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Kelly Mulhern  
*James Madison University*

Jillian Robideaux  
*James Madison University*

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Arthroscopic Partial Meniscectomy versus Nonoperative Therapy in the Treatment of Degenerative Meniscus Tears

Kelly Mulhern PA-S & Jillian Robideaux PA-S
James Madison University, Harrisonburg, VA

INTRODUCTION

Arthroscopic partial meniscectomy (APM) is the most commonly performed orthopedic procedure in the United States. Currently, APMs are offered to patients with a degenerative meniscus tear experiencing knee pain with mechanical symptoms. Significant variation exists among surgeons regarding the decision to perform APM. Currently, there is no consensus on an evidence-based treatment of choice; practitioners continue to question whether operative or nonoperative treatment yields better short- and long-term results, particularly for those aged 30 and over and those with baseline evidence of osteoarthritis. The goal of this study is to compile evidence and determine the efficacy of the traditional treatment (APM) and compare it with nonoperative therapy.

Western Ontario Meniscal Evaluation Tool (WOMET)

A patient reported qualitative, condition specific, scoring questionnaire used to evaluate osteoarthritis of the knee. Lower scores indicate more severe symptoms.

Clinical Question

Does arthroscopic partial meniscectomy provide long-term pain relief to those with degenerative meniscal tears >35 yrs?

METHODS

Study Design

Randomized controlled trial

Population

Meniscal tear experiencing knee pain with mechanical symptoms

Intervention

Arthroscopic partial meniscectomy (APM)

Comparison

Nonoperative therapy

Outcomes

- Lysholm Knee Scoring Tool
- Western Ontario Meniscal Evaluation Tool (WOMET)
- Visual Analog Scale Score
- Knee injury and osteoarthritis outcome score (KOOS)

Follow-up

1 year

RESULTS

Table 1. Cumulative Study Data; Overview

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Country</th>
<th>Design</th>
<th>Mean age, year</th>
<th>Male sex %</th>
<th>Conservative</th>
<th>Surgical</th>
<th>OA Inclusion</th>
<th>Loss to follow up</th>
<th>Trial of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yim et al</td>
<td>2013</td>
<td>South Korea</td>
<td>Randomized control trial</td>
<td>56</td>
<td>21</td>
<td>52</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Standardized regimens, single surgeon, 2 year follow up</td>
</tr>
<tr>
<td>Katz et al</td>
<td>2013</td>
<td>United States</td>
<td>Multicenter, randomized control trial</td>
<td>58</td>
<td>43</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Subjective results, patients with osteoarthritis excluded</td>
</tr>
<tr>
<td>Sihvonen et al</td>
<td>2013</td>
<td>Finland</td>
<td>Multicenter, randomized, double-blind, sham-controlled study</td>
<td>52</td>
<td>43</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Large study size, patients with mild-moderate osteoarthritis included</td>
</tr>
</tbody>
</table>

NSAIDS = Nonsteroidal anti-inflammatory drugs; KOOS = Knee injury and osteoarthritis outcome score; VAS = Visual analogue scale. SF-36 = 36-item short form survey

Table 2. Outcome of Trials

<table>
<thead>
<tr>
<th>Study</th>
<th>Outcome</th>
<th>Meniscectomy Group</th>
<th>Nonoperative Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yim et al</td>
<td>Lysholm knee Score at 2 years</td>
<td>83.2</td>
<td>84.3</td>
</tr>
<tr>
<td>Katz et al</td>
<td>WOMAC physical-function score at 1 year</td>
<td>13.7</td>
<td>14.5</td>
</tr>
<tr>
<td>Sihvonen et al</td>
<td>Lysholm knee score at 1 year</td>
<td>82.2</td>
<td>83.4</td>
</tr>
<tr>
<td></td>
<td>WOMC score at 1 year</td>
<td>81.0</td>
<td>79.9</td>
</tr>
<tr>
<td></td>
<td>Knee pain after exercise at 1 year</td>
<td>2.7</td>
<td>2.9</td>
</tr>
</tbody>
</table>

REFERENCES


CONCLUSION

A well-adhered-to physical therapy regimen is shown to be an effective treatment option for middle aged adults with non-traumatic, degenerative meniscal tears. At 12 months post-treatment, there is no significant benefit to undergoing an APM compared to physical therapy alone in relation to patient satisfaction, functional status of the knee, and pain. Since the research suggests structured physical therapy provides similar outcomes and fewer risks than the now commonly performed APM, a standardized physical therapy regimen should be first line treatment.

ACKNOWLEDGEMENTS

We would like to thank Dr. Erik Kaneler, Carolyn Schubert, the JMU Communication and Writing Centers, Jerry Weniger, PA-C and Dr. Mark Miller for their assistance with this project.

Figure 1. PRISMA Flowchart

Figure 2. Lysholm Knee Score Comparison of Study 1 to Study 3

Figure 3. Comparison of Baseline Improvements of Study 2 and Study 3

Figure 4. WOMAC Physical Function Score Comparison Yim et al vs Sihvonen et al.