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Joint Replacements

MIS Posterolateral Surgical Protocol

ABG II

cementless hip system

The **Right Procedure** and the **Right Implant** for the **Right Patient**

Scientific Advice

Gérard Asencio, M.D.
Professor of Orthopaedics and Traumatology
CHU Caremeau
Place du Pr Robert Debré
30029 Nimes CEDEX 09
France

Daniel Berteaux, M.D.
Clinique de la Présentation
64 bis, Rue des Fosses
45400 Fleury Les Aubrais
France

Jérôme Essig, M.D.
Clinique des Cédres
Château d'Alliez
31700 Cornebarieu
France

Christian Nourissat, M.D.
Clinique du Renaisson
75 Rue du Gal Giraud
42300 Roanne
France

This document aims to provide a summary of the main surgical steps for a posterolateral approach using a minimally invasive technique. It is recommended that this technique be used in combination with a Stryker ABG II implant and the associated Stryker instrumentation.

Introduction

This surgical protocol is designed to provide the experienced surgeon with guidance for performing ABG II Total Hip Replacement through a minimal posterolateral approach. It should be read in conjunction with the operative technique for the ABG II total hip system. Stryker is your partner for surgical innovation, supporting different techniques and sharing this knowledge with the surgical community around the world.

Implant designs and materials have been significantly improved within the last few decades. It is now time to take up the challenge to minimise surgical approaches and soft tissue damage. This will reduce postoperative pain, accelerate rehabilitation and allow patients to recover their lifestyles more quickly.

Minimally invasive procedures are technically demanding and require special instruments, intensive training and an open scientific discussion of clinical results.

The Stryker Minimally Invasive Training Programme is based on the principles of responsibility to our patients and openness to different approaches in order to improve total joint arthroplasty.

Pre-Operative Planning and Patient Positioning

1

Pre-operative planning is an essential part of performing total hip replacement through a mini incision, even more so than when performed through standard approaches. Templating of radiographs: pre-operative radiographs should be analysed using the manufacturer's templates to determine the correct leg length, centre of rotation of the hip joint, femoral offset and the size of the prosthesis.

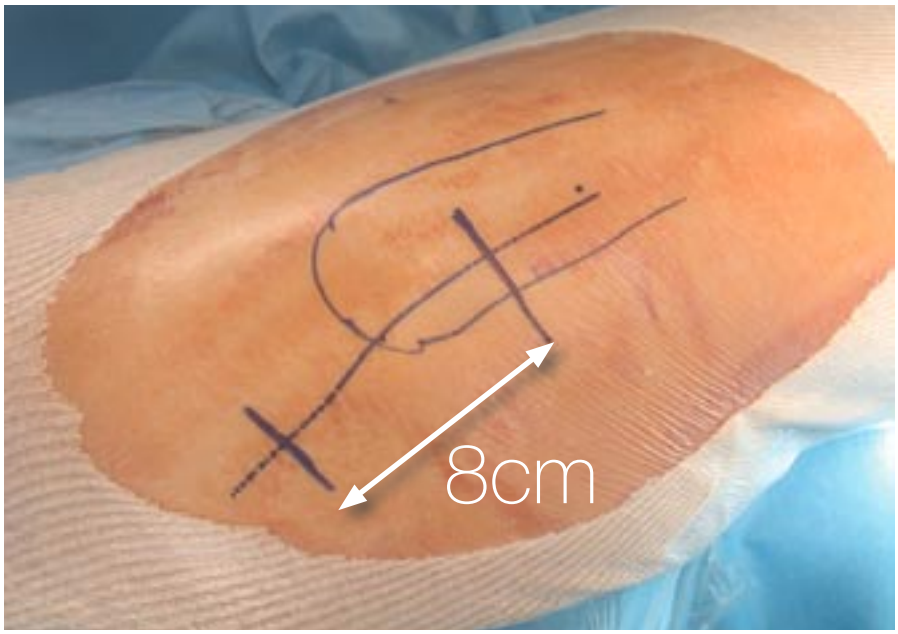
Place the patient on the operating table in a lateral decubitus position, the pelvis correctly positioned, with the line linking the two antero-superior iliac supports (ASIS) vertically (viewed from the far side of the table), and securely fixed in the correct position using anterior and posterior supports to avoid any pelvic movement. The opposite leg must be positioned so that it does not oppose later adduction of the operated leg (for subsequent femoral exposure).

Skin Incision

2 The skin incision for a mini postero-lateral approach is placed slightly more posteriorly and obliquely than a standard incision. The incision extends 4cm proximally and distally to the tip of the Greater Trochanter.

Note:
An incision which is too high can impair visibility, neck resection, acetabular reaming and correct positioning of the cup.

An incision which is too low can impair exposure, preparation of the femur and good stem positioning.

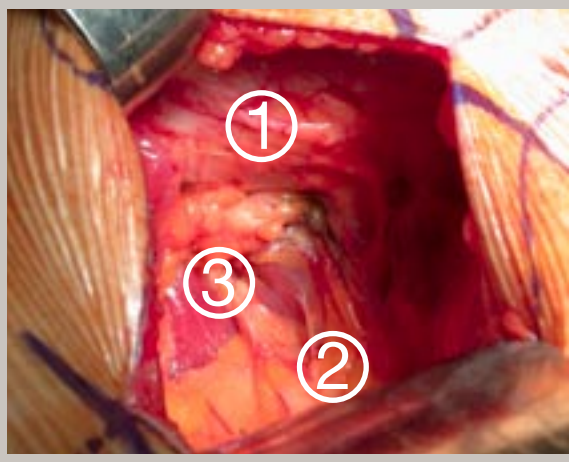


Divide the fascia lata in line with the skin incision and split the gluteus maximus muscle along the line of its fibres.

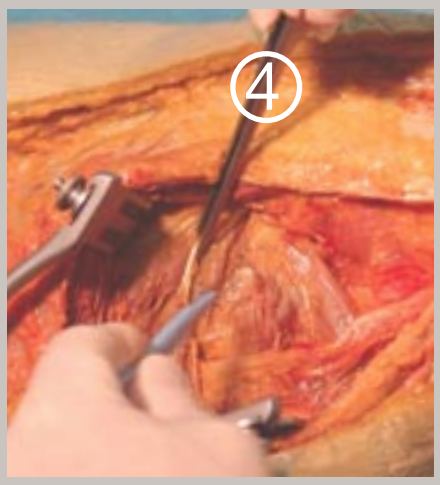
Deep Dissection

3

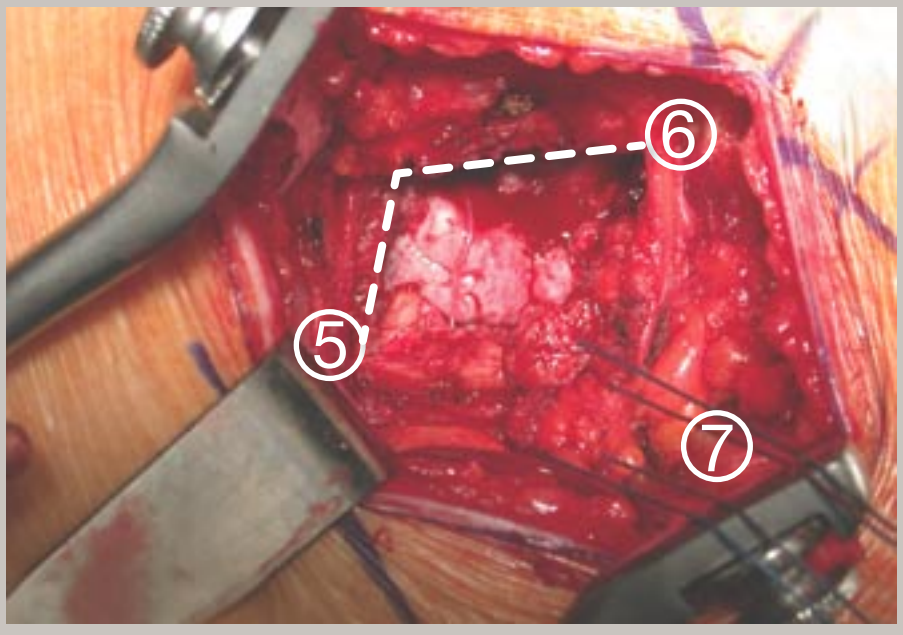
This reveals the posterior aspect of the Greater Trochanter (1) and the trochanteric bursa which must be reflected with the sciatic nerve (2) at the bottom to expose the short external rotators (3). Put the leg in extension, abduction and internal rotation to better expose the short external rotators.



Place an autostatic retractor anteriorly against the posterior border of the gluteus medius and posteriorly against the posterior fibres of the gluteus maximus.



Cut the external rotators closely to the Greater Trochanter and the fossa piriformis (preserving the piriformis muscle attachment (4) if possible). These may be raised with the posterior capsule as a composite flap or they may be raised separately. In both cases they will be repaired at wound closure.



Split the capsule proximally along the axis of the piriformis muscle (5), the femoral neck and the acetabular rim. Distally aim to be as close to the trochanteric attachment as possible (6). The external rotator muscles and capsule (7) will protect the sciatic nerve during the rest of the operation.

N.B. The proximal part of the quadratus femoris can be detached from the Greater Trochanter with a small bone chip to facilitate subsequent reattaching.

Dislocation and Neck Resection

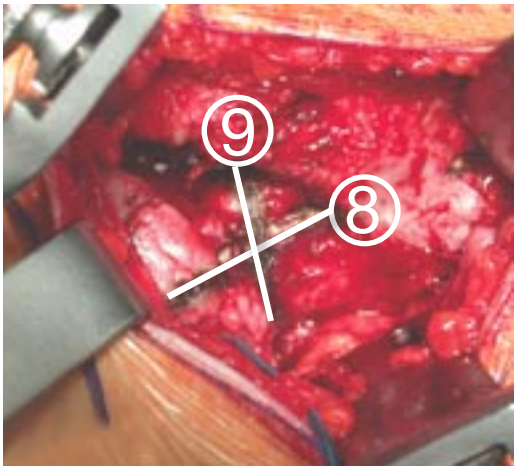
4

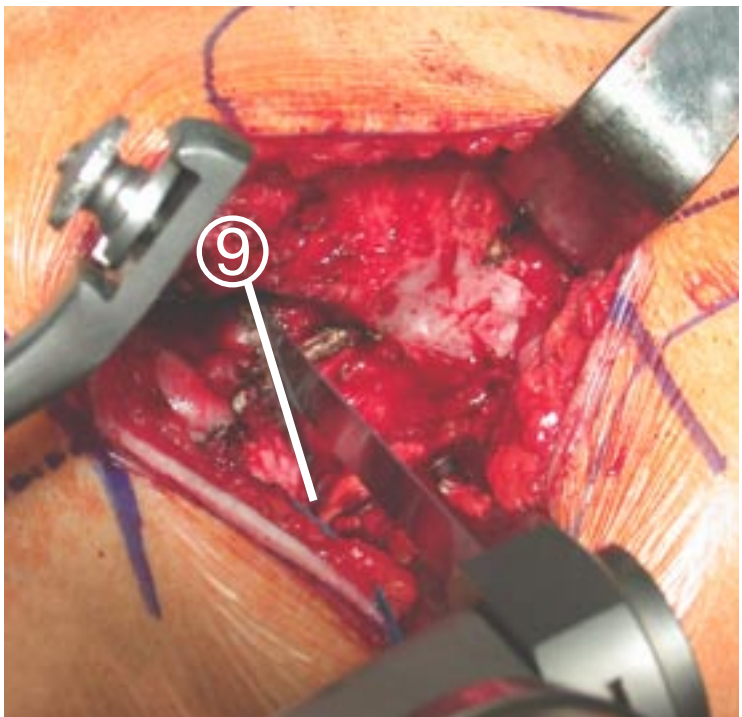
Dislocate the hip posteriorly by flexion, adduction and internal rotation of the lower limb.

Expose the neck by placing either the autostatic retractor between the gluteus minimus and the external rotators and the capsule or by placing two Hohmann retractors around the femoral neck. Remember that good exposure of the fossa piriformis and Lesser Trochanter will allow you to follow the pre-templated resection line.

Orientate the flexed knee carefully to prevent incorrect version of the neck. Resect the femoral neck using the anatomic landmarks (neck angle (8) and the line resection drawn from the fossa piriformis (9)).

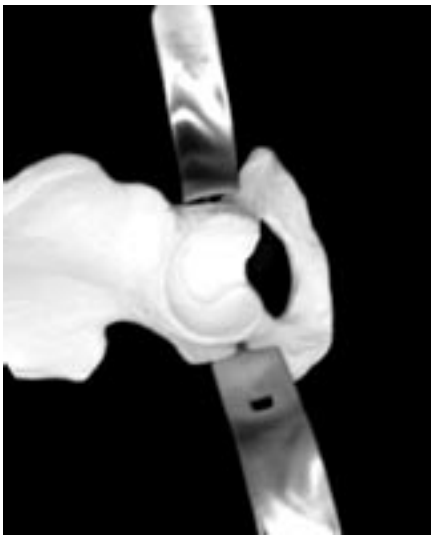
Remove the femoral head using either the corkscrew instrument or forceps.





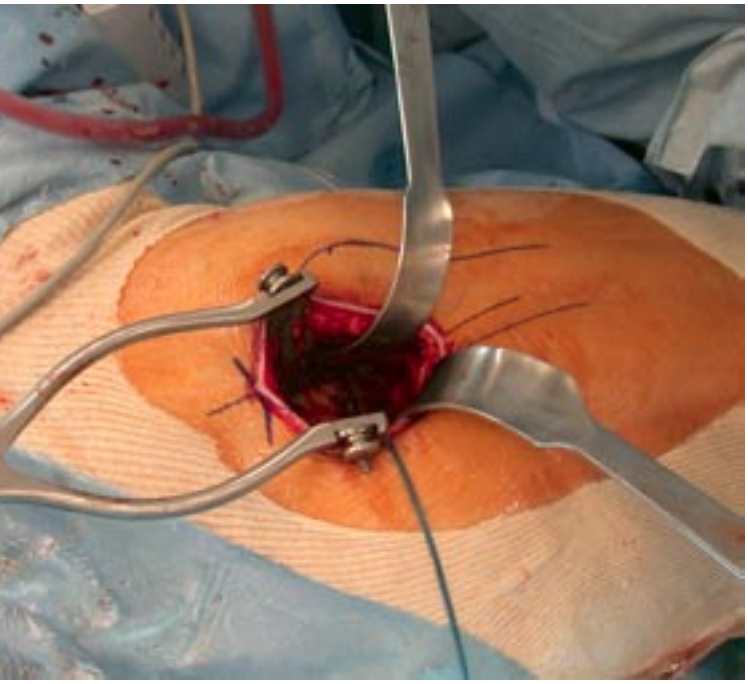
Acetabular Exposure

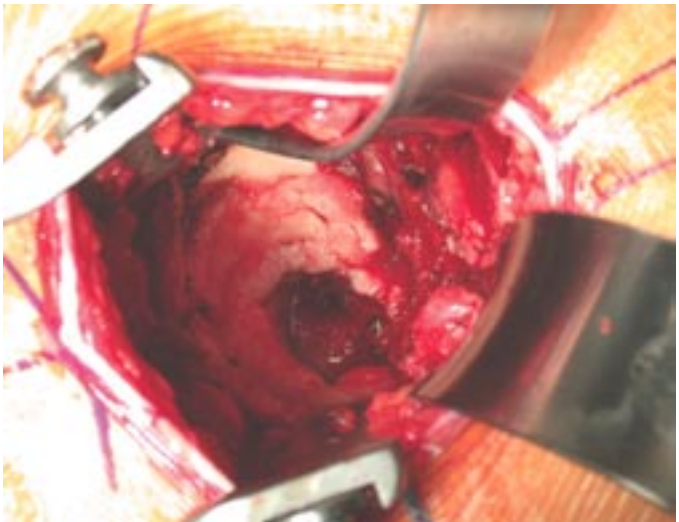
5 Place the anterior wide Hohmann retractor over the anterior column, retracting the anterior metaphysis anteriorly (stabilised by an assistant or secured with a weight and chain), and place the posterior wide pointed Hohmann retractor over the posterior acetabular horn.



Access to acetabulum – and mobilisation of the femur – can be enhanced if necessary by releasing the iliofemoral ligament just above the anterosuperior acetabular rim, and by incising the inferior capsule down to the transverse acetabular ligament.

An inferior blunt curved femoral retractor can also be placed directly distal to the transverse acetabular ligament beneath the cotyloid notch.

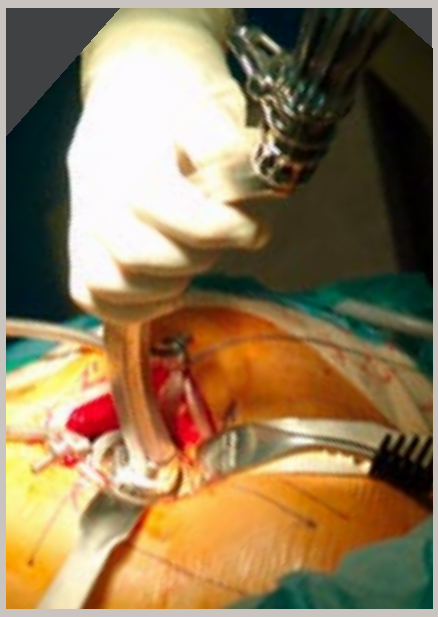


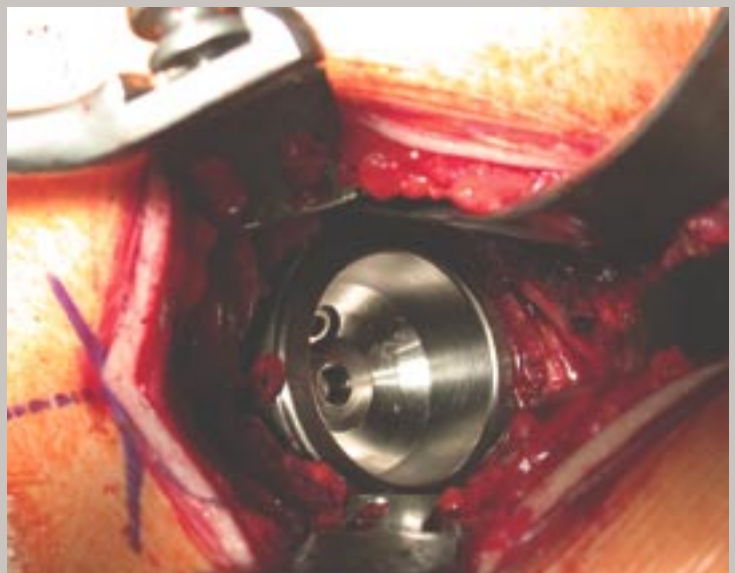


Reaming and Cup Insertion

6

Prepare the acetabulum as indicated for the ABG II cementless cup, following the standard operative technique but using the special curved reamer handle and cup impactor for MIS, whose offset protects soft tissues.

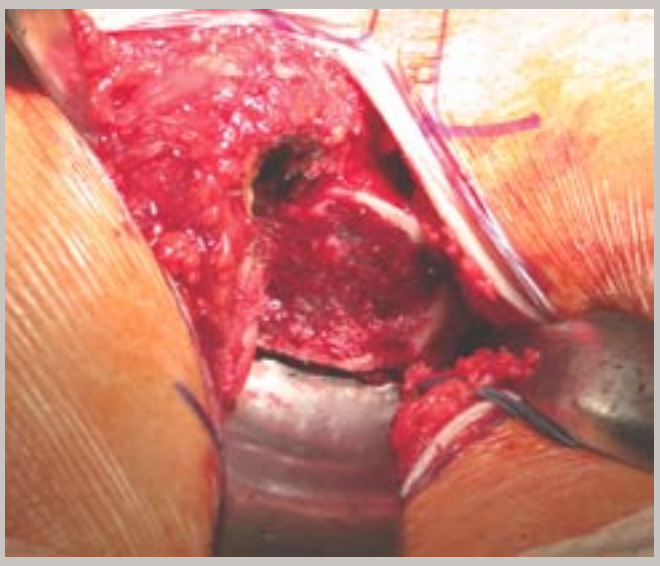


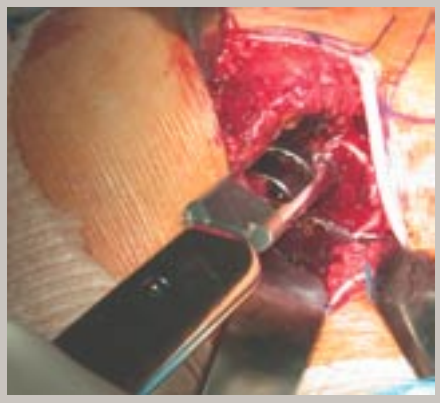


Femoral Exposure and Preparation

7 Remove the acetabular retractors. Place the operated leg into maximum adduction and into internal rotation, ensuring that it is not obstructed by the knee of the non-operated leg, and place a femoral elevator beneath it.

Two additional short narrow Hohmann retractors can be used to improve exposure if necessary.

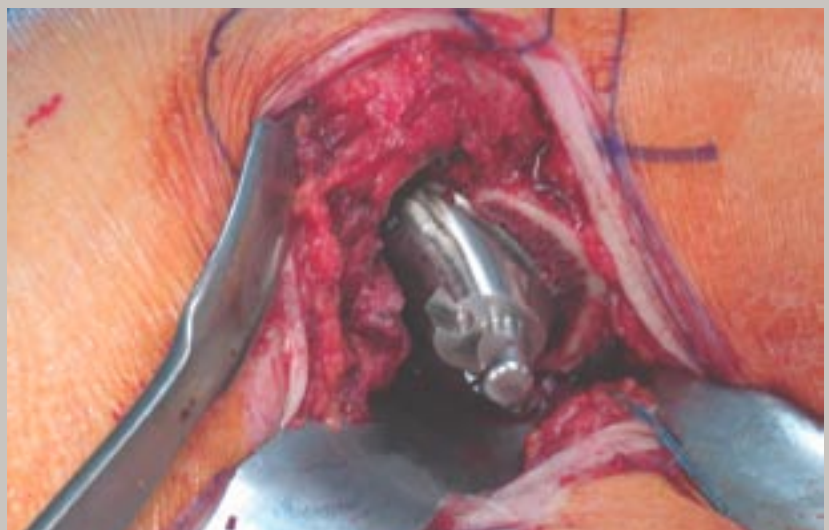




Using the box chisel, resect a piece of cancellous and remaining cortical bone from the lateral femoral neck to allow direct access to the femoral canal and avoid reaming in a varus position.

Ensure that there is adequate exposure to give good positioning of the broaches in correct anteversion without impinging soft tissues. This may be improved by internally rotating the leg.

After inserting the final broach remove the broach handle. Using the offset forceps, place on the broach the modular trial neck and head with appropriate neck length, and perform a trial reduction.



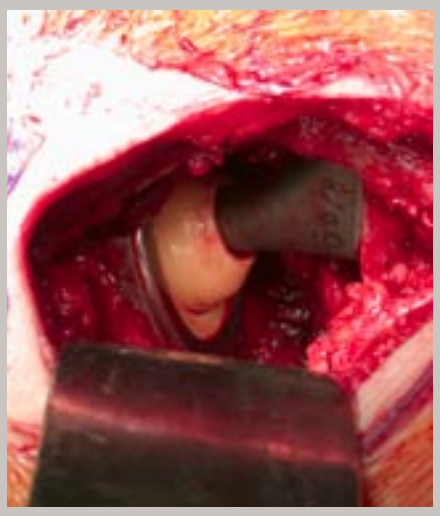
Definitive Implant Insertion

8 Remove the trial insert, clean and dry the cup interior and place the definitive polyethylene or ceramic insert.

Insert the definitive stem.

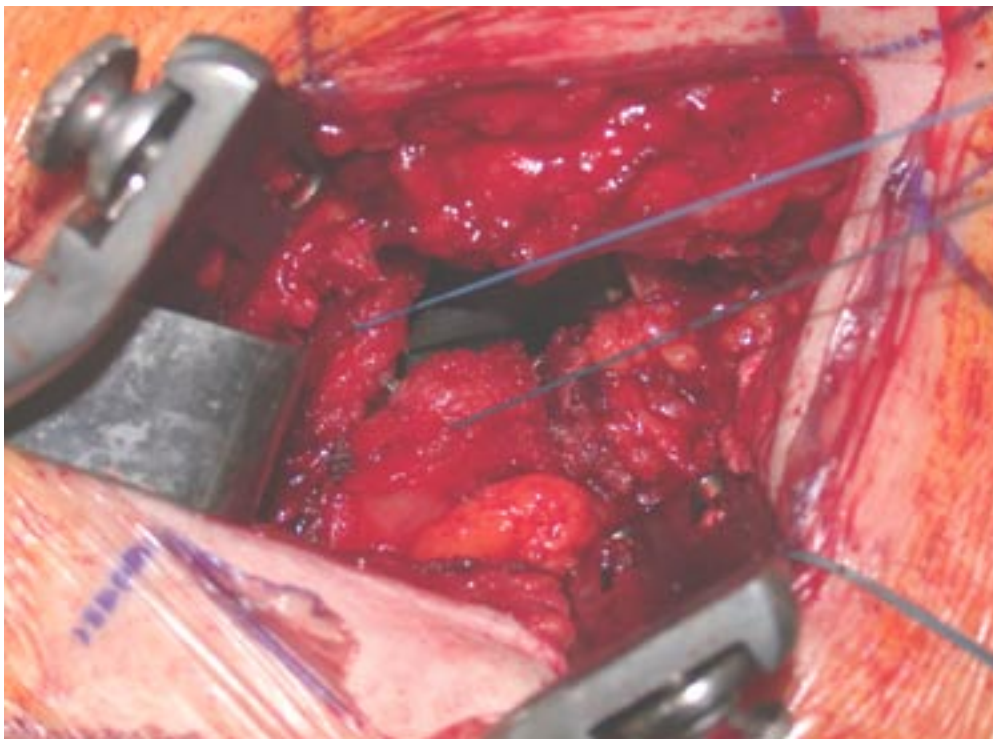
Dry the taper and impact the definitive femoral V40 head (Vitallium or ceramic) onto the stem neck with slight torsion.

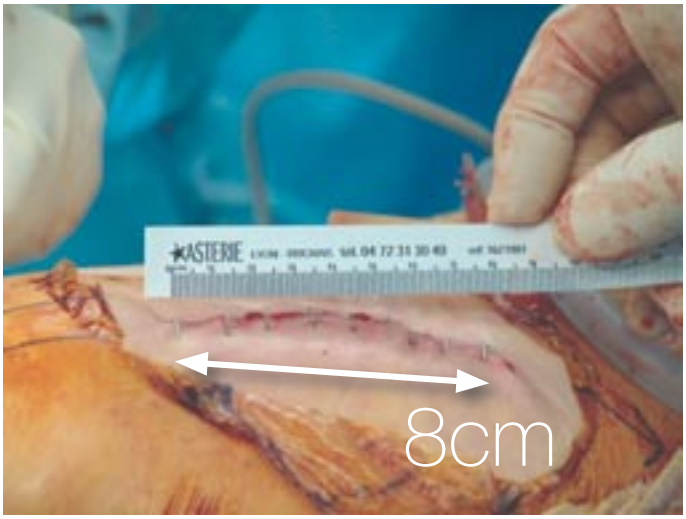
Reduce the hip and check stability again, both in extension and external rotation and in flexion, adduction and internal rotation.



Closure

9 Suture both sides of the capsule, completely enclosing the femoral head. Attach the short rotator muscles to the Greater Trochanter with transosseous sutures, then suture the fascia lata, the subcutaneous tissues and the skin.





Catalogue Information

MIS Angulated Reamer Handle*

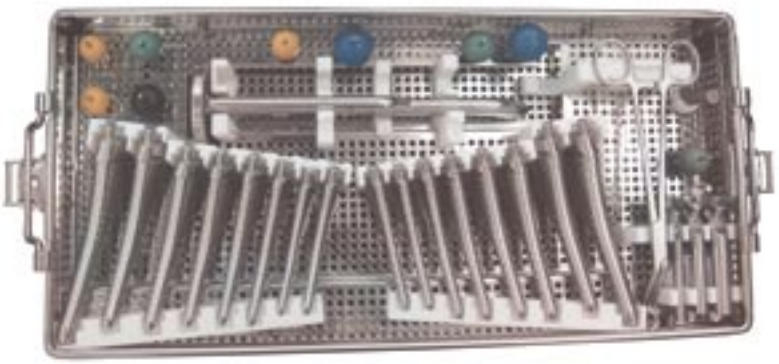
*Currently available only with the Cutting Edge Reamers

MIS Cup Impactor

Modular Hollow Chisel

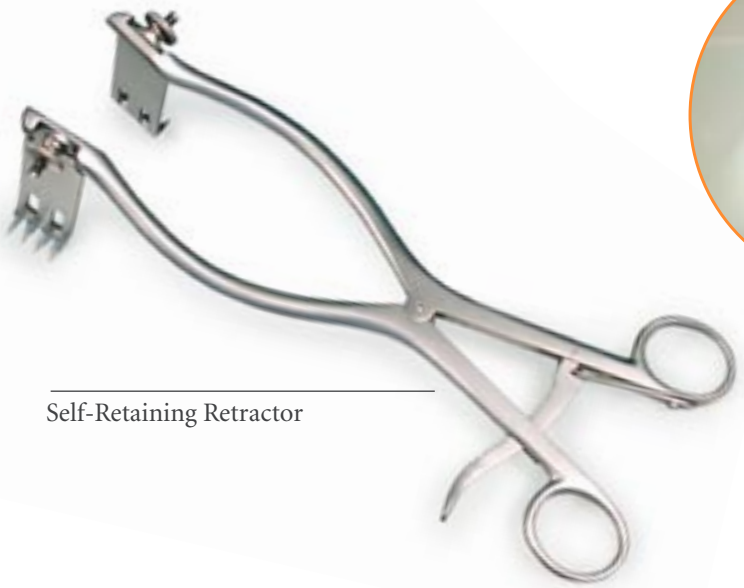
Broach Handle

MIS Broaches

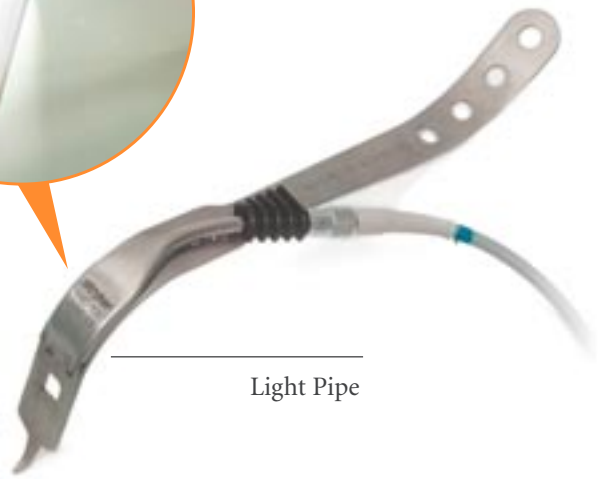


MIS Broach and Trial Box

MIS Retractors



Self-Retaining Retractor



Light Pipe

ABG II MIS Femoral Instrument Tray

1440-1400	Straight Broach Handle	2
1440-1040	Quick-Connect Handle for Broach Handle	1
1440-1700	Offset Neck Trial Forceps	1
4849-8-108	ABG II MIS Modular Hollow Chisel 8 mm	1
4849-8-112	ABG II MIS Modular Hollow Chisel 12 mm	1
4845-2-116	ABG II MIS Modular Hollow Chisel 16 mm	1
4845-2-970	ABG II MIS Trial Neck	1
4845-2-951	ABG II MIS Modular Broach Right Size 1	1
4845-2-952	ABG II MIS Modular Broach Right Size 2	1
4845-2-953	ABG II MIS Modular Broach Right Size 3	1
4845-2-954	ABG II MIS Modular Broach Right Size 4	1
4845-2-955	ABG II MIS Modular Broach Right Size 5	1
4845-2-956	ABG II MIS Modular Broach Right Size 6	1
4845-2-957	ABG II MIS Modular Broach Right Size 7	1
4845-2-958	ABG II MIS Modular Broach Right Size 8	1
4845-2-961	ABG II MIS Modular Broach Left Size 1	1
4845-2-962	ABG II MIS Modular Broach Left Size 2	1
4845-2-963	ABG II MIS Modular Broach Left Size 3	1
4845-2-964	ABG II MIS Modular Broach Left Size 4	1
4845-2-965	ABG II MIS Modular Broach Left Size 5	1
4845-2-966	ABG II MIS Modular Broach Left Size 6	1
4845-2-967	ABG II MIS Modular Broach Left Size 7	1
4845-2-968	ABG II MIS Modular Broach Left Size 8	1
4849-6-350	ABG II Femoral Tray	1

Disposable Light Pipes (Sterile)

1440-1080	Light Pipe	1

Trident Acetabular Instruments

MPF3100CHA01	Angulated Reamer* - AO	1
MPF3100CHA02	Angulated Reamer* - Stryker	1
MPF3100CHA03	Angulated Reamer* - Hudson	1

*Currently available only with the Cutting Edge Reamers

Colorado MicroDissection Needle

N103A	3 cm - Straight	1
E1135	5“ - Straight Sleeve, 3mm, 45 Degree	1
E1136	6“ - Straight Sleeve, 3mm, 45 Degree	1
E1137	7“ - Straight Sleeve, 3mm, 45 Degree	1

Stryker PainPump 2

525-158	With 2.5 in ExFen Catheter - English	1
525-156	With 2.5 in ExFen Catheter - Italian/Spanish	1
525-157	With 2.5 in ExFen Catheter - French/German	1

ABG II MIS General Instrument Tray

1440-1010	Femoral Head Extractor	1
5900-0050	Shoulder T-Handle	1
1440-1130S	Narrow Hohmann Retractor	3
1440-1135S	Wide Hohmann Retractor	1
1440-1140	Blunt Narrow Curved Retractor	1
4849-8-005	Femoral Elevator	1
1440-1020	Retractor Impactor	1
4849-8-020	Self-Retaining Retractor (incl. 4 sets of grips)	1
4849-8-021	1 Set (2) of 45mm grips for Self-Retaining Retractor	1
4849-8-022	1 Set (2) of 55mm grips for Self-Retaining Retractor	1
4849-8-023	1 Set (2) of 70mm grips for Self-Retaining Retractor	1
4849-8-024	1 Set (2) of 100mm grips for Self-Retaining Retractor	1
4849-6-355	MIS General Instrument Tray	1

Stryker CORE Micro Powertools

5400-34	CORE Sagital Saw	1
5100-4	CORE cord	1
5100-001E	CORE Non-Irrigation Console	1
5100-50E	CORE Irrigation Console	1
5100-8	Footswitch	1

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