



Your Guide To:
Total Hip Replacement
Anterior Supine Intermuscular Approach
with Timothy Kavanaugh, MD

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Introduction

Since you have progressed to the point of serious consideration for a total hip replacement, there is a great deal of information that is important for you to understand. Prior to you making the final decision and ultimately having the procedure, it is important that you understand everything about the procedure and have realistic expectations about the results. You should understand why you are having problems with your hip, when you should make the decision to go with surgery as a treatment option and what the surgery exactly involves.

I also want you to clearly understand what is expected of you prior to, during, and after the hospitalization. These expectations, along with the possible surgical complications, will allow you to decide when to proceed with the operation. I will summarize all of this information for you in this handout. Certainly, if you have any questions please feel free to contact me or my staff at Steward Orthopedics and Sports Medicine Center. I firmly believe the best patient is a well-informed patient.

Rationale and Indication

Total hip replacement (THR) for disorders of the hip joint has been performed for over 50 years. There has been a rapid evolution of changes in prosthesis design and surgical technique. The great majority of hip replacements are done for arthritic conditions of the joint. There are many different causes of arthritis but all of them cause a deterioration of the hip joint.

The hip joint is a ball and socket joint that moves on a very smooth surface called articular cartilage. The articular cartilage is worn away by the arthritic process to the point that the hip joint becomes painful. The process is usually gradual and may require months or even years for it to progress from a mild to a severe state. As it becomes more severe, there will be more pain and limitations of function.

There are many types of arthritis that can cause this deterioration of the hip joint. The most common forms of arthritis include Osteoarthritis (or "wear and tear arthritis"), Rheumatoid arthritis, Ankylosing Spondylitis, Post-Traumatic arthritis (usually related to a previous

fracture), Avascular Necrosis (related to a loss of blood supply to a key area of the joint), and arthritis secondary to a congenital or developmental problems such as developmental dysplasia of the hip (DDH), Perthes' disease or slipped capital femoral epiphysis.

Some types of hip fracture also are indications for a hip replacement. Many fractures of the hip are managed by pin or screw fixation, but in some circumstances when the damage is severe, a THR is recommended because it is the best option for a good result and early full weight bearing.

In early stages of hip disease, the pain and loss of function may be improved by conservative means of treatment such as non-steroidal anti-inflammatory agents (NSAIDs), the use of a cane or crutches, and restriction of activity. Weight loss, if possible, can also significantly reduce the level of pain. For many medical reasons it is best to reach your optimal weight, but in all reality, weight loss may be difficult or nearly impossible because one can't exercise or walk far due to the arthritic hip. Chiropractic treatment and physical therapy also play a role in the management of early to moderate arthritis.

As the arthritic process increases in severity, patients will have increasing pain and a decrease in function that will no longer be successfully managed by conservative means. This point is the time to seriously consider a THR. The decision to perform surgery is based entirely on the patient's complaints. It is a very rare case when the surgery is done on an emergent basis. There are some cases where arthritic process is so severe that it actually wears away or erodes bone. Once this erosion occurs, the operation should be done in a reasonable period of time because progressive loss of bone could compromise the final result.

The Kavanaugh Joint Replacement Team

I have been doing joint replacements since 2002 and believe we have a "care team" system that works very well. I am the head of this team and do all the surgeries. I have a certified physician assistant (PA-C) who helps me in the operating room as well as on the floor at the hospital and in the office. My PA is highly trained. You will meet the PA as you go through this process. You may have follow up appointments scheduled with the PA as long as things are going well. This helps streamline the whole process as well as make this

highly successful procedure available to patients regardless of their insurance status.

My medical assistant and surgery coordinator is **Tynisha Biggs**. You will have contact with her in the office, the phone, and most issues regarding scheduling surgery as well as your pre-op and first post-op visits.

Surgery — Anterior Approach

The anterior approach is an approach to the front of the hip joint as opposed to the anterolateral (side) approach to the hip or posterior (back) approach. The ASI approach follows the lower half of the interval of the Smith-Peterson approach, making it a true anterior approach to the hip. It should not be confused with the Hardinge approach, which is often referred to as an anterior approach, but involves a lateral incision.

Rehabilitation is accelerated and hospital time decreased because the hip is replaced without detachment of muscle from the pelvis or femur. Other surgical approaches necessitate detachment of muscle from the femur during surgery. In the anterior approach, by contrast, the hip is approached and replaced through a natural interval between muscles. The most important muscles for hip function, the gluteal muscles that attach to the posterior and lateral pelvis and femur, are left undisturbed.

Lack of disturbance of the lateral and posterior soft tissues also accounts for immediate stability of the hip and a low risk of dislocation. It is normal for patients undergoing lateral or posterior incisions to follow strict precautions that limit hip motion for the first two months after surgery. Most importantly, they are instructed to limit hip flexion to no more than 90 degrees. These limitations complicate a patient's simple daily activities such as sitting in a chair or on the toilet or getting in a car.

Following the anterior approach, however, patients are immediately allowed to bend their hip freely and avoid these cumbersome restrictions. They are instructed to use their hip. Additionally, if patients are sexually active before surgery, there are no limitations on resumption of normal sexual activity after surgery.

The hip is a ball and socket joint that remains in place because of the bony anatomy, muscle tension and a thick ligamentous capsule surrounding it. The ball is the femoral head of the upper end of the femur (thigh bone). The socket is the acetabulum, which is part of the pelvic bone. THR replaces these worn surfaces.

The femoral head is removed and replaced by a metal stem with a ceramic or metal ball on top of it. The acetabulum is "cleaned up" and replaced by a metal socket that has a plastic liner. The metal stem is usually made of titanium, the acetabular shell or socket that I use is made of titanium, a metal that bone grows into readily. There are various choices for the ball and liner in any hip replacement. I will discuss these with you and will also make a recommendation on what combination I think is best for your situation.

There are two methods of fixation for the metal implants to bone. One is the use of a special coating that the bone — over a period of about 10-12 weeks — grows onto or into. The other option is to use bone cement. While both methods have good results in the orthopedic literature, I believe that use of in-growth or on-growth technology is the best for over 99% of all hip replacement patients. The surgery itself in a majority of patients takes about 50-60 minutes in the operating room.

Most patients will receive a zipline to close the skin. This is two pieces of special tape connected by zipties that is simply peeled off after 3 weeks. Patients may shower normally as long as there is no drainage from the incision site.

Expectations

THR is very successful in terms of its main two goals: pain relief and return of function. Approximately 90% of patients have complete pain relief. The other 10% may have some mild and intermittent discomfort. The same high percentages of patients no longer have a limp after the procedure. The limp may persist in some cases, this is usually due to the fact that muscles around the hip are so debilitated from the arthritis that they can't be fully rehabilitated or that the post-operative exercises were not performed.

Most patients do not require any assistive devices to walk afterwards but in some cases, patients will choose to use a cane for balance or safety reasons. You are usually able to increase your activity level dramatically after surgery. Patients are encouraged to walk, hike, exercise, ride a bike, use an elliptical machine, swim, and even play golf. I let people ski afterward only if they were accomplished skiers before surgery and as long as they clearly understand that a wipe out can cause a hip dislocation. A full return to activity as desired/ tolerated after anterior THR is usually accomplished.

A frequent pre-operative complaint of patients in addition to pain and limping is that the leg on the side of the arthritic hip is shorter than the other leg. This usually occurs as the arthritic process wears away the articular cartilage and in some cases even the bones itself. At the time of surgery the leg usually can be lengthened to a point that post-operatively, the two legs seem equal. I take multiple measurements to plan out the procedure and measure leg lengths.

You must understand that this is secondary gain and the important goal is placing the hip in a strong, tight position that will give the lowest chance of dislocation. Rarely this means that I have to lengthen the leg relative to the other side (usually less than $\frac{1}{4}$ of an inch) in order to achieve this desired stability. If this occurs and is bothersome on a daily basis, I prescribe a shoe lift to balance out the leg length discrepancy. I usually wait until the 6-month post-op visit to do this because sometimes it takes this long for the muscles and ligaments around the hip and low back to adjust to the new hip.

The final critical issue is how long the hip will last. At this point we have good studies that suggest most hip replacements should last at least over 20 years. In all reality, with the new technology we have today, I expect even better results than the published studies. Patients always need to realize, however, that there is potential that the hip might need re-do surgery at some point in time.

Complications

The results of THR are really pretty incredible. So why do we only perform this surgery for patients with significant complaints? This reason is that there are some potentially significant complications. These include but are not limited to infection, bleeding, damage to nerve or blood vessel, blood clots, dislocation, fracture and the risks associated with general or spinal anesthesia.

The chance of infection in a THR is about 1-2%. This is a very low number, but nevertheless it can occur. If it does occur, it can be a very difficult problem as it is often necessary to have other surgeries to remove the infection and in some cases, to remove the prosthesis for a temporary period of time or permanently. Obviously, the best way to avoid an infection is to prevent it in the first place. The surgical team uses a special exhaust system in the OR often called spacesuits. These prevent any possibility of air contamination of the surgical site from anyone closely involved with the surgery. In addition, all patients receive prophylactic antibiotics in the OR prior to surgery and for 24 hours after the procedure.

Blood clot formation or deep venous thrombosis (DVT) is a clot in the deep venous system of the leg. This is a known risk after THR, reported anywhere from 3-5%. The major concern is that a deep venous clot would break free and migrate to the lungs where it could potentially cause death by pulmonary embolism. The reported rate of this phenomenon after THR is 0.03%. You will be treated preemptively after surgery with a combination of methods. You will be on some form of medical prophylaxis for blood clots post operatively. Aspirin, Xarelto, Lovenox or Coumadin are the drugs I use. I make the choice for each patient individually based on many different factors. Most commonly, patients are prescribed Active Care serial compression devices that are worn full time for 2 weeks along with aspirin twice a day for 4 weeks.

I personally feel that the most important factor in preventing DVT after hip surgery is ambulation. That is why I am such a huge fan of early mobilization after surgery. I can't emphasize this point enough.

The best result, of course, is that you do not form a blood clot. If you do form a clot, being placed on high doses of blood thinners can adequately treat it. The signs of a blood clot in the leg are increased swelling, redness and pain, primarily along the inside of the thigh or below the knee. Please be aware of these symptoms and call me immediately if they develop.

You will be given an exercise program to follow post-operatively. Dislocation of the hip after an anterior approach is rare. It is different from the posterior approach and I do not give patients who have the anterior approach restrictions or "hip precautions" post-operatively.

The other complications that may occur are rare. There are complications potentially associated with any major surgery and anesthesia. These potential complications include but are not limited to: death, heart attack, heart failure, stroke, pneumonia, fluid in the lungs, nausea, vomiting, diarrhea, constipation, urinary tract infection, urinary retention, pressure ulcers or bedsores and wound complications such as drainage, poor healing or stitch abscesses.

Preparation for Surgery

Once you have made your decision to go ahead with THR, you should speak with my surgery coordinator and she will schedule your surgery. Your surgical procedure will be scheduled depending on your pre-operative clearances, my schedule, and your insurance companies' requirements for prior authorization.

Your surgery will be scheduled to take place at St Lukes Medical Center and you will be required to see your primary care physician for a pre-operative history and physical prior to this procedure. All of these appointments will be arranged pre-operatively. Some patients will need clearance from a cardiologist. This will also be arranged in the pre-operative period. I really rely on the judgment of the primary care physicians and cardiologists for any specific medical recommendations around surgery time.

You will be seen in the office for a pre-operative appointment **prior** to your admission for surgery. Our office can answer any questions about preparation for the surgery and the pre-operative sequence of events. Make sure you receive your handicap sticker application from my medical assistant prior to surgery. **I will issue a temporary handicap vehicle permit for 3 months starting at the time of surgery.**

Surgery Day

Insurance plans do not pay for an admission day prior to the procedure; therefore, all patients will be admitted on the day of surgery. At pre-admission, if not already performed, there will be a number of routine blood and x-ray tests. You will be asked to show up at the hospital about 2 hours prior to the planned start of your procedure. You will meet the anesthesiologist at this time. You should discuss with him/her the benefits of spinal vs. general anesthesia.

Surgery is never like making a burger at McDonalds where the exact cooking time for each sandwich is determined and followed. Some cases are longer than others, some are shorter than others. My staff and I plan each surgical day in a certain order for a reason. You are asked to show up at the hospital at a certain time to check in.

Sometimes you may wait longer than the two hours for your surgery. We try to plan it so that doesn't happen, but occasionally cases need more of my time than I originally had planned, so they get it. I will use the same judgment on your case as I do all my other patients to get the best possible result I can get for you.

Please keep this concept in mind if you are waiting longer on your surgical day for your case to start than we had planned. Everyone should bring a book or magazine to read for this time just in case you have to wait longer. Rest assured that I am working away to the best of my abilities in the operating room while you are waiting. Thank you in advance for your understanding in this matter.

Recovery

As mentioned above, a standard THR takes about 50-60 minutes of OR time for me while a re-do THR can take anywhere from 2-5 hours. While you are in the OR, your family and friends can wait in the designated waiting room and I will contact them as soon as the surgery is complete to update them on your condition. You should plan on being in the recovery room for about an hour after the procedure. Once you meet recovery room criteria, you will be moved to your room on the orthopedic floor. Some patients, especially those with cardiac issues pre-operatively, might need to spend the first night on a floor with a cardiac monitor.

I like to have my patients stand up and take some steps on the same day as surgery. While this may seem aggressive, it truly pays some serious benefits to the patients during the hospital stay. You will gradually increase your walking distance and frequency as tolerated. The average hospital stay for an anterior total hip replacement is less than 1 day. A majority of anterior hip patients go home the day after surgery. We will give you a prescription for outpatient physical therapy when you are discharged from the hospital. I would like you to start outpatient therapy within 48 hours of being discharged.

All Total Hip Replacement patients will need someone (family or friend) to help them at home for the first 7-10 days post-operatively.

I recommend upon discharge that my THR patients go home and not a rehab facility.

Your therapy will be tailored to the type of operation that you have received. I try to make all patients weight bearing as tolerated on the operative side. I feel that this greatly enhances the recovery by allowing the muscles to function as normal as possible immediately after surgery. Sometimes if there has been soft bone or a fracture noted around the implant at the time of surgery, I would restrict the weight bearing for the first 6 weeks. Revision THR patients have a much higher chance of restricted weight bearing after surgery.

In the hospital, the physical therapist will decide whether a walker or crutches is the best ambulatory aid for you. You will also meet an occupational therapist who will assess your daily needs after THR. When you go home, you may still have some clear yellow (serous) drainage from the incision site. This is not an indication of infection but of liquefaction of the fat below the skin level. This may continue for an additional 1-5 days. If it persists a week after surgery, please give the office a call at 602-553-3113.

You should stay on your crutches or walker until you feel stable while walking. I encourage you to advance off these ambulatory aids as you tolerate.

Medication & Refills

When you are discharged, you will have a prescription of narcotic pain medication. Early on, you will likely need to watch the clock for taking the pain meds. After about the first week, you should start to taper down the medication and truly take as needed.

Narcotic pain medication for hip replacement surgery is necessary in the early postoperative period. We taper the meds down fairly quickly as you progress. **The absolute longest time frame that I will prescribe narcotics after surgery is 3 months.** I do not believe that there is a need for narcotics for this operation after that period of time.

If you need a refill on your medication you will need to call our office and my medical assistant will order a refill within 48 hours. Your medicine will not be refilled after hours, or on the weekends. Please plan ahead so you do not run out. Certain medications cannot be called in and must be picked up in the office.

Follow-up

Since you have had THR, it is important to monitor the healing process in the first 3 to 6 months following the surgical procedure. It is also important to monitor the long-term fixation and function of the implant over a period of many years to be certain that there is no adverse affect on the bone or any sign of loosening of the prosthesis. Therefore, the usual follow-up schedule involves a return to the office for examination and x-ray at the following times after the surgical procedure.

The first follow up visit is at six weeks. The second is at six months. After that we will discuss the situation that would arise necessitating an appointment with an x-ray. If problems arise, you should call for an appointment sooner than scheduled follow-up.

Problems or Questions

If you have any questions or concerns about scheduling or the pre-operative sequence of events, please contact my surgery coordinator at 602-553-3113 #3, then #4. We will take care of any scheduling or insurance issues as swiftly as possible. My medical assistant, Tynisha Biggs can also help you after your discharge from the hospital with questions about your recovery. If I am not in the office at the time of your call, my office staff will make sure that I receive the message as soon as I return.

I want to make sure that you completely understand the disease process of arthritis and the decision to undergo total hip replacement. Please ask questions and I will be happy to answer them. My office is committed to making this stressful period in your life as pleasant as possible. If there is anything that my staff or I can do to help make this experience better for you or your family, please do not hesitate to contact us.

