

Level V Evidence

What, if Any, Are the Indications for Arthroscopic Debridement of the Osteoarthritic Knee?

Michael J. Stuart, M.D., and James H. Lubowitz, M.D.

Abstract: Arthroscopic debridement is a reliable and effective treatment for knee arthritis in appropriately selected patients. Debridement may include lavage, loose body removal, partial meniscectomy, and/or chondroplasty. Patient selection criteria include acute effusion, well localized joint line tenderness, or catching or locking, often associated with a specific mechanism of injury, patients with imaging studies confirming loose bodies, patients with earlier stages of degenerative joint disease, and patients with realistic understanding that the goal of arthroscopy is to diminish pain and improve function and not to cure their arthritis. Surgeons are cautioned, in patients with an osteoarthritic knee, MRI may be overly sensitive and inadequately specific with regard to correlation between pathologic findings (with the exception of loose bodies) and predictably treatable disease. In conclusion, the authors cite the Arthroscopy Association of North America Position Statement on Osteoarthritis: "There is . . . a sub-group of patients with knee arthritis that can be significantly helped with appropriate arthroscopic surgery." **Key Words:** Arthroscopy—Arthritis—Knee—MRI—Degenerative joint disease—Indications.

What, if any, are the indications for arthroscopic debridement of the osteoarthritic knee? The question is not new.¹ Yet, recent evidence has either meticulously refined² or offhandedly misconstrued³ an answer to this clinically significant question. Misunderstanding may be based on scientific investigation of patients with diverse study inclusion and exclusion criteria having assorted surgical procedures and being evaluated by varying outcome measures. For example, some investigators study patients with acute mechanical symptoms and mild degenerative disease and others investigate subjects with chronic pain and advanced osteoarthritis. Some define debridement as a combination of lavage and

removal of mechanically disturbing tissue debris whereas others aggressively abrade, drill, or excise areas of eburation or osteophytes. Some measure outcome based on patient satisfaction, relief of pain, or avoidance of joint replacement arthroplasty, while others evaluate subjective or objective knee scores that may or may not be validated for the condition under review. Ultimately, randomized, controlled clinical trials with clearly defined inclusion and exclusion criteria, appropriate arthroscopic techniques, adequate statistical power, and valid, disease-specific outcome measures will answer the question while minimizing study bias.

Pending such investigation, it is the opinion of the authors that arthroscopic debridement is a reliable and effective treatment for knee arthritis in appropriately selected patients. We specifically define arthroscopic debridement as (1) joint lavage that includes dilution of the concentration of degradative enzymes as well as removal of small, free, mechanically irritating products of chondral, meniscal, or synovial degeneration; (2) removal of discrete chondral or osteochondral loose bodies; (3) partial meniscectomy; and/or (4) judicious chondroplasty,

From the Mayo Clinic, Rochester, Minnesota, and Taos Orthopaedic Institute Research Foundation, Taos, New Mexico, U.S.A. Address correspondence and reprint requests to James H. Lubowitz, M.D., Taos Orthopaedic Institute Research Foundation, 1219-A Gusdorf Rd, Taos, NM 87571, U.S.A. E-mail: jlubowitz@kitcarson.net

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removing unstable cartilage but taking care not to damage healthy cartilage nor to expose bare bone.

Patient selection criteria for arthroscopic debridement of the osteoarthritic knee include patients with (1) an acute onset or exacerbation of either joint effusion, well localized joint-line tenderness, or mechanical symptoms such as catching or locking; (2) patients who associate their onset or exacerbation of symptoms with a specific mechanism of injury or trauma; (3) patients with imaging studies confirming intra-articular loose bodies; (4) patients with earlier stages of degenerative joint disease and without gross mechanical malalignment, without severe joint space narrowing, and without large or multiple osteophytes; and (5) patients with realistic expectations of surgical outcome who specifically understand that the goal of surgery is to diminish pain and improve function and not to cure their arthritis.

Arthroscopic surgeons, when evaluating patients with an osteoarthritic knee, are cautioned that in such cases, magnetic resonance imaging (MRI) may be overly sensitive and inadequately specific with regard to a correlation between MRI pathologic findings and predictably treatable disease. Specifically, MRI of the osteoarthritic knee will usually manifest meniscal degeneration and chondromalacia. However, the meniscal lesion may not represent the cause of the patient's symptoms, and the chondral pathology may be so advanced as to represent severe or late-stage degenerative joint disease, which is not a patient-selection criterion for arthroscopic debridement of the osteoarthritic knee. On the other hand, MRI is a valuable imaging study tool for definitive confirmation of chondral loose bodies, which is a patient-selection criterion.

Because care must be taken to avoid misinterpretation of MRI of the osteoarthritic knee, standing radiographs remain the most important diagnostic imaging adjunct to a thorough history and a detailed physical examination. Clinical and radiographic evaluation of axial alignment is critical. Patients with normal or near-normal limb alignment have the best prognosis for improvement after arthroscopic debridement of the osteoarthritic knee, and specifically, if the knee joint mechanical axis passes through the pathologic lesion, arthroscopy is less likely to be successful.

Having considered these general guidelines, exceptional cases must be noted. Occasionally, a patient with more advanced arthritis may present with acute onset of severe sharp pain in their degenerative knee compartment associated with catching or frank locking. Often, arthroscopy results in relief of the acute pain and mechanical symptoms. The goal of arthro-

scopic intervention in such cases is limited and must be realistically acknowledged; the goal is to restore the patient's knee symptoms to those that existed before the acute episode. In addition, some patients with severe degenerative knee arthritis may present with symptoms in their less involved compartment. A symptomatic meniscal tear, chondral flap, or loose body in that compartment with only mild arthritis may be more reliably treated with arthroscopy. Finally, although arthroscopic (or open) excision of osteophytes is not recommended in patients with knee arthritis and may result in hemorrhagic effusion, exceptional cases exist where a large and singular osteophyte may result in either (1) patellofemoral impingement with catching or extension loss or (2) discrete bursitis, synovitis, snapping, or irritation about a collateral or cruciate ligament. In these rare but extant cases, spur removal with a small osteotome or a burr may result in relief of symptoms.

In summary, indications for arthroscopic debridement of the osteoarthritic knee do exist. Although the ultimate and natural history of the degenerative process may not be altered, decreased knee pain and improvement in function may be expected in carefully selected patients. Patients must be counseled that in addition to the routine risks of knee arthroscopic surgery and anesthesia, the results of arthroscopic debridement of the osteoarthritic knee are not entirely predictable, the goals are limited, and that their prognosis includes a likely need for future and additional arthritis treatment including a possible need for future reconstructive surgery.

In conclusion, we believe our opinions to be well stated and corroborated by the Arthroscopy Association of North America Position Statement on Osteoarthritis: "There is . . . a sub-group of patients with knee arthritis that can be significantly helped with appropriate arthroscopic surgery."⁴

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