Arthroscopic stabilization of the ATFL of the Lateral Ligament Complex of the Ankle joint using *InternalBrace™*

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My disclosure is in the Final AOFAS Mobile App.  
I have no potential conflicts with this presentation.

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Introduction

Lateral ligament complex injuries to the ankle are common

Present with lateral ankle pain and instability

Radiographs show no bony injury

Multiple surgical techniques for repair or reconstruction of the anterior talo-fibular ligament (ATFL)

Aim

To assess the short term outcome of arthroscopic anterior talo-fibular ligament (ATFL) repair using the Arthrex Internal/Brace™ system
The InternalBrace™

The ATFL ligament is the principle stabilizer of the lateral ligament complex

A. Cadaveric study where all three ligaments of the lateral ligament complex (ATFL, CFL and PFL) have been transected.

Only the ATFL is repaired with the Arthrex ‘Internal Brace’ system. The ankle is stable with no increased laxity with the ‘Anterior Drawer Test’.

B. When the ATFL repaired ‘Internal Brace’ is transected, the ankle becomes unstable.

Photos courtesy of Professor Gordon MacKay, Glasgow
Method

Single centre in Lanarkshire

Patients had exhausted conservative treatment

Clinical assessment and MRI scan of affected ankle performed

MRI confirmed torn/stretched/abnormal ATFL or very high clinical suspicion proceed to arthroscopy + ATFL repair

Pre-operative questionnaire (approved by Scottish Foot and Ankle Surgeons) AOFAS, MOXFQ, EDQ-5, Visual Analogue Score
Technique

• Day case: General anaesthetic with popliteal block
• Antibiotics at induction
• Anterior ankle arthroscopy performed through 2 standard anterior portals
• Arthrex InternalBrace™ System:
  3.5mm BioComposite SwiveLock with FiberTape placed into fibula
  Distal end of FiberTape passed through 4.75mm BioComposite
  Ankle plantarflexed to gain appropriate tension on the InternalBrace™
  SwiveLock / FibreTape placed into the talar neck drill hole
• Post-op mobilisation in a moonboot for 7-10 days
• Commence physiotherapy at 10 days
• Biomechanical podiatric assessment at 6 weeks
• Telephone follow-up at 6 months
  PROMS Patient Reported Outcome Score
Arthroscopic ATFL repair with *InternalBrace™*

- Scar tissue present
- Positive drive through confirms instability
- ATFL origin on fibula identified
- Debride scar tissue to visualize tip of fibula
Arthroscopic ATFL repair with *InternalBrace™*

2.75mm drill
1.5cm proximal to tip of fibula

3.5mm BioComposite SwiveLock with FiberTape

Tap to the laser line

Swivel-lock with fiber-tape in situ at tip of fibula
Arthroscopic ATFL repair with *InternalBrace™*

3.4mm drill to tip of talar neck at an angle of 45° and parallel to sole of foot
Tap in similar method to laser line with larger tap

FiberTape passed through 4.75mm BioComposite SwiveLock
Placed into talar neck in with foot in plantar flexion
Ensures correct tensioning of the *InternalBrace™*
Arthroscopic ATFL repair with *InternalBrace™*

*InternalBrace™* acts as a ‘check-rein’ scaffold. It is taught when the ankle joint is in maximum plantar flexion and relaxed in dorsiflexion.
# Results

## PreOp

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 patients</td>
<td></td>
</tr>
<tr>
<td>7 male, 9 female</td>
<td></td>
</tr>
<tr>
<td>Mean age 40 years (18-62)</td>
<td></td>
</tr>
<tr>
<td>11 left ankle, 5 right ankle</td>
<td></td>
</tr>
<tr>
<td>14 patients</td>
<td>pre-op instability</td>
</tr>
<tr>
<td>15 patients</td>
<td>some / severe difficulty on uneven terrain, stairs, inclines, ladders</td>
</tr>
<tr>
<td>16 patients</td>
<td>moderate / severe pain on daily activity</td>
</tr>
</tbody>
</table>

## PostOp

<table>
<thead>
<tr>
<th>How satisfied are you with your surgery?</th>
<th>13</th>
<th>Very satisfied or satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>Uncertain</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Dissatisfied</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How well did the surgery relieve your ankle pain?</th>
<th>10</th>
<th>Excellent/very good/good</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Unsure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How well did the surgery allow you to perform work or sport activities?</th>
<th>8</th>
<th>Excellent/very good/good</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Unsure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would you have this operation again if required?</th>
<th>12</th>
<th>Definitely yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Possibly yes</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Certainly not</td>
</tr>
</tbody>
</table>

No post-operative infections
No implant failures during the 6 month follow up period
Discussion

Arthroscopic ATFL repair using an *InternalBrace™* allows early post-operative rehabilitation fully weight bearing without detrimental effects to patient reported outcome measures.

The long term outcome is currently not known due to this being a relatively new procedure.

This method of ATFL repair could have great potential for elite athletes.

Conclusion

Arthroscopic repair of the ATFL using the *InternalBrace™* appears to give good short term results.

It allows accelerated rehabilitation.

The majority of patients are very satisfied or satisfied with their outcome.
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