

Is Knee Arthroscopy for Degenerative Meniscal Tears an Unnecessary Procedure?



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Abstract

Degenerative knee disease affects patients of all ages and produces pain significantly impacting quality of life (QoL). Physicians typically adopt an incremental treatment approach - beginning with lifestyle modification and pharmacologic therapy. Ultimately, surgical interventions such as knee arthroscopy or debridement are reserved for patients with severe, refractory symptoms unresponsive to conservative management.

Knee arthroscopy is one of the most common orthopedic procedures in ambulatory patients. Population statistics indicate the number of arthroscopies continue to increase, despite accumulating evidence of minimal benefit in patients with osteo arthritis (OA). Multiple clinical trials and summative meta-analyses demonstrate arthroscopy does not significantly improve pain, QoL, or function in patients with OA or degenerative meniscal tears. Post-operative complications such as venous thromboembolism, infection and delayed recovery are commonly encountered, and of significant financial and public health concern. Many non-surgical treatment options provide similar or superior symptom control, without introducing additional procedural risk. Health care systems carry a fiduciary responsibility and moral imperative to evaluate treatment outcomes and provide evidence-based therapies to patients.

Keywords: Arthroscopy; Osteoarthritis (knee); Osteoarthritis (Drug therapy); Meniscus (surgery); Meniscus (therapy)

Introduction

Over fifteen years ago, the first randomized control trial (RCT) comparing sham surgery to arthroscopy for degenerative knee disease found no difference in outcomes. Subsequently, multiple clinical trials and summative meta-analyses have demonstrated arthroscopy does not significantly improve pain, QoL, or function in patients with OA or degenerative meniscal tears. Despite accumulating evidence of minimal benefit, population statistics indicate a continual increase in the number of performed arthroscopies each year. Many non-surgical treatments provide similar or superior symptom control, with minimal risk of harm. Recent recommendations establish a limited role of arthroscopic intervention and strongly support conservative management.

Degenerative knee disease, including osteoarthritis (OA), exhibits large variability in symptoms and functional impairment. Progressive joint pain, physical limitation, and decreased QoL ultimately lead patients to seek treatment. Physicians adopt an incrementally invasive approach to treatment, beginning with conservative management. Ultimately, if conservative treatments fail, surgical interventions including knee arthroscopy have been historically used.

Discussion

Fifteen years ago, Moseley et al. published a landmark trial randomizing patients with OA to knee arthroscopy or sham surgery [1]. In this study, arthroscopy did not improve pain or function at one and two year follow-up intervals. Since that time, numerous trials comparing arthroscopy to conservative management (particularly, exercise therapy [2-7]) have demonstrated minimal outcome difference. Meta-analyses of available studies demonstrated that arthroscopy increased future arthroplasties, venous thromboembolism, and 3 month mortality. Surgical management offered a 12% likelihood of improved short-term pain and function (within one year).

Contrary to established evidence, many experienced surgeons report perceived clinical improvement subsequent to arthroscopy [8]. Among surveyed orthopedic surgeons, 75.3% believed partial meniscetomies improved pain for degenerative meniscal tears. However, perceived improvement may be confounded by high expectations among patients experiencing refractory symptoms. Prompt knowledge translation of evidence to clinical practice can be challenging. For the average clinician, practice guidelines establish standards of care

and ultimately serve patients' best interests. However, some recommendations are made with minimal evidence or poorly described methodology. Concerns of "evidence, opinion, politics and money" disproportionately influencing guidelines may lead to "loss of trust, patient suffering, waste, and over- or under-treatment" [9].

Recent updated recommendations against knee arthroscopy for degenerative meniscal tears represent an optimal example of systematic and transparent guideline creation. The methodology used by Siemieniek et al. for recommendations against knee arthroscopy is particularly noteworthy [9]. The BMJ rapid recommendations utilized a collaborative panel of clinicians, surgeons, patients and allied health professionals to evaluate evidence cognizant of patient-centered values and preferences. Treatment effects were evaluated by patients and explicitly weighed for importance and meaningful outcome differences. Improvements in pain and symptoms were ranked as trivial, small but important, or large changes. At 3 months and 1 year post-procedure, there was minimal or no difference in reported pain, QoL or function between arthroscopy and conservative management.

Conservative treatments such as exercise, weight loss, knee braces, and walking aids are highly effective [10-12]. Exercise therapy significantly improved pain, QoL, and function among patients with OA [13]. Although no clear consensus regarding the type, intensity, and duration of exercise has been established, low-impact exercises such as lower-limb strengthening are preferred. Among those with symptomatic OA, strong evidence supports a dose-dependent relationship between exercise, weight loss and pain management [14-15].

Pharmacologic therapies may be used in conjunction with non-pharmacologic modifications. Topical or oral non-steroidal anti-inflammatory medications (NSAIDs) are highly effective for symptomatic pain control. Intra-articular (IA) injections of corticosteroids, hyaluronic acid (HA) or platelet-rich-plasma (PRP) may also be used to supplement conservative treatments. Corticosteroid or HA injections were found to be significantly superior to oral placebo for the treatment of pain among patients with OA [16]. However, no formal recommendations support the use of IA injections, due to limited or poor quality evidence [17]. IA injections may improve initial pain, but reported benefits are not sustained in long-term outcome assessments.

High-quality systematic reviews and meta-analyses have concluded that there was no benefit of arthroscopic surgery compared to non-operative treatment [18,19]. The high quality of established evidence suggests future studies will unlikely change practice recommendations. Future research may be best focused to improve knowledge dissemination and limit surgical interventions.

Conclusion

There is minimal benefit for arthroscopic surgery among

incorporating new evidence and prioritizing patients with degenerative disk disease. Meta-analyses of patient-centered outcomes have prompted changes in clinical practice. This review, aimed at general practitioners, rheumatologists, and orthopedic surgeons, summarizes the current evidence against knee arthroscopy and highlights favorable conservative treatment options.

Recent evidence and recommendations have fundamentally challenged current practice. A paradigm shift limiting surgical management may prevent unnecessary complications and reduce associated healthcare costs. Invasive interventions must ultimately improve outcomes important to patients. Knee arthroscopy provided minimal improvement of pain, QoL or function, and its continued use for treatment of degenerative meniscal tears is not recommended.

References

1. Moseley JB, O Malley KA, Peterson NJ, Menke TJ, Brody BA (2002) Controlled trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med* 347(2): 81-88.
2. Kirkley A, Birmingham TB, Litchfie RB, Giffin JR, Willits KR (2008) A randomized trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med* 359(11): 1097-1107.
3. Herrlin S, Hållander M, Wange P (2007) Arthroscopic or conservative treatment of degenerative medial meniscal tears: a prospective randomised trial. *BMJ* 354(8000): 393-401.
4. Herrlin SV, Wange PO, Lapidus G, Hållander (2012) Is arthroscopic surgery beneficial in treating non-traumatic, degenerative medial meniscal tears? A five year follow-up. *Knee Surg Sports Traumatol Arthrosc* 21 (2): 358-364.
5. Katz JN, Brophy RH, Chaisson CE, de Chaves L, Cole BJ, et al. (2013) Surgery versus physical therapy for a meniscal tear and osteoarthritis. *N Engl J Med* 368(18): 1675-1684.
6. Stensrud S, Risberg MA, Roos EM (2015) Effect of exercise therapy compared with arthroscopic surgery on knee muscle strength and functional performance in middle-aged patients with degenerative meniscus tears: a 3-mo follow-up of a randomized controlled trial. *Am J Phys Med Rehabil* 94(6): 460-473.
7. Kise NJ, Risberg MA, Stensrud S, Ranstam J, Engebretsen L, et al. (2016) Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. *BMJ* 354: i3740.
8. Mayr HO, Rueschenschmidt M (2013) Indications for and results of arthroscopy in the arthritic knee: a European survey. *BMJ* 347: 1363-1271.
9. Siemieniuk RAC, Harris IA, Agoritsas T, Poolman RW, Brignardello-Petersen R (2017) Arthroscopic surgery for degenerative knee arthritis and meniscal tears: a clinical practice guideline. *BMJ* 357: j1982.
10. Bartels EM, Juhl CB, Christensen R, Hagen KB, Danneskiold-Samsøe B, et al. (2016) Aquatic exercise for the treatment of knee and hip osteoarthritis. *Cochrane Database Syst Rev* 3: CD005523.
11. Hunter D, Gross KD, McCree P, Li L, Hirko K, et al. (2011) Realignment treatment for medial tibiofemoral osteoarthritis: randomised trial *BMJ* 343(7830): 1153-1159.
12. Jones A, Silva PG, Silva AC, Colucci M, Tuffanin A, et al. (2012) Impact of cane use on pain, function, general health and energy expenditure during gait in patients with knee osteoarthritis: a randomised controlled trial. *BMJ* 345(7877): 1173-1179.

controlled trial. *Ann Rheum Dis* 71(2): 172-179.

13. Fransen M, McConnell S, Harmer AR, Van der Esch M, Simic M, Bennell KL (2015) Exercise for osteoarthritis of the knee: a Cochrane systematic review. John Wiley & Son, New Jersey, USA.
14. Christensen R, Bartels EM, Astrup A, Bliddal H (2007) Effect of weight reduction in obese patients diagnosed with knee osteoarthritis: a systematic review and meta-analysis. *Ann Rheum Dis* 66(4): 433-439.
15. Riddle DL, Stratford PW (2013) Body weight changes and corresponding changes in pain and function in persons with symptomatic knee osteoarthritis: a cohort study. *Arthritis Care Res (Hoboken)* 65(1): 15-22.
16. Bannuru RR, Schmid CH, Kent DM, Vaysbrot EE, Wong JB, et al. (2015) Comparative effectiveness of pharmacologic interventions for knee osteoarthritis: a systematic review and network meta-analysis. *Ann Intern Med* 162(1): 46-54.
17. Juni P, Hari R, Rutjes AW, Fischer R, Silleta MG, et al. (2015) Intra-articular corticosteroid for knee osteoarthritis. Cochrane Review, John Wiley & Son, New Jersey, USA.
18. Thorlund JB, Juhl CB, Roos EM, Lohmander LS (2015) Arthroscopic surgery for degenerative knee: systematic review and meta-analysis of benefits and harms. *BMJ* 350: h2747.
19. Khan M, Evaniew N, Bedi A, Ayeni OR, Bhandari M (2014) Arthroscopic



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