Concomitant Arthroscopic Procedures During Collateral Ligament Surgery in the Ankle
- Currently Trends in the United States -

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Hospital for Special Surgery
I have no financial conflicts to disclose

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International Society for Cartilage Repair of the Ankle (ISCRA)
INTRODUCTION
Lateral ankle ligament injuries

• Lateral ankle ligament injuries are among the most common sports related injuries in the United States.

• 20% may develop chronic lateral ankle instability (CLAI).

• CLAI may be indicated for ligament stabilization procedures.
INTRODUCTION

Concomitant ankle arthroscopy for stabilization of CLAI

Over 50% of patients with CLAI have intra-articular pathological lesions

Synovitis  Soft tissue impingement  Osteochondral lesion
INTRODUCTION
Concomitant Ankle Arthroscopy for stabilization of CLAI

RECOMMENDATION OF CONCOMITANT ARTHROSCOPIC PROCEDURES

MEDIAL ANKLE PAIN AFTER LATERAL LIGAMENT RUPTURE
C. N. van DIJK, P. M. M. BOSSUYT, R. K. MARTI
From the University of Amsterdam, The Netherlands

However, few studies investigated the trends and the effect of concomitant arthroscopic procedures with CLAI stabilization procedures.
Purpose

To investigate

1) Trends of concomitant arthroscopy at time of CLAI stabilization procedures in USA.

2) Postoperative complication rates between the concomitant arthroscopic group with CLAI stabilization and those not undergoing concomitant arthroscopy.
**Methods**

- PearlDiver Patient Record Database was used to review de-identified patient insurance records between 2007-2011.

- CPT-code and ICD-9-codes were applied to search number of patients in each event.

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**What is Pearl diver?**

- One of the largest healthcare database in the world with over 4 billion HIPAA-compliant patients record

- We can search
  - All medical procedure data
  - Reimbursement information by specific event
  - Patient outcome and comorbidity information by specific event
  - Drug usage analysis by specific event
  - Cross reference virtually any form of healthcare data with any other form of healthcare data
Methods

For purpose 1)
To investigate trends of concomitant arthroscopy at time of CLAI stabilization procedures

- Number of patients of CLAI stabilization procedures with/without concomitant arthroscopic procedures
  - CLAI stabilization procedures:
    - Ligament repair
    - Ligament reconstruction
  - Arthroscopic procedures:
    - Synovectomy
    - Debridement
    - Microfracture
Methods

For purpose 2):
To investigate postoperative complication rates between the concomitant arthroscopic group with CLAI stabilization and those not undergoing concomitant arthroscopy.

- Number of patients with postoperative complications following CLAI stabilization procedures with/without concomitant arthroscopic procedures

- Reoperation:
  - CLAI stabilization procedures
  - Arthroscopic procedures
  - Osteochondral autograft
  - Ankle arthrodesis

- Wound complication: wound dehiscence

- Deep venous thrombosis (DVT)
Results of Purpose 1)
To investigate trends of concomitant arthroscopy at time of CLAI stabilization procedures

- **CLAI stabilization procedures:**
  15,984
  [repair: 7963, reconstruction 8021]

- **Concomitant arthroscopic procedures**
  Total: 7,410 of 15,984 (46.8%)
  [repair 38.7%, reconstruction 56.2%]

### Rates of Concomitant arthroscopic procedures per CLAI stabilization procedures

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>38.7</td>
</tr>
<tr>
<td>2008</td>
<td>46.6</td>
</tr>
<tr>
<td>2009</td>
<td>46.8</td>
</tr>
<tr>
<td>2010</td>
<td>47.1</td>
</tr>
<tr>
<td>2011</td>
<td>50.6</td>
</tr>
</tbody>
</table>

### Rate of each Concomitant arthroscopic procedures per all those

- **Synovectomy:** 16%
- **Debridement:** 61%
- **Microfracture:** 23%
Results of Purpose 2)
To investigate effect of concomitant arthroscopic procedures

Postoperative Complications following CLAI stabilization procedures

Scope vs. Non-Scope

- Re-operations  7.1% vs. 6.3%,  odd ratio: 1.14,  95%CI: 1.00 – 1.30
- Wound dehiscence  2.0% vs. 3.3%,  odd ratio: 0.58,  95%CI: 0.47-0.72
- DVT  0.6% vs. 1.5%,  odd ratio: 0.48,  95%CI: 0.34-0.67
Results of Purpose 2) What reoperation procedures did patients undergo?

Non-arthroscopy group had Arthrodesis

**Repair**

- Re-operations: 8.8% vs. 6.5%, odd ratio: 1.38, 95% CI: 1.16 – 1.65

**Scope vs. Non-Scope**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Scope (%)</th>
<th>Non-Scope (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair</td>
<td>25%</td>
<td>48%</td>
</tr>
<tr>
<td>Reconstruction</td>
<td>39%</td>
<td>12%</td>
</tr>
<tr>
<td>Microfracture</td>
<td>16%</td>
<td>7%</td>
</tr>
<tr>
<td>Debridement</td>
<td>10%</td>
<td>33%</td>
</tr>
<tr>
<td>Synovectomy</td>
<td>10%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Non-arthroscopy group had Arthrodesis
Results of Purpose 2)
What reoperation procedures did patients undergo?

Reconstruction

- Re-operations
  - Scope vs. Non-Scope
    - 5.9% vs. 5.9%, odd ratio: 1.00, 95% CI: 0.83 – 1.2

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Scope</th>
<th>Non-scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair</td>
<td>11%</td>
<td>63%</td>
</tr>
<tr>
<td>Reconstruction</td>
<td>39%</td>
<td>23%</td>
</tr>
<tr>
<td>Microfracture</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Debridement</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Synovectomy</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

Non-arthroscopy group had Arthrodesis
Summary

- Approximately 50% of patients treated with CLAI stabilization procedures received concomitant arthroscopic procedures.
- Concomitant arthroscopic procedures at the same time of CLAI stabilization procedures increased from 2007 to 2011.
- The rates of reoperation in the arthroscopic group were higher than those in non-arthroscopic group.
- The reoperation procedures of the arthroscopic group included ligament procedures and arthroscopic procedures, while those of non-arthroscopic group included arthrodesis.
- Concomitant arthroscopy may decrease invasive reoperation procedures.


