

Malpositioning a Key Concern

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"Several years ago, when less invasive approaches were introduced, many surgeons felt it was a foolish idea," said Aaron Rosenberg, M.D., of Rush University Medical Center in Chicago. "Ask today how many are doing small incisions, and everybody raises their hands."

Scar appearance "is real for patients, and early recovery is real, and if you provide that, patients will line up at your door," he said.

The promise of the minimally invasive techniques is that reduced trauma—to the skin, soft tissue, and muscle, for example—can lead to quicker recoveries, shorter hospital stays, less pain, and less blood loss. The potential risks, physicians said, include malposition or instability of the prostheses, skin necrosis and maceration, fracture, and nerve palsy. Thus far, none of the claims have been substantiated in prospective, randomized, long-term trials.

Nearly 250,000 hip replacements and 300,000 knee replacements are done annually—increasingly in younger, active patients—according to the AAOS.

In its 2004 "physician advisory statement" on minimally invasive joint replacement surgery, the American Association of Hip and Knee Surgeons says that "most positive results have been demonstrated by a small number of [high-volume] total joint centers in selected patient populations."

At the AAOS meeting, orthopedic surgeons spoke of positive results at their own institutions. Richard A. Berger, M.D., for instance, reported that all of his patients undergoing two-incision hip replacement at Rush University Medical Center in Chicago now leave for home the same day of surgery, with no risk of readmission or postdischarge complications.

Lawrence D. Dorr, M.D., of the Arthritis Institutes in Los Angeles and Inglewood, Calif., said that his mini-incision total hip replacements result in improved gait analysis results 6 weeks postoperatively and improved patient pain scores. "These operations as I perform them now are the best hip replacements I've ever done," he said.

And Alfred J. Tria, M.D., of St. Peter's University Hospital at Robert Wood Johnson Medical School, New Brunswick, N.J., reported that those of his patients who had minimally invasive knee replacements (about 300) have recovered three times faster, have one-third less pain, one-third less time in the hospital, 30% less blood loss, and an increased range of motion, compared with patients who underwent standard procedures.

Other physicians at the meeting presented results of cohort studies and case studies that looked at short-term outcomes with minimally invasive total hip replacement. Some showed benefits in terms of early recovery and cosmetics, but others demonstrated no differences in any factor—from functional recovery to complications.

"That's not better, but if you're an advocate, it's not worse either. If you're not having more complications, perhaps it's not an unreasonable thing to continue doing," said William Hozack, M.D., of Thomas Jefferson University Hospital in Philadelphia.

The trouble is, not all physicians are delivering on the promises of minimally invasive surgery, said Dr. Hozack. He said he sees patients whose surgeons have unsuc-

cessfully attempted small-incision hip surgery. "Don't bother measuring your incision," he advised during a panel discussion. Try to make it smaller, but "start off slow, put it in the right place, and make it bigger as you need it."

A major question for many physicians about minimally invasive approaches to both the hip and knee—and their limits on surgical visualization—is long-term durability. "If we are malpositioning components even slightly, are those implants going to last as long?" said Alan E. Gross, M.D., of Mt. Sinai Hospital in Toronto. "If it's an 80-year-old lady, it wouldn't matter. But if it's a 50-year-old male or female ... it does."

Several speakers cited a retrospective cohort study published last year that showed no difference in blood loss and hospital stay between small-incision and conventional hip replacement surgery, and a higher risk of soft-tissue complications and component malposition with the "mini" incisions.

Richard Rothman, M.D., of the Rothman Institute and the Thomas Jefferson University Hospital in Philadelphia, argued in a pro-con session that numerous, recent reports have shown complication rates with minimally invasive hip replacement surgery that are three times higher than with the conventional approach.

"There's no demonstrable advantage, and there's increased risk to your patients," he said. "So, when I look at the facts, the nails are in the coffin."

He and other critics of the new techniques argue that the high rate of success with traditional hip and knee replacement surgery renders the newer techniques unnecessary.

Patients are being bombarded, however, with information about the minimally invasive techniques from hospitals, companies, and some surgeons. They also find plenty on the Internet. "I did a Google search on minimally invasive total knee replacement and found 66,000-plus sites. I did a Medline search and found 13," said Thomas Thornhill, M.D., who still uses a traditional-length incision for many of his knee replacements at Brigham and Women's Hospital in Boston.

Ryan S. Labovitch, M.D., an orthopedic resident at the University of California, San Francisco, reported at the meeting that much of the online information about minimally invasive hip replacement surgery is marketing oriented and often incomplete or inaccurate. Only 13% of Web sites described the potential risks with either the standard or the minimally invasive surgery, he said.

Patients' expectations and satisfaction with the outcome—even if that outcome is scar size—are important, however, as long as surgeons are upfront and honest, others argued. "I tell patients, I will do what I can to make the operation as minimally invasive as possible, but I will prioritize the long- and short-term results over the cosmetics," Dr. Rosenberg said.

Complications are an inevitable part of any new surgical technique, he added. "No doubt, minimally invasive [joint replacement] surgery has introduced a whole raft of complications," he said. "But they will decrease with experience, better patient selection, implant selection, and [physician] training."

"Progress comes at a price," he said. ■

Arthroscopy Effective For Elbow Contracture

BY CHRISTINE KILGORE
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WASHINGTON — Elbow contractures can be treated arthroscopically with better efficacy and faster patient recovery than traditional open surgical techniques, Shawn W. O'Driscoll, M.D., said at the annual meeting of the American Academy of Orthopedic Surgeons.

It's no longer a given that complicated procedures must be converted to open surgery, said Dr. O'Driscoll, pro-

with open surgery], and the risk is higher when you're learning it," Dr. O'Driscoll noted.

"There was a time when I thought this would never be a safe operation in anyone's hands," he said. "Now, I think it's an unsafe operation" in the hands of surgeons who do not have the necessary skills and experience.

"I've done over 300 cases now, and my complication rate is lower than it is with open surgery. Patient recovery is faster, and efficacy is better, from my experience," he said.

Dr. O'Driscoll uses an anterior approach to arthroscopic release that involves synovectomy before osteectomy, and then capsulectomy. He recommended using a scope in the anterolateral or proximal anteromedial portal and a retractor in the proximal anterolateral portal. A second retractor can be used in the anteromedial portal if necessary.



COURTESY DR. SHAWN W. O'DRISCOLL

A capsulectomy is performed from medial to lateral. The final strip of capsule over the radial nerve is released with a reverse cutting punch biopsy, as shown above.

fessor of orthopedics at the Mayo Clinic in Rochester, Minn. Instead, the deciding factor should be the surgeon's level of experience.

Published data on efficacy are limited, and indications for the arthroscopic approach "are still evolving," he said during a session on elbow stiffness and arthritis. But "it's pretty clear that [arthroscopic contracture release] is effective."

An analysis of results from 10 reports of open procedures and 6 small reports of arthroscopic procedures shows that more significant improvements are gained in extension, flexion, and total arc of elbow motion with the arthroscopic approach, compared with the open surgical approach.

Average flexion, for instance, increased from 107 degrees preoperatively to 123 degrees postoperatively when contractures were treated with open surgery.

In comparison, with the arthroscopic approach, flexion increased from 114 degrees before the operation to 133 degrees after the operation, Dr. O'Driscoll said.

The main consideration—and the "one factor that creates anxiety and limits the indications for this operation"—is the risk of ulnar nerve injury, he said.

The arthroscopy procedure involves a straightforward, predictable sequence of steps, but it is "more complex ... the difficulty in learning it is higher [than

"It's necessary for safety and predictability reasons to use a retractor," he said. Although some say otherwise, "you need to retract the tissues and create a space within which to work."

"And we don't rely on capsular distension, because in the stiff elbow, it's not possible to distend the capsule by very much," he noted. "If you try to do it, you get a big fat swollen elbow. You want to avoid that; the elbow should be soft until near the end of the operation."

A study reported more than 10 years ago showed that the capsular volume capacity is about 25 mL in the normal elbow but only about 6 mL in the contracted elbow, he said.

Dr. O'Driscoll strips the capsule off the proximal humerus and immediately releases tissue along the lateral supracondylar ridge, which "gives you some space to work, to move the scope back farther and get a bigger, better perspective."

He removes loose bodies as they are encountered and debrides the capsule, defining it as a structure, before cutting it. He incises the capsule starting medially and progresses across laterally.

A distal lateral capsulectomy is the final and most risky step. "You need to be able to see the nerve ... or know with absolute certainty where the nerve is and isn't," Dr. O'Driscoll said. "If you have that degree of confidence, then you're safe to do it." ■