Lesser MTP joints Arthroscopy:
Anatomical Description and
Comparative Dissection

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Michael Coughlin, MD. – Elsevier (royalties) / Arthrex, Inc (consultant, royalties). For more details, please refer to Disclosure Information at the AAOS Disclosure Program.
Introduction

• With improved technology, arthroscopic treatment of small joints of the foot has become a promising tool.

• The majority of papers in the literature are related to the 1\textsuperscript{st} MTP joint and report results on the treatment of osteochondral defects of the 1\textsuperscript{st} metatarsal head and sesamoiditis.

• To properly perform arthroscopic procedures in the small joints, a solid knowledge of the local anatomy is required.

• The aim of this article is to describe the normal arthroscopic anatomy of the lesser metatarsophalangeal (MTP) joints and to compare it to cadaveric dissection.
**Methods**

We performed arthroscopic evaluation of 18 MTP joints of 6 normal adult frozen specimens (without local pathology).

The second, third and fourth MTP joints were chosen, because of the incidence of pathologies on these joints. During the arthroscopic procedure, the anatomic structures were identified and marked with different color sutures.

After that MTP joints were dissected and the anatomical structures were visualized and identified.

We established 3 structures at the lateral portion of the MTP joint, 2 structures at the central portion and 3 structures at the medial portion of the joint (see next slide).

With this data, a direct correlation between the arthroscopy of a normal MTP joint and the direct visualization of the joint was determined (P<0.001).
Methods

All lesser MTP joints were studied arthroscopically followed by direct visualization under anatomic dissection.
Methods

During the arthroscopy, the structures were identified and marked with sutures of different colors.
Results

After the arthroscopic procedure, all the MTP joints were submitted to anatomical dissection to test the correlation between the arthroscopic and surgical findings.
Results
## Results

### Table – Accuracy of each joint ➔ anatomical dissection X arthroscopy

<table>
<thead>
<tr>
<th>Topography</th>
<th>Second MTP joint</th>
<th>Third MTP joint</th>
<th>Fourth MTP joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>100% (6)</td>
<td>100% (6)</td>
<td>100% (6)</td>
</tr>
<tr>
<td>Medial</td>
<td>50% (3)</td>
<td>66.7% (4)</td>
<td>100% (6)</td>
</tr>
<tr>
<td>Lateral</td>
<td>83.3% (5)</td>
<td>100% (6)</td>
<td>100% (6)</td>
</tr>
</tbody>
</table>

### Table – Final Accuracy ➔ anatomical dissection x arthroscopy considering all joints together

<table>
<thead>
<tr>
<th>Topography</th>
<th>All MTP joints (second, third, fourth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>18/18 100%</td>
</tr>
<tr>
<td>Medial</td>
<td>15/18 83.3%</td>
</tr>
<tr>
<td>Lateral</td>
<td>17/18 97.2%</td>
</tr>
</tbody>
</table>
Conclusion

When comparing the arthroscopic evaluation of the lesser metatarsalphalangeal joint to direct visualization, we were able to locate and identify the intra-articular structures over 87% of the time.

The lesser MTP joint arthroscopy is an effective tool to identify normal structures of the lesser MTP joint.