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Overview of Study

Purpose: To quantify the recurrence rate after arthroscopy of the hip for synovial chondromatosis patients. To identify predisposing factors for recurrence after open surgery.

Method: Using predetermined inclusion criteria, 3 electronic databases-EMBASE, MEDLINE, and PUBMED-were searched. Article screening was conducted in duplicate. Reviewer agreement statistics and descriptive statistics of the included studies are presented.

Results: The recurrence rate after hip arthroscopy was 7.1% (14 of 197); the rate of minor complications, such as perineal and pedal neurapraxia, was 1%.

Conclusion: For synovial chondromatosis of the hip, arthroscopic removal of osteochondral fragments with synovectomy is both safe and effective, with a mean recurrence rate of 7.1%.

Level of Evidence: Level IV, systematic review of Level IV studies.
Introduction and Background

- Synovial chondromatosis of the hip is usually a benign condition
- Characterized by metaplasia of the synovial membrane and multiple calcified nodule formation
- Intra-articular osteochondral fragments produced by a metaplastic synovium cause pain and functional limitations
Significance of Study

- Synovial chondromatosis causes pain and functional limitations
- Hip arthroscopy is used for the treatment of synovial chondromatosis
- Recurrence not only worsens morbidity but may lead to malignant transformation
- Reported recurrence rates are as high as 22% by open surgical approaches
- Quantification of the recurrence rate after arthroscopy and identify predisposing factors for recurrence is very important
Research Question

This systematic review examines the available literature to address the efficacy of arthroscopic treatment of synovial chondromatosis, with respect to recurrence rates, and identifies predisposing factors for recurrence after arthroscopic hip surgery.
Methods

2542 Studies Identified
- MEDLINE: 543 Studies
- EMBASE: 950 Studies
- PubMed: 1049 Studies

Removal of duplicates
- Removed: 1380

1162 Studies

Title Review
- Removed: 830

332 Studies

Abstract Review
- Removed: 247

85 Studies

Full Text Review
- Removed: 71

14 Studies

Hand Search of Full Text References
- Additional Studies Identified: 0

14 Studies Included

Literature databases searched: EMBASE, MEDLINE and PUBMED databases

Databases searched for eligible studies published through to February 16, 2014

Article screening was conducted in duplicate. Reviewer agreement statistics and descriptive statistics of the included studies are presented.
### Table 1. Characteristics of Included Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of Study (Level of Evidence)</th>
<th>Level of Evidence</th>
<th>Sample Size (No. of Patients)*</th>
<th>% Male</th>
<th>% Right Hip</th>
<th>Mean Age (Range) (yr)</th>
<th>Mean Follow-up (mo)</th>
<th>% Lost to Follow-up</th>
<th>Mean No. of Osteochondral Fragments Removed (Range)</th>
<th>Mean Size of Osteochondral Fragments (Range) (mm)</th>
<th>Position</th>
<th>Synovectomy Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyer and Dorfmann</td>
<td>Retrospective case series</td>
<td>IV</td>
<td>111</td>
<td>48.6</td>
<td>56.8</td>
<td>43.3 (13-81)</td>
<td>78.6 (12-196)</td>
<td>7.5</td>
<td>NR</td>
<td>NR</td>
<td>Supine</td>
<td>NR</td>
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<tr>
<td>Chen et al.</td>
<td>Case report x2</td>
<td>IV</td>
<td>2</td>
<td>100</td>
<td>50</td>
<td>51.5 (43-60)</td>
<td>10.5 (9-12)</td>
<td>0</td>
<td>NR</td>
<td>NR</td>
<td>Supine</td>
<td>Yes</td>
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<tr>
<td>Doward et al.</td>
<td>Case report</td>
<td>IV</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>“Mid-thirties”</td>
<td>17</td>
<td>0</td>
<td>“Hundreds”</td>
<td>NR (1-8)</td>
<td>NR</td>
<td>Yes</td>
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<tr>
<td>Kim et al.</td>
<td>Case series</td>
<td>IV</td>
<td>4</td>
<td>50</td>
<td>NR</td>
<td>34.75 (14-56)</td>
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<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Supine</td>
<td>Partial</td>
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<tr>
<td>Lee et al.</td>
<td>Retrospective case series</td>
<td>IV</td>
<td>24</td>
<td>83.3</td>
<td>58.3</td>
<td>43 (32-63)</td>
<td>41 (12-133)</td>
<td>0</td>
<td>NR (10-150)</td>
<td>NR (1-25)</td>
<td>Supine</td>
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<tr>
<td>Ligato et al.</td>
<td>Case report</td>
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<td>1</td>
<td>100</td>
<td>0</td>
<td>32</td>
<td>6</td>
<td>0</td>
<td>“Multiple”</td>
<td>35 (4-300)</td>
<td>NR</td>
<td>Partial</td>
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<tr>
<td>Marchie et al.</td>
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<td>29</td>
<td>51.7</td>
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<td>41 (26-66)</td>
<td>64 (12-184)</td>
<td>20.7</td>
<td>NR</td>
<td>NR</td>
<td>Lateral decubitus</td>
<td>Partial</td>
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<tr>
<td>Okada et al.</td>
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<td>0</td>
<td>0</td>
<td>16</td>
<td>12</td>
<td>0</td>
<td>“Hundreds”</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
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<tr>
<td>Randelli et al.</td>
<td>Case series</td>
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<td>4</td>
<td>25</td>
<td>0</td>
<td>54 (NR)</td>
<td>1 (1-3)</td>
<td>0</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Yes</td>
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<tr>
<td>Schagemann et al.</td>
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<td>100</td>
<td>1</td>
<td>32</td>
<td>12</td>
<td>0</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
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<tr>
<td>Yamaguchi et al.</td>
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<td>2</td>
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<td>40.5 (34-47)</td>
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<td>1</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Supine</td>
<td>NR</td>
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<tr>
<td>Yu et al.</td>
<td>Retrospective case series</td>
<td>IV</td>
<td>5</td>
<td>80</td>
<td>40</td>
<td>43.4 (22-60)</td>
<td>23 (12-40)</td>
<td>0</td>
<td>“Multiple”</td>
<td>8.4 (5-10)</td>
<td>Supine</td>
<td>Partial</td>
</tr>
<tr>
<td>Zini et al.</td>
<td>Retrospective case series</td>
<td>IV</td>
<td>11</td>
<td>54.6</td>
<td>45.5</td>
<td>34 (18-55)</td>
<td>22 (12-36)</td>
<td>0</td>
<td>42 (7-220)</td>
<td>NR (4-33)</td>
<td>NR</td>
<td>Partial</td>
</tr>
</tbody>
</table>

NR, not reported.

*Number of patients who received arthroscopic treatment of synovial chondromatosis in each study.

1Patients with less than 12 months' follow-up were not reported on.

2Mean (range) of largest loose body removed from each patient.
Results

• Out of 2,542 studies, 14 studies satisfied the criteria for inclusion

• A total of 197 patients underwent hip arthroscopy for removal of intra-articular osteochondral fragments and synovectomy

• Age range of these patients: from 13 to 81 years

• Follow-up periods ranged from 1 to 184 months, with approximately 7.6% of patients (15 of 197) lost to follow-up

• Recurrence rate was 7.1% (14 of 197)

• Rate of minor complications (perineal and pedal neurapraxia) was 1%
Limitations

- This systematic review addresses the issue of recurrence in hip synovial chondromatosis after arthroscopic management.
- Though methodologically sound, this systematic review is limited by the lack of availability of high-quality studies.
- Further study into when and how much synovium to resect is required.
- How to deal with post-hip arthroscopy recurrences needs further delineation.
Conclusions

Conclusion

- Arthroscopic removal of osteochondral fragments with synovectomy is safe and effective
- The mean recurrence rate is 7.1%

Future Directions

- A prospective cohort study or case-control study be used to advance the existing quality of the literature
References

References