+Nephew representative.

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

Learn more at **smith-nephew.com**

Manufactured by:
ArthroCare Corporation
7000 West William
Cannon Drive
Austin, TX 78735, USA

www.smith-nephew.com
T +978 749 1000
US Customer Service:
+1 800 343 5717

Distributed by:
Sports Medicine
Smith & Nephew, Inc.
150 Minuteman Road
Andover, MA 01810

28455 V1 08/21