Ligamentum Teres Injuries of the Hip: A Systematic Review Examining Surgical Indications, Treatment Options, and Outcomes

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Introduction

- Hip arthroscopy is becoming a common technique for the diagnosis and treatment of ligamentum teres pathology.

- The incidence of ligamentum teres rupture identified during hip arthroscopy is approximately 9% [1], with ligamentum teres rupture reported as the third most common etiology of hip pain in the athlete [2].

- Despite inconclusive evidence, surgeons continue to attempt to arthroscopically address the ligamentum teres for presumed persistent pain and/or mechanical instability.
Objective

This systematic review aims to address three fundamental questions when considering operative treatment of ligamentum teres injuries:

1. What are the surgical indications and contraindications?

2. What treatment options exist? and

3. What are the patient-important outcomes regarding its management?

This review was conducted to examine the current literature and identify potential gaps for further study.
Methods

1016 Studies Identified
MEDLINE: 303 Studies
EMBASE: 379 Studies
PUBMED: 334 Studies

Duplicates: 835 studies
Excluded: 131 Studies

Excluded: 20 Studies

30 Studies

Excluded: 22 Studies
Hand-selected: 1 Study

9 Included Studies
Results

- Eighty-seven patients across all included studies underwent arthroscopic surgery with debridement (81 patients) or reconstruction (6 patients).

- Of the three studies examining reconstruction, each used different graft sources. Graft types used included a synthetic knee medial collateral ligament (MCL 32, LARS) [3], a double-stranded semitendinosus tendon autograft [4], and an iliotibial band tendon autograft [5].
Results

- Major qualifications for surgery included persistent hip pain despite conservative treatment and mechanical symptoms or instability symptoms (i.e. clicking, locking, etc.).

- Advanced arthritis (i.e. radiographic joint space < 2 mm) was the only reported contraindication.
Patients were followed post-operatively from 1.5 to 60 months and assessed using subjective methods (i.e. modified Harris Hip Score (mHHS), Non-Arthritic Hip Score (NAHS)).

Overall, both debridement and reconstruction improved patient condition, with a 40% increase in reported post-operative functional scores, as well as a reported 89% of patients able to return to regular activity/sport.
## Results

<table>
<thead>
<tr>
<th>Study</th>
<th>Surgical Approach</th>
<th>Pre-OP hip score (average)</th>
<th>Post-OP hip score (average)</th>
<th>Return to Normal Activity/Sport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MHHS</td>
<td>NAHS</td>
<td>MHHS</td>
</tr>
<tr>
<td>Amenabar, 2013</td>
<td>arthroscopic debridement and capsular tightening</td>
<td>59.5-71 (65.2±13)</td>
<td>60.4-72.1 (66.2±13.3)</td>
<td>84.2-94.5 (89.3±11.6)</td>
</tr>
<tr>
<td>Haviv, 2010</td>
<td>arthroscopic debridement</td>
<td>70</td>
<td>64</td>
<td>86</td>
</tr>
<tr>
<td>Byrd, 2004</td>
<td>arthroscopic debridement</td>
<td>47</td>
<td>NR</td>
<td>90</td>
</tr>
<tr>
<td>Yamamoto, 2006</td>
<td>arthroscopic debridement</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Amenabar, 2012</td>
<td>arthroscopic reconstruction</td>
<td>53</td>
<td>73</td>
<td>100</td>
</tr>
<tr>
<td>Philippon, 2012</td>
<td>arthroscopic reconstruction</td>
<td>47-59 (52.7)</td>
<td>NR</td>
<td>6 mo: 40-67 (53.5)</td>
</tr>
<tr>
<td>Simpson, 2010</td>
<td>arthroscopic debridement and reconstruction</td>
<td>NR</td>
<td>42</td>
<td>NR</td>
</tr>
<tr>
<td>Romero, 2009</td>
<td>arthroscopic debridement</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Kusma, 2004</td>
<td>arthroscopic debridement</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>
Discussion

- Individuals who have exhausted conservative treatment for persistent hip pain and/or instability attributable to a ligamentum teres tear, may achieve short-term benefit from either debridement or reconstruction.

- Ultimately, we are limited by the developing nature of surgical ligamentum teres management. Clear indications for debridement versus reconstruction do not yet exist, and technical aspects such as reconstructive options, fixation, and post-operative rehabilitation are in their infancy.
Conclusion

- For short-term relief of hip pain and/or instability attributable to a ligamentum teres tear, debridement or reconstruction with auto/allo/or synthetic graft may be of benefit.

- Further high-level studies are needed (with control groups, randomization, larger sample sizes, longer follow-up) to gauge long-term success of arthroscopic management.


