Minimally Invasive Hip Surgery

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Describe the most common techniques used for minimally invasive hip surgery.

Certainly the most commonly described approaches in the literature are the posterior and direct anterior. The posterior approach is essentially the same as what surgeons have done traditionally but with a shorter incision and less dissection of the deep musculature. The 2-incision approach, which I prefer, has fallen out of favor because it is technically difficult; several proponents of the 2-incision approach have switched to using an anterior approach only and then placing the femur into hyperextension and external rotation.

The basic issue with hip replacement is that you have 2 different axes—that of the acetabulum and that of the femur. To access these axes, you have 3 options: (1) make an incision long enough to incorporate both axes in 1 incision (a traditional approach); (2) make a short incision and move the axis into the incision, which is what we do with an anterior approach—the femur is drawn into the wound; or (3) make a dissection in line with the acetabulum and a second dissection in line with the femur (the 2-incision approach). Overall, the concept is of hip replacement as a soft tissue procedure with the parenthetical inclusion of implant placement.

Is there an approach that is best (ie, posterolateral or anterolateral) for minimally invasive hip surgery?

Not every approach works for every patient, and not every approach works for every surgeon. The anatomy looks different from each approach, so you need to know where you are in 3 dimensions. Both the posterior and anterior approaches can be extensile, the posterior more so; the 2-incision approach cannot be easily extended, so that is a strike against it.

What are the benefits to minimally invasive hip surgery?

A properly done minimally invasive hip surgery allows rapid mobilization of the patient and early discharge, which is attractive.

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Dr Manner has no relevant financial information to disclose.

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doi: 10.3928/01477447-20120123-34
to patients who are working or who are active and want to get back to their lives. The basic idea is that the dissection should be as big as it needs to be for proper visualization and component placement and as small as possible to reduce the assault on the soft tissues about the hip. Also, getting the patient out of the hospital is attractive from the viewpoint of cost and infection risk reduction.

**What are the risks of minimally invasive hip surgery?**

Minimally invasive hip surgery can be substantially more difficult technically than a standard approach. If it is not done well, the surgery can cause more soft tissue injury by traction or tearing than a standard hip approach would. In addition, if the time in the operating room increases, the infection risk begins to increase dramatically. Therefore, a short-duration, well-performed traditional approach is better for the patient than a long-duration, sloppily done minimally invasive approach.

**Who is the ideal candidate for minimally invasive hip surgery?**

The ideal surgeon is a high-volume surgeon with good technical skills who is willing to make changes in how he or she does things. The ideal patient is one who is fit, motivated, and has good bone stock and relatively normal anatomy and bone quality. The patients that I steer away from minimally invasive hip surgery are heavier and less active and have medical comorbidities that will interfere with rapid hospital discharge and recovery. In my practice, approximately 40% to 50% of primary hip patients are candidates for minimally invasive hip surgery.

**What role does imaging play in minimally invasive hip surgery?**

I use fluoroscopy routinely, and it makes me a much better surgeon; however, not all surgeons use fluoroscopy. Computer-assisted navigation seems to be something that is always right around the corner; the problem is that computers are expensive and a nuisance to set up, and they freeze right when you need them. Plus, you have the “garbage in, garbage out” problem—the computer can tell you precisely where you are, but if you have the initial inputs wrong, the computer is going to precisely guide you astray.

**What is the difference in recovery time after minimally invasive hip surgery compared with traditional surgery methods?**

This is extremely contentious. In my practice, I see a significantly faster recovery with the patients who have undergone minimally invasive hip surgery, but this has not been demonstrated in the literature. The literature is not great on this aspect of hip surgery—study groups are small, randomization is difficult, and the measurement instruments that we have are not ideal. Moreover, I am clearly selecting patients who would do well, so I’m not comparing apples to apples. Although I want to believe that all of my patients do well because of minimally invasive hip surgery, it may simply be because they are predisposed to do well.

**What is the rehabilitation program after minimally invasive hip surgery?**

I recommend that patients bear weight as tolerated, with crutches or a cane as needed for comfort. At first, I did not bother with precautions such as avoiding flexion or rotation, but I found that I got a lot of phone calls from patients and therapists worrying that something was missing, so I’ve started telling patients to avoid flexion past 110º for the first 2 weeks. Otherwise, I emphasize early return to low-impact, high-endurance activities, such as walking, biking, swimming, and a targeted core-strengthening program.

**What are the most important factors in a successful minimally invasive hip surgery?**

Patients should be healthy, motivated, and ready to go home within 24 to 48 hours. Bone quality needs to be appropriate, and bony anatomy should be reasonably normal. In terms of weight, I lose my enthusiasm for a minimally invasive approach for patients who weigh approximately 100 kg or have a body mass index >35. From a technical viewpoint, the surgeon needs to be clear in terms of anatomy and his or her ability to place components securely and correctly. Minimally invasive hip surgery approaches are not for every patient and are not for every surgeon.

**What does the future hold for minimally invasive hip surgery?**

Ultimately, we should be looking for assessment of results, both clinically and in terms of cost. Because traditional total hip arthroplasty has terrific long-term results, we should make sure that any modifications are a step forward.