

# Position Statement of the Arthroscopy Association of Canada (AAC) Concerning Arthroscopy of the Knee Joint—September 2017

Arthroscopy Association of Canada\*†

**Keywords:** knee; arthroscopy; osteoarthritis

This position statement was prepared in response to increased attention in the media and among health authorities as to the role of arthroscopy in knees with and without radiographic evidence of osteoarthritis (OA). While recognizing the gap between scientific evidence and clinical practice, this statement is intended 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 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<sup>2</sup> on arthroscopic surgery of the knee and consistent with consensus statements published in Europe,<sup>3</sup> by the Haute Autorité de Santé of France,<sup>8</sup> and by the Deutschen Gesellschaft für Orthopädie und Unfallchirurgie in Germany.<sup>4</sup>

## 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 OA, nor are these procedures indicated as a primary treatment in the management of OA of the knee. However, this does not preclude the judicious use of arthroscopic surgery when indicated to manage symptomatic coexisting disease or abnormality in the presence of OA or degeneration.

\*Address correspondence to Ivan Wong, MD, MACM, FRCSC, DipSportMed, Dalhousie University, 2nd Floor, Room 2106, Camp Hill Veteran's Memorial Building, 5955 Veteran's Memorial Lane, Halifax, Nova Scotia B3H 2E1 Canada (email: iw@drivanwong.com).

†All authors are listed in the Authors section at the end of this article.

The authors declared that they have no conflicts of interest in the authorship and publication of this contribution.

The Orthopaedic Journal of Sports Medicine, 6(2), 2325967118756597

DOI: 10.1177/2325967118756597

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These abnormalities include but are not limited to the following:

- Known or suspected septic arthritis
- Symptomatic meniscal tear after an appropriate trial of nonoperative treatment
- Symptomatic loose bodies
- Locked or locking knees
- Meniscal tears that require repair
- Inflammatory arthropathy requiring synovectomy
- Synovial pathologic condition requiring biopsy or resection
- Unstable chondral pathologic condition causing mechanical symptoms
- As an adjunct to and in combination with other surgical procedures as appropriate for OA (eg, high tibial osteotomy and patellofemoral realignment)
- Diagnostic arthroscopy when the diagnosis is unclear on magnetic resonance imaging (MRI) or when MRI is not possible and the symptoms are not of OA

## SUMMARY OF THE LITERATURE REVIEW

This position statement is based on a systematic review that was recently performed by the Australian Knee Society<sup>2</sup> on arthroscopic surgery of the knee as well as a recently published review in the *Journal of ISAKOS*.<sup>17</sup> Included in this review were 10 randomized clinical trials on knee arthroscopy: 4 trials in patients with medial meniscal tear without evidence of OA and 6 trials in patients with underlying OA. One of the studies included in the review was performed in Canada<sup>11</sup> 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 radiography and an optimized comprehensive nonoperative management pathway in both groups. At 2 years, the addition of arthroscopic surgery was not found to provide an advantage in terms of health-related quality of life in patients treated within the confines of the Canadian health care system.

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

1. In patients with moderate to severe knee OA and in the absence of loose bodies or locking, arthroscopic debridement provides no improvement in medium- to long-term outcome compared with the control intervention.<sup>11,12</sup>
2. For patients with a degenerative medial meniscal tear and minimal to no OA, the majority will respond to nonoperative intervention and will not likely require arthroscopic medial meniscectomy.<sup>9,10,16,18,19</sup>
3. A subgroup of patients (up to 30%) with degenerative knee disease will not gain adequate symptom relief after an initial period of nonoperative management and may require surgical intervention, irrespective of their age.<sup>10</sup>
4. Patients who failed nonoperative management and crossed into the surgical arm of these trials had improvement of their symptoms after knee arthroscopy.<sup>9,10</sup>
5. In patients with medial meniscal tears, the role of mechanical symptoms in the decision to perform arthroscopy was unclear.<sup>18</sup>
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 nonlocking knee symptoms in the presence of OA remains uncertain.

The decision to proceed with arthroscopy of the knee in the presence of OA or degeneration should be made by the treating orthopaedic surgeon only under all of the following conditions:

- After careful review of the clinical scenario: particularly the assessment of the relative contributions of the OA, and the arthroscopically treatable pathologic condition, to the patient's symptoms
- With knowledge of the relevant evidence base, as listed in this document and including any new evidence that may present in the future
- After an appropriate trial of comprehensive, nonoperative treatment for 6 to 9 months
- After thoughtful discussion with the patient about the relative merits and risks of the procedure versus ongoing nonoperative treatment

## DEFINITION OF DEGENERATIVE MENISCAL TEAR

Degenerative meniscal tears typically are slowly developing lesions that occur secondary to wear or attrition. These tears are most often atraumatic, although patients may have a history of minor trauma associated with the onset of knee pain.<sup>17</sup> 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.<sup>15</sup> On MRI, linear intrameniscal signal is seen communicating with the inferior, superior, or free edge of the meniscal surface on 2 consecutive slices in a horizontal or complex pattern.<sup>6</sup> Arthroscopically, degenerative tears have complex patterns, often with a horizontal cleavage component.<sup>17</sup>

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 OA.<sup>3</sup> Radiographic 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 to 59 years, 35% in patients aged 60 to 69 years, and 45% in patients aged 70 to 79 years. In patients with knee OA, the incidence is approximately 75% to 95%.<sup>3</sup>

## COMPREHENSIVE NONOPERATIVE MANAGEMENT OF OSTEOARTHRITIS

The nonoperative 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 to 9 months prior to considering arthroscopy and include but are not limited to the following:

- Education
- Activity modification
- Physical therapy: strength, balance, core stability
- Weight loss
- Nutraceuticals
- Oral medications: nonsteroidal anti-inflammatory drugs, acetaminophen
- 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 evidence is available to support the use of a comprehensive nonoperative strategy for knee OA, the AAC believes that health authorities should support the provision of this nonoperative treatment to patients who have OA.

## IMAGING OF THE ATRAUMATIC PAINFUL KNEE: ROLE OF RADIOGRAPHY AND MRI

Plain radiography should be used as the first-line imaging test when atraumatic knee pain is assessed in the middle-aged or older patient. Radiographs should include posterior anterior weightbearing views at 30° of knee flexion,<sup>5</sup> lateral views, 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.<sup>13</sup> MRI should be used judiciously in conjunction with plain radiographs to assess for additional pathologic conditions that may correlate with a patient's symptoms and help guide treatment.<sup>1</sup> MRI is both sensitive and specific for the detection of meniscal abnormality<sup>14</sup> but is associated with a high rate of incidental findings in middle-aged patients.<sup>7</sup> 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 showing that knee arthroscopy is not indicated as the first-line treatment in patients with OA and degenerative meniscal tears.<sup>10-12</sup> 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 the clinical presentation. Research studies examining outcomes of the treatment of OA, including arthroscopy, are the building blocks that are 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 crossover rate in studies comparing nonoperative treatment with knee arthroscopy demonstrates that a significant number of patients will fail nonoperative management. Therefore, it is also necessary to determine the appropriate duration of symptoms and timeline of nonoperative treatment prior to considering arthroscopy. Determining which patients will benefit from arthroscopy as well as predicting which patients will fail nonoperative management is the next challenge facing health care practitioners treating OA of the knee. The exploration of alternative nonoperative 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 the Canadian population.

## AUTHORS

Ivan Wong, MD, MACM, FRCSC, DipSportMed (Department of Orthopaedics, Dalhousie University, Halifax, Nova Scotia, Canada); Laurie Hiemstra, MD, PhD, FRCSC (Banff Sports Medicine, Banff, Alberta, Canada); Olufemi R. Ayeni, MD, MSc, PhD, FRCSC, DipSportMed (Department of Orthopaedic Surgery, McMaster University,

Hamilton, Ontario, Canada); Alan Getgood, MD, FRCSC (Tr&Orth), DipSEM (Fowler-Kennedy Sport Medicine Clinic, London, Ontario, Canada); Cole Beavis, MD, FRCSC, DipSportMed (Department of Surgery, University of Saskatchewan, Saskatoon, Saskatchewan, Canada); Monika Volesky, MDCM, FRCSC, DipSportMed (Foot and Ankle Faculty, Department of Orthopaedics, Jewish General Hospital, Montreal, Quebec, Canada); Ross Outerbridge, MD, FRCSC, DipSportMed (Sage Sport Institute, Kamloops, British Columbia, Canada); Brendan Sheehan, MD, FRCSC, DipSportMed (Department of Orthopaedics, Dalhousie University, Halifax, Nova Scotia, Canada); Robert McCormack, MD, FRCSC, DipSportMed (Department of Orthopaedics, University of British Columbia, New Westminster, British Columbia, Canada); Robert Litchfield, MD, FRCSC, DipSportMed (Fowler-Kennedy Sport Medicine Clinic, London, Ontario, Canada); Daniel Whelan, MD, MSc, FRCSC, DipSportMed (Department of Orthopaedics, St Michael's Hospital, Toronto, Ontario, Canada); Nicholas Mohtadi, MD, MSc, FRCSC, DipSportMed (University of Calgary Sport Medicine Centre, Calgary, Alberta, Canada); Catherine Coady, MD, FRCSC (Department of Orthopaedics, Dalhousie University, Halifax, Nova Scotia, Canada); Peter B. MacDonald, MD, FRCSC, DipSportMed (University of Manitoba, Winnipeg, Manitoba, Canada).

## REFERENCES

- 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.
- 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/subspecialties/aks-aoa-arthroscopy-position-statement-final-oct-2016.pdf?sfvrsn=2>. Accessed January 11, 2018.
- Beaufils P, Becker R. ESSKA meniscus consensus project. <http://c.yimcdn.com/sites/www.esska.org/resource/resmgr/docs/2016-meniscus-consensus-proj.pdf?hhSearchTerms=%22meniscus+and+project%22>. Accessed January 11, 2018.
- 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](http://www.awmf.org/uploads/tx_szleitlinien/033-006m_S2k_Meniskuserkrankungen_2015-07.pdf). Accessed January 11, 2018.
- 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.
- 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.
- 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.
- 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](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.
- 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.