What To Do About a Stiff Knee After Joint Replacement

For the patient who has a total knee replacement, knee stiffness can be very disappointing and limiting. Imagine not being able to go up stairs foot after foot (that requires 83 degrees of knee flexion). Or not being able to sit down and tie your own shoes (you need 106 degrees of knee flexion for that).

This type of stiffness is fairly common after a knee replacement. What be done about it? Right now, there are two main options. You can try the conservative route with exercise and manual therapy under the supervision of a physical therapist. If that doesn't work, then surgery is advised.

The surgeon must choose among three choices: 1) manipulation under anesthesia (MUA), 2) arthroscopic exam and debridement, and 3) open incision with revision. During manipulation under anesthesia, the patient is asleep while the surgeon moves the joint through its full range-of-motion. This forced movement breaks through areas of fibrosis and scar tissue. Debridement refers to gently scraping away any adhesions or fibrotic tissue that is keeping the joint "stuck" or unable to move beyond a certain point in the range of motion.

Arthroscopy allows the surgeon to see inside the joint and find out what's holding it back from moving normally. Using a long, thin needle with a tiny TV camera on the end (the arthroscope, the surgeon can then correct the problem. If necessary, an improperly positioned implant can be removed and replaced using an open incision.

But which one of these approaches should be used? And how successful are the procedures? Surgeons from the Department of Orthopedics at the Mount Sinai Hospital in New York City conducted a systematic review in an attempt to answer these questions. They reviewed all of the articles on the three surgical techniques just described published between 1966 and 2008.

They only found a small number of high quality studies on each one. There wasn't a large number to help guide surgeons in developing a standard of care. Each article was reviewed for information on age of patients, sex (male versus female), timing of the procedure after total knee arthroplasty, technique used, and type of anesthesia used.

Results of each treatment approach were measured using change in knee motion and total motion. Any complications that affected the patients recovery or outcomes were also analyzed. The first question addressed was how soon to do something about a stiff knee after knee replacement. The answers ranged from two weeks to three months after the initial replacement surgery.

Many surgeons send these patients to a physical therapist first before considering manipulation or a revision surgery. After exploring when to do the surgery, they turned their attention to the "How" question. How should the surgery be done? Which technique (manipulation, debridement, revision) should be done to get the best results?

This is where the poor quality of study design failed us. Too many studies did not specify if manipulation was (or was not) done at the time of the arthroscopy. The general trend was to report when manipulation was performed. Most studied did not mention when arthroscopic exam was not accompanied by a manipulation procedure.

Some surgeons reported removing scar tissue, releasing tight soft tissues, and changing the size of the implant to a smaller one. As for the "What" question: what was the effect of each surgical procedure on joint
motion (and stiffness)? Here again, the studies did not always report both the changes in range of motion and the total range of motion.

For those who reported a final increase in knee flexion, the results varied from five degrees of improvement up to almost 60 degrees of increased knee flexion. Knee extension wasn't always measured or reported. When it was, the increase was anywhere from two to 23 degrees. In a few cases, patients actually lost range of motion (extension) after arthroscopy.

The last two areas studied included timing of the surgery and complications. Only one article discussed timing so there's no general consensus on this point. Complications varied from study to study. Although there were blood clots, hematomas (blood into the joint), fractures, instability, implant breakage, and wound infection, there wasn't one particular complication that occurred most often.

After reviewing and analyzing all the studies, the authors could make these observations:

Manipulation under anesthesia (MUA) and arthroscopy work better than open surgery to remove adhesions.

MUA alone (without arthroscopy) may gain the most motion.

Most of the studies combined MUA with arthroscopy so comparing MUA alone against arthroscopy alone was not possible.

Using an open incision to gain access to the joint had the worst results overall.

The earlier the MUA, the better the results, but late MUA is still effective.

The exact timing for best results with MUA is unknown. The force required to break adhesions and move the joint may be greater as time goes by and more adhesions develop. With greater force can come more complications (e.g., fractures). Timing does not seem to be an issue when using arthroscopy. The surgeon simply finds the adhesions and snips them no matter how many there are present.

The authors concluded there aren't enough high-quality studies comparing these three surgical approaches to form a clear plan for everyone with a stiff knee after total knee replacement. Although much has been done, this is an area where further clinical research is still needed to help surgeons make informed treatment recommendations. For now at least, they have gathered enough information to make some general (and some more specific) recommendations as outlined. That's a good starting point!