

HIP TECHNIQUE GUIDE

Arthroscopic Hip Labral Repair/Refixation Using the **BIORAPTOR**[®] and **OSTEORAPTOR**[®] CURVED 2.3 Suture Anchors and Guide System

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KNEE

HIP

SHOULDER

EXTREMITIES

Arthroscopic Hip Labral Repair/Refixation Using the BIORAPTOR[◊] and OSTEORAPTOR[◊] CURVED 2.3 Suture Anchors and Guide System

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The Smith & Nephew BIORAPTOR[◊] and OSTEORAPTOR[◊] CURVED 2.3 Suture Anchors and Guide System for hip labral repair are designed to provide improved access to the acetabular rim compared to traditional straight instruments. Coupled with secure fixation of the BIORAPTOR 2.3 PK and OSTEORAPTOR 2.3 PLLA-HA Suture Anchors, this specially designed curved delivery system allows for the anchor to be positioned closer to the articular side of the acetabular rim with less risk for penetration of the acetabular articular cartilage when compared to straight delivery systems.¹ Placement closer to the articular side of the acetabular rim may allow for a more reproducible preservation of the labral seal.

The labrum has been shown in finite element models to provide a seal and minimize hip contact pressures.² Several studies have shown improved outcomes at early follow-up with labral repair compared to labral resection/debridement.^{3,4,5} The most recent follow-up data, at 3.5 years mean, shows better outcomes scoring and good-to-excellent results (92% vs 68%) for labral repair/refixation compared to labral debridement, respectively, as part of a femoroacetabular impingement (FAI) correction procedure.⁶



INSTRUMENTATION

The curved guide is a reusable, stainless steel, cannulated curved shaft with an ergonomic handle designed to aid in alignment and improved anchor placement during drilling and suture anchor insertion. Initial insertion of the curved guide is aided by the flexible obturator, a reusable stainless steel pliable shaft with a blunt tip and handle, which has been designed to occlude soft tissue during insertion.

The flexible drill used with the curved guide is made from stainless steel and includes a fluted bit designed to optimally create a pilot hole. These instruments are designed for use only with the Smith & Nephew BIORAPTOR[®] CURVED 2.3 PK and OSTEORAPTOR[®] CURVED 2.3 PLLA-HA Suture Anchors, inert and radiolucent fixation anchors loaded on flexible inserters, now offered with extra-long (42") ULTRABRAID[®] Suture.



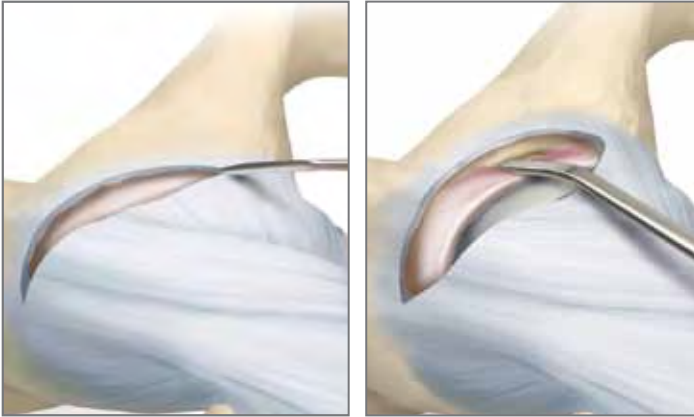
PATIENT POSITIONING

1. Position the patient in either the supine or lateral position on a fracture table or a hip distractor table.
2. Use a padded, extra-wide bolster to protect the perineum.
3. Place both feet in well-padded boots.
4. Apply gentle inline traction to the operative hip, with countertraction to the non-operative leg.
Note: The position of the non-operative and operative leg varies according to surgeon preference and between supine and lateral position approaches.
5. Using fluoroscopy, confirm joint distraction of approximately 10 mm. Alternatively, penetrate the hip capsule with a 17 gauge needle in order to release the intra-articular negative pressure to improve distractibility.

PORTAL PLACEMENT

1. Establish the anterolateral portal 1 cm anterior and 1 cm superior to the tip of the greater trochanter.
2. Insert a 17 gauge needle under fluoroscopic guidance through the capsule, avoiding iatrogenic injury to the labrum and femoral head cartilage.
3. Inject 20–30 cc of normal saline into the needle to confirm pressurized back flow and intra-articular placement.
4. Reposition the needle under the labrum, if necessary, in order to avoid iatrogenic labral penetration.
5. Insert a nitinol wire through the needle.
6. Place an ARTHROGARDE[®] Hip Access Cannula trocar assembly over the nitinol wire.
7. Perform a diagnostic, arthroscopic examination using a 70° arthroscope to assess the location, size, and morphology of the labral tear and (when present) associated chondral and impingement lesions.
8. Establish the mid-anterior portal approximately 1 cm lateral to the anterior superior iliac spine (ASIS) and 3–5 cm distal or at a 45° angle to the anterolateral portal.
9. Place the needle under direct arthroscopic visualization.
10. Insert a nitinol wire and place a 5.0 mm ARTHROGARDE[®] Hip Access Cannula and trocar assembly over the wire to establish a second portal.

STEP 1



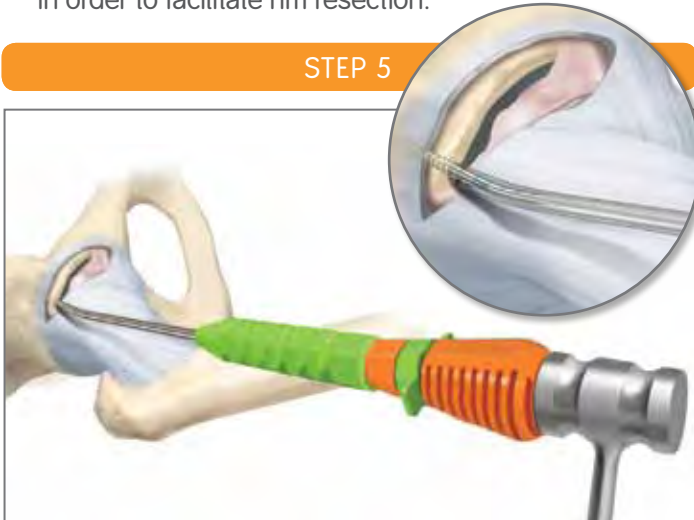
Capsulotomy with banana blade

Labral take down with Elevator XL

Labral Repair Preparation

- Prepare the acetabular rim for labral repair. A capsulotomy may be performed with a banana blade to improve instrument maneuverability and access to the acetabular rim.
- Perform capsular elevation off the acetabular rim using arthroscopic shavers and/or flexible radiofrequency probes.
- If there is associated pincer-type impingement, resect the rim using a high-speed burr to remove the excessive acetabular overhang. Labral takedown can be performed with a banana blade or Elevator XL in order to facilitate rim resection.

STEP 5



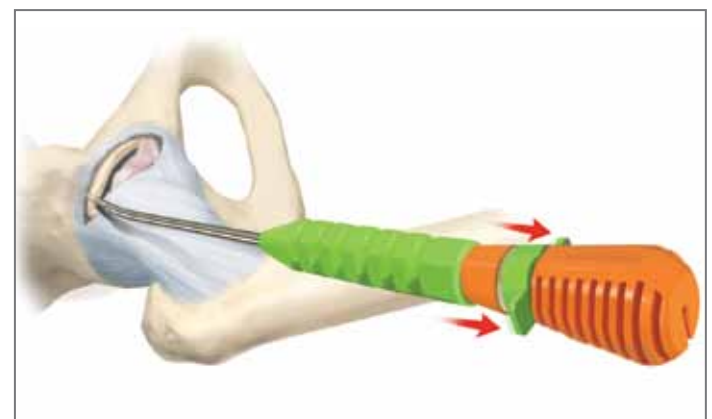
Tap in the suture anchor inserter device to extend the anchor into the prepared hole until recommended insertion depth is achieved. When the suture anchor handle contacts the guide handle, the suture anchor has been seated at the appropriate depth below the surface of the bone.

STEP 2



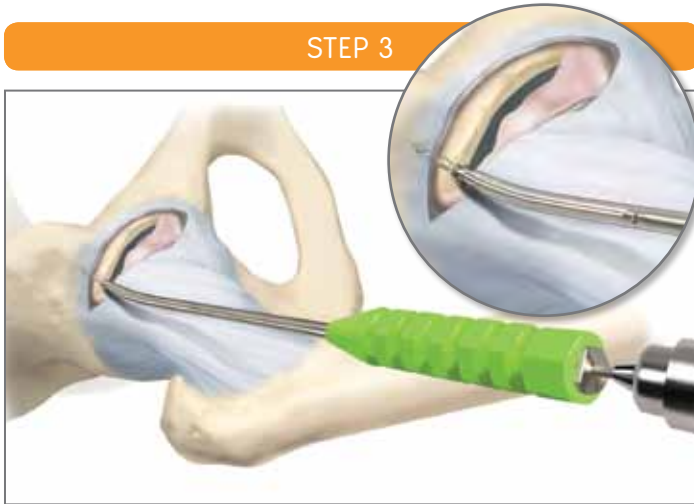
Through an 8.5 mm CLEAR-TRAC[®] COMPLETE Hip Cannula, insert the curved guide with the flexible obturator. Place the distal tip of the guide onto the acetabular rim at the desired implantation site. Positioning the suture anchor closer to the acetabular articular side may allow for better maintenance of the labral seal once the repair is complete. Remove the flexible obturator.

STEP 6



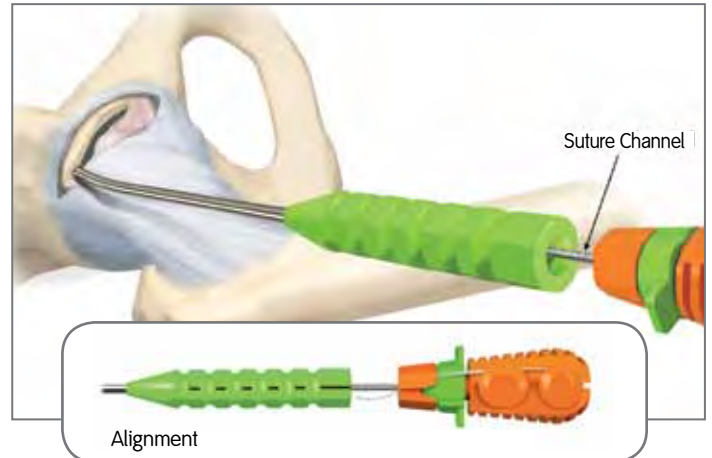
Disengage the suture anchor from the inserter by holding the orange handle securely in the palm of the hand and pulling back on the green finger grips using two fingers to retract the suture tensioning mechanism. While holding the green finger grips back, slowly remove the suture anchor inserter from the guide. The suture releases from the device as it is removed. Discard the suture anchor inserter device.

STEP 3



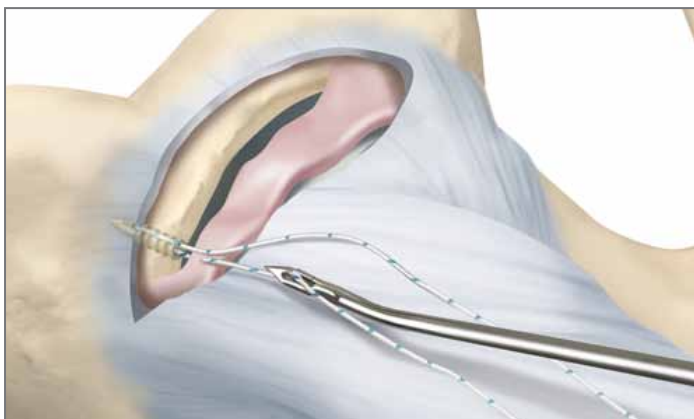
While maintaining the curved guide in its location, use the flexible drill for the curved guide to prepare the insertion site. The depth stop on the flexible drill bit bottoms out on the curved guide handle when proper hole depth is reached. Care should be taken to avoid intra-articular penetration of the acetabular articular cartilage with the drill.

STEP 4



While holding the curved guide in place, remove the drill bit from the insertion site. Insert the BIORAPTOR[®] or OSTEORAPTOR[®] CURVED Suture Anchor into the curved guide. Rotate the suture anchor inserter to align the suture channels with the bend of the guide. The line on the drill guide aligns with the suture retention buttons. The anchor is visible through the windows at the end of the drill guide.

STEP 7



Pass sutures through or around the labrum using a suture passing device such as the ARTHRO-PIERCE[®] XL Instrument or ARTHRO-ROUND XL. Secure the knots with a Knot Pusher XL, and cut excess suture with the Suture Cutter XL.

STEP 8



After placement of the initial anchor, place additional anchors approximately 1 cm apart to complete the labral repair/refixation. Intermittent release of traction can help to verify that appropriate suture tension and preservation of the labral seal against the femoral head is achieved.

TECHNIQUE PEARLS

1. When drilling, ensure the drill guide is secure on a flat landing area of exposed bone to avoid inadvertent slippage of the drill on either side of the acetabular rim.
2. Use intra-operative fluoroscopy and direct arthroscopic visualization in order to avoid intra-articular acetabular drilling or anchor penetration.
3. The minimum diameter hip length (90 mm or 110 mm) CLEAR-TRAC[®] COMPLETE Hip Cannula which is compatible with the 2.3 mm curved guide is 8.5 mm.

POSTOPERATIVE CARE*

Continuous Passive Motion (CPM) and/or “well leg cycling” is begun the day of or day after surgery. Avoid the extremes of external rotation for three weeks in order to protect the labrum and capsular repair when performed.

Foot flat (30 lb) weight bearing with crutches is typically recommended for two weeks postoperatively.

** The views and opinions expressed for postoperative care are solely those of the surgeon(s) and do not reflect the views of Smith & Nephew, Inc. In no event shall Smith & Nephew, Inc., be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use the expressed views.*

References

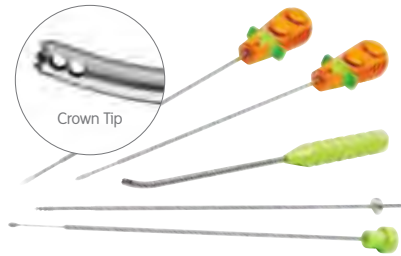
1. Data on file at Smith & Nephew ITR-4616, 2011, ITR-4670, 2011, ITR-4436, 2010, ITR-4476, 2010, Doc. 15001167, 2011.
2. Ferguson SJ, Bryant, Ganz R, Ito K. The acetabular labrum seal: a poroelastic finite element model. Clin Biomech (Bristol, Avon) 2000; Jul; 15(6):463-468.
3. Larson CM and Giveans MR. Arthroscopic debridement versus refixation of the acetabular labrum associated with femoroacetabular impingement. Arthroscopy 2009; 25(4):369-376.
4. Philippon M, Briggs K, Yen Y, Kuppersmith D. Outcomes following hip arthroscopy for femoroacetabular impingement with associated chondrolabral dysfunction: minimum two-year follow-up. J Bone Joint Surg Br 2009; 91:16-23.
5. Espinosa N, Rothenfluh DA, Beck M, et al. Treatment of femoroacetabular impingement: preliminary results of labral refixation. J Bone Joint Surg 2006; 88A (5):925-935.
6. Larson, CM and Giveans MR. Arthroscopic debridement versus refixation of the acetabular labrum associated with femoroacetabular impingement, minimum 2 year follow up. AANA 2011 Annual Meeting, April 14–16, 2011.

ORDERING INFORMATION

To order the instruments used in this technique, call +1 800 343 5717 in the U.S. or contact an authorized Smith & Nephew representative.

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

Reference #	Description
72203155	Curved Drill Guide for 2.3 Suture Anchors, Crown Tip
72203159	Flexible Obturator for 2.3 Curved Guide
72203160	Flexible Twist Drill for 2.3 Curved Guide, Single Use, Sterile
72203259	BIORAPTOR® CURVED 2.3 PK Suture Anchor w/one 42" ULTRABRAID® (#2) Suture (White)
72203258	BIORAPTOR CURVED 2.3 PK Suture Anchor w/one 42" ULTRABRAID (#2) Suture (COBRAID-blue)
72203289*	OSTEORAPTOR® CURVED 2.3 Suture Anchor w/one 42" ULTRABRAID (#2) Suture (White)
72203287*	OSTEORAPTOR CURVED 2.3 Suture Anchor w/one 42" ULTRABRAID (#2) Suture (COBRAID-blue)



* CE mark pending

72203228 HIPSTRUMENTS System

System includes:

72202732	Hip Arthroscopy Repair Instrument Tray
72202683	ARTHRO-PIERCE® XL Instrument
72202586	ARTHRO-ROUND XL
72202628	Elevator XL
72202119	Microfracture Pick XL, 30°
72202120	Microfracture Pick XL, 45°
72202210	Microfracture Pick XL, 60°
72202584	Open Curette, 6 mm, XL, Reverse Cut
72202583	Open Curette, 4.5 mm, XL
72202588	Suture Cutter XL
72203052	Suture Cutter Flush XL
72202629	Rasp XL
7210758	Banana Blade, reusable
72202587	Knot Pusher XL
7209145	Crochet Hook



CAUTION: U.S. Federal law restricts these devices to sale by or on the order of a physician.



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