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Total Hip Replacement (THR)

History:

The hip replacement has been performed for over 40 years starting in England and Switzerland. Advances in technique and the actual components have made this the best orthopaedic operation and rehabilitative surgery. Smaller incision, stable fixation without cement, and vastly improved bearing surfaces can now make the hip replacement a more permanent fixture in patients.

General Indications:

Primary reason is degenerative or osteoarthritis. This is a genetic and aging process of chemical breakdown of the articular surface of the hip joint. This, of course, may be advanced by trauma, high wear, or obesity.

Other conditions are avascular necrosis or circulatory deficiency of the femoral head, rheumatoid arthritis, hip dysplasia (such as congenital dislocated hip at birth), and other more rare conditions. Fractured hips are also an indication for complete hip replacement now in more active and younger individuals.

Conservative Treatment and Indications for Operation:

In the early and moderate stages of hip disease restriction of excessive activity and anti-inflammatories are the dominant treatments. Exercise such as cycling, water dynamics, and weight machines may assist in keeping the musculature around the hips stronger. Hip and knee arthritis routinely cause atrophy or wasting of the thigh and calf musculature.

In more advanced arthritis of the hip a cane or crutch on the opposite side will help on a temporary basis. At this point motion and flexibility of the hip have diminished to where shoes and socks are more difficult. Disabling pain with activity, and even at night, becomes a strong indication for the operation itself.

Because of the longevity of implants and techniques of surgery younger individuals may have a hip replacement with long term success.

X-rays:

Weight bearing x-rays of the pelvis will demonstrate a complete or nearly complete loss of cushion or surface between the socket and the ball of the joint. There may be flattening and deformity of the usual round femoral head. Spur formation is also common except in rheumatoid disease.

Risks or Potential Complications:

These have all been explained in the accompanying blue book on the hip replacement; however infection and blood clots are most feared. Bacterial organisms are most difficult to eradicate in the presence of metal implants, even with today's powerful antibiotics.

Blood clots in the leg are certainly treatable. If these circulate to the lung, called pulmonary embolism, it can be life threatening.

Other concerns are instability or dislocation of the hip, excessive calcification around the joint (more commonly seen with the anterior approach), and severe leg length discrepancy. In reference to the latter, I personally prefer to make the extremities equal in length or the operative side slightly longer for stability. However in some cases it may require up to ½” increase in order to produce the proper tensions on muscles and ligaments to maintain stability of a hip.

General medical risks of hip surgery are the same as with most major operations, including aggravation of heart disease, lung problems, and kidneys. For this reason, there are certain tests and occasional medical clearance prior to the operation.

Surgical Procedure:

In most cases I use a minimal invasive incision slightly posterior or behind the trochanter of the hip. This may range anywhere from 2 ½” to 4 “, but longer in the more obese or muscular patients. The short posterior approach involves the cutting of very little muscle (the short external rotators which are frequently compromised with weakness and contractures due to the disease of the hip joint), and allows less postoperative pain, fewer complications, and a rapid recovery.

The anterior or frontal approach has been done in the past, over 30 years ago, and was found to have a higher complication rate with no affect on the long term success of the operation. The hip resurfacing procedure recently called the Birmingham hip, but in the past has had different names with similar principles of technique, is indicated only in the very young individual. It has been discontinued by most surgeons throughout the years because of higher complications and a lower success rate after 4-5 years. With the advanced implants of today 25-30 years or more are expected and most patients do not want to contemplate two surgeries within 4-5 years.

The general technique of the surgery involves removal of the diseased ball or head of the femur, and reaming of the socket to a perfect hemisphere to accept the largest possible socket. The femoral head is replaced with metal or ceramic and a stem into the medullary canal of the femur or thigh bone. The larger heads are now available in metal/metal, ceramic, and even ceramic on plastic. These give an individual much more stability and lower likelihood of dislocation, while reducing actual wear products over the years.

Operative time in my hands may vary from 40 minutes to 75 minutes depending upon size and severity of the case. Blood transfusions are rarely necessary unless a patient is anemic.

Postoperative Course:

The vast majority of patients are up the same day of surgery sitting and potentially walking. Stronger patients may go home on the second day and the less athletic on the third or fourth day. Weight bearing is as tolerated, and may

progress from a walker to a cane at 1-2 weeks depending upon muscular strength. A few exercises are recommended by therapy in the hospital, but complicated regimen similar to that of the knee replacement is unnecessary. Patients who are less capable by the third day may have to stay in a nursing home rehab for 1-2 weeks.

If there is no drainage from the wound, a shower is allowed at the fifth or sixth day. Progress to a cane may ensue at 1-2 weeks and full ambulation at 3-4 weeks if there is no significant limp. Climbing stairs should be done one at a time until the 5th or 6th week to protect the muscles around the hip.

Staples and the first x-ray are planned at 2 ½-3 weeks. Stationary biking, distance walking, and routine gym activity may start after the 4th week.

Some individuals may return to an easy job at 7-10 days, but most wait for approximately 2-3 weeks. A more difficult job may require 6-8 weeks recuperation.

Recreational activities such as golf may begin after 6-8 weeks. Tennis may take up to 3 months.

A rule of thumb with total hip patients as well as knee replacement is that those who perform exercise regularly fare better than those who do not. Maintaining good muscle strength around the hips and legs will give a more normal function to a patient.

Expectations and Longevity:

Most hip replacements continue to improve up to 6-12 months, as do those with the knee. Our present day bearing surfaces have reached 25-30 years in the laboratory with no appreciable wear or failure. I have performed metal/metal hip replacements for over 11 years now and have had one revision due to sensitivity to metal particles. This was converted to a plastic socket with ceramic ball. There are a number of older hip implants that are still functioning at 25-30 years in my practice.

Conclusion:

A total hip replacement is likely the most significant advancement in orthopaedic surgery in the last 40 years. Smaller incisions with low operating time, minimal blood loss, and the new high technology will lead to rapid recovery and enduring outcomes. Surgical expertise with a high volume of procedures (well over 7,000 cases) is a necessary ingredient to a lasting result.