



TOTAL HIP JOINT REPLACEMENT USING THE ANTERIOR APPROACH - SUMMARY

OVERVIEW - HIP REPLACEMENT SURGERY

This information sheet provides a general summary only of the surgical technique of hip replacement surgery using the anterior approach and the resulting advantages for patients.

DIFFERENT SURGICAL APPROACHES TO THE HIP

“Approach” is the means by which the hip joint itself is exposed during surgery to prepare it for joint replacement. The hip joint lies deep beneath layers of muscles. There are a number of possible surgical approaches to access the hip joint and each has its advantages and disadvantages.

Approaching the hip joint from the front of the hip, known as the **anterior approach** was developed many years ago, but this approach has only recently become popular as a means for performing hip replacement surgery.

ANTERO-LATERAL and POSTERIOR APPROACHES

Other approaches include the **antero-lateral** (approach from the side of the hip) and the **posterior approach** (from the back of the hip).

Antero-lateral approach:

Disadvantages: requires the removal of tendons to allow access to the hip and then their reattachment following the procedure with the possibility that they may not heal properly.

Gait abnormalities are more common with the antero-lateral approach which involves the removal of part of the abductor medius and abductor minimus tendons which are very important in stabilising the hip joint when walking. While a limp itself is often not painful, the limp may cause trouble with secondary pain in the lower back or around the hip in the trochanteric region (trochanteric bursitis).

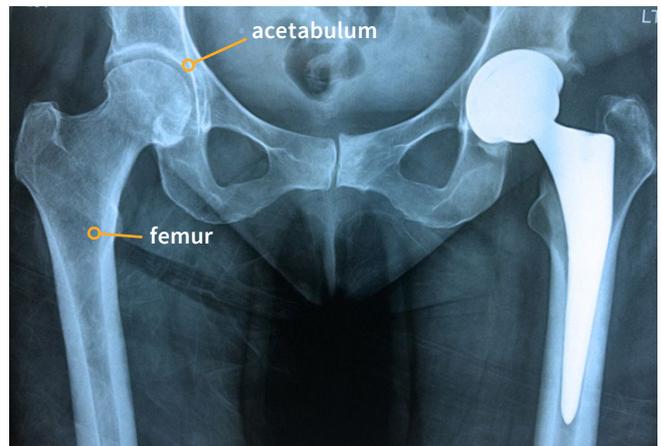


Figure 1: Plain x-ray of hips and pelvis post surgery: shows a hip joint prosthesis.

Posterior approach:

The posterior approach involves detachment of smaller muscles from the top of the femur to allow access to the hip.

The posterior approach is an excellent approach for exposure to the hip joint, but as the posterior hip joint capsule is opened with this approach, the protective layer of muscles are removed to allow exposure of the capsule.

This approach has been associated with an increased rate of dislocation, which in some cases may require re-operation.

ANTERIOR APPROACH

The anterior approach does not require any muscles to be detached to allow access to the hip joint capsule. A window is made in the hip joint capsule to allow exposure of the joints and following surgery being performed, the hip joint capsule is closed at the completion of surgery.

The advantage of the anterior approach is that the normal gait is not dependent on tendon healing as no tendons have been removed and repaired, as they have in the antero-lateral and posterior approaches.

HIP REPLACEMENT SURGERY - ANTERIOR APPROACH – SUMMARY

In addition, because the structures around the back of the hip joint including the muscle tendon and capsule have not been weakened by the surgical approach, dislocation of the hip is less likely.

The anterior approach does not require any muscle cutting and as such has potential advantages of less tissue damage and faster recovery following surgery. The incision which is usually five to seven centimetres, is much smaller than the conventional excision for the traditionally used approaches.

HIP PRECAUTIONS

With conventional hip replacement approaches (antero-lateral and posterior), there is great concern about dislocation of the hip, particularly in the early phase after hip replacement surgery.

With conventional approaches, often a pillow is placed between the legs straight after the operation which is cumbersome, uncomfortable and prevents movement while in bed. The straps are often uncomfortable.

Conventional approach - hip precautions include:

- Avoiding sitting in low chairs
- Avoiding excessive bending
- Sleeping on one's back for the first six weeks following surgery.
- Requirement to have the toilet seat raised and to use other aids around the home.

Anterior approach:

- No special precautions need to be taken as the important muscles around the hip are all functioning well and flexion of the hip does not result in instability but rather tightens the posterior capsule in the normal hip and aids to the stability of the hip joint.
- Does not require post-operative pillow
- No need to lie on back for six weeks when sleeping
- Appliances such as toilet seat raises or higher chairs are typically NOT required
- Only precaution following anterior approach hip replacement surgery is avoiding external rotation of the foot beyond 45 degrees. The stability of the hip replacement in the anterior hip surgery is tested with external rotation of the foot to 90 degrees and therefore 45 degrees of external rotation is well within the stable range of the hip replacement.

The lack of hip precautions after anterior hip replacement surgery allows a great deal more freedom of movement in the early post-operative phase. There is usually a quick progression to a gutter crutch or walking stick and then to no aid at all in the vast majority of patients.

Driving

- If driving an automatic car and having left hip surgery, a return to driving is possible in 2 weeks; after right hip surgery a return to driving is possible in 4 weeks.

Anterior minimally invasive hip replacement surgery evolved because of the desire to improve early outcomes following hip replacement surgery.

- The implant design of the hip replacement used in anterior hip replacement surgery is similar to that of conventional hip replacements that have been around for many years and in this surgery we usually use ceramic on ceramic bearings. Therefore it is not the design of the hip itself that is special, but rather the instrumentation that has been developed to enable the anteriorly minimally invasive hip replacement to be performed safely.



PREPARATION FOR SURGERY

PRE-OPERATIVE PLANNING - IMAGING

Hip replacement surgery requires pre-operative planning which is a process in which the surgeon assesses the hip joint and determines the best sized components for the hip replacement. In this process the position of the acetabular component (socket) and the femoral component (stem) can be predicted from imaging.

Plain x-rays have been conventionally used to allow selection of the appropriate implant which will allow the hip to function optimally by placing the muscles around the hip under a similar degree of tension as they would be in a normal situation. In addition, the leg length can be altered in hip replacement surgery and often the leg is slightly short due to wear of the articular cartilage in the joint. The aim is to obtain the correct leg length so that the person receiving the hip replacement feels level when standing and walking.



Figure 3: Digital X-ray image of hip joints used to assist with preoperative planning and determining the best-sized components for the hip replacement implant.

Achieving equal leg length is an important factor contributing to patient satisfaction following hip replacement surgery

Even with the use of high tech imaging to assess the hip joint, the leg can be made too long or too short, but great attention to detail and the use of Digital X-ray imaging will minimise this possibility.

Therefore all patients undergoing anterior minimally invasive hip replacement will have Digital X-rays of the hip taken prior to their surgery. This will allow appropriate pre-operative planning and result in the best possible post-operative outcome.

INTRAOPERATIVE IMAGING

Imaging intraoperatively for hip replacement surgery is not commonly performed with a conventional approach. However with the anterior approach, the patient is placed lying face up on the operating table. There are no bulky clamps around the hip and therefore it is easy to see the bony anatomy of the pelvis, hip and upper part of the femur. This allows an assessment of intraoperative leg length to be made to optimise leg length.



Figure 4: Intraoperative fluoroscopy image



Figure 5: Example of operating theatre set up with sterile hoods used in a specialised laminar flow theatre with highly filtrated air.



HIP REPLACEMENT SURGERY - ANTERIOR APPROACH - SUMMARY

INVASIVE HIP REPLACEMENT SURGERY:

Anterior minimally invasive hip replacement surgery has a number of potential advantages over the standard approaches. These include:

- **A smaller scar** - the approach is minimally invasive
- **Reduced blood loss** - there is less dissection and detachment of muscles and tendons
- **Decreased post-operative pain** - the surgical approach is smaller.
- **Early mobilisation** - often patients are able to get up on the same day of operative intervention and start walking.
- **Shorter hospital stay** - patients can often go home two to three days after the operation very confident that they can walk and cope at home.
- **Fast return to daily activities** with LESS hip precautions associated with the conventional approaches to the hip which can be arduous. For example, sitting on high chairs for six weeks, including a toilet seat raise and sleeping on the back for six weeks ARE NOT required with anterior minimally invasive hip replacement surgery.

COMPLICATIONS ASSOCIATED WITH HIP REPLACEMENT SURGERY

Hip replacement surgery represents a major surgical procedure. Complications associated with surgery are all well known. Potential complications around the time of surgery are all risk managed to try to minimise the chance of a complication occurring as complications may diminish the outcome following the surgery.

Mr Justin Hunt will discuss these risks in detail at your consultation for patients intending to undergo a total hip replacement using the anterior approach.

[Document last updated: March 14, 2017]

FURTHER QUESTIONS?

The information presented in this fact sheet is intended as a general guide and summary only.

Patients should seek further advice and information about **anterior minimally invasive hip replacement surgery** and their individual condition from their orthopaedic surgeon Mr. Justin Hunt.

Main Rooms: Ph (03) 9421 6199

HIP - KNEE - SHOULDER - SPINE

For additional information about orthopaedic conditions and their surgical treatment visit the Melbourne Orthopaedic Clinic website:

www.melbourneorthopaedicclinic.com.au