Minimally Invasive Hip Replacement

Description

Total hip replacement is a common procedure. It involves removing the head of the thighbone (femur). The ball-and-socket mechanism of the hip is replaced with artificial implants.

As the population ages over the next decade, this procedure is expected to become even more common. Patients who undergo hip replacement are typically 60 to 75 years old. More than 90 percent of hip replacements last for 10 years or more. Pain and mobility improve after hip replacement. This allows patients to maintain their independence and quality of life.

Newer techniques and implants have been developed. They make hip replacement a less invasive operation. It takes less time for the patient to recover from surgery. The new implants are engineered to last longer.

Diagnosis

Osteoarthritis of the hip is the most common diagnosis that leads to hip replacement. Osteoarthritis is caused by wear and tear. It affects the cartilage surfaces of the ball-and-socket joint of the hip. The cartilage wears out. Pain and stiffness result. Patients with hip arthritis have difficulty walking, climbing stairs and performing routine daily activities.

Other conditions that can cause destruction of the hip joint include:

- Loss of the blood supply to the head of the thighbone (avascular necrosis)
- Rheumatoid arthritis (an inflammatory autoimmune disease)
- Previous injury or trauma
- Infection
- Developmental abnormalities of the hip

See your doctor to diagnose hip arthritis. Many hip patients have difficulty with walking and day-to-day activities like putting on shoes and socks or climbing stairs. Tell the doctor your symptoms. He or

she will perform a physical examination and order X-rays. X-rays typically show loss of the cartilage space in the hip socket. It looks like there is "bone-on-bone". Bone spurs and bone cysts are common. Sometimes, the doctor may recommend additional tests to confirm the diagnosis. These may include MRI (magnetic resonance imaging) or CT (computed tomography) scans.

Risk Factors/Prevention

Hip arthritis may happen if you have a previous injury or mechanical abnormalities related to how the hip developed. Most patients develop arthritis as a result of lifelong wear and tear. Arthritis develops slowly. It takes a period of years. Symptoms increase gradually over time.

Some bone diseases may contribute to the development of hip arthritis. Patients with arthritis may also have brittle bones (osteoporosis). But there is no direct relationship between bone density and the development of arthritis of the hip.

Symptoms

Hip arthritis typically causes pain that is dull and aching. The pain may be constant or it may come and go. You may feel pain in the groin, thigh and buttock. You may also have pain in the knee (referred pain). Walking, especially for longer distances, may cause a limp. Some patients may need a cane, crutch or walker to help them get around. Pain usually starts slowly. It gets worse with time, and higher activity levels.

Climbing stairs can be difficult. Many patients with hip arthritis have to use a stair rail or stop on each step to get up and down. Dressing, tying shoes and clipping toenails can be difficult or impossible. You may have pain when you rest. Pain may interfere with your sleep. Resting and taking anti-inflammatory or pain medication can help.

Treatment Options

The first treatment a doctor may recommend is to take prescription or over-the-counter, anti-inflammatory medications. These include ibuprofen (Motrin®or Advil®acetaminophen (Tylenol®or mild combination narcotics (Tylenol® with codeine). Some nutritional supplements may also provide some relief. These include glucosamine. Short-term physical therapy may help with strength and stiffness.

For more advanced arthritis, you may need to use a cane in the hand opposite the affected hip. This transfers weight away from the affected hip. It can improve walking ability. Using a walker may help patients who have more trouble walking. These measures usually improve pain and function. But arthritis is progressive. Even with treatment, it gets worse over time. Weight loss can help decrease stresses on all of the joints. If you are overweight, you should strongly consider losing weight.

Treatment Options: Surgical

Even when you get all of the right nonsurgical treatments, problems with pain and mobility

sometimes get worse. In this case, the doctor may recommend surgery. Surgical options include:

Arthroscopy: Arthroscopy of the hip is a minimally invasive, outpatient procedure. It is relatively uncommon. The doctor may recommend it if the joint has evidence of torn cartilage or loose fragments of bone or cartilage.

Osteotomy: Candidates for osteotomy include younger patients with early arthritis, particularly those with abnormally shallow hip socket (dysplasia). The procedure involves cutting and realigning the bones of the hip socket and/or thighbone. This creates a more normal relationship between the ball and socket. It decreases pressure in the joint. In some cases, this may delay the need for replacement surgery for 10 to 20 years.

Traditional Hip Replacement: The doctor may recommend hip replacement when all of the above measures have been considered or have been tried and failed. Traditional hip replacement surgery involves making a 10-inch to 12-inch incision on the side of the hip. The muscles are split or detached from the hip. The hip is dislocated. The ball of the femur is removed. The hip socket is prepared by removing any remaining cartilage and some of the surrounding bone. The cup implant is pressed into the bone of the socket. It may be secured with screws. A bearing surface is inserted into the socket.

Next, the femur is prepared by removing some bone from the inside of the thighbone. A metal stem is placed into the thighbone to a depth of about 6 inches. The stem implant is either fixed with bone cement or is implanted without cement. Cementless implants have a rough, porous surface. It allows bone to adhere to the implant to hold it in place. A ball is then placed on the top of the stem. The ball-and-socket joint is recreated.

Minimal Incision Hip Replacement: Minimal incision hip replacement surgery lets the surgeon perform hip replacement through one or two smaller incisions. Compared with most people getting hip replacements, candidates for minimal incision procedures are typically thinner, younger, healthier and more motivated to have a quick recovery. Before you decide to have a minimally invasive hip replacement, get a thorough evaluation from the operating surgeon. Discuss with him or her about the risks and benefits. Both traditional and minimally invasive hip replacement procedures are technically demanding. They require that the surgeon and operating team have considerable experience.

The artificial implants used for the minimally invasive hip replacement procedures are the same as those used for traditional hip replacement. Specially designed instruments are needed to prepare the socket and femur and to place the implants properly. The artificial hip is implanted in the same way. But there is less soft-tissue dissection than with longer incisions.

A single minimally invasive hip incision may measure only 3-inches to 6-inches. It depends on the size of the patient and the difficulty of the procedure. The incision is usually placed over the outside of the hip. The muscles and tendons are split or detached, but to a lesser extent than in the traditional hip replacement operation. They are routinely repaired after the surgeon places the implants. This helps healing. It helps prevent dislocation of the hip.

Two-incision hip replacement involves making a 2-inch to 3-inch incision over the groin for placement of the socket and a 1-inch to 2-inch incision over the buttock for placement of the stem. To

perform the two-incision procedure, the surgeon needs guidance from X-rays. It may take up to two or three times as long to perform this surgery, as it takes to perform traditional hip replacement surgery.

Reported benefits of less invasive hip replacement include:

- Less pain
- More cosmetic incisions
- Less muscle damage
- Rehabilitation is faster
- Hospital stays are shorter--For traditional hip replacement, hospital stays average four to five days. Many patients need extensive rehabilitation afterward. With less invasive procedures, the hospital stay may be as short as one or two days. Some patients can go home the day of surgery.

Early studies suggest that minimally invasive hip replacement surgery streamlines the recovery process. But the risks and long-term benefits of the less invasive techniques have not yet been documented to represent an improvement over traditional hip replacement surgery.

Research on the Horizon/What's New?

Extensive study and development are now underway to determine the long-term benefits of minimally invasive hip replacement. New technology for imaging and computer-assisted implant placement has been developed. It continues to be modified as experience with smaller incision surgery grows. This will allow more precise reconstruction of the hip with less direct visualization. In addition, new implant designs and materials are being developed to both facilitate minimally invasive surgery on the hip and to prolong the lifespan of replacements.

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