



Arthroscopy of the Knee Joint

**Developed by the Arthroscopy Association of Canada (AAC)
September 2017**

Steering Committee Members:

Ivan Wong, MD, MACM, FRCSC
Laurie Hiemstra, MD, PhD, FRCSC
Olufemi R. Ayeni, MD, MSc, PhD, FRCSC
Alan Getgood, MD, FRCS (Tr&Orth)
Cole Beavis, MD, FRCSC
Monika Volesky, MDCM, FRCSC
Ross Outerbridge, MD, FRCSC
Brendan Sheehan, MD, FRCSC
Robert McCormack, MD, FRCSC
Robert Litchfield, MD, FRCSC
Daniel Whelan, MD, MSc, FRCSC
Nicholas Mohtadi, MD, MSc, FRCSC
Catherine Coady, MD, FRCSC
Peter B. MacDonald, MD, FRCSC

Approved by the COA Board of Directors on June 11, 2025

Introduction

This position statement was prepared in response to increased attention in the media and amongst health authorities as to the role of arthroscopy in knees with and without x-ray evidence of osteoarthritis (OA). While recognizing that there is a gap between scientific evidence and clinical practice, the purpose of this statement is to outline current best practice guidelines, taking into consideration the available evidence as well as the clinical knowledge of experienced surgeons. It is meant to be a guideline for the practice of arthroscopy while allowing for individual decision making by the surgeon and the patient after considering all risks and benefits of any procedure.

The position of the Arthroscopy Association of Canada (AAC) is virtually identical to that of the Australian Knee Society on Arthroscopic Surgery of the Knee ^[1] and consistent with those published in Europe ^[2], by the Haute Autorité de Santé of France ^[3] and the Deutsche Gesellschaft für Orthopädie und Unfallchirurgie in Germany ^[4].

Position Statement

Arthroscopic debridement, and/or lavage, of the knee joint, has not been shown to have any beneficial effect on the natural history of osteoarthritis, nor is it indicated as a primary treatment in the management of osteoarthritis of the knee. However, this does not preclude the judicious use of arthroscopic surgery when indicated to manage symptomatic coexisting pathology, in the presence of osteoarthritis or degeneration.

These include but are not limited to:

- Known or suspected septic arthritis
- Symptomatic meniscal tear after an appropriate trial of non-operative treatment
- Symptomatic loose bodies
- Locked or locking knees
- Meniscal tears that require repair
- Inflammatory arthropathy requiring synovectomy
- Synovial pathology requiring biopsy or resection
- Unstable chondral pathology causing mechanical symptoms
- As an adjunct to, and in combination with, other surgical procedures as appropriate for osteoarthritis: for example, high tibial osteotomy and patellofemoral realignment
- Diagnostic arthroscopy when the diagnosis is unclear on MRI or MRI is not possible, and the symptoms are not of osteoarthritis.

Summary of the Literature Review

This position statement is based on a systematic review that was recently performed by the Australian Knee Society on Arthroscopic Surgery of the Knee ^[1] as well as a recently published review in the Journal of ISAKOS. ^[5] Included in this review are ten randomized clinical trials on knee arthroscopy, four trials in patients with medial meniscal tear without evidence of OA and six trials in patients with underlying OA. One of the studies included in the review was performed in Canada ^[6] and is perhaps more germane to this response and the nuances of the current Canadian health care system. This study included patients with moderate to advanced arthritis on x-ray and an optimized comprehensive non-operative management pathway in both groups. At two years, the addition of arthroscopic surgery was not found to provide an advantage in terms of health-related quality of life outcome in patients treated within the confines of the Canadian health care system.

Based on the evidence reported in these studies, the following conclusions can be drawn.

1. In patients with moderate to severe knee osteoarthritis and in the absence of loose bodies or locking, arthroscopic debridement provides no improvement in medium to long term outcome compared to the control intervention. ^[6, 7]
2. For patients with a degenerative medial meniscal tear and minimal to no OA, the majority will respond to non-operative intervention and will not likely require arthroscopic medial meniscectomy ^[8-12]
3. A sub-group of patients (up to 30%) with degenerative knee pathology will not gain adequate symptom relief after an initial period of non-operative management and may require surgical intervention, irrespective of their age. ^[11]
4. Patients who failed non-operative management and crossed into the surgical arm of these trials, had improvement of their symptoms after knee arthroscopy. ^[11, 12]
5. In patients with medial meniscal tears, the role of mechanical symptoms in the decision to perform arthroscopy is unclear. ^[8]
6. The role of arthroscopic surgery in lateral meniscal tears has not been investigated.
7. While preservation of the medial and lateral meniscus by repair of the body or root is recommended, it has not been subjected to a randomized controlled trial.
8. No study investigated the role of diagnostic arthroscopy in situations where MRI was inconclusive or unable to be performed. The value of MRI in the investigation of atraumatic non-locking knee symptoms in presence of osteoarthritis remains uncertain.

The decision to proceed with arthroscopy of the knee in the presence of osteoarthritis or degeneration should be made by the treating orthopaedic surgeon only:

After careful review of the clinical scenario: particularly the assessment of the relative contributions of the osteoarthritis, and the arthroscopically treatable pathology, to the patient's symptoms

and

With knowledge of the relevant evidence base, as listed in this document and including any new evidence that may present in the future

and

After an appropriate trial of comprehensive, non-operative treatment for 6-9 months

and

And after thoughtful discussion with the patient about the relative merits and risks of the procedure versus ongoing non-operative treatment

Definition of Degenerative Meniscal Tear

Degenerative meniscal tears are typically slowly developing lesions that occur secondary to wear or attrition. These tears are most often atraumatic, although patients may give a history of minor trauma associated with the onset of knee pain.^[5] Degenerative change typically occurs in the body and posterior horn, has a complex, oblique or horizontal cleavage configuration, and most commonly involves the medial meniscus.^[13] On MRI, linear intrameniscal signal is seen communicating with the inferior, superior or free edge of the meniscal surface on two consecutive slices in a horizontal or complex pattern.^[14] Arthroscopically, degenerative tears have complex patterns, often with a horizontal cleavage component.^[5]

Degenerative meniscal lesions occur frequently in the general population and are often incidental findings on knee MRI. These lesions are considered a marker of early degenerative change in the knee and are likely an early sign of osteoarthritis.^[2] X-ray imaging that demonstrates joint space narrowing also implies a high likelihood of a meniscal tear in the narrowed compartment. The incidence of a meniscal tear is approximately 25% in patients aged 50-59, 35% in patients aged 60-69, and 45% in ages 70-79. In patients with knee osteoarthritis the incidence is approximately 75-95%.^[2]

Comprehensive Non-Operative Management of OA

The non-operative management of OA includes a comprehensive multidisciplinary approach designed to reduce symptoms in the knee. The following treatments should be considered and undertaken for at least 6-9 months prior to considering arthroscopy and include but are not limited to:

- Education
- Activity modification
- Physiotherapy – strength, balance, core stability
- Weight loss
- Nutraceuticals
- Oral medications - NSAIDS, Tylenol
- Injections – Cortisone, hyaluronic acid, platelet rich plasma

The AAC recognizes that evidence for the use of these treatments and modalities continues to evolve. A thorough review of that literature, however, is beyond the scope of this position statement. Given that there is evidence to support the use of a comprehensive non-operative strategy for knee OA, the AAC believes that there should be support from the Health Authorities to provide this non-operative treatment to patients suffering from OA.

Imaging of the Atraumatic Painful Knee: Role of X-ray and MRI

Plain radiography should be used as the first line imaging test when assessing atraumatic knee pain in the middle aged or older patient. Radiographs should include posterior anterior weight-bearing views at 30° of knee flexion, ^[15] lateral and patellar skyline views.

MRI can be a useful adjunct to plain radiographs but is rarely necessary to make a diagnosis or treatment plan when degenerative changes are present on plain radiographs. ^[16] It should be used judiciously in conjunction with plain radiographs to assess for additional pathology that may correlate with a patient's symptoms and help guide treatment. ^[17] MRI is both sensitive and specific for the detection of meniscal pathology ^[18], but is associated with a high rate of incidental findings in middle-aged patients. ^[19] The treating physician must therefore interpret the MRI findings carefully when formulating a treatment plan. **An MRI is not a criterion for referral to an orthopaedic surgeon or another specialist.**

Need for Future Research

Canada is a leader in the field of arthroscopy and in the performance and implementation of rigorous clinical research. At this time, there is a need for the specific indications for knee arthroscopy to be clearly defined with high quality, methodologically sound studies. The groundwork has been laid with studies that show that knee arthroscopy is not indicated as the first line treatment in patients with OA and degenerative meniscal tears. ^[6, 7, 11] However, it is important not to make sweeping generalizations about these study results as they apply to a heterogeneous population. Treatment of each patient must be appropriately considered, taking into account the unique characteristics inherent to their clinical presentation. Research studies examining outcomes of the treatment of OA, including arthroscopy, are the building blocks that were needed to narrow the research questions and advance our understanding of outcomes for patients within the entire range of severity of knee degeneration. The high cross-over rate in studies comparing non-operative treatment with knee arthroscopy demonstrates that a significant number of patients will fail non-operative management. Therefore, it is also necessary to determine the appropriate duration of symptoms and timeline of non-operative treatment prior to considering arthroscopy. Determining which patients will benefit from arthroscopy as well as predicting which patients will fail non-operative management is the next challenge facing health care practitioners treating OA of the knee. The exploration of alternative non-operative treatments of OA needs to be ongoing. Finally, appropriate funding for comprehensive management strategies needs to be implemented by Health Authorities and insurance companies.

The AAC is committed to continuing to pursue and develop evidence based guidelines for knee arthroscopy that are appropriate for a Canadian population

References

1. Adelani MA, Mall NA, Brophy RH, Halstead ME, Smith MV, Wright RW. The use of MRI in evaluating knee pain in patients aged 40 years and older. J Am Acad Orthop Surg. 2016;24(9):653-659.
2. Australian Knee Society. Position statement from the Australian Knee Society on arthroscopic surgery of the knee, including reference to the presence of osteoarthritis or degenerative joint disease. https://www.aoa.org.au/docs/default-source/Advocacy/aoa-and-aks-statement-osteoarthritis-and-knee-arthroscopy-october-2017.pdf?sfvrsn=47b6c404_2. Accessed January 11, 2018.
3. Beaufils P, Becker R. ESSKA meniscus consensus project. <http://c.ymcdn.com/sites/www.esska.org/resource/resmgr/docs/2016-meniscus-consensus-proj.pdf?hhSearchTerms=22meniscus+and+project%22>. Accessed January 11, 2018.
4. Becker R, Buchner M, Forster J, et al. S2k Leitlinie Meniskuserkrankung Methodenreport der Deutschen Gesellschaft für Orthopädie und Unfallchirurgie. http://www.awmf.org/uploads/tx_szleitlinien/033-006m_S2k_Meniskuserkrankungen_2015-07.pdf. Accessed January 11, 2018.
5. Davies AP, Calder DA, Marshall T, Glasgow MM. Plain radiography in the degenerate knee: a case for change. J Bone Joint Surg Br. 1999; 81(4):632-635.
6. De Smet AA, Tuite MJ. Use of the “two-slice-touch” rule for the MRI diagnosis of meniscal tears. AJR Am J Roentgenol. 2006;187: 911-914.
7. Englund M, Guermazi A, Gale D, et al. Incidental meniscal findings on knee MRI in middle-aged and elderly persons. N Engl J Med. 2008; 359(11):1108-1115.
8. Haute Autorité de Santé. Prise en charge thérapeutique des lésions méniscales et des lésions isolées du ligament croisé antérieur du genou chez l'adulte. https://www.has-sante.fr/portail/upload/docs/application/pdf/2008-07/lesions_meniscales_et_du_ligament_croise_anterieur_-_recommandations.pdf. Accessed February 15, 2018.
9. Herrlin SV, Wange PO, Lapidus G, Hallander M, Werner S, Weidenhielm L. Is arthroscopic surgery beneficial in treating non-traumatic, degenerative medial meniscal tears? A five-year follow-up. Knee Surg Sports Traumatol Arthrosc. 2013;21(2):358-364.

10. Katz JN, Brophy RH, Chaisson CE, et al. Surgery versus physical therapy for a meniscal tear and osteoarthritis. *N Engl J Med*. 2013; 368(18):1675-1684.
11. Kirkley A, Birmingham TB, Litchfield RB, et al. A randomized trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med*. 2008;359(11):1097-1107.
12. Moseley JB, O'Malley K, Petersen NJ, et al. A controlled trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med*. 2002; 347(2):81-88.
13. Petron DJ, Greis PE, Aoki SK, et al. Use of knee magnetic resonance imaging by primary care physicians in patients aged 40 years and older. *Sports Health*. 2010;2(5):385-390.
14. Phelan N, Rowland P, Galvin R, O'Byrne JM. A systematic review and meta-analysis of the diagnostic accuracy of MRI for suspected ACL and meniscal tears of the knee. *Knee Surg Sports Traumatol Arthrosc*. 2016;24(5):1525-1539.
15. Poehling GG, Ruch DS, Chabon SJ. The landscape of meniscal injuries. *Clin Sports Med*. 1990;9(3):539-549.
16. Sihvonen R, Paavola M, Malmivaara A, et al. Arthroscopic partial meniscectomy versus sham surgery for a degenerative meniscal tear. *N Engl J Med*. 2013;369(26):2515-2524.
17. Stone JA, Salzler M, Parker DA, Becker R, Harner CD. Degenerative meniscus tears—assimilation of evidence and consensus statements across three continents: state of the art. *J ISAKOS*. 2017;2:108-119.
18. Yim JH, Seon JK, Song EK, et al. A comparative study of meniscectomy and nonoperative treatment for degenerative horizontal tears of the medial meniscus. *Am J Sports Med*. 2013;41(7):1565-1570.
19. Vermesan D, Prejbeanu R, Laitin S, et al. Arthroscopic debridement compared to intra-articular steroids in treating degenerative medial meniscal tears. *Eur Rev Med Pharmacol Sci*. 2013;17(23): 3192-3196.