Anterior Approach in THA Improves Outcomes: Affirms

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abstract

In general, the literature makes numerous positive claims regarding the direct anterior approach with a fracture table for total hip arthroplasty (THA), including quicker recovery and return to unassisted ambulation, along with reduced soft tissue damage, surgery time, pain, and risk of dislocation with early elimination of hip precautions. The benefits of the direct anterior approach are mostly due from muscle preservation rather than muscle splitting, which occurs with the more traditional approaches. With the use of the muscle-preserving direct anterior approach for THA, there is less muscle damage and earlier return to function, and postoperative precautions are not needed.

The most significant improvements in THA have been allowing patients to be immediately weight bearing as tolerated after THA, incorporating a multimodal pain management protocol, and now using the direct anterior approach. There is a learning curve, and I strongly recommend that people attend cadaver-based learning centers as well as surgeon visitations.

We must always remember the oath we took to “do no harm,” especially when embarking on a new procedure such as the direct anterior approach in THA or any other new procedure or technology. My position in the debate is not whether we should embrace this technique or other new techniques, but rather how they should be introduced.
In general, the literature makes numerous positive claims regarding the direct anterior approach with a fracture table for total hip arthroplasty (THA), including quicker recovery and return to unassisted ambulation, along with reduced soft tissue damage, surgery time, pain, and risk of dislocation with early elimination of hip precautions.1,4 The benefits of the direct anterior approach are mostly due from muscle preservation rather than muscle splitting, which occurs with the more traditional approaches.3,4 One study of 195 consecutive direct anterior approach THAs performed by a single surgeon demonstrated more rapid recovery of hip function and gait ability.1 In a prospective, randomized study of 100 patients, 50 direct anterior approach and 50 direct lateral approach, with ≥1-year follow-up, the direct anterior approach patients were significantly better with regard to mental and physical validated outcomes.4 With the use of the muscle preserving direct anterior approach for THA, there is less muscle damage and earlier return to function, and postoperative precautions are not needed.

Surgeons should always have concerns when considering the incorporation of a new technique into their surgical practice; this often creates a learning curve and potential for unforeseen technical complications.2,3,5 However, the question is not whether this surgical approach should be used, but how this approach should be introduced and implemented.

In 2003, Dr Thomas Sculco affirmed the benefits of less extensive THA surgery during a presentation at Current Concepts in Joint Replacement; these thoughts were later published in the Journal of Arthroplasty6: “The rationale for performing hip arthroplasty through a less extensive exposure is to reduce hospital stay, speedy recovery, decrease surgical trauma. Certainly patients are happier with a smaller incision, and recovery is faster.” It is difficult to come up with a more apt description or argument for reduced exposure and soft tissue dissection during THA. Advances in less extensive THA since 2003 have continued to develop and grow.

In 2009, a study comparing the direct anterior approach and the mini-posterior approach for THA was conducted.7 One hundred ninety-five THAs (182 consecutive patients) were performed by a single, highly experienced surgeon. The results demonstrated more rapid recovery of hip function and gait ability after THAs performed through an anterior approach as compared to a mini-posterior approach. Additionally, acetabular cups were more likely to be accurately positioned in the safe zone with the direct anterior approach than with the mini-posterior approach. There was no difference in the complication rates.

Also in 2009, a prospective, randomized gait analysis study showed statistically significant improvement with direct anterior approach THA in a larger variety of gait parameters and an early return to near normal gait. At 6- and 12-week follow-up, patients in the traditional anterolateral approach had improvement in fewer gait categories than did direct anterior approach patients. Direct anterior approach THA demonstrated statistically significant improvement in cadence, stride time and length, walking speed, hip flexion at foot contact, maximum hip flexion in swing, and total hip range of motion in the sagittal and coronal planes.

As recently as 2010, another prospective, randomized study compared direct lateral approach THA and single-incision direct anterior approach THA.8 Using numerous validated outcome measures (Harris Hip Scores, SF-36, Western Ontario and McMaster Universities Osteoarthritis Index, and visual analog scale energy, daily activities, and overall quality), the direct anterior approach THA had significantly better improvements at 6 weeks, 6 months, and 1 year than did the direct lateral approach THA.

I used the direct lateral approach for >20 years in 96% of my primary THAs, and during that time those THAs performed well.9 So why consider changing to the anterior approach? Because the founder of my practice group, Louis Ripley—despite the fact that he practiced orthopedics for >50 years and has multiple accomplishments, including at the age of 91 being named the 2006 Physician of the Year—reminded me that “one cannot live on yesterday’s kisses”; in other words, we must continue to learn and retrain ourselves during our careers as orthopedic surgeons.

So, in 2009, I began using the direct anterior approach and now use it in 97% of my primary THAs. Frequently, I hear from staff members, caregivers, and patients that the difference in recovery between the direct anterior approach and other commonly used surgical approaches for THA is night and day. Why? Because the direct anterior approach is a muscle-sparing approach, and the tensor fascia lata, which is the deltoid mechanism of the hip, is not violated. Also, the pelvic stabilizers, made up of the gluteus maximus and tensor fascia with insertion on the iliotibial band, remain undisturbed. The gluteus maximus functionality is critical for hip extension activities of daily living, such as getting out of a chair or a car and going up and down steps. Another benefit of the direct anterior approach is optimal hip exposure, which can be obtained with a single assistant and the use of a fracture table, thus allowing for more accurate component placement, determination of leg length, and component offset.

The other commonly used surgical hip approaches are muscle-splitting approaches and therefore violate the tensor fascia lata. When the tensor fascia lata is cut, dynamic stabilization of the hip is disturbed and the hip is unable to function normally until those structures have healed. The effects of muscle splitting and the disturbance of normal function are true for the anterolateral, direct lateral, or posterior approaches. Therefore, in muscle-splitting procedures, patients require at least 6...
weeks for muscle healing, plus additional time to recover from lost muscle strength. In short, patients must recover from both the surgical approach and from the THA procedure. Restrictions are imposed on patient movement and activities until the soft tissues have adequately healed. Therefore, the use of a muscle-splitting approach when performing a THA is a concomitant issue and a factor in patient recovery.

In contrast to muscle-splitting approaches, with a muscle-sparing procedure such as the direct anterior approach, no muscles are cut or detached. The patient’s recovery therefore is from the surgical procedure only, not the surgical approach. Recovery requires no additional time for healing of the muscle sleeve or its attachment, thus patients recover more quickly and may rehabilitate without restrictions. My opinion is that all patients benefit from a quicker recovery and elimination of postoperative restrictions. And some patients need to return to work or certain activities in a shorter period of time and without restriction, thus this surgical approach is a benefit to the younger and/or more active patient, which is now an increasing segment of patients undergoing THA, as the indication for THA has expanded to include younger, more active, and heavier patients.

**CONCLUSION**

The most significant improvements in THA have been allowing patients to be immediately weight bearing as tolerated after THA, incorporating a multimodal pain management protocol, and now using the direct anterior approach. There is a learning curve, and I strongly recommend that people attend cadaver-based learning centers as well as surgeon visitations.

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**REFERENCES**