All-inside Arthroscopic Lateral Ankle Ligament Repair with Accelerated Rehabilitation Achieved Earlier Return to Sports Compared to Open Procedures

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Mai Katakura, MD

I have no financial conflicts to disclose.
Arthroscopic Lateral Ankle Ligament Repair

- Smaller incision
- Less painful

Is this really better than open procedure?
Introduction

Lateral Ankle Ligament Repair
Arthroscopic vs Open

Clinical results; similar at a minimum follow-up of one year or two years

<table>
<thead>
<tr>
<th>Study</th>
<th>Scale</th>
<th>Arthroscopic</th>
<th>Open</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeo et al.¹</td>
<td>AOFAS</td>
<td>90.3</td>
<td>89.2</td>
<td>n.s.</td>
</tr>
<tr>
<td>Matsui et al.²</td>
<td>JSSF</td>
<td>98.0</td>
<td>95.4</td>
<td>n.s.</td>
</tr>
<tr>
<td>Li et al.³</td>
<td>AOFAS</td>
<td>93.3</td>
<td>92.4</td>
<td>n.s.</td>
</tr>
<tr>
<td>Rigby et al.⁴</td>
<td>AOFAS</td>
<td>95.33</td>
<td>93.59</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

How about time to return to sports?
Lateral Ankle Ligament Repair
Arthroscopic vs Open

Time to return to sports

<table>
<thead>
<tr>
<th>Arthroscopic</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 to 17.1 weeks</td>
<td></td>
</tr>
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</table>

- Matsui et al., 2016: 17.1 weeks
- White et al., 2016: 9 weeks
- Takao et al., 2012: 10.1 weeks
- Saxena et al., 2000: 10 weeks
- Karlsson et al., 1995: 9.5 weeks
Purpose

➢ Investigate the time to return to training and sports after all-inside arthroscopic lateral ankle ligament repair

➢ Compare the results with the previously reported results of open procedures.
Method

Patients

July 2017 – June 2018

All-inside arthroscopic lateral ankle ligament repair (n=95)

Combined procedures (+) (n=22)
  osteochondral lesions, deltoid ligament injuries etc.

Isolated all-inside arthroscopic lateral ankle ligament repair (n=73)

Non athletes and/or rehabilitation in another hospital (n=46)

Athletes, underwent rehabilitation in our hospital;
  Included in this analysis
  N=27
Method

All-inside arthroscopic lateral ankle ligament repair

➢ Use 2 portals

➢ Repair the ligament with modified lasso-loop stitch

Tibialis anterior

Accessory Anterolateral portal

Medial Midline portal

Fibula

[Anterolateral portal - Suture anchor - Fibula - ATFL - Accessory Anterolateral portal]

Fibula

ATFL

[Takao et al., 2016]
Method

Post-operative Rehabilitation

<table>
<thead>
<tr>
<th>Time</th>
<th>Braces/Weight bearing</th>
<th>ROM exercise</th>
<th>Exercise</th>
<th>Proprioceptive training</th>
<th>Athletic rehabilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1day</td>
<td>Free/Full</td>
<td>Plantar flexion $&lt; 20^\circ$</td>
<td>Calf raise, squatting</td>
<td>Balance disk etc.</td>
<td>Jogging</td>
</tr>
<tr>
<td>2wks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3wks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Full sports activity</td>
</tr>
<tr>
<td>4wks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accelerated rehabilitation
Results

Patients’ demographics

- 27 athletes included (7 males, 20 females, 22.2 ± 14.6 years old)
- 6 athletes underwent bilateral surgery
- Gould-augmentation added: 19 foot in 16 patients
- Sports
Results

## Time Needed to Return to Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent gait</td>
<td>1.4 ± 0.9 days</td>
</tr>
<tr>
<td>Jogging</td>
<td>16.0 ± 3.3 days</td>
</tr>
<tr>
<td>Sprinting</td>
<td>31.7 ± 4.6 days</td>
</tr>
<tr>
<td>Return to sports</td>
<td>38.6 ± 8.8 days</td>
</tr>
<tr>
<td><strong>5.5 weeks</strong></td>
<td></td>
</tr>
</tbody>
</table>

No re-injury or recurrence of instability was reported.
## Discussion

### Time to Return to Sports

**Arthroscopic vs Open**

<table>
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The present study

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- Takao et al., 2012⁶: 10.1 weeks
- Saxena et al., 2000⁷: 10 weeks
- Karlsson et al., 1995⁸: 9.5 weeks

All-inside arthroscopic lateral ankle ligament repair achieved **earlier return to sports**.
Conclusion

All-inside arthroscopic lateral ankle ligament repair with accelerated rehabilitation achieved earlier return to sports compared to the previously reported open procedures.

References