Anterior Approach in THA Improves Outcomes: Opposes

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abstract

Total hip arthroplasty (THA) can be performed through multiple surgical approaches, including anterior, anterolateral, lateral, transtrochanteric, posterolateral, posterior, and the 2-incision technique. The overwhelming majority of THAs today are performed through a posterolateral approach, which has many advantages: it can be extended without difficulty, it is expeditious, it results in reduced blood loss and little muscle damage, and recovery is rapid. The major disadvantage of the approach is its increased dislocation rate, which has become less of a problem with the advent of larger femoral heads and dual-mobility acetabular components.

The anterior approach is another hip approach with advantages and disadvantages. One disadvantage is the need for a special table on which to perform the procedure, which can cost ≥$100,000. Many surgeons also recommend the use of intraoperative fluoroscopy with this approach, which prolongs surgery and adds possible draping contamination during the fluoroscopy. Exposure of the femur may be difficult with this approach, especially in patients with increased body mass index. The operative time also tends to be longer with this approach, as exposure may be more tedious. The published data report significant complications with this procedure.
Total hip arthroplasty (THA) can be performed through multiple surgical approaches, including anterior, anterolateral, lateral, transtrochanteric, posterolateral, posterior, and the 2-incision technique. The overwhelming majority of THAs today are performed through a posterolateral approach, which has many advantages: it can be extended without difficulty, it is expeditious, it results in reduced blood loss and little muscle damage, and recovery is rapid. The major disadvantage of the approach is its increased dislocation rate, which has become less of a problem with the advent of larger femoral heads and dual-mobility acetabular components.

The less invasive posterolateral approach is performed through an incision of 8 to 10 cm and is suitable for patients with a body mass index (BMI) $<35$. Deep dissection is less radical. The gluteus maximus tendon is not released and only the upper one-fourth of the quadratus femoris insertion is released. Full visualization of the acetabulum must be accomplished with this approach, and soft tissue releases of the labrum and anterior capsule must be performed to accomplish this. Similarly, exposure of the entire proximal osteotomized femoral neck must be effected so that reaming and broaching can be performed safely. Special retractors have been developed to facilitate these techniques. Ongoing review of this procedure in almost 1500 patients operated on by me has yielded excellent radiographic and functional results. Complications have included a dislocation rate of 1.2%, femoral fracture rate of 0.3% and sciatic neuropraxia rate of 0.3%, all but 1 of which resolved.

Rapid recovery from THA is multifactorial, with surgical approach, accelerated rehabilitation programs, and improved pain management playing a role. The need for external support during ambulation with the mini-posterior approach is rarely longer than 3 to 4 weeks in the vast majority of patients. Hip precautions are used for 4 weeks. Hospital stay is 2 to 3 days and could be accelerated in young, active patients.

Some good information is available on the Internet, but so is much misinformation. A search for “anterior hip replacement” returns 62,000 Web sites. There has been a concerted media blitz for this approach similar to that seen with the 2-incision technique. Most of these Web sites extol the virtues of the anterior approach—tissue sparing, less pain, and faster recovery—but there is little evidence to confirm these statements.

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The published data report significant complications with this procedure. In a cadaveric study by Menghini et al, evaluating tissue damage during posterior and anterior approaches to the hip, it was noted that with the posterior approach, there was greater damage to the gluteus medius and minimus (18% vs 8%). However, with the anterior approach, 31% demonstrated damage to the tensor fascia lata, and in 50% of cadavers, the piriformis and conjoint tendon were transected (in exposure of the femur). In a study by Pilot et al comparing tissue trauma with the anterior and posterior approaches as measured prospectively by Il-6 and H-FABP (a marker of muscle injury) levels, there was no difference in the 2 approaches. In terms of hip dislocation, Siguier et al reported a rate of 0.96% in 1037 hips, Matta et al a rate of 0.61% in 437 hips, and Sariali et al a rate of 1.5% in 1374 hips. These numbers closely approximate the 1.2% incidence in my posterolateral series.

In a review of 494 THAs through the anterior approach, Matta et al, who popularized this approach, reported a fracture rate of 2.4%, 3 of these being ankle fractures when the ankle is significantly external rotated to achieve femoral exposure. Other fractures occurred about the upper femur. This is a much higher incidence than that noted in my experience with the posterior approach (0.3%).

In a series by Goulding et al, lateral femoral cutaneous neuropaxia was reported in 81% of patients with the anterior approach to the hip and in 91% in the surface replacement cohort. It produced no functional limitations but not all resolved, and if the anterior approach is to be used, patients must be advised that thigh numbness frequently occurs. The cause of this complication is most likely stretching or damage to the lateral femoral cutaneous nerve during the procedure.

Woolson et al reported on the experience in 247 anterior approach THAs performed in 5 community hospitals. Surgical time in the study averaged 164 minutes and blood loss 858 mL, with a complication rate of 9%. This reinforces the need for surgeons using this technique who are not experienced with it to seek additional training and cadaveric experience prior to embarking on it. The posterior approach is well known and used by most surgeons and is a much simpler approach to master.

There are many excellent approaches to the hip, each of which has its advantages and disadvantages. The anterior approach is an excellent approach but requires advanced training, experience, a specialized table, longer surgical time, and more difficult exposure with no evidence of advantage in outcome.

REFERENCES


