

# Arthroscopy in Arthrosis: Is It Worth it?

## A case Presentation

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*The role of arthroscopy in incipient and mild arthrosis, even combined with proximal tibial osteotomy, is well known and well documented. On the other hand, its role in the treatment of advanced arthrosis of the large joints, especially the knee, is a subject of controversy. The proponents of the use of arthroscopy in advanced arthrosis claim that meniscectomy, synovectomy, osteophyctomy, chondral lesion stabilization, arthroscopic release, plica and loose body removal greatly improve the quality of life for most patients, especially if followed by the use of viscoelastic injection, by diminishing pain and improving joint range of motion. The opponents claim that, even though the advantages are clear in the cases that refuse arthroplasty, in all the other cases the surgical indication should be total knee arthroplasty, as the clinical relief is temporary, but with all the risks of a surgical intervention. We have conducted an overview of the recent literature, in order to find objective evidence to sustain either point of view. We focused on articles published that included an objective measurement of before and after clinical status through clinical scores and objective measurements. We also focused on the follow-up period and on the evolution of the pathology after arthroscopy.*

*Keywords: arthroscopy, arthrosis, meniscus*

The role of arthroscopy in incipient and mild arthrosis, is well known and well documented [1, 2]. On the other hand, its role in the treatment of advanced arthrosis of the large joints, especially the knee, is a subject of controversy [3, 4].

In clinical practice, the proponents of the use of arthroscopy in advanced arthrosis claim that meniscectomy, synovectomy, osteophyctomy, chondral lesion stabilization / repair (microfractures), arthroscopic release, plica and loose body removal greatly improve the quality of life for most patients, especially if followed by the use of viscoelastic injection, by diminishing pain and improving joint range of motion. The opponents claim that, even though the advantages are clear in the cases that refuse arthroplasty, in all the other cases the surgical indication should be total knee arthroplasty, as the clinical relief is temporary, but with all the risks of a surgical intervention.

We aim to ascertain whether we should perform an arthroscopic procedure in the case of a knee affected by osteoarthritis, as empirical evidence from our own clinical practice suggests that there is still a significant amount of pain remaining at the level of the knee, after an arthroscopic procedure, both in short term and more importantly in medium and long term. The main reason for performing an arthroscopy in the case of a patient diagnosed with arthrosis of the knee is pain, associated with functional impairment.

The challenge we are addressing in this article is the performing of potentially unnecessary surgery, either from a lack of understanding of the pathology, or from reasons pertaining to professional ethics.

The objective of this article is to present a case of knee osteoarthritis treated with arthroscopic surgery, in which the short term results were good, but the medium and long term results were poor, and to re-visit the discussion on whether arthroscopy should or should not be performed in the arthritic knee.

### Experimental part

#### Case presentation

We present the case of a 51 years old female patient working as a nurse that presented in our clinic with left knee pain, gradually increasing in intensity over the last 2 years. Approximately one month before presenting to our clinic the patient reports having sustained a rotational trauma to the knee that exacerbated her pain on the medial side.

The pain was generalized in the knee, but more pronounced on the medial side, corresponding to the internal meniscus (posterior horn) palpation points on the articular line. The knee was stable, and no genu varum or genu valgum was apparent clinically. The joint motion range was 80 degrees, limited by pain. The Numeric Pain Intensity Scale value was 7, as described by the patient.

X-rays of the knee were taken in the hospital Radiology Department, and stored as per protocol. (5) They revealed an Ahlback I stage arthritis in the medial compartment, with no notable malalignment of the knee. Because of the localized nature of the predominant pain the decision was made to perform an MRI of the knee, that revealed a tear of the posterior horn of the medial meniscus and incipient cartilage wear on the internal compartment, with minimal fluid build-up, as well as what appeared to be a loose body. The MRI also showed an absence of substance with the posterior horn of the external meniscus.

From the time of initial presentation and until the time when the MRI was taken (approximately 6 weeks) the patient was treated with rest, partial weight bearing in the periods of maximal pain as needed, etoricoxib 60 mg daily with gastric protection associated with acetaminophen 1-2 g daily (as needed), allowing for self medication in accordance to daily pain intensity and effort levels.

After performing and examining the MRI, the patient continued treatment with kinetotherapy and physiotherapy, with little symptomatic improvement, for two months. Attempts were made to return to an active lifestyle,

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including work (8-10 hours of nearly continuous standing), but these failed.

The decision was made to perform an arthroscopy of the knee, under spinal anaesthesia. Upon inspection, we found stage II chondral lesions on both the internal and external tibial plateaus, as well as on both femoral condyles. The medial plateau and condyle also exhibited grade III chondral lesions (fig. 1). The lesion of the posterior horn of the medial meniscus was identified and treated with partial meniscectomy.

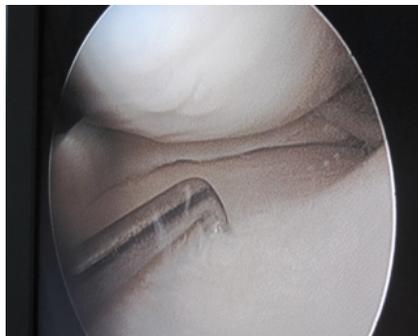


Fig. 1. Chondral lesions in OA knee. Posterior horn of the meniscus is torn (background). This image is from the author's personal database

Upon further examination, the loose body (fig. 3) was found and recovered; it appeared to be a meniscus fragment in origin, and relatively recent, as it had not developed a rounded aspect yet. The lateral meniscus had an absence of substance at the level of the posterior horn, that appeared to correspond in shape and size to the loose body, which may indicate an older associated lesion, clinically asymptomatic as reported by the patient who described no localized pain on the external aspect of the knee.

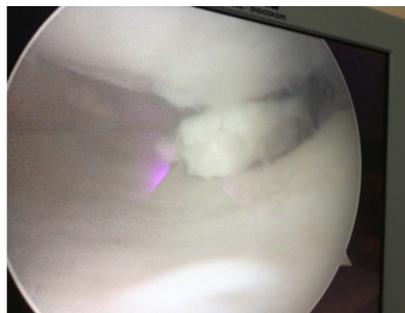


Fig. 2. Loose body in OA knee –meniscus fragment. This image is from the author's personal database.

The knee was drained and the incisions were sutured in a single layer. The spinal anaesthesia was followed by pain relief via single-dose 90 mg etoricoxib [6].

## Results and discussions

The drain was removed the second day after surgery, and the incisions were dressed every other day until the sutures were removed, 12 days later.

The patient resumed walking the next day after surgery, partial weight bearing on the left knee, with crutches. Antibiotics were continued for 3 days as per protocol, with antiinflammatory drugs when needed [7]. She was discharged from the hospital with an indication to continue the prophylactic treatment with low molecular weight heparin for 7 days or until full weight bearing was achieved.

At the 2 weeks follow-up, the Numeric Pain Intensity Scale value was a reported 3, with most of the pain being anterior, corresponding to the incision sites, some diffuse pain on the medial side, but no localized pain in the meniscus points. The patient had attained full weight bearing and the joint motion range had improved by 20 degrees, to 100 degrees, with minimal pain.

At the 3 months follow-up the joint motion range had improved with another 5 degrees, but the pain level on the

Numeric Pain Intensity Scale was still a constant 3, with the anterior pain gone, but a global pain persisting, more so on the medial side. A viscoelastic injection in the knee was performed and the patient was informed of the possibility of going through an arthroplastic procedure in the near future.

In this case, with the partial meniscectomy and the removal of the loose body, one would expect a marked decrease in local and overall pain, but the result was less than we hoped for. The patient was able to return to work, but with a degree of persistent pain and discomfort. This case would seem to adequately illustrate the point that even though an arthroscopic procedure may help with diminishing localized pain and improving joint range of motion in a patient with osteoarthritis that associates a proven traumatic meniscus tear, the effects are not so much so that an arthroplastic procedure is averted, or even significantly postponed. This case is not singular, and a controversy on the subject is noted even among surgeons in our Clinic, with favorable or unfavorable views regarding the arthroscopic procedure in an osteoarthritic knee.

We have conducted a overview of relevant recent literature, in order to find objective evidence to sustain either point of view (favorable or unfavorable) regarding arthroscopic interventions in the case of arthritic knees. Also we wished to establish if there are real benefits to these procedures in arthritic knees and whether they are short-term or long-term benefits.

We accessed PubMed, used the MeSH Database and searched for articles dealing with arthroscopy as the surgical treatment of osteoarthritis of the knee, free full text, published after Jan. 2000. We excluded registry based studies, cost effectiveness studies, studies that dealt with arthroscopy associated with osteotomies around the knee, studies that dealt with only diagnostics, case presentations and short case series. We defined arthroscopic procedures as involving lavage, meniscus repair, cartilage lesion repair/stabilisation, synovectomy, plicae excision, loose body removal etc, thus we excluded studies that dealt with experimental or novel treatments of osteoarthritis, i.e. mesenchymal stem cell implantation in patients with knee osteoarthritis. We summarily examined several review articles separately.

We focused on a total of 7 published articles that included an objective measurement of before and after clinical status through clinical scores and objective measurements. We also focused on the follow-up period and on the evolution of the pathology after arthroscopy. We found them to sum up to a total of 1232 cases. In 6 of the 7 studies the arthroscopic procedures were performed in just one center, while in one study two centers were involved. In six studies the patients were randomized, while in 2 they were not. Only one study was conducted double blind, while seven of the studies had control groups. Most studies lasted from a few months, up to 4 years. The patients were followed from 6 to 38 months, with an average of 23.3 months. Several scales were used to evaluate patient evolution, with a post-op satisfaction rate ranging from 79% to 93% (table 1). Despite the overall high satisfaction rate (four of the seven studies reported satisfaction levels approximately over 80%), the level of pain was not significantly improved, only one study reporting an 87% improvement in pain levels. The noted advantage was short term pain relief, especially in young patient with osteoarthritis of the knee, where the intervention was performed as a means to delay reconstructive surgery. Overall, the method is recommended in 5 of the studies [8-12], while the other 2 do not recommend the procedure [13, 14].

**Table 1**  
EVALUATION SCORES USED IN KNEE SURGERY

Knee-Specific Pain Scale
OA Index total pain score
Western Ontario and McMaster Universities Osteoarthritis Index
Knee Society score (KSS)
Oxford Knee Score
HSS knee score
Duke arthroscopy score
The Knee Injury and Osteoarthritis Outcome Score (KOOS)

We also looked at the results of several reviews on the subject, published in the same timeframe and found using the same search criteria, as high quality evidence. We believe that more and more reviews on the subject will emerge, as arthroscopic procedures develop further and are becoming more and more widespread, powered by recent progress in electronics [15]. These show that although some improvement can be seen in the short term, especially if a recent meniscus tear is associated, in the mid and long term there is no significant improvement in the pain levels and the patient's satisfaction. Thorlund et al., in their 2015 systematic review and meta-analysis [16], find no long-term benefit to practicing arthroscopy for middle-age or older patients with knee pain, with or without signs of osteoarthritis. Khan et al. [17] find only moderate evidence suggesting an absence of benefits in arthroscopic meniscal débridement for degenerative meniscal tears, in comparison to non-surgical treatment, and suggest this course before proposing arthroscopy to the patients. Felson, in his 2010 article [18], affirms that large randomized trials suggest that the role of arthroscopy is limited when the treatment of osteoarthritis is concerned. Reichenbach et al. [19] find that joint lavage has no significant benefit regarding pain relief or function for patients with knee osteoarthritis. In their 2017 published systematic review [20], Brignardello-Petersen et al. find that on the long term, knee arthroscopy brings no significant benefits compared to conservative management in regard to pain and function. Dennis et al. [21] claim that good to excellent short term results may be expected with arthroscopy of the arthritic knee of the middle-aged patient, provided that a good patient selection is done. Katz et al., in their 2014 review of the literature [22], seem to suggest that there is a discrepancy between scientific data, suggesting no advantage to arthroscopy for the arthritic knee and empiric data backed by clinical practice that seems to uphold the concept of improvement in the pain and function of an arthritic knee after arthroscopy. Lohmander et al. in their 2016 literature review [23] claim there is enough data to support the abandonment of the use of arthroscopy in the treatment of osteoarthritis of the knee, even in patients presented with a proven meniscus lesion.

We believe that recent technical developments in MRI, aided by developments in microprocessors [24], may present us with an ease of diagnostics, this should be directed towards the correct evaluation of chondral lesions preoperatively, so as not to perform an arthroscopy in a knee that would better benefit from an arthroplastic procedure.

## Conclusions

We conclude that arthroscopic interventions in patients with chronic osteoarthritis that have co-existent degenerative meniscus tears have no conclusive

advantage for the patient. Nevertheless, a patient with mild osteoarthritis that associates a recent MRI confirmed meniscus tear, consecutive to a confirmed trauma of the knee, would benefit from an arthroscopic intervention, on the short term.

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