OPTIMUM INSERTION DIRECTION OF THE SUTURE ANCHOR IN ARTHROSCOPIC LATERAL ANKLE LIGAMENT REPAIR

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DISCLOSURES

NO CONFLICT TO DISCLOSE

Optimum insertion direction of the suture anchor in arthroscopic lateral ankle ligament repair

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

- The gold standard for chronic lateral ankle ligament injury is ligament repair via the modified Broström–Gould procedure. Recently, lateral ankle ligament repair has been performed arthroscopically. This requires the insertion of one to three suture anchors in the fibula from anterior to posterior through the accessory portal. It is important to insert the suture anchors completely into the fibula.

- This study aimed to investigate the distance between the insertion point of the suture anchors and the posterior surface of the fibula on computed tomography (CT) images.
METHODS

- Twenty ankles in 16 patients who had undergone three-dimensional CT scans for foot or ankle disorders without deformity of the fibula were assessed (10 males, 10 females; mean age: 32 years; age range: 12–78 years).

- The shortest distance from the insertion point of the suture anchor to the deepest point of the fossa/top of the convex of the fibula was measured on axial planes tilting from the longitudinal axis of the fibula at 90°, 75°, 60°, and 45°. The distance from the insertion point of the suture anchor to the posterior surface of the fibula, in a direction parallel to the sagittal plane of the lateral surface of the talus, was also measured on axial planes tilting from the longitudinal axis of the fibula at 90°, 75°, 60°, and 45°.
Axial planes tilting from the longitudinal axis of the fibula at 90°, 75°, 60°, and 45°

Distance from the insertion point to the deepest point of the fossa (blue)/top of the convex of the fibula (yellow) and distance from the insertion point to the posterior surface of the fibula, in a direction parallel to the sagittal plane of the lateral surface of the talus (black)
RESULTS
Distance from insertion point to posterior

<table>
<thead>
<tr>
<th></th>
<th>90°</th>
<th>75°</th>
<th>60°</th>
<th>45°</th>
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</thead>
<tbody>
<tr>
<td><strong>Fossa</strong></td>
<td>10.0 ($n=20$)</td>
<td>12.1 ($n=20$)</td>
<td>12.1 ($n=7$)</td>
<td>– ($n=0$)</td>
</tr>
<tr>
<td><strong>Convex</strong></td>
<td>19.9 ($n=20$)</td>
<td>19.9 ($n=20$)</td>
<td>21.3 ($n=20$)</td>
<td>25.4 ($n=20$)</td>
</tr>
<tr>
<td><strong>Parallel</strong></td>
<td>15.6 ($n=20$)</td>
<td>18.3 ($n=20$)</td>
<td>21.5 ($n=20$)</td>
<td>24.8 ($n=20$)</td>
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DISCUSSION

- The distal fibula is tapered and has a fossa on the posterior surface. Thus, an unfavorable insertion direction of the suture anchor can lead to complications such as inadequate suture anchor stability or friction between the suture anchor and the peroneal tendons.

- The fossa was observed at axial planes tilting from the longitudinal axis of the fibula at 90° and 75° in all cases.
DISCUSSION

- Suture anchors should be inserted after creating drill holes. The depth of the anchors is around 20 mm. Thus, the distance between the insertion point and the posterior surface of the fibula should be greater than 20 mm to acquire adequate stability and avoid passing through the fibula.

- **JuggerKnot 1.5** (Biomet, Warsaw, IN) 24 mm
- **SutureFix** (Smith & Nephew, Andover, MA) 20 mm
- **SutureTak 3.0 mm** (Arthrex Inc., Naples, FL) 17 mm
- **PushLock 2.9 mm** (Arthrex Inc., Naples, FL) 16.5 mm
CONCLUSIONS

We suggest that the suture anchor should be directed from anterior to posterior at an angle of less than 60° to the longitudinal axis of the fibula, parallel to the lateral surface of the talus, to avoid passing through the fibula.
REFERENCES


