

Hip Capsule Closure

Utilizing the Dragon Tongue Suture
Passing Device

Surgical Technique

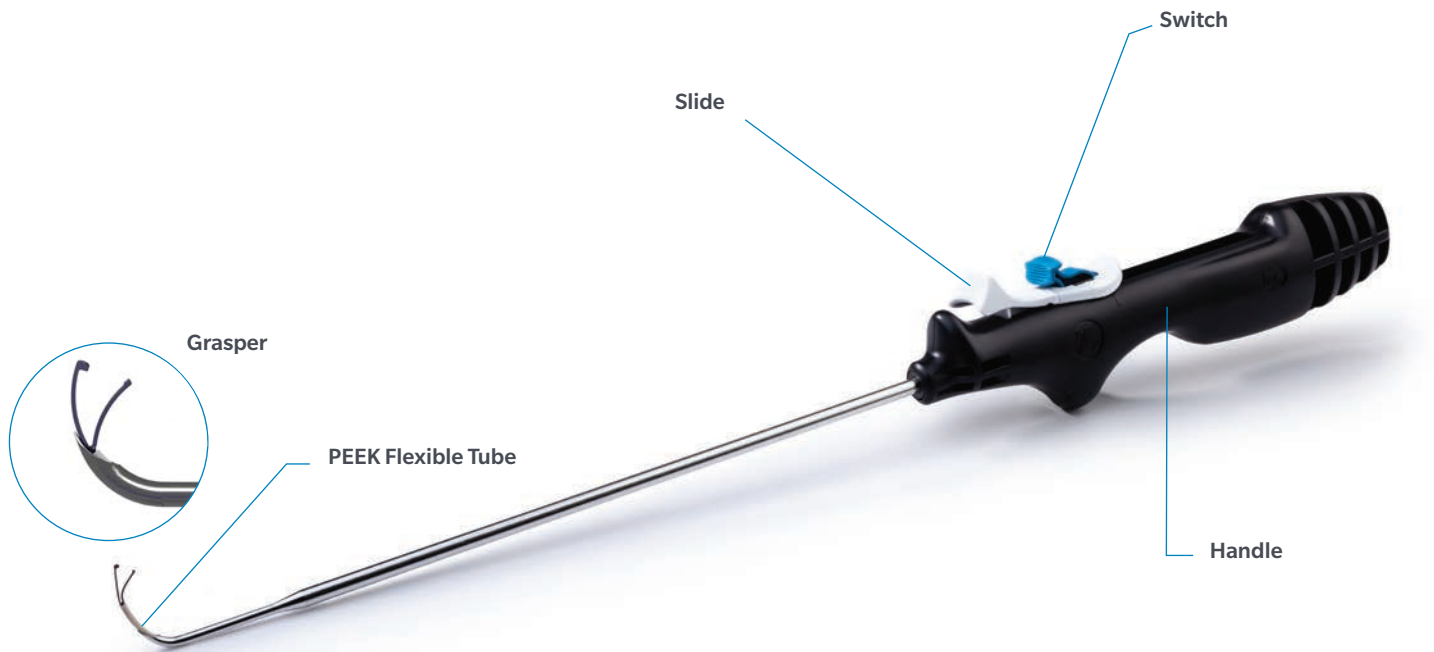


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Dragon Tongue Suture Passing Device



Management of the hip capsule has evolved over recent years with an increased awareness of the functional and clinical benefits of capsular closure¹. A shift toward more routine capsule closures has occurred amongst a growing number of hip surgeons due to these clinical findings.

Clinical studies have demonstrated unrepaired hip capsules can lead to: iatrogenic instability^{2, 3, 4}, pain^{1,4,5}, and a higher rate for revision arthroscopy^{1,2} and conversion to arthroplasty⁵. A study conducted by Benjamin Domb, M.D. suggests that, depending on patient pathology, capsule closure should be considered in all patients⁵.

The Dragon Tongue Suture Passing Device was designed to help surgeons efficiently perform single portal capsular closure.

Hip Capsule Closure Utilizing the Dragon Tongue Suture Passing Device



Figure 1a

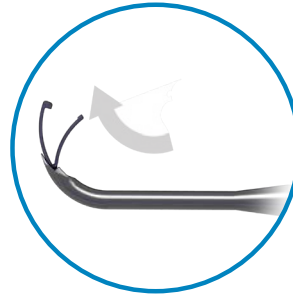


Figure 2a



Figure 1



Figure 2

Loading Dragon Tongue for Use:

Shift the blue switch forward (Figure 1).

Press down on the end of the white slide closest to the shaft and push forward to expose the grasper (Figure 2).

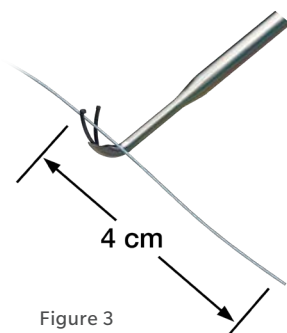


Figure 3

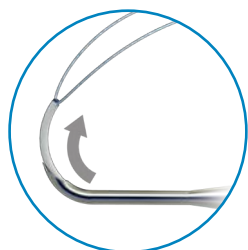


Figure 4a

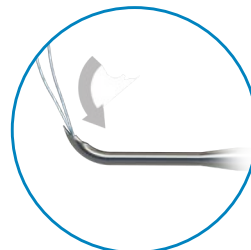


Figure 5a



Figure 4



Figure 5

Place a MaxBraid™ suture or BroadBand™ tape within the opened grasper, leaving approximately a 4 cm tail (Figure 3).

Shift the blue switch back to capture the suture (Figure 4).

Note: When the switch is shifted back, the PEEK flexible tube will advance out of the tube to close the grasper.

Press down on the white slide and pull backward to retrieve the flexible tube with suture into the needle shaft (Figure 5). Continue to pull the white slide backwards to retrieve up to 30 mm of suture. The white slide will lock into place once retracted all the way back.

Single Portal Technique for Capsular Closure using Dragon Tongue Suture Passing Device

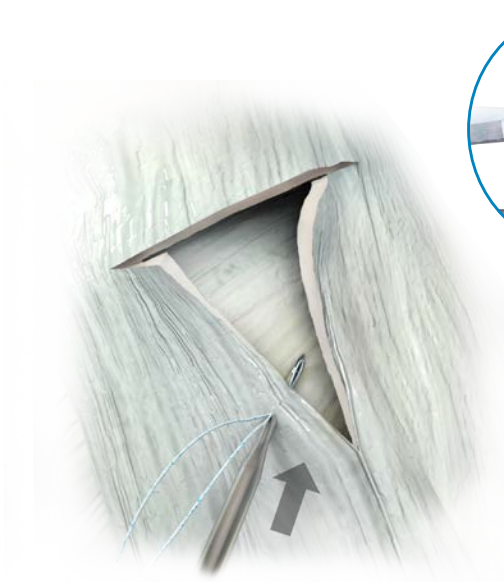


Figure 6

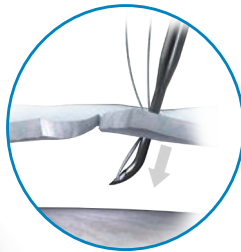


Figure 6a

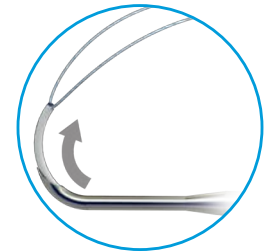


Figure 7a

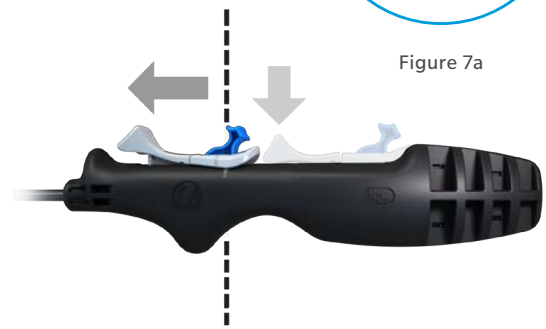


Figure 7

Pass Suture

T-Capsulotomy Closure: Working from base to apex of the T-cut, begin the capsular closure with a single 8.5 mm HydroDam™ Cannula in the preferred working portal (AP, DALA, MAP, mMap, etc.).

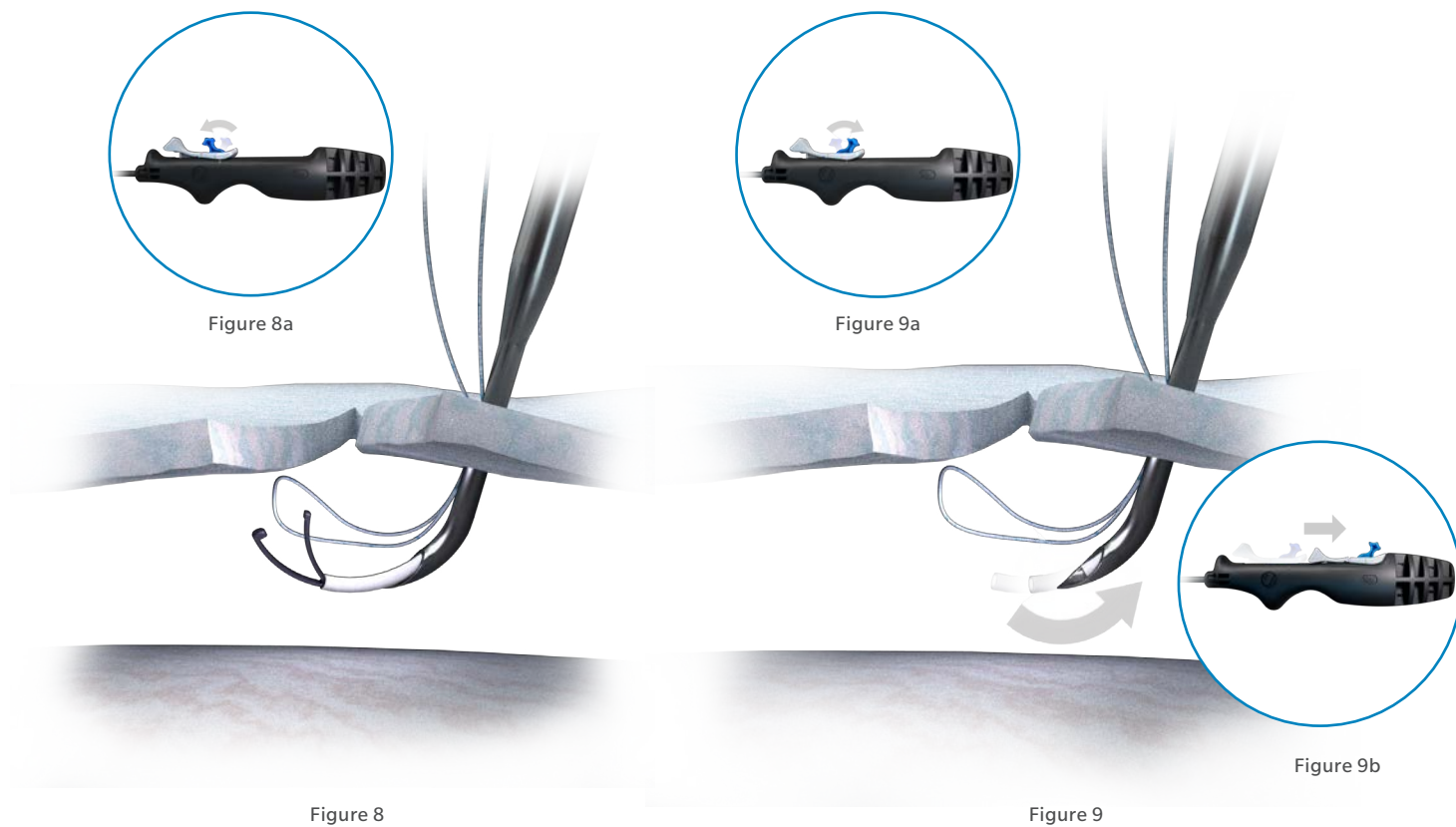
Deliver the Dragon Tongue passer, loaded with suture, through the HydroDam Cannula and fully penetrate the lateral leaflet of the capsule at a point appropriate to accomplish the desired closure (Figure 6).

Note: The Dragon Tongue Suture Passer is designed to enable secure capsular closure with various portals and angles of approach to the capsule.

Release Suture

Once the Dragon Tongue passer has penetrated the anterior capsule lateral leaflet, press down on the slide and push forward until the white line on the slide is advanced to, or beyond, the black line on the handle to expose the flexible tube (Figure 7).

Note: The etched line on the PEEK tubing is an arthroscopic visual which indicates the slide has been advanced far enough for the grasper to open.



Shift the blue switch forward to deploy the grasper and release the suture towards the medial capsular leaflet (Figure 8).

Note: By advancing the slide forward and exposing the PEEK flexible tube prior to shifting the switch, the suture will be released when desired. If the switch is shifted forward first, the suture may release from the grasper once exposed from the needle shaft prior to reaching the desired location between the leaflets.

Note: The Dragon Tongue device aids in positioning the suture in a desirable pickup position at the opposing capsular leaf and ejects approximately 30mm of suture for efficient grasping through that leaf.

Shift the blue switch back to close the grasper, press down on the white slide and pull back to retrieve the grasper back into the needle shaft (Figure 9). Remove the Dragon Tongue device from the tissue.

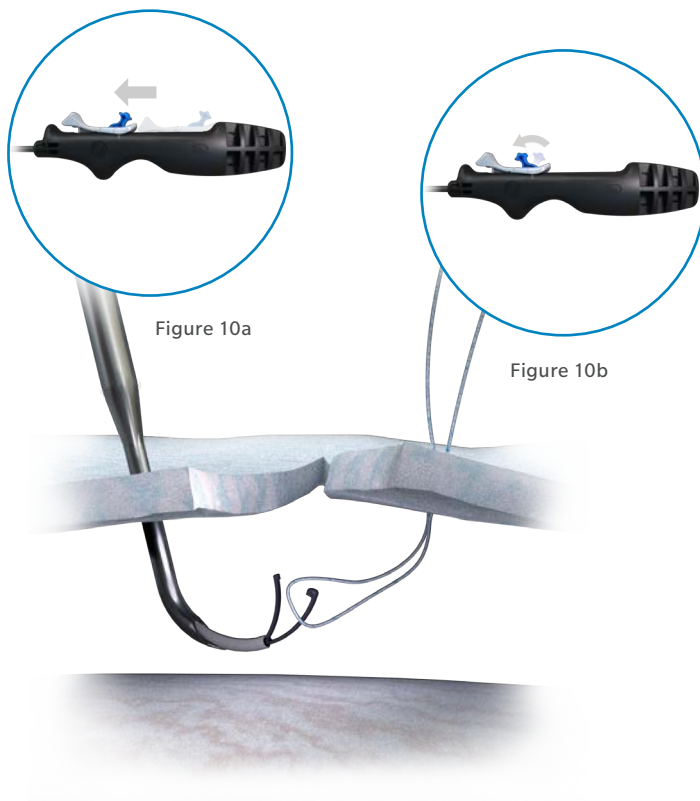


Figure 10

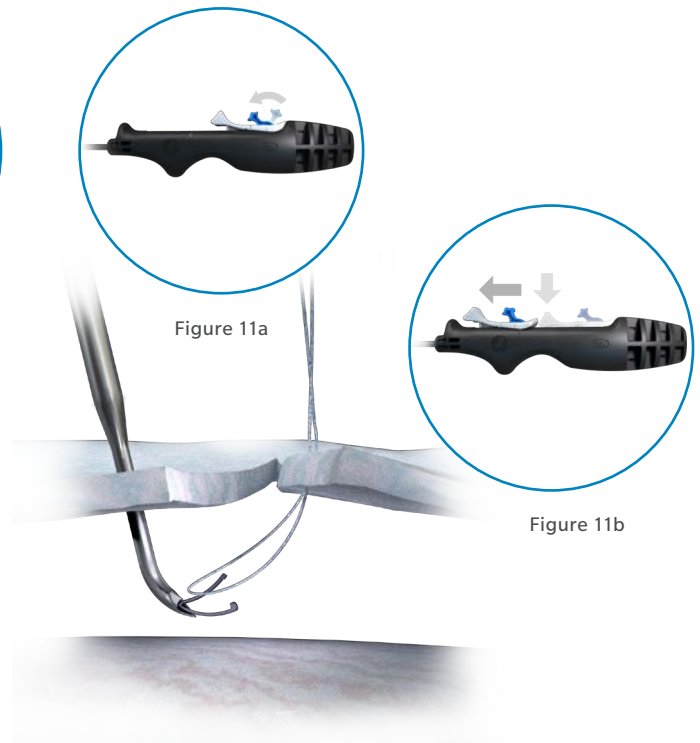


Figure 11

Retrieve Suture:

Deliver the Dragon Tongue device through the medial capsule flap at a point appropriate to accomplish the desired closure. To take advantage of the long reach of the Dragon Tongue device, press down on the white slide and push forward to expose the flexible tube. Shift the blue switch forward to expose the grasper (Figure 10).

Note: The Dragon Tongue device has the ability to grab suture at near and far distances. In some scenarios, the suture may be close to the entry point of the medial capsule flap. In this case, shift the blue switch forward first, then press down on the slide and push forward. This will allow the grasper to be deployed at a shorter distance from the shaft, allowing the device to grab nearby suture (Figure 11).



Figure 12a

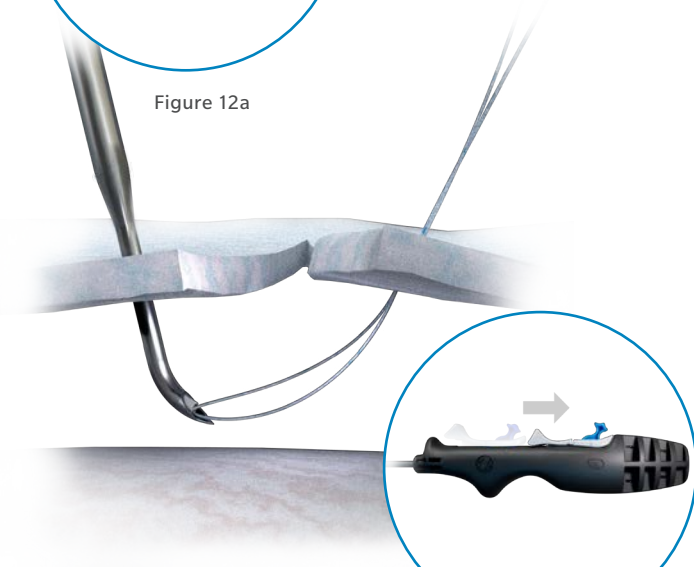


Figure 12

Figure 12b

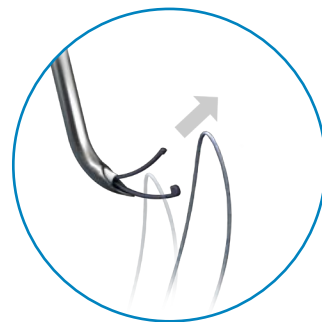


Figure 13a

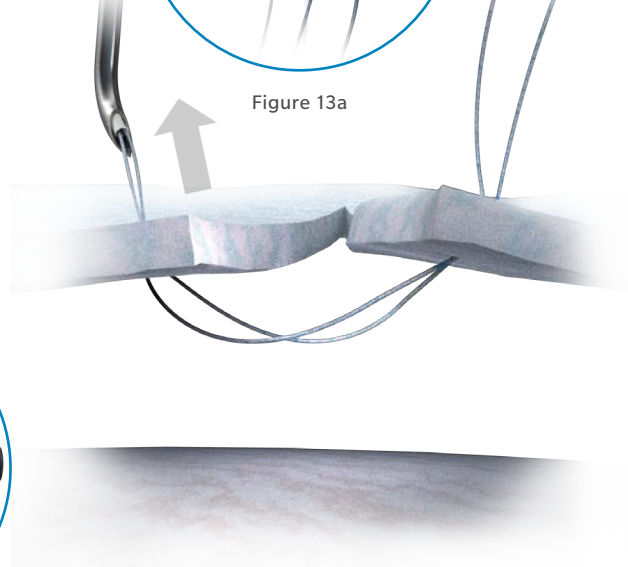


Figure 13

Shift the blue switch back to grab the suture and press down on the white slide and pull back to retract the suture into the shaft (Figure 12).

Remove the Dragon Tongue device from the joint space through the HydroDam Cannula. Unload the suture by shifting the blue switch forward, pressing down the white slide, and pushing forward (Figure 13).



Figure 14



Figure 15

Tie Arthroscopic Knots:

Tie the suture with standard arthroscopic knot tying techniques. Repeat this process with more sutures until the T-cut closure is complete (Figure 14).

ⓘ **Note:** The Dragon Tongue device allows for variable suture placement to accomplish a standard capsule closure or plication.

ⓘ **Note: Interportal Closure:** Repeat the previous steps to close the interportal capsulotomy using the Dragon Tongue device to pass suture through the proximal and distal aspect of the anterior capsule until all stitches have been arthroscopically passed and the interportal capsulotomy has been closed (Figure 15).

ⓘ **Note:** Portal selection is dependent on surgeon preference and capsulotomy type (e.g. T-capsulotomy, Interportal capsulotomy, etc.).

Caution: Do not extend the grasper into cartilage or surrounding tissue as this may cause damage. Do not apply excessive lateral force.

Ordering Information

Dragon Tongue Suture Passing Device

Description	Part Number
Dragon Tongue Suture Passing Device	110038984



INDICATIONS FOR USE

The apparatus is indicated only for use by qualified surgeons, who are knowledgeable and skilled in implementation of minimally invasive procedures. The apparatus is indicated for penetrating soft tissue and to aid passing of surgical suture through it.

CONTRAINDICATIONS

Do not use the apparatus on bone or other similarly hard tissue.

WARNINGS

- Whether used endoscopically or in open surgery the apparatus must be used under direct visualization.
- The apparatus is for SINGLE PATIENT USE ONLY. DO NOT RESTERILIZE OR REUSE.
- Reuse may cause damage to apparatus, which could cause patient injury.
- The apparatus is provided sterile. Discard any open product, even if unused.
- Do not use after the expiration date or if the label is missing.
- Do not use if product is damaged or sterile barrier is compromised.

PRECAUTIONS

- Caution: Federal law (USA) restricts these instruments to sale by, or on the order of, a physician.
- This device should be used only by authorized, certified and properly trained physicians with a thorough understanding of orthopedic procedures and endoscopic techniques.
- Inspect the apparatus and sterile packaging (as applicable) prior to use for damage. Do not use if apparatus is damaged and/or sterile barrier is compromised.
- The Nitinol wire should be retracted when passing the needle through tissue. Failure to retract the Nitinol wire could result in apparatus damage and/or patient injury.
- Do not apply excessive force to the apparatus, as excessive force could bend or damage the passing shaft and impair the function of the apparatus.
- When using the apparatus through a cannula, check for free passage of the apparatus shaft.

References:

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2. Matsuda DK. Acute iatrogenic dislocation following hip impingement arthroscopic surgery. *Arthroscopy.* 2009 Apr; 25(4):400-4.
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4. Joshua D. Harris, M.D., William Slikker, III, M.D., Anil K. Gupta, M.D., M.B.A., Frank M. McCormick, M.D., and Shane J. Nho, M.D., M.S. • Routine Complete Capsular Closure During Hip Arthroscopy. *Arthrosc Tech.* 2013 May; 2(2): e89–e94. Published online 2013 Mar 17. doi: 10.1016/j.eats.2012.11.007
5. Domb, Benjamin G. et al. Patient-Reported Outcomes of Capsular Repair Versus Capsulotomy in Patients Undergoing Hip Arthroscopy: Minimum 5-Year Follow-up—A Matched Comparison Study. *Arthroscopy*, March 2018, Volume 34, Issue 3, 853 - 863.e1

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