

EDITORIALS



Arthroscopic Surgery for Osteoarthritis of the Knee?

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Orthopedic surgeons perform arthroscopic surgery in many joints of the extremities, most commonly the knee. Two or three incisions are routinely made, each measuring approximately 7 mm. The knee is inflated with fluid under pressure, with the assistance of a pump, to facilitate visualization. Because of advances in fiberoptics and instrumentation, many knee procedures (e.g., ligament reconstruction, meniscus excision and repair, synovectomy, and removal of loose bodies) can now be performed arthroscopically, with greater ease and accuracy and fewer complications than with an open incision. However, as with any surgical procedure, arthroscopic surgery is not appropriate for all patients with knee conditions, just as open-heart surgery is not indicated for all patients with cardiac disease.

In this issue of the *Journal*, Kirkley et al. report the results of a well-performed randomized trial of the effects of arthroscopic surgery as compared with nonoperative treatment for patients with osteoarthritis of the knee.¹ In a previous randomized trial, Moseley and colleagues had demonstrated that arthroscopic débridement for advanced arthritis was no better than sham surgery in a predominantly male population of U.S. veterans.² Kirkley and colleagues studied a civilian population, including a more representative sample of men and women, and used a well-validated primary end point, the total Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score, which assesses pain, stiffness, and physical function. Kirkley et al. concluded that arthroscopic surgery was not more effective than nonoperative treatment, which included physical therapy (one session per week for 12 weeks followed by an unsupervised program at home), patient education, and the stepwise use of acetaminophen, nonsteroidal antiinflammatory drugs,

glucosamine, and the injection of hyaluronic acid. These results provide strong support for the conclusion of Moseley et al. that arthroscopic surgery is not effective therapy for advanced osteoarthritis of the knee.

An important caveat is that the lack of efficacy of arthroscopic surgery in this trial does not imply that it has no role in the treatment of patients who may have osteoarthritis and also another knee condition, such as a symptomatic meniscal tear. Kirkley et al. explicitly excluded from the trial patients who had “large meniscal tears, as detected by clinical examination or, in a minority of cases, by magnetic resonance imaging [MRI],” in whom surgery was considered appropriate. These exclusions made it less likely that the study would find a benefit to arthroscopic surgery as compared with nonoperative care. The results, however, are applicable to the large number of patients with osteoarthritis of the knee, without another apparent condition warranting arthroscopic intervention, who present for pain management.

The selection of patients who are likely to benefit from surgery is critical yet can be challenging. In contrast to other surgical disciplines (e.g., cancer surgery) in which outcomes are closely correlated with specific anatomical lesions and indications for surgery are well delineated, decision making in elective orthopedic surgery is based on symptoms and disabilities that constitute an assessment of quality of life, which is much more difficult to quantify. Anatomical and MRI abnormalities in orthopedic surgery are not consistently correlated with symptoms,³ and correction of abnormalities does not necessarily translate into functional improvement.

A particularly relevant example is a case in which meniscal findings coexist with arthritis of the knee.⁴ In this issue of the *Journal*, Englund

et al. report a high prevalence of meniscal symptoms on MRI of the knee in middle-aged and elderly patients, particularly among those with osteoarthritis,⁵ underscoring the frequency with which these conditions coexist. Many of the patients with meniscal tears visualized on MRI reported no knee symptoms, emphasizing that identifying a tear in a person with knee pain does not mean that the tear is the cause of the pain. Furthermore, among patients with both osteoarthritis and a meniscal tear who have pain, it can be difficult to determine which of the two is the major cause.

To illustrate the subtleties involved in clinical decision making for these patients, I present two hypothetical examples. These patients are at opposite ends of the spectrum with respect to prognosis after arthroscopic surgery, and both would have been eligible for the study by Kirkley et al. Patient 1 is a 48-year-old woman with a 5-month history of medial knee pain after an injury involving twisting. Radiographs indicate no narrowing of the joint space and a small medial tibial osteophyte, and MRI reveals a clear, medial meniscal tear. She has knee pain with daily activities, particularly twisting, squatting, and running. Patient 2 is a 67-year-old woman with gradually worsening pain over a period of 4 years and difficulty walking because of pain. Radiographs show medial-compartment bone-on-bone osteoarthritis with three degrees of varus malalignment. MRI shows a meniscal tear.

Arthroscopic surgery confers a good prognosis for Patient 1 because she is younger and has mild osteoarthritis, and her history of injury and the nature of symptoms suggest that the meniscal tear is the cause of the pain. Her symptoms would be unlikely to resolve without surgery. In contrast, the symptoms of Patient 2 are most likely attributable to osteoarthritis, and arthroscopic surgery is unlikely to provide benefit.⁶

These hypothetical examples are oversimplifications, since there are many other variables that affect prognosis. However, they illustrate the need

to individualize decision making with respect to arthroscopic surgery for patients with osteoarthritis of the knee.

In summary, the study by Kirkley et al., combined with other evidence, indicates that osteoarthritis of the knee (in the absence of a history and physical examination suggesting meniscal or other findings) is not an indication for arthroscopic surgery and indeed has been associated with inferior outcomes after arthroscopic knee surgery.⁷ However, osteoarthritis is not a contraindication to arthroscopic surgery, and arthroscopic surgery remains appropriate in patients with arthritis in specific situations in which osteoarthritis is not believed to be the primary cause of pain.⁸ Surgeons must practice evidence-based care and use sound clinical judgment to make the best decisions for individual patients.

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