TOTAL HIP REPLACEMENT

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Since you have progressed to the point of serious consideration of total hip replacement, there is a great deal of information that is important for you to understand. Prior to making your final decision and ultimately having your total hip replacement, 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 and when you should make the decision to have hip replacement surgery. These expectations along with the possible complications of the procedure will allow you to decide when to proceed ahead with the operation. I also want you to understand clearly what is expected of you prior to your admission to the hospital, during your admission, and in the rehabilitation period after your discharge. I will try to summarize all this information for you. Certainly if you have any questions, please feel free to contact me.

RATIONALE AND INDICATION

Total hip replacement for disorders of the hip joint has been performed for over 50 years. A rapid evolution in prosthetic design and surgical technique has occurred in the last fifteen years. The great majority of the operations are done for arthritic conditions of the hip. There are many different causes of arthritis all of which cause a deterioration of the hip joint. The forms of arthritis include osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, traumatic arthritis (related to injury), avascular necrosis or loss of blood supply to the hip joint, and arthritis secondary to congenital or developmental problems such as congenital dislocation of the hip, Perthes disease or slipped capital epiphysis. The hip joint is a ball and socket joint which moves on a very smooth surface called the articular cartilage. The articular cartilage is worn away by the arthritis process to the point that the hip joint becomes painful. The process is usually gradual and may progress for months or even years before becoming severe. As it becomes more severe, you will experience more pain and more limited function. There are many types of arthritis that cause this deterioration of the hip joint.

A second category of causes requiring total hip replacement are those of failed previous hip surgeries. The most common is a previous hip replacement that now has failed either through loosening of the components from bone or wear of the polyethylene liner. This is called a revision total hip replacement while the initial hip replacement is called a primary total hip replacement. The third common cause for total hip replacement is in cases of fracture of the hip. Many hip fractures are managed by pin or screw fixation; but in some circumstances where the damage is quite severe, a hip replacement is required because the bone itself will not heal.

In the early stages of hip disease, the pain and loss of function may be improved by conservative means of treatment including non-steroidal anti-inflammatory agents, intra-articular injection of steroids, 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 and maintain your optimal weight. This weight loss is difficult and sometimes impossible with severe disease as you cannot exercise or walk very far.

At some point, the arthritic process will increase in severity and patients will have increasing pain and decreasing function which is no longer managed by conservative measures. Many patients wish to consider hip replacement at this time. The decision to perform the total hip replacement is usually based entirely on the patient's complaints. It is rare when the surgery is done on an emergent basis except in the case of fracture. There are, however, some cases where the arthritic process is so severe that it actually wears away or erodes the bone. Once this erosion occurs, the operation must be done in a reasonable period of time to prevent loss of bone which may compromise the optimal results.

SURGERY

The hip is a ball and socket joint that remains connected or reduced by a thin capsule and muscle tension. The ball is the femoral head of the upper end of the femur, or thigh bone. The socket is the acetabulum which is part of the pelvic bone. A hip arthropathy replaces these abnormal or worn surfaces. The femoral head is removed and replaced by a metallic head. The acetabulum is removed and replaced by a plastic in metal socket which is made of a high-density polyethylene. The metal is a strong alloy of either titanium or a combination of chromium and cobalt. A new capsule or lining forms around the joint to maintain the ball inside the socket.

A controversy that previously existed in the total hip replacement is the method of fixation of the prosthesis to the patient. Two options are available. One is the use of commercially pure acrylic bone cement called methyl-methacrylate. Early use was quite crude and the cement fixation was actually quite weak. It was typically used in patients who were older or had very weak or osteoporotic bone. This type of fixation had been thought superior for many years but evolution in surgical technique and implants has changed this practice significantly. Current literature supports the use of a newer type of fixation which involves the patient's bone growing into a roughened or porous surface of the total hip implants. It is my belief that this type of fixation is superior, with better long term longevity, in the majority of patients, regardless of age, bone type or gender. It is an extremely rare occasion that I would choose the use of methyl-methacrylate over bone ingrowth fixation.

A second controversial issue is that of alternative bearing surfaces, or all metal or ceramic total hip replacements. These surfaces may have some potential advantages but also have some potential pitfalls including stability, breakage and carcinogenesis.

EXPECTATIONS

Total hip replacement is very successful in terms of its main goal which is pain relief. Approximately 90 percent of people have complete pain relief. The additional 10 percent of patients may have mild and

intermittent discomfort if they overuse the hip or become too active. The same high percentage of people no longer have a limp after the surgical procedure. A limp may occur or persist even though pain relief occurs. This occurs in situations where the muscles around the hip are very weak or in cases where the postoperative exercises are not performed. Most patients do not require any assistive devices to walk, although in some cases, patients choose to use a single prong cane for safety or balance reasons. You are usually able to increase your activity level dramatically after surgery. Patients are encouraged to walk, hike, ride a bicycle or exercycle, swim and even play golf or doubles tennis. Sports that cause significant impact or twisting such as running, singles tennis or downhill skiing are not ideal.

A frequent complaint of patients in addition to pain and limp is that of shortening of the leg. This occurs as the arthritic process wears away the articular cartilage and in some cases even the bone itself. At the time of surgery the leg can usually be lengthened to a point that the legs seem to be equal. But you must understand this is a secondary goal and the most important goal is pain relief and stability. Leg length discrepancy has become less common with the development of more versatile implant systems.

The final critical issue is how long the hip replacement will last. At this point we have very good information that suggests an ingrowth/non-cemented total hip replacement will last approximately fifteen to twenty-five years. After many years of use and walking, the hip prosthesis can loosen from the bone or the plastic can wear out. If this occurs,

and pain is present, it may be necessary to revise or re-do the hip replacement. This technically can be accomplished successfully but obviously it is best to have the initial hip replacement last as long as possible.

COMPLICATIONS

The results of total hip replacements are excellent. Therefore, there must be some reason that prevents us from performing hip replacements

except in patients with significant arthritis. Complications are rare but nonetheless exist. These complications include infection, blood clot formation or thrombophlebitis, dislocation of the prosthesis ball from the socket, nerve injury, fracture and other general complications. The issues especially important to address include infection, blood clot formation and dislocation.

The chance of infection in a total hip replacement is 1 out of 200 or 0.5%. This is a very low number but, nevertheless, can occur. If this occurs, it can be very difficult problem to treat and it is often necessary to have other surgeries to remove the infection. In some cases, removal of the implant for a temporary period of time is required. Obviously, the best way to treat the infection is to prevent it. The surgical team uses air exhaust systems which are operating room apparel often called spacesuits. This prevents the operating room staff from breathing on the area of your hip operation. In addition, all patients receive preventive or prophylactic antibiotics for 24 hours. This combination of techniques should lower the chance of infection. Our hospital infection rate for all primary joint replacements last year was 0.2%.

Blood clot formation/thrombophlebitis or deep venous thrombosis is the formation of a blood clot in one of the deep veins of the lower leg. This is a common complication that occurs despite all methods of prevention. There are multiple ways to try to prevent this. Early mobilization decreases blood pooling your lower extremities. We put all patients on some type of blood thinner throughout the hospitalization, dependent upon your past medical history and the medications you take. The types of blood thinners we use include aspirin, Coumadin or warfarin, lovenox (injectable) and/or xarelto. Finally, all patients also wear sequential compression TEDS which are devices placed on both feet that massage the leg to increase blood flow, to minimize the chance of clot formation. The best result, of course, is that you do not form a blood clot. If you did form a blood clot, it is important to know about it because it can be adequately treated. If you form a blood clot and it is not treated, there is a chance the blood clot could break loose and embolize/or move to your heart or to your lung. This could potential be fatal. Therefore, the safest approach is: 1) attempt to prevent DVT and 2) diagnose deep vein thrombosis prior to leaving the hospital. With this protocol the incidence of blood clots following hip replacement is 4

percent.

During your hospitalization you will be involved in an exercise program and instructed on the postoperative hip positions that you should avoid. If you bend your hip too far, bring your knees all the way to your chest, or turn your leg in too far, there is a chance that the ball can dislocate out of the socket. This should not occur if you use a reasonable amount of caution and follow the instructions. These restrictions should be maintained for life but are most critical during the first three months after surgery while the soft tissues about the hip are healing. If this does occur it usually requires an operation where you have to open the hip replacement. This is a potential complication that should be preventable. The dislocation rate for a primary hip replacement is less than 0.2%.

Because incision sizes have become significantly smaller than they were in the past, total hip replacement rarely requires blood transfusion. Because it is rare that our patients require blood transfusion we do not suggest pre-surgery blood donation by our patients. We now routinely use a medication during surgery to decrease blood loss. The use of smaller incisions and intra-operative medications help avoid the concerns of hepatitis and AIDS transmission. The chance of this occurring is exceedingly small with the estimated incidence of hepatitis transmission being 1 in 4,000 blood transfusions and AIDS being 1 in 1,000,000 transfusions. In cases of a fractured hip, I will be very cautious in using any other types of blood transfusions and will always discuss this with you first. If blood transfusion becomes necessary, the blood is very carefully screened and tested for these two problems.

Other complications that might occur are rare. They are potentially associated with any major surgery and anesthesia. The potential complications include death, heart attack, heart failure, stroke, pneumonia, lung congestion, gastrointestinal problems such as nausea, vomiting, diarrhea, constipation, urinary tract infections and decubitus or bedsores, etc.

The long-term complication involves failure of the implant, as discussed in the previous section. This may occur by either loss of fixation

or mechanical loosening of one or all of the implants or by wear of the plastic polyethylene surface. Modern hip replacements should last more than twenty years.

It is advisable to stay in good physical health, avoid excessive weight gain, avoid excessive impact activities as previously noted, and exercise frequently. Although revision surgery is usually very successful, hopefully it will never be required for most patients.

PREPARATATION FOR SURGERY

Once you have made your decision to have a total hip replacement, you should contact our Surgery Coordinator, Renee Wood at 910-295-0224. She will help you choose a surgery date and will also schedule you for a pre-surgery appointment with my Physician's Assistant: Michelle (Shelley) Moore. This pre-surgery appointment with Michelle is mandatory for surgery. The time you must wait for your surgery is variable depending on the surgery schedule and your other medical conditions. We will make every attempt to schedule the surgery at your convenience. Renee can answer many questions about preparation for surgery, the pre-operative sequence of events, and insurance matters.

It is important to have a physical examination by your primary care physician/internist and/or cardiologist (if you have ANY cardiac history) prior to your total hip replacement surgery. Since this is a serious operation, you should be in your best medical health with all medical problems under good control. If you have had a recent physical examination it may not be necessary to have a new examination.

Once you have discussed your upcoming hip replacement with your primary care physician and/or cardiologist they will then mail or fax the results of your examination and tests results to our office. It is preferable that these documents are received by our office prior to your pre-surgery appointment with Michelle. Additionally, we request that your dental health be at its optimum. We must ensure that you do not have any active oral/dental infection prior to joint replacement surgery, and therefore require that you see your dentist and undergo evaluation if you have any

teeth in your mouth at all. Your dentist may also mail or fax results of your examination to our office prior to your admission to the hospital.

We will provide you with a letter to give to your primary care provider/other medical providers detailing our plans to proceed with surgery. **It is your responsibility to make certain your pre-operative primary care physician, cardiology, and dental appointments are completed prior to surgery.**

As mentioned above, at the time that our surgery coordinator schedules your hip replacement she will also be scheduled an in depth preoperative history and physical examination with my Physician's Assistant, Michelle Moore (Shelley). This appointment typically occurs 3-4 weeks prior to your surgery date, and we do encourage you to bring a spouse, family member or friend with you to this appointment if you would like to involve them in your care. Michelle will be involved in your whole hip replacement experience as she is my operative assistant during surgery, she is involved in your hospital care and will also be seeing you during various clinic follow up visits. At your pre-surgery appointment Michelle will ensure that you are medically and surgically prepared for surgery, and that all of your questions have been answered. You will understand what will happen just prior to surgery, during surgery, during your stay in the hospital, and after your discharge from the hospital. **You should bring copies of your medical and/or cardiac preoperative evaluation and dental evaluation to this appointment if they have not already been faxed to our office.**

Upon arrival and check in at Pinehurst Surgical Clinic for your appointment with Michelle, one of our nurses will accompany you to one of our examination rooms for an anticipated 45-60 minute appointment. During this appointment, please be prepared to complete specialized x-ray examination needed specifically for surgery purposes. Additionally, you will be accompanied to our Pinehurst Surgical Clinic laboratory for routine laboratory tests of your blood. It is not necessary that you fast prior to your appointment with Michelle as the laboratory testing that will be completed does not require so. You will also undergo an electrocardiogram at this time (please inform us if you have undergone EKG testing by any other provider within the past six months and bring a copy of this study with you to your appointment if you have). **It is important that you come**

to your history and physical examination with the actual bottles of medications you are taking on a regular basis, including those used on an as needed basis, both prescription and over the counter. We will be carefully documenting the dosages of the medications you take including the time of day your medications are taken. Please do not bring a list of your medications, as we prefer the medications in their original bottles instead insuring accuracy.

I would also like for you to compile a comprehensive list of all the medical providers you see including their name, and contact information. This will allow us to keep all of your medical providers updated with your progress before your hip replacement surgery, during your hospitalization and also during your recovery. Michelle will request this list at your pre-surgery appointment with her. At this appointment, Michelle will also provide you with individualized pre-surgery written instructions detailing any medications that need to be discontinued in preparation for surgery, medications that must be taken the morning of surgery and any other necessary instructions. She will also provide you with an application for a temporary handicapped license tag, which you might use for three to six months after your hip surgery.

As part of our preoperative education program, we do encourage all patients scheduled for hip replacement to participate in a preoperative patient education class which is held at Moore Regional Hospital. ***Patients with MEDICARE A and B are required by our government to attend one preoperative class (effective 2014).*** Although the class is voluntary, for all other patients, we feel strongly that this is a very important part of preparing for your surgery. The class will discuss in great detail what to bring to the hospital, what to expect during your hospitalization, what to expect during physical therapy, what to expect from discharge planning and what to expect after you are discharged from the hospital. This is a very helpful time to bring members of your family as well so that everyone can understand what is required to get the best possible result from your surgery. At this time, you will also discuss the nursing plan and philosophy for your care at First Health Moore Regional Hospital. These classes are typically held on Wednesday and Thursday afternoons from 1:00-3:30 pm. Our preference is that you attend one class before your surgery date, if you are able. Michelle will provide you with a flyer detailing additional class

information, she will also facilitate your class enrollment and even pre-register you for class should you have a date in mind.

For those of you who are internet savvy, and have difficulty with travel distance, time and date constraints, the hospital does offer an online option/replacement for the onsite preoperative preparation class. If you are interested in viewing this online class rather than attending the onsite class Michelle will provide the website address and specific instructions on the day of your pre-surgery appointment.

HOSPITALIZATION

Most insurance plans do not approve hospital admittance prior to the surgery day, therefore, you will be admitted to the hospital the same day of surgery in most cases. At admission, if necessary, additional blood testing might be required.

Renee Wood, our Surgery Coordinator, will call you one business day prior to your surgery date and inform you of your arrival time to Moore Regional Hospital Outpatient Registration located on Page Road. We do not assign surgery times for our patients as there are instances where certain surgeries may take longer than others. It is likely that you will wait a period of time between your arrival to the hospital and the start of your surgery. We advise that you bring a family member or friend to keep you company during this waiting period as well as some reading materials to help in passing the time. It is important that we have current, accurate contact information for you in order to facilitate the provision of information in a timely manner. Michelle will confirm your current phone number at the time of your pre-surgery appointment and also discuss the best methods of providing your arrival time to you (i.e. telephone vs. email).

You will find that the pre-medication process begins immediately upon hospital admission. We will be administering medications to prevent post-surgical nausea and pain. You will then be taken to the preoperative holding area in the operating room. This will allow for consultation with the anesthesiologist and starting of the intravenous line. At this point a preoperative sedative will be given to you by your anesthesiologist.
In almost all cases, a spinal anesthetic is administered. You will be numb

from the waist down. Although you may choose to be wide awake or we can sedate you as heavily as you would like so that you are completely relaxed and will not remember anything about the operation. This is safer than a general anesthetic and your recovery is more rapid. A general anesthetic is used in rare cases.

Primary total hip replacement approximately one hour of surgery time, while a revision total hip replacement requires between two to three hours of surgery time. While you are in the operating room, your family will wait in the surgical waiting area or at home. As soon as surgery is completed, I will contact them in person or by telephone.

You will be in the recovery room for one to three hours until the effect of the spinal anesthesia is worn off. Once that occurs and your vital signs are stable, you will be returned to your room on the orthopedic floor. Patients with severe cardiac problems may be monitored in the Intensive Care Unit overnight.

After surgery, you will be able to move about the bed. You will not need to remain rigidly immobilized in one position. With the bed controls you may elevate the head of the bed or remain perfectly flat. At the time of your surgical procedure while the spinal anesthetic is still in effect, a catheter is inserted into your bladder. The catheter will be removed the morning following your hip replacement and you will be able to urinate on your own.

With the assistance of our physical therapists, you will begin your bed exercises, standing and walking on either the day of surgery or on the first postoperative day, depending on the hour your surgery is completed. In addition to your twice daily physical therapy sessions, the therapists will instruct you on the hip precautions for prevention of hip dislocation. You will gradually increase your walking distance and frequency as tolerated. You are usually in the hospital for two days until you reach a level of independence following the surgery. When you are independent, you should be able to get in and out of bed by yourself and walk between 150 and 300 feet. If you meet these guidelines you will be able to return home. You should strive to go home. This will encourage independence. Home physical therapy will be arranged by a hospital discharge planner prior to

discharge from the hospital. You should expect that once home, a physical therapist will come to your home several weeks after your hospital discharge and intervals determined by both your insurance company and your medical care providers.

It is also an option to forgo home physical therapy and replace home therapy with outpatient therapy instead. You would need to have someone to drive you to and from these outpatient therapy appointments.

Your therapy will be tailored to the type of operation that you received. Regardless of the type of fixation used for your surgery, the majority of patients can be weight bearing as tolerated, which means you can put as much weight on the leg as you desire. Should unexpected bone fracture occur during surgery, there is the possibility you will have limited weight bearing for a short period of time, although this is not typical. While you are walking in the hospital, you will initially be using a walker but you can advance to the use of crutches if you can master the technique. It is your personal preference whether you go home on a walker or on crutches. Prior to the discharge from the hospital, the physical therapy and occupational therapy departments will be certain that you understand very clearly your discharge exercise program and have all the assistive devices that will help you cope in the immediate postoperative period. You will be required to go home with the use of a walker for ambulation.

In order to prevent blood clot formation you will be placed on some form of blood thinner, typically aspirin twice per day. We will also have you continue a blood thinner at home for approximately 6 weeks after surgery.

By one to two days after surgery, which will be your time of hospital discharge, your incision should be healing well. You will not have staples in your incision after hip replacement as we choose, rather, to sew your wound closed using absorbable suture. Your incision will be evaluated approximately seven to ten days after hospital discharge at your first follow-up clinic appointment. When you go home you may still have some clear, yellow drainage (serous drainage). This is not an indication of any type of infection but just a part of the healing process in the fat below the skin level. This may continue from one to five days. You will be allowed to shower with an occlusive bandage once home.

When you are discharged you will have a prescription for a narcotic pain medication but you should be requiring less of the medication each day. You should moderate your activities to reduce the amount of stress that is put on the incision and muscles about the hip. This is the appropriate way to manage your pain after your discharge. It is common to have swelling in the leg, especially, if you are becoming more active in your activities at home. The one type of swelling that can be worrisome is swelling in the entire leg starting at the ankle or foot level. This is common when you sit for prolonged periods of time. If this occurs you need to spend less time sitting and more time lying down on the bed or couch with the leg elevated. If the swelling does not resolve significantly with this rest and elevation, you should contact me so that we might further evaluate this.

You should stay on your crutches, cane or walker for the entire first six weeks after the surgical procedure unless otherwise informed. I will only advance you to a single crutch or cane after you return to see me at your second postoperative visit six weeks following the surgery.

FOLLOW-UP

Once your hip is replaced, it is important to monitor closely the healing process in the first three to six months following the surgical procedure. It is also important to monitor the long-term fixation of the implant over a period of many years to be certain there is no adverse effect on the bone or any sign of loosening of the prosthesis. Therefore, the usual follow-up schedule involves your return to the office for examination and x-rays at the following times after the surgical procedure: two weeks, six weeks, six months, and one year. After the first year, you are seen on an annual basis. In some situations because of difficulty of travel, I can make arrangements for you to be seen by your local family physician who can obtain x-rays and send those to me for evaluation. Unfortunately, this is not the ideal situation. I will try to be as flexible as possible because I know travel is often quite difficult and expensive.

PROPHYLACTIC ANTIBIOTICS

Patients with hip replacements can develop infections of the joint in special circumstances. Any infection you might acquire in any other part of your body could potentially spread to your replaced hip. As a result, antibiotics should be taken before colonoscopy, urologic, and dental procedures. An instruction sheet has been prepared and will be given to you in your educational packet.

PROBLEMS OR QUESTIONS

If you have any concerns or questions about the scheduling or preoperative sequence of events, you should contact Renee Wood at 910-295-0224. She can answer questions about surgical scheduling, any insurance concerns or preparation for surgery. She can also help you after your discharge from the hospital with questions about your recovery and will forward any other specific questions to me or my Physician's assistant, Michelle. If we are not in the office at the time of your call, they will make certain that we receive the message as soon as possible. Either myself or Michelle will return your phone call as soon as we are able.

I want you to understand completely your disease process and the proposed surgery. It is best that you clearly understand all information about total hip replacement surgery. If you have any additional questions, please ask me when I see you prior to your admission to the hospital or at the time of your preoperative history and physical examination with Michelle. You may also contact Michelle via the internet at mmoore@pinehurstsurgical.com.

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SUGGESTED ADDITIONAL INTERNET RESOURCES

- www.aahnks.org
- www.nih.gov/medlineplus
- www.aaos.org
- www.edheads.org
- www.zimmer.com