stryker

Bikini incision

Surgical technique

DART™

Direct Anterior
Reconstructive Technology

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Introduction to **the Bikini incision**

A bikini incision is an alternative surgical skin incision and superficial soft tissue dissection for direct anterior approach total hip arthroplasty. A bikini incision is placed parallel to the skin's natural tension lines, as opposed to a standard longitudinal direct anterior incision, which overlies the belly of the tensor fascia latae muscle. Bikini incision has been shown to be a safe approach and can potentially improve wound healing, cosmesis and patient satisfaction. [1,2,3,4,5,6]

1. The bikini incision exposure is a more advanced technique that should not be introduced into a surgeon's practice before mastering the exposure and entire total hip arthroplasty procedure through a standard vertical longitudinal incision.[5]
2. It is recommended that surgeons attend an advanced course and/or visit a surgeon to assist in introducing bikini incisions into their practice.
3. The overall surgery set-up and patient positioning for a bikini incision is the same as for a standard longitudinal incision.
4. If a wire or cable needs to be placed around the calcar, this can be accomplished through a bikini incision. However, if more substantial femur fixation is needed, a separate lateral thigh incision for a lateral approach to the femur is recommended.
5. Based on surgeon preference, the exact retractors used may vary from those seen in the images below.

Clinical example of bikini incision at **6-weeks postoperatively**

Step by step | **Bikini incision technique**

Step 1 - Marking out the bikini incision

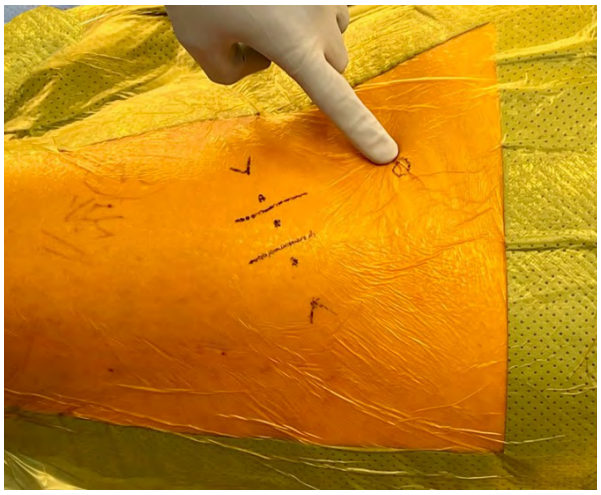

Figure 1

Palpate the Anterior Superior Iliac Spine (ASIS)

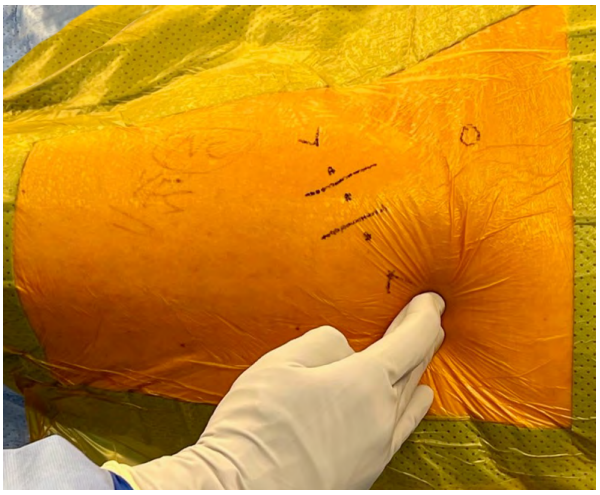

Figure 2

Palpate the Greater Trochanter

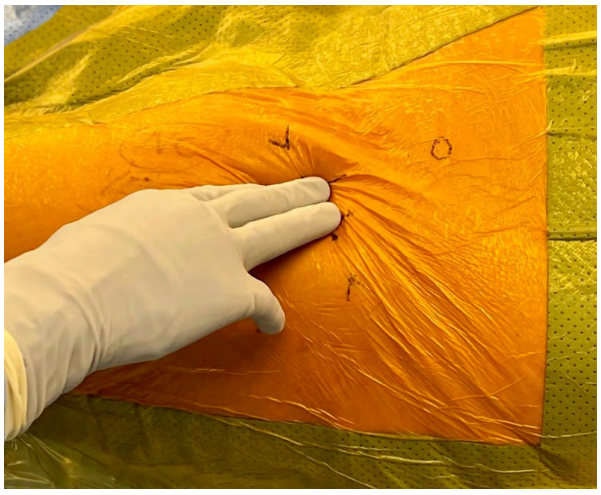

Figure 3

Palpate the Tensor Fascia and Smith-Peterson interval

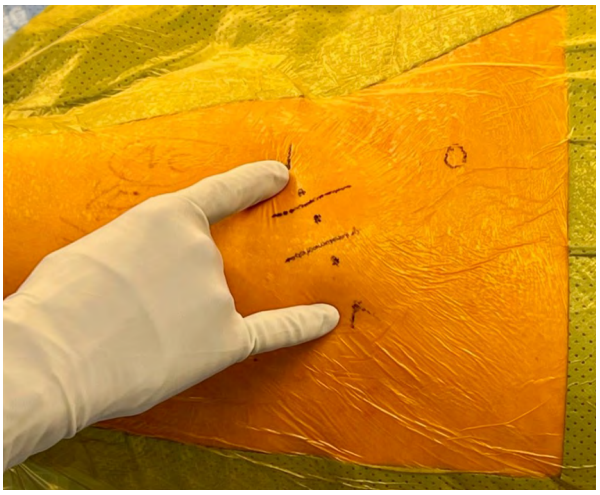

Figure 4

Place bikini incision parallel to hip flexion crease 3-4 finger breadths distal to ASIS

Step by step | **Bikini incision technique**

Retractors used:

1440-2040 / 1440-2041

Standard and Wide Cobra Retractor

Step 2 - Surface anatomy and landmarks

Figure 5

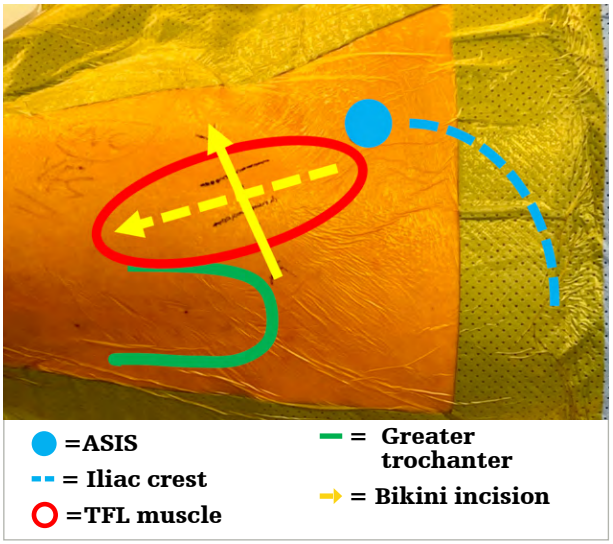

Figure 6

Figures 5-6

Palpate the ASIS, the greater trochanter, the tensor fascia muscle belly, and the medial interval.

Make an 8-10cm incision parallel to the hip flexion crease (angled near perpendicular to a standard oblique longitudinal incision) with the proximal lateral extent just anterior and proximal to the greater trochanter.

The incision is typically 3 to 4 finger breadths distal to the ASIS, though it often does not sit on the groin crease as this can result in an incision that is too proximal. The incision should be centered ~1/4 medial and ~3/4 lateral to a line drawn down from the ASIS.

Exact incision position varies based on the patient's anatomy.

Step by step | **Bikini incision technique**

Step 3 - Skin incision

Figure 7

Figure 8

Figures 7-8

Make the initial incision just through the skin down to the subcutaneous fatty tissue, coagulating superficial bleeders with electrocautery as needed.

Step by step | **Bikini incision technique**

Step 4 - Subcutaneous tissue dissection to fascia over tensor fascia latae

Figure 9

Continue the dissection through the subcutaneous fatty tissue through a narrow interval down to the TFL fascia. Keeping the subcutaneous dissection in the lateral 2/3 of the incision will help to avoid and protect the lateral femoral cutaneous nerve branches (though it is common to see a branch of the lateral femoral cutaneous nerve).

Figure 10

Gently open the subcutaneous tissue using two retractors to expose the fascia overlying the center of the TFL muscle belly. Alternatively, this can be done manually with fingers.

Helpful landmarks for appropriate incision through the fascia can be identified through a yellow fat stripe that can be seen through the fascia medially and perforating vessels through the TFL fascia laterally.

This should expose the TFL fascia in the same location as is done with a standard oblique longitudinal incision.

Step by step | **Bikini incision technique**

Step 5 - Exposure to the tensor fasciae latae muscle

Figure 11

Incise the fascia of the TFL slightly medial to its midpoint and extend the fascia incision in line with the muscle fibers.

Figure 12

Bluntly dissect the fascia from the tensor and gently pull the TFL muscle laterally to identify the Smith-Petersen interval. This interval is characterized by a fatty layer and the deep layer of the fascia latae that is covering it.

Note: Once you expose the TFL muscle, the remainder of the surgical dissection and hip exposure should be the same as with a standard oblique longitudinal incision.

Variations may occur after this step based on surgeon preference.

Step by step | **Bikini incision technique**

Step 6 - Exposure of lateral femoral circumflex vessels

Figure 13

Palpate the superolateral saddle region of the femoral neck and place the first blunt retractor in this location between the hip capsule and gluteal (abductor) muscles.

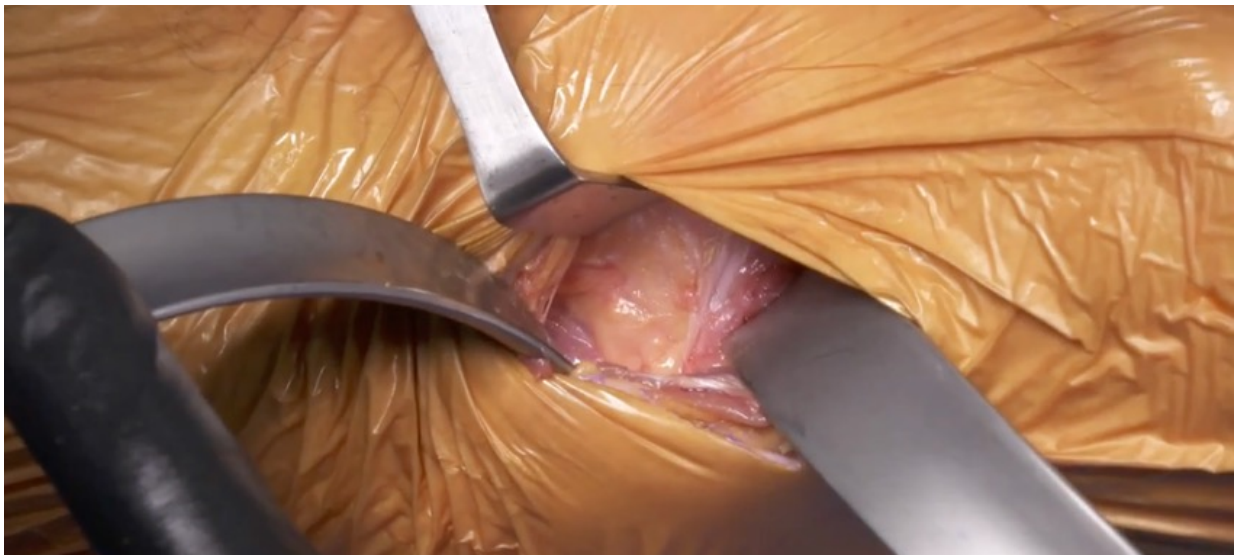

Figure 14

Place a second blunt cobra retractor infero-lateral to the greater trochanter to expose and tension the lateral femoral circumflex artery and veins.

A retractor can be used medially to assist in visualization.

Identify and cauterize the ascending branches of the lateral femoral circumflex vessels, which are typically located at the level of the incision.

Step by step | **Bikini incision technique**

Step 7 - Exposure of the hip joint capsule

Figure 15

Reposition the blunt cobra retractor from infero-lateral to the greater trochanter to infero-medial around the femoral neck hip capsule, sweeping the retractor across the anterior hip capsule just superior to the vastus muscle fibers. A soft tissue elevator can be used to elevate the iliopsoas muscle off the inferior capsule to help facilitate exposure of the inferior capsule.

Figure 16

The vastus muscle fibers should be seen in the inferior wound with the anterior hip capsule exposed centrally.

Step by step | **Bikini incision technique**

Step 8 - Capsulotomy and femoral neck exposure

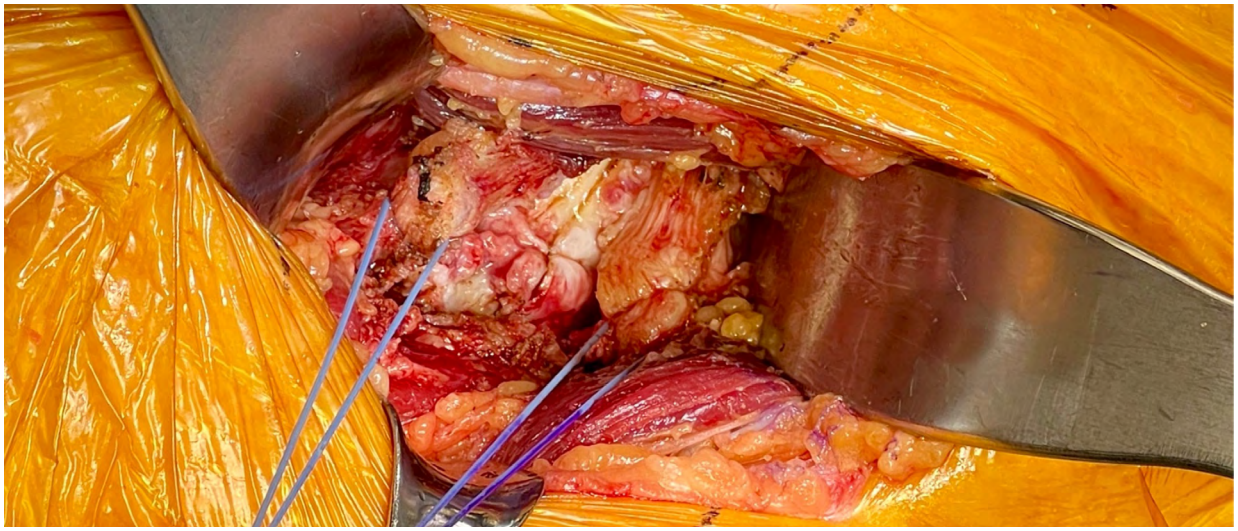

Figure 17

During this step, the pericapsular fatty tissue is excised to delineate the capsule, and then an inverted "T" capsulotomy is performed from the base of the femoral neck at the intertrochanteric line up to the rim of the acetabulum and through the labrum.

Place 2x tagging sutures on the superolateral and inferior-medial limbs of the capsule to assist with exposure and retraction. Alternatively, some surgeons may prefer to perform a capsulectomy.

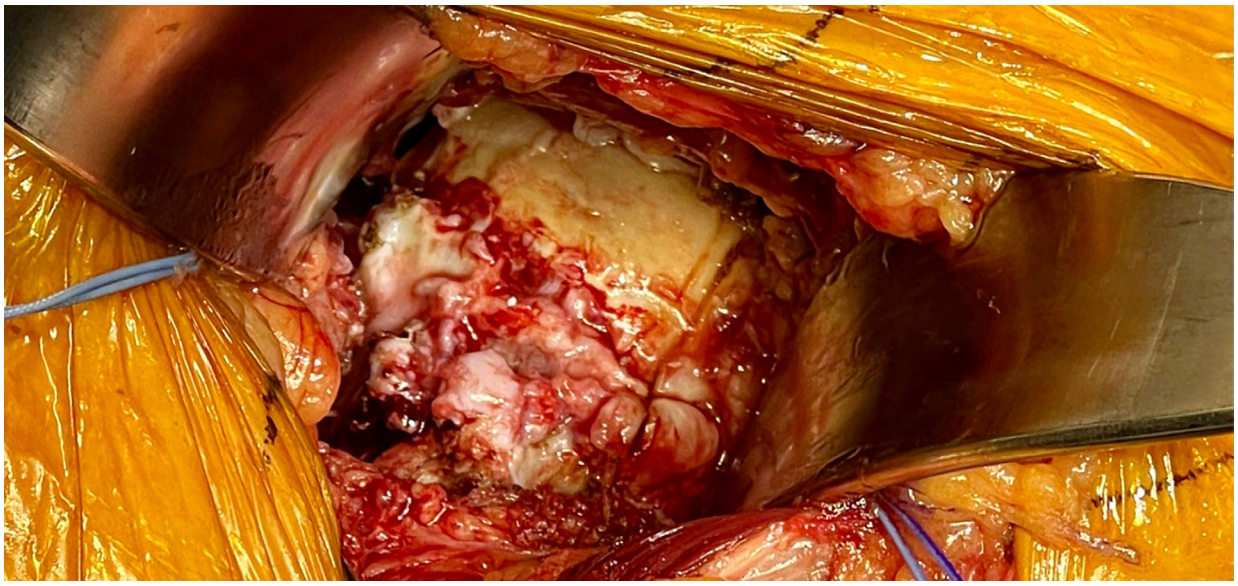

Figure 18

The blunt cobra retractors are then placed both superiorly and inferiorly to the femoral neck within the capsule, providing exposure to perform the femoral neck osteotomy and proceed with the direct anterior total hip arthroplasty.

Step by step | **Bikini incision technique**

The remainder of the procedure should follow the same steps as a standard oblique longitudinal incision.

To continue reviewing the step-by-step procedure, please **click here** **to return to page 13 of the Direct Anterior Surgical Protocol.**

Click here to watch the full
bikini incision for total hip arthroplasty video.

References

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