

COMPLICATIONS AFTER TOTAL HIP REPLACEMENT



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Surgery is not a pleasant prospect for anyone, but for persons crippled with hip arthritis, it could mean the difference between leading a near normal life or living whole life up with a debilitating painful condition. Decision for surgery is an important one and is based on informed discussion between patient, his family with the doctor.

Total hip replacement is a successful surgery and continued advances in medicines and anesthesia keep making it better and less risky. However, as with any other major surgery, complications can occur after Total Hip Replacement and you must be aware of these prior to making a decision. You should discuss all of your concerns thoroughly with your Surgeon prior to surgery so as to that help you make a decision for surgery better, considering its benefits vs risk. It's not possible to mention all the complications here, but important ones are listed here.

Complications can be General (anesthesia related or medical condition related). usually do not affect the result of the replacement surgery, or specific to Total Hip Replacement surgery.

General Complications include those of the anesthesia procedure and your medical comorbidity related. Almost, any medical complication can occur, so this list is not complete. Few of them include:

- Anesthesia Related: will be discussed by anesthetist- Complications from nerve blocks such as nerve damage, epidural hematoma etc.
- Allergic reactions to medicines
- Blood loss requiring transfusion with its risk of disease transmission
- Heart attacks / failure, strokes, kidney failure, lung infection, urinary tract infections, etc
- Serious medical problems can lead to prolonged hospitalization or can be life threatening

Complications Specific to Total Hip Replacement Surgery

Infection

Infection can occur after any operation. Being a foreign body artificial joints are always at risk of infections, but it can increase after dental work or if there is persistent source of infection in the body where germs (Bacteria) can get into the blood stream and find their way to your implant. Although infection rate after joint replacement surgery is very low (approximately 1%)still even this percentage is very significant to us. Patients with Diabetes, Rheumatoid arthritis, Psoriasis, Renal & Hepatic Compromised patients, HIV patients, h/o past infection like TB, Chronic urinary tract infection /prolonged or repeated urinary catheterization etc. are at a higher risk for developing postoperative infections.

Lot of precautions is taken before & during surgery to prevent wound infection, which includes preoperative control of diabetes, optimization of rheumatoid (& other autoimmune

diseases), chronic kidney / liver disease, skin disorders to name a few. Preoperative blood test & urine routine and culture test are done. Antibiotics, Sterile operation rooms with laminar airflow and space suits are preferred during surgery.

Presence of unexplained pain, rest pain, persistent pain, swelling or redness in and around the operated scar area, fever, malaise should warn you to inform your surgeon.

Infections caused by low virulence infections are usually superficial and responds very well with antibiotics, but if they do not respond to antibiotics alone or high virulent, then further surgery like surgical debridement (joint cleaning) may be required. If infection persists or increases despite adequate antibiotics or joint cleaning then your artificial joint may need to be removed and replaced by cement antibiotic spacer to eradicate infection in stage 1 and revision Total hip replacement in stage 2 after 10 to 12 weeks

Wound healing problem or wound dehiscence is seen more in elderly, bed ridden patients, poor bladder control, those not mobilized well out of bed, un-controlled diabetes, advance renal / liver disease, people using diapers etc.

Blood Clots (Deep Venous Thrombosis)

Though less common, blood clots in the legs veins is one of the most serious complications of total hip replacement surgery. They can form in the calf veins after surgery and can break and then travel to the lung causing Pulmonary embolism, a serious and even life-threatening complication.

Adequate precautions are taken before & after surgery to prevent them from occurring; like blood thinners like LMWH, Aspirin, Rivaroxaban / Xarelto, Calf pumps, Early Mobilization & Exercises, Stockinets etc. Blood thinner medicines are taken 3-4 weeks after surgery to prevent blood clot complications.

Some patients are prone for deep vein thrombosis because of various reasons like immobility, obesity, hypercoagulable state, oral contraceptives, malignancy etc. If you get calf pain, persistent swelling of operated limb, you should notify your surgeon. *If you notice sudden shortness of breath even after few days of total hip replacement, please immediately rush to hospital & call your doctor.*

Bleeding & blood soakage of wound is a major downside of these medicines, especially in elderly or liver disorder patients, which can heighten the risk of wound infection. Sometimes it becomes a challenge to have a balance between blood thinner medicines & wound bleeding, including stopping or altering the medicines.

Leg length Inequality / Leg Length Discrepancy (LLD)

Discrepancy (LLD) of less than 10 mm between both lower limbs is well tolerated by patients undergoing total hip replacement, but more than that leads to appreciable change in gait, pain & stiffness. When the leg length discrepancy is more than four cm (40 mm) to begin with, then it is not possible to equalize the leg length for fear of damage

to Sciatic nerve.

Sometimes leg length is equal after THR, but post-surgery patients complain about the discrepancy in operated leg because of pelvis tilt. This also named "Functional Leg Length Discrepancy", happens in long standing hip deformities when all tight & contracted tissues could not be fully released during surgery, leading to temporary pelvic tilt. It usually resolves over few months following stretching of tight tissues, unless there is severe fixed deformity of hip, pelvis and spine together.

Shoe lifts may be necessary if the difference is more than a quarter of an inch. Sometimes revision total hip replacement surgery may be required if leg length inequality bothers you persistently.

Dislocation

Dislocation means that the metal ball slips out of the socket. Though not an uncommon problem after hip replacement, however the actual incidence stays low and every surgeon faces this problem. Large number of factors is responsible for this complication. Dislocations are more likely to happen in very elderly patients, people with poor cognitive function, people with laxity of joints, alcoholics, people with weak hip muscles, impingement of components, revision or difficult complex primary hip replacement.

Educating patients repeatedly regarding this complication is key in prevention. Instructions given to you during your stay should be carefully followed. Dislocation is much less with the current generation of implants. The physiotherapist will also reinforce you the positions to avoid, and how to safely use your hip replacement during this early phase of your recovery.

If the hip does dislocate, reduction is done under anesthesia. The incidence of dislocation is higher in Revision and difficult complex primary hip replacement surgery. If happening persistently, then one may require revision total hip replacement surgery.

Damage to Nerves and Blood Vessels

It is an uncommon complication. Sciatic Nerve injury is more common than blood vessel injury. It can be total direct damage to the nerve which happens rarely, or stretching of Sciatic nerve during the total hip replacement surgery. Damage to sciatic nerve leads to Foot Drop, which leads to difficulty in walking and awkward gait. For severe damage exploration and repair is required. For the rest observation along with modified rehabilitation protocol is followed. Nerve may take nine to eighteen months to recover; however, it is possible that the damage nerve may never recover. Injury to Femoral vessels is a serious complication, an uncommon complication and requires immediate surgical attention.

Fractures or Breaks in the Bone

Incidence of fractures is low, but can occur during surgery. It can either be a crack when despite the fracture implants are stable or sometimes it can be a major fracture where implants are not stable. Sometimes there can be perforation through the medial wall of acetabulum. Severely osteoporotic bones, rheumatoid patients, elderly patients and abnormal hip anatomy, etc., are at a higher risk. Most times fractures can be identified during surgery, but sometimes they are noticed only on post-operative x-rays. Minor cracks can be managed by changes in postoperative rehabilitation protocol, while major fractures are managed well with wires, cables or appropriate implants, which means revision total hip replacement.

Fracture around the implant (peri-prosthetic fractures) can also happen late after total hip replacement surgery. These peri-prosthetic fractures usually require surgery.

Extra Bone Formation (Heterotopic / Ectopic Bone)

It is one of the less common complications and one of the causes of hip stiffness after total hip replacement surgery. Small amounts of ectopic bone appear frequently around hip replacements but do not cause any problem. Extensive bone formation causing severe stiffness is uncommon. Patients undergoing total hip replacement following traumatic conditions like acetabular fractures are at high risk and medicine is given post-surgery to prevent it. Radiation treatment is also an alternative. These are not fool proof treatment. Surgical excision of the bone is another option, but only when it is "mature and extensive.

Persistent Limp / Stiffness in the hip

Unable to walk without limp or stiffness is an adverse clinical outcome and affects patient satisfaction. Poor / damaged / scarred hip muscles, fixed bony deformity of hip & spine, poor hip offset, extra bone formation around hip, nerve injury / damage, fracture of hip / thigh or limb length discrepancy are few causes of it. It is usually a complex problem to deal with it.

Squeaking of hip implant

Squeaking of hip implant on every or occasional hip movement is an uncommon problem, and is specific to ceramic on ceramic hip & rarely with metal on metal hip implants. It's rarely seen even with current ceramic implants, however, it is always kept in mind if considering hard on hard bearing like ceramic on ceramic implants. It is never seen with polyethylene socket unless there is so much wear of plastic that metal head is directly in touch with metal shell and moving against it. There is no treatment for squeaking hip other than revision surgery.

Aseptic Loosening

Loosening of the prosthesis from the bone is the most important long-term problem after total hip replacement surgery. It is also known as wear & tear of implants. Current generations of implant have good survivorship, going strong even at 20 yrs after total hip surgery. After Good surgery, correct choice of implant with proven design and good survivorship, regular exercises to maintain good quality of bone & muscle, maintaining weight and avoiding high impact activities are some of the factors which delay this complication. However, artificial implants cannot survive as long as natural hip. Revision Total Hip Replacement surgery is the ultimate solution.

Plastic Wear

It is another common long-term complication of total hip replacement surgery. The plastic liner is the weakest link in the implant and will eventually wears out over time. Wear of the Plastic Polyethylene Socket starts from the day of surgery. Current generations "Cross-linked" polyethylene promises a wear rate about half that of previously used non cross-linked polyethylene. Plastic wear against a Ceramic femur head and Oxinium femur head is much less in the lab. Ultimately surgery will be required to change the worn polyethylene cup if there is no Aseptic Loosening of the implant.

ALVAL or "allergy to metal ions"

It is an uncommon complication seen after metal on metal total hip replacement surgery. Although their usage is restricted today, but may be seen if their implantation increases in future.

ALVAL is a Delayed Type of metal Hypersensitivity (DTH) is induced due to high concentrations of Cobalt and Chromium ions that build up around the joint. These particles are released after movement of one metal part over another. This leads to painful inflammation in and around the joint ("Lymphocytic Vasculitis") and is also termed as "pseudo-tumors". Note that the term "pseudo-tumor" does not mean it is any type of cancer. Indeed, so far, after more than twenty-five years of metal-on-metal experience in Europe, there is no evidence that metal ions from a hip replacement might cause cancer.

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