Chondral Injury at the Medial Aspect of Talus with Chronic Lateral Ankle Instability would Proceed from Distal to Proximal Part

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I have no financial conflicts to disclose.
Introduction

Chronic Lateral Ankle Instability (CLAI)

No evidence of Osteochondral lesion (OCL)

Chondral lesion (CL)
Mostly seen at medial aspect
-Sugimoto K. JBJS-Am. 2009-1)

Question
Does the CLs at the medial aspect of the talus develop the longer the patients suffer from CLAI?
Purpose

To identify the location of CL at the medial aspect of the talus under arthroscopic examination in cases of CLAI without any radiological findings of osteoarthritis (OA) or OCL.
Study Design: Retrospective study

Inclusion criteria: Patients with CLAI who were performed anterior talofibular ligament repair or reconstruction at our hospital

Exclusion criteria: Presence of osteoarthritis (OA) or OCL findings detected by preoperative X-ray and MRI

Duration: May 2009 to December 2013

Patient: 55 feet (20 male, 35 female)

Age: median 21 years old (ranged 13-70)
    mean 32 years old

Time to surgery from initial injury: median 1.1 years (ranged 0.3-27)
    mean 4.1 years
Materials & Methods

✓ Under arthroscopic examination at surgery, the condition of the cartilage at the medial aspect of talus was assessed at two locations as below
  - MC: medial corner of the talar dome
  - MF: distal end part of medial fascet
✓ The prevalence of the CLs at each locations were analyzed by Fischer exact P test
✓ The time to surgery from the initial injury (TSI) were analyzed by Mann-Whitney U test
✓ The correlation between TSI and the location of CI were analyzed by Spearman correlation

Statistical analyses were performed by StatPlus® mac 2009
**Result**

**Prevalence of CL**

**MC:** 25/55 (45%)

**MF:** 35/55 (64%)

\[ p = 0.04 \]

Fischer exact P test

There were little cases with CL not at MF but at MS

<table>
<thead>
<tr>
<th></th>
<th>MF</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CL(+)</td>
<td>CL(-)</td>
</tr>
<tr>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL(+)</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>CL(-)</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>20</td>
</tr>
</tbody>
</table>
## Result

### TSI & Correlation

<table>
<thead>
<tr>
<th>Location of CL</th>
<th>TSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC(-) MS(-)</td>
<td>median 0.58 years</td>
</tr>
<tr>
<td>MC(+) MS(-)</td>
<td>median 0.9 years</td>
</tr>
<tr>
<td>MC(+) MS(+)</td>
<td>median 3.25 years</td>
</tr>
</tbody>
</table>

- For MC(+) MS(-): $r=0.45$, $p<0.01$ (Spearman correlation)
- For MC(+) MS(+) vs. MC(-) MS(-): $p=0.04$ (Mann-Whitney U test)

### Table: MC

<table>
<thead>
<tr>
<th>MS</th>
<th>CL(+)</th>
<th>CL(-)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC(+)</td>
<td>22</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>MC(-)</td>
<td>13</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>20</td>
<td>55</td>
</tr>
</tbody>
</table>
Discussion

CLs of talus were detected in 40% of the cases with acute ankle sprain. The prevalence of the CL at MF was 83% and it was highest rate.

- Sugimoto K. JBJS-AM. 2009

CLs were detected in 67% of the cases with CLAI. 53% of the CLs were detected at medial half of the talus.

- van Dijk CN. JBJS-Br. 1996

It is considered that the CLs of ankle joint is the early stage of ankle OA.

CLs of talus in acute sprain & CLAI : Lateral side < Medial side

However, the mechanism has been unknown.
The occurrence of CLs at proximal part (MC) might need longer time from the initial injury than that at distal part (MF).

CLs at medial aspect of talus would proceed distal to proximal.
Conclusion

The degenerative change at the medial joint space of ankle would **occur** from the distal part and would **proceed** to proximal direction.
1. Sugimoto K et al.  
Chondral injuries of the ankle with recurrent lateral instability.  

2. Van Dijk CN et al.  
Medial ankle pain after lateral ligament rupture.  

3. Harrington KD.  
Degenerative arthritis of the ankle secondary to long-standing lateral ligament instability.  