



# The Effects of Arthroscopic Joint Debridement in Knee Osteoarthritis Patients Over the Age of Sixty

## Altmış Yaş ve Üzeri Hastalarda Diz Osteoartritinde Artroskopik Eklem Debritlemanının Etkileri

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ORIGINAL  
INVESTIGATION  
ÖZGÜN  
ARAŞTIRMA

ABSTRACT  
ÖZET

**Objective:** The effects of arthroscopic joint debridement (AJD) on patients aged sixty or above who had symptoms of osteoarthritis according to functional status, pain levels and patient satisfaction were evaluated in the short- and mid-term.

**Materials and Methods:** Between 2006 and 2011, 80 patients aged 60 or above who had undergone AJD and partial meniscectomy were evaluated retrospectively. Lysholm knee score (LKS) and visual analogue score (VAS) were compared pre- and postoperatively. Patient satisfaction status was evaluated by visual analogue patient satisfaction scale (VAPSS).

**Results:** Pre-and postoperative average LKS were 61.01±8.77 and 70.91±9.13, respectively. The increase in the average LKS after AJD was statistically significant ( $p<0.01$ ). Pre-and postoperative VAS values were found to be 4±0.6 and 2.6±1.1 respectively. The decrease in the average VAS value after AJD was statistically significant ( $p<0.01$ ). The average value of VAPSS was 6.2±2.1. Total knee arthroplasty was performed in four patients whose symptoms did not improve after AJD. Deep vein thrombosis (DVT) developed in two patients after AJD.

**Conclusion:** AJD increases the activity level of patients with moderate knee osteoarthritis in short- and mid-term follow-up.

**Key words:** Knee Osteoarthritis, arthralgia, arthroscopy, aged

**Amaç:** Osteoartrit bulguları olan 60 yaş ve üzeri hastalarda artroskopik eklem debritlemanının (AED) kısa ve orta dönemde fonksiyonel durum, ağrı düzeyi ve hasta memnuniyeti üzerine etkileri araştırıldı.

**Gereç ve Yöntemler:** Kliniğimizde 2006 ve 2011 yılları arasında artroskopik eklem debritlemanı ve parsiyel meniskektomi yapılan 60 yaş ve üzeri 80 hasta retrospektif olarak değerlendirildi. Hastaların operasyon öncesi ve sonrası Lysholm diz skorları ve vizüel ağrı skorları pre- ve postoperatif karşılaştırıldı. Hastaların klinik memnuniyeti ise görsel analog hasta tatmini skalası ile değerlendirildi.

**Bulgular:** Operasyon öncesi ve sonrası Lysholm diz skoru ortalamaları sırasıyla 61,01±8,77; 70,91±9,13 olarak bulundu. Bu fark istatistiksel olarak anlamlı idi ( $p<0,01$ ). Operasyon öncesi ve sonrası vizüel analog skala değerleri sırasıyla 4±0,6 ve 2,6±1,1 olup bulunan fark istatistiksel olarak anlamlı idi ( $p<0,01$ ). Operasyon sonrası hasta memnuniyeti görsel analog hasta tatmini skalası kullanılarak 6,2±2,1 bulundu. AED sonrası şikayetleri düzelmeyen dört hastaya total diz artroplastisi uygulandı. İki hastada AED sonrası komplikasyon olarak derin ven trombozu (DVT) gelişti.

**Sonuç:** Artroskopik eklem debritlemanı orta derecede diz osteoartriti olan hastaların aktivite düzeylerini kısa ve orta dönemde arttırmaktadır.

**Anahtar kelimeler:** Diz Osteoartriti, artralji, artroskopi, yaşlı

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## Introduction

Osteoarthritis (OA) is a chronic and degenerative disease. It affects the quality of life negatively by causing serious functional disorder, especially with increasing age (1, 2). Nowadays, the treatment of patients with osteoarthritis is aimed at controlling pain and improving function. When conservative techniques become inadequate for the treatment of pain and function, surgical treatments are considered (1, 3). These treatments include arthroscopic debridement, osteotomy, arthrodesis, mosaicplasty, unicompartmental knee arthroplasty and total knee arthroplasty. Arthroscopic intervention is carried out in order to delay further major surgery, such as osteotomy or arthroplasty. When performed in appropriate patients, AJD has successful results in 50-80% of patients, extending for months or years (4, 5). Therefore, knee arthroscopy is a safe and beneficial technique. Arthroscopic debridement has recently started to be used at an increased level in the treatment of patients who have knee osteoarthritis; there is still inadequate evidence about its superiority when compared with medical treatment and arthroplasty (1, 6, 7). In this study, the short- and mid-term clinical results of AJD and its effects on functional status and pain levels were examined in patients aged 60 or above with osteoarthritic symptoms.

## Materials and Methods

Between 2006 and 2011, 80 patients with symptomatic primary knee osteoarthritis rated from mild to moderate according to the International Knee Documentation Committee (IKDC) criteria were evaluated retrospectively. The study protocol was approved by the ethics committee of Erciyes University Medical Faculty and informed

**Table 1. LKS of patients, preoperative and postoperative values**

Lysholm Knee Score (LKS)	Poor (n%)	Moderate (n%)	Good (n%)	Excellent (n%)	Mean±std	p
Preoperative	26 (32%)	54 (68%)	-	-	61.01±8.77	<0.01
Postoperative	13 (16%)	22 (27.7%)	36 (45%)	9 (11.3%)	70.91±9.13	

consent was obtained from patients. All patients received conservative treatment for at least 6 months. Conservative treatment alternatives included isometric exercises, non-steroidal drugs and weight loss. Forty-two patients were classified as grade II and 38 patients were grade III according to Ahlbäck classification. All patients had mechanical symptoms and underwent AJD. Patients with positive serological tests, misalignment of the knee and also patients who had previously undergone arthroscopy were excluded from the study. Twenty-eight patients were male, and 52 were female. The mean age of the patients was 66.3 (61-79) years. All patients underwent standard physical examination. X-ray examinations with standard standing anterior-posterior and lateral graphics were performed before surgery. All patients underwent AJD and partial meniscectomy was also carried out if degenerative mixed type meniscal tears were encountered. All procedures were performed by the same surgeon. Unstable meniscal tears and chondral separations in the shape of a flap were resected in AJD and intra-articular loose bodies were removed. Cartilage fibrillations were trimmed non-aggressively and limited synovectomy was performed in presence of synovial hypertrophy. When abrasion arthroplasty or microfracture was performed, these patients were excluded from the study. According to the modified Outerbridge classification, 8 patients had grade I, 50 patients had grade II, 12 patients had grade III and 10 patients had grade IV cartilage damage. Patients only used paracetamol as an analgesic for postoperative pain. Cold application started on the first postoperative day with 15 minute intervals and a range of motion and quadriceps strengthening exercises were started on the second day. When patients could tolerate, they were allowed to fully weight-bear on their extremities. On the second day, the patients were discharged from hospital with a home exercise program. Pain levels and functional assessment of patients were evaluated according to the VAS and LKS preoperatively and at least one year postoperatively. Patient satisfaction status was evaluated with VAPSS (8). The average monitoring period of the patients was 36 (12-72) months. The Statistical Package for the Social Sciences (SPSS Inc., Chicago, Illinois, USA) version 17.0 for Windows was used for statistical analysis. Statistical analysis was conducted to determine the differences before and after treatment by using the Paired sample t-test and Wilcoxon signed-rank test.

## Results

The average age of the 80 patients was 66.3 (61-79) years. The right knees of 45 patients (56.4%) and left knees of 35 patients (44.6%) were operated upon. A degenerative complex tear was found in the medial meniscus in 52 cases, and in the lateral meniscus in 8 cases. Synovitis, loose body and plica were present in 20 cases beside chondromalacia. Chondromalacia was found in different grades in all cases on the medial femoral condyle. Thirteen patients (16%) were poor, 22 patients (27%) were moderate, 36 patients (40%) were good, and 9 patients were excellent in their last follow-up according to the LKS. The average of LKS before AJD was 61.01±8.77 and after AJD was 70.91±9.13. The increase in LKS after AJD was

**Table 2. VAS of patients, preoperative and postoperative values**

Visual Analogue Scale (VAS)	Preoperative (mean±std)	Postoperative (mean±std)	p
	4±0.6	2.6±1.1	<0.01

found to be statistically significant ( $p < 0.01$ ) (Table 1). The average score of VAS was 4±0.6 before AJD and 2.6±1.1 at the last follow-up ( $p < 0.01$ ) (Table 2). Patients were asked if they were pleased with the operation at their last follow-up. They were asked to mark a number between 0 (not satisfied) and 10 (very satisfied) according to the VAPSS. The average score was found to be 6.2±2.1. Total knee replacement was carried out in four patients who had a grade IV chondral defect. The complaints of these patients increased one year after AJD. DVT developed in two patients, and they recovered with medical treatment.

## Discussion

Arthroscopic debridement is commonly used in the treatment of painful degenerative knees. It is preferred because it has low morbidity, creates a treatment option while determining the phase of the illness objectively, and has positive effects on symptoms and functions (7, 9). Van den Bekerom initiated this technique by performing debridement on the knees of patients older than 60 years (9). Studies have been published supporting the use of arthroscopic debridement in the treatment of knee osteoarthritis with the use of arthroscopy in orthopaedic surgery (4,5). Laupatarakasem stated that good results continued to be obtained in 66% of the patients' long term follow-up (5). Hubbard compared lavage application with arthroscopic debridement, and stated that debridement's results were superior (10). Forster and Casscells stated that there was an activity period exceeding two years in the washing and debridement group in their studies in which they compared washing and debridement treatment options (11,12). In this study, we found that washing and debridement provided an activity period in our patients with an average of 36 months, which supports Forster and Casscells' study. It has been shown that arthroscopic lavage and debridement prevent synovitis by removing fibrin materials and chondral debris (13). It is known that patients with low level knee osteoarthritis who are treated with arthroscopic debridement have relief from pain at an acceptable level for generally more than three years. Generally, unsatisfactory results are obtained from patients who have valgus and varus deformity accompanying knee osteoarthritis (14). Results of arthroscopic debridement vary according to the severity of degenerative changes in the joint. Rand reported that, despite the healing period continuing in 74% of patients within one year of surgery, the size of the chondral degenerative surface had enlarged. Also in this study, the results in the advanced degenerative arthritis cases were poor (15). Bulut et al. (16) claimed that there were good results in 61.5% of patients in their 20.6 months follow-up period, but results were unsatisfactory in patients with grade III-IV cartilage damage according to the Ahlbäck classification. Jackson

et al. (17) monitored patients with degenerative changes in their knee joint cartilages for 4-6 years. They obtained an excellent result in 61% of patients, and suggested limited debridement for patients with cartilage fibrillation. Elmalı et al. (18) stated that, the symptomatic benefit of arthroscopic debridement was seen in appropriate cases and in early phases of knee osteoarthritis. In our study, we found similar results to the recent studies. Common features of patients who are not suitable for this treatment and bad results that are expected include: long term chronic complaints, those who have had surgery before, those with rest pain, degenerative changes in two or three compartments, marked axle disorder, bone instability, restriction in the joint which does not recover and cartilage damage at an advanced phase (19, 20). Arthroscopic debridement can be beneficial for patients who do not respond to conservative treatment, who still have mechanical symptoms, do not have axle disorder or have knee osteoarthritis in low or mid-phase (19). There are many clinical studies about the results of this technique. Several clinical studies have proven that the technique is successful (21, 22). Thromboembolism prophylaxis is not routinely performed after AJD. According some authors, thromboembolism is referred to as a complication (23). We believe that DVT prophylaxis is necessary for patients in this age group.

## Conclusion

As a result of this study, the improvement in the average LKS, and the decrease in pain score at the last follow-up were found to be statistically significant. AJD is a biological and minimal invasive technique, and it is also beneficial for improving symptoms and allowing early mobilisation. In conclusion, we think that AJD might be a good option when performed in appropriate patients.

## Conflict of Interest

No conflict of interest was declared by the authors.

**Peer-review:** Externally peer-reviewed.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Erciyes University Medical Faculty.

**Authors' contributions:** Conceived and designed the experiments or case: İK, AG, MÖ, İHK. Performed the experiments or case: İK, İHK, MÖ, EY. Analysed the data: AG, CYT. Wrote the paper: İK. All authors have read and approved the final manuscript.

## Çıkar Çatışması

Yazarlar herhangi bir çıkar çatışması bildirmemişlerdir.

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**Etik Komite Onayı:** Bu çalışma için etik komite onayı Erciyes Üniversitesi Tıp Fakültesi Yerel Etik Kurulu'ndan alınmıştır.

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