

Clinical Pearls



Femoral Hook Placement

As described by Dr. Joel Matta

Procedure Overview

Hana® is a state-of-the-art orthopedic table that enables surgeons to perform a variety of fracture and orthopedic procedures, including the Anterior Approach for Total Hip Arthroplasty (AATHA). With its unique capability to position the leg, the Hana table enables the surgeon to replace the hip through a short single incision^{1,2} without detachment of muscle from the pelvis or femur.^{1,3-4}

The Anterior Approach provides direct access to the acetabulum, but obtaining optimal access to the femur can be challenging compared to traditional posterior and lateral approaches. Mizuho OSI's patented femoral hooks and lift support system are designed to enhance femoral exposure for canal preparation and to stabilize the femur for improved accuracy in femoral component placement – a positioning option not available with any other surgery table.

This step-by-step guide for placement of the femoral hook will assist with optimizing femoral exposure while using the Hana table for AATHA. This guide is a suggested method as described by Dr. Joel Matta (Santa Monica, CA). Retractor placement is completely at the discretion of the surgeon.



Step 1: Identify Correct Femoral Hook Placement

Ensure that all traction is OFF, and return the femur to neutral rotation. The Femoral Hook will be placed just distal to the vastus ridge, and will wrap around the posterior femur, superficial to the vastus lateralis muscular origin (Figures 1 & 2). First palpate the vastus ridge by going between the vastus lateralis and iliotibial band.



Tip

On some patients, slight internal rotation (10°- 20°) may make it easier to find this interval between the muscles.



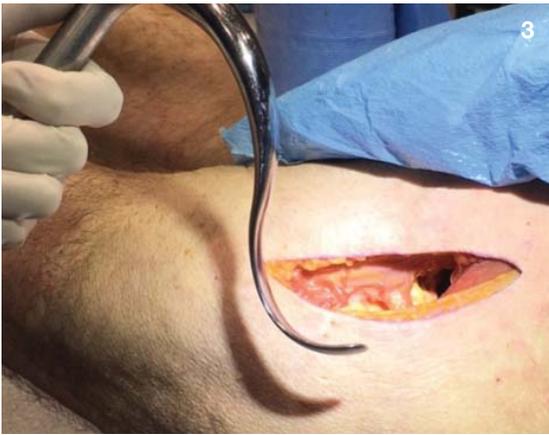
Step 2: Hook Insertion

Hold the hook in the vertical position, parallel with the leg, with the hook end pointing toward the patient's head (Figure 3). Slide the hook down between muscles (Figures 4 & 5) and then rotate 90° (clockwise on right hip; counterclockwise on left hip). The hook should slide in without resistance and into the correct position (Figure 6).



Tip

If facing resistance, the hook may be going too distal, and running into the gluteus maximus insertion on the femur.



Step 3: Verification and External Rotation

With adequate releases to this point and proper hook placement, the proximal femur should be quite mobile. Grasp the hook and check for mobility. Gently externally rotate the femur approximately 90° so that the calcar faces directly anterior, and ensure that the greater trochanter will not impinge on the posterior wall of the acetabulum.



Tip

It often takes upwards of 120° or more of external rotation on the foot to achieve 90° on the femur.



Step 4: Extension and Use of the Femoral Lift Support System

The powered femoral lift support system is used for positioning and stabilizing the femur. It should not be used to lift the femur. The hook should not be engaged into the support bracket until the leg is extended and adducted. During extension and elevation of the femur, the surgeon should monitor tension on the femoral hook to prevent complication.



Again, verify that all traction is OFF. While the surgeon uses the hook to gently pull the femur laterally away from the pelvis, the table operator will extend the leg to the floor and adduct the spar per the surgeon's preference. The surgeon will continue to support the femur with the hook, and will use the foot pedal to elevate the motorized lift and bracket to the desired height of the femoral hook. The femoral hook will support the proximal femur in an anterior position. Finally, engage the hook into the most convenient slot in the bracket. "Lifting tension" is assessed by repeatedly pulling upward on the bracket. **Do not attempt to force the femur upward with excessive tension.**



From this point, optimal femoral exposure is obtained by sequentially releasing the capsule and necessary soft tissue structures along the femoral neck and greater trochanter. These releases gradually elevate the femur to the ideal position for implantation of the femoral prosthesis.



Tip

If after capsular releases the femur won't come up, release tension and remove the femoral hook from the bracket. Return the leg to the neutral upright position. Grasp the leg while unlocking rotation and externally rotate as needed. This should allow the femur to disengage from any soft tissue that is preventing the femur from elevating.

Hana[®]

The **Hana Orthopedic Surgery Table** is the first surgical table designed exclusively for hip and knee arthroplasty. It is a state-of-the-art orthopedic table that enables surgeons to perform a variety of fracture and orthopedic procedures, including the anterior approach for total hip replacements.

For product information contact your Mizuho OSI sales representative or call 1-800-777-4674.



Product Components



REF

6850-140 Classic Femoral Hook, Left
6850-144 Classic Femoral Hook, Right



REF

6850-919 Femoral Hook, Left
6850-918 Femoral Hook, Right

References

1. Matta et al., Single-incision Anterior Approach for Total Hip Arthroplasty on an Orthopaedic Table. Clin Orthop Rel Res., Dec 2005, (441): 115-124
2. Siguier et al., Mini-incision anterior approach does not increase dislocation rate: a study of 1037 total hip replacements. Clin Orthop Relat Res., Sep 2004, (426): 164-73
3. Seng et al., Anterior-supine minimally invasive total hip arthroplasty: defining the learning curve. Orthop Clin North Am., Jul 2009, 40(3): 343-50
4. Moskal et al., Anterior muscle sparing approach for total hip arthroplasty. World J Orthop., Jan 2013, 4(1): 12-18



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