

M.D. NEWS

Special Feature

Surgeons, Orthopaedic Firm Offer Training in Muscle-Sparing Hip Replacement

Anterior Minimally Invasive Procedure May Be Easier on Patients Than Conventional Approach

By Jeanne Davant, Senior Medical Writer

When word about innovative surgical techniques spreads through the media, you can bet patients will be asking about them. Patients, particularly those over 40, are greatly inter-

ested in medical interventions that will help them remain active longer.

"Patients talk a lot to other patients," says Dr. Craig Loucks of Peak Orthopedics & Spine, who with his partner, Dr. Robert Greenhow, performs the AMIS (anterior minimally invasive surgery) hip replacement procedure. "They are well educated and go on the Internet to learn about these techniques."

"AMIS is a minimally invasive total-hip replacement procedure that does not require cutting muscle," Dr. Greenhow says. "Patients usually experience less pain, briefer hospital stays and faster recoveries than with conventional hip replacement approaches."

"They hear that we do not cut muscle and tendons and that the recovery time can be so much less, and seek us out," adds Dr. Loucks.

Drs. Loucks and Greenhow have undergone extensive training and are working with Medacta USA, a distributor of total-joint replacement systems and innovative surgical techniques, to bring the AMIS procedure to the Denver area and train orthopaedic surgeons in the technique. They are the lead instructors at the first reference center Medacta established in the United States to teach the AMIS procedure to surgeons from around the world.

In the past four years, more than 15,000 surgeries have been performed internationally using the AMIS technique and Medacta's

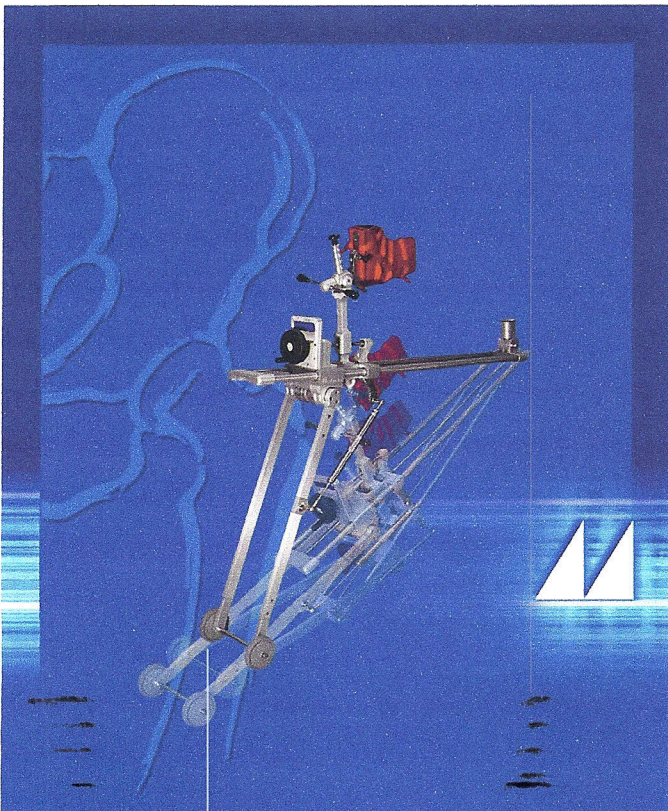


IMAGE COURTESY OF MEDACTA

patented Mobile Leg Positioner, a device that is intended to enable more surgeons to adopt the anterior approach.

"Hip replacement surgery has been one of the most successful interventions for patients in modern medicine and to utilize a technique that eliminates the need for cutting muscle is a significant leap forward," says Craig Grabell, CEO of Medacta. "As a company, we believe in providing intensive training and education to surgeons who are going to perform this procedure to help ensure the best possible outcomes."

ADVANTAGES OF ANTERIOR APPROACH

Traditional total-hip replacement surgery is performed with a lateral or posterior approach through multiple incisions. Surgery through a lateral approach requires the surgeon to separate the gluteus medius and cut the insertion of the gluteus minimus to reach the hip joint. The posterior approach requires dividing the fibers of the gluteus maximus and cutting of the external rotators.

After conventional surgery, patients are subjected to restrictions on their movement and must take strict precautions to limit hip motion for six to eight weeks. Flexion of the hip is generally limited to no more than 60° to 90°, complicating normal activities such as sitting, putting on shoes and getting into a car. Climbing stairs may also be more difficult during recovery.

Using the anterior approach, the surgeon accesses the joint from the front of the hip. No detachment of muscle from the pelvis or femur is required during surgery. The surgeon can work through the natural interval between the muscles and nerves, and can access the acetabulum and femur through the same incision. The anterior approach thus preserves posterior structures that are important for stabilizing the hip and pelvis, and allows the surgeon better control of acetabular cup placement and leg length.

Once the joint surfaces have been exposed, the joint replacement itself does not differ significantly from the procedure used in the conventional approach. In brief, the surgeon removes the top of the femur and prepares the acetabulum to receive a cup-shaped implant, which may be secured with screws. A stem implant about 6 inches in length is placed into the femur and either fixed with cement or

implanted without cement.

A metallic ball placed atop the stem completes the recreation of the hip joint. The new artificial prosthesis provides a durable ball-and-socket joint, which is usually a pain-free solution for arthritic hips. An additional advantage of the anterior

approach is that with the patient in the supine position, surgeons can utilize live X-rays during the procedure to help ensure proper sizing and placement of the prosthesis. Proper insertion of the replacement is a factor in the lifespan of the artificial joint and the risk of dislocation.

"We have the ability to closely match the native anatomy of each and every patient with this real-time intra-operative imaging," says Dr. Greenhow. These surgeons are also developing computer navigation techniques that will further assist placement of these devices.

The procedure generally takes about one to two hours.

Following the procedure, patients often can immediately bend the hip freely and bear full weight when they are comfortable doing so — usually within about three days. They are instructed to use the hip normally after surgery, and usually begin supervised therapy going up and down stairs before their release from the hospital. Of course, recovery and rehabilitation will be affected by many factors and vary with each case, but overall, patients may return to their normal lifestyle sooner than with conventional surgery.

"It never ceases to amaze me how quickly our patients recover after undergoing the AMIS procedure," Dr. Loucks says. "Their hospital stays are shorter, their pain is significantly less intense and their overall hip function returns earlier than those who have undergone a traditional-approach hip replacement. I have been very impressed with the results."

Furthermore, if the patient outlives the implant, which may occur with younger patients, a revision procedure is easier to perform.

According to two leading practitioners, the anterior approach can be used advantageously for virtually all hip replacement patients.

"The hardest cases are muscular males who are also obese,



Craig Loucks, M.D.

PHOTO BY JULIE KEMERING

About Medacta

Medacta USA, Inc. is a wholly owned subsidiary of Medacta International, a Swiss manufacturer of implant systems for the hip and knee, as well as computer-assisted surgery technologies. Through minimally invasive muscle-sparing innovations, Medacta International's primary objective is to aid patients in regaining healthy and active lifestyles with shorter hospital stays and faster rehabilitation. Medacta USA, Inc., headquartered in Camarillo, CA, is committed to bringing these innovations to patients across the U.S., and offering its customers quality products and services with proven results.

Anterior Minimally Invasive Procedure Easier on Patients Than Conventional Approach

AMIS: A LEG SUPPORT THAT EASILY ADAPTS TO YOUR OPERATING TABLE

A Medacta-patented design complying with ISO standards, the AMIS Mobile Leg Positioner is not a complete table but just an extension that fastens to an existing orthopaedic table of any brand.

WHAT FOR?

Simplifying surgery during AMIS implantation:

- Easy extraction of the femoral head and optimum exposure of the femur
- Reduction aid and possibility of testing without removing the shoe
- Multiple tasks (traction, flexion, hyperextension, rotation)
- Easy handling by one person
- Reduced surgical team

HOW TO START WITH AMIS

AMIS EDUCATION PROGRAM: A TESTED AND PROVEN METHOD

Minimally invasive surgery is often related to difficulties and thus steep learning curves during the first cases. This learning curve has discouraged surgeons and has left them to abandon MIS/LIS for other techniques. Therefore, the main concern of Medacta International is to reduce such difficulties by supporting you when starting with AMIS. For this purpose, Medacta has created the AMIS Educational Program, suggested by the experience of hundreds of surgeons worldwide who have already performed over 10,000 AMIS cases.

FIRST STEP: AMIS REFERENCE CENTER VISIT

In several countries, you will have the possibility to visit a Reference Center and to assist for the AMIS surgery. Before attending the next step, it is wise to obtain confidence with their prosthetic implants with your current approach.

SECOND STEP: AMIS LEARNING CENTER

Every month, you will have the opportunity to operate on cadaver specimens with the assistance of teaching surgeons, to attend live surgeries, to analyze difficult cases and to go thoroughly into indications and contraindications.

THIRD STEP: SUPPORT FOR THE FIRST AMIS SURGERIES

You will receive the assistance of a reference surgeon for your first surgeries in your hospital. All these steps should allow you to avoid early complications and to minimize your learning curve, but also give you some important "pearls" to help you during your first cases.

ANTERIOR APPROACH: A LOGICAL APPROACH FOR MIS SURGERY

Total hip replacement is a safe and clinically proven surgical procedure. Implant manufacturers and orthopaedic

surgeons have been working in partnership on total hip replacement for many years, the former improving and mastering the materials used, and the latter refining the implantation techniques.

Medacta International is committed to becoming a preferred partner for new technologies such as total hip arthroplasty through the minimally invasive anterior approach (the AMIS approach = Anterior Minimally Invasive Surgery). Minimally invasive surgery (MIS) is defined as a surgical technique performed through a short skin incision to avoid injury to muscles and tendons. The anterior approach follows the principles of MIS; other approaches advertised as minimally invasive (posterior, lateral or double incision approach) are associated with muscle and/or tendon injury.

The anterior approach is the only technique that follows a path both intermuscular and internervous and therefore reduces considerably the risk to damage periarticular structures such as muscles, tendons, vessels and nerves.

For this reason, the AMIS approach is the ideal approach for atraumatic surgery, which is fundamental for a fast recovery.

Thanks to the AMIS technique, risks are decreased when compared to a standard technique, both in the short and in the medium term. In fact, it has been demonstrated that:

- After total hip replacement, trochanteric soft tissue abnormalities may be associated with residual trochanteric pain and limping — in other words, with symptomatic patients. Defects of the abductor tendons and fatty atrophy of the gluteus medius and the posterior part of the gluteus minimus muscle are rare in asymptomatic patients.
- The use of the anterior approach for primary total hip replacement shows, at one year after surgery, better functional results and a smaller extent of injury in the muscle and tendon units compared to other approaches.

This means that the AMIS approach shows that at one year after surgery there is less symptomatic muscle degeneration compared with other approaches.

Therefore, the AMIS technique should provide better results in the short and medium term and an improved long-term quality of life for your patients.

AMIS ADVANTAGE: NO MUSCLE CUT

The preservation of all muscles ensures:

- Possible shorter stays in the hospital
- Shorter rehabilitation
- Reduced risk of dislocation
- Immediate postoperative muscle tone preservation
- Decreased postoperative pain
- Less blood loss
- Faster return to daily activities
- Reduction of scar tissues
- Several years of clinical experience in Europe



Rob Greenhow, M.D.

although we believe this difficulty applies in all approaches. The only contraindication regarding anterior-hip replacement is with patients who have previous acetabular fracture associated with posterior heterotopic ossification [not yet excised] and/or pelvic deformity or posterior acetabular defects, where extensive posterior access may be necessary," (Yerasimides, G., and Matta, J. "Primary Total-Hip Arthroplasty With a Minimally Invasive Anterior Approach." *Semin Arthro* 16:186-190. For the full article, see www.peakorthopedics.com/files/PrimaryTHA-JoelMatta12-1-05.pdf).

MAKING TRAINING AND EQUIPMENT AVAILABLE

Combined, Drs. Loucks and Greenhow have performed more than 2,000 anterior-hip replacement procedures. They trained with Dr. Frederique Laude, a French surgeon who designed the AMIS instrumentation and who currently works in Paris at the international AMIS reference center.

Despite its benefits, many orthopaedic surgeons have been slow to adopt the technique.

One reason is that special equipment is required to precisely position the patient's leg in a downward position to allow frontal access, enable the surgeon to extend, rotate and adduct the hip, and facilitate imaging during surgery so the surgeon can more accurately control placement of the implant and leg length. The large, expensive table customarily used for anterior hip replacement procedures has been out of reach for many smaller orthopaedic practices and hospitals.

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Medacta aims to change that with its Mobile Leg Positioner.

"The device is an adaptor to a conventional OR table," Dr. Loucks says. "It clips onto the side and allows the operative leg to be manipulated into various positions." For surgeons who have entered the training program, Medacta is making the leg holder available at no additional charge.

Because the procedure is technically specific, Medacta plans to establish a number of training centers throughout the United States. At these centers, including the one that opened in November in Denver, surgeons will have an opportunity to complete a three-phase training program that Medacta requires for use of the technique.

"They first observe the procedure and then attend a cadaver learning workshop where we perform a replacement on a cadaver," Dr. Greenhow says. When surgeons return home, they generally begin booking cases for the procedure, though we advise them to proceed a few cases at a time.

"We are available to come to their hospitals and help them do the first few cases, which assists greatly with working through the initial learning curve," he says. "After about 30 cases, they are advised to come and work with us again at our site to learn further refinements."

Dr. Greenhow says it has been unusual in his experience for an orthopaedic company to provide such extensive training.

"We have been involved in training programs with several orthopaedic giants throughout the world," he says. "Our previous experience is in stark contrast. We would give a crash course and surgeons did not have nearly as much time to get comfortable with the procedure as they do with the AMIS technique. But a very high rate of surgeons stays with the AMIS procedure once they start with us.

"Providing the highest standard of care to our patients is a priority," Dr. Greenhow says. "I am pleased to have the opportunity to work with Medacta to educate consumers, as well as other surgeons, about the benefits the AMIS procedure offers."

CASE STUDY

A 56-year-old patient underwent conventional hip replacement three years prior. Recovery time after this first procedure was typical, with the use of assistive devices for five weeks. The patient underwent AMIS hip replacement on the contralateral side and was up walking the day of surgery with a cane. The cane was discontinued after seven days, and the patient walked into the doctor's office at two weeks with no appreciable limp and had completely discontinued all pain medication. The patient described the recovery as "unbelievable" and "night and day" compared with traditional hip surgery. ■