Robotic Computer Assisted Total Hip Replacement Surgery

Robotic assisted surgery has been regularly used for abdominal, gynecologic and urologic procedures for several years. For the last 4 years we have also used robotic assistance for partial knee replacement procedures. We now use robotic assistance for certain total hip replacement procedures as well.

This exciting technology involves creating a CT scan image of the hip and then using a sophisticated templating system to help us decide on the correct size and placement of the prosthetic components. In essence, we perform the surgery on our computer before the patient arrives in the operating room.

On the day of surgery we begin by performing the typical surgical exposure of the hip joint. We then use probes to register all the important landmarks for the computer. The robotic arm interactive orthopedic system is then moved into place. Preparation of the bone surfaces with the robotic arm follows. We verify the correct preparation by watching the computer screen rather than looking into the surgical incision as we would in a conventional procedure.

When we know we are in the correct position we seat the implants. The computer tells us when we have created the correct alignment, limb length, socket inclination, and center of rotation. We then put the hip back in joint and test the motion and stability of the new hip before performing routine wound closure.

The results have been encouraging. We find excellent component positioning is possible particularly when there is significant preoperative deformity. The robotic procedure does take additional time but intraoperative imaging from x-rays is not needed. Patients are able to immediately use their new hip with a greater sense of stability and security. We continue to evaluate the long term results.