Ultrasonographic evaluation of FHL tenosynovitis in sports players

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My disclosure is in the Final AOFAS Program Book.

I have no potential conflicts with this presentation.
FHL (Flexor Hallucis Longus)-related syndrome has been primarily reported in dancers, and also in those sports requiring repetitive forefoot push-off, equinus athletes.

Ultrasonography is an effective method for assessing musculoskeletal disorders.

There are a few studies about the ultrasonographic evaluation of flexor hallucis longus (FHL) tenosynovitis.
The Purpose of this study

- To investigate and analyze ultrasonographic features (thickness and fluid collection) of unilateral FHL tenosynovitis in sports players

- To evaluate the diagnostic value of Ultrasonography in FHL tenosynovitis at the ankle
Materials

- From Jan. 2011 to Jul. 2011
- 60 cases (120 feet)
- Unilateral Symptoms
- Male : Female = 36 : 24
- Mean age : 20.2 years
Materials

- Clinical Diagnosis of FHL tenosynovitis
  1. Physical examination (FHL stretch test : positive)
  2. Tenderness to direct palpation over the musculotendinous junction

- Radiologic Diagnosis of FHL tenosynovitis
  1. Ultrasonography
     - Hypoechogenicity,
     - Loss of the fibrillar appearance
  2. MRI finding : Excess fluid around the FHL
Methods

- Measurement of the thickness at posteromedial lesion in the ankle
- Detection of ultrasonographic features
- Group I, II
  I: Symptomatic lesion
  II: Non-symptomatic lesion
Methods

Statistics analysis (3 step)

1. Step 1 (Group I vs. II)
   Paired T-test (SPSS, 18.0)

2. Step 2 (Group I)
   Gender (A,B) (Male vs. Female)
   Location (a, b) (Rt vs. Lt)

3. Step 3

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Results

- Average thickness of each group, I and II

<table>
<thead>
<tr>
<th>Group</th>
<th>Thickness (Avr. ± SD)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I (N=60)</td>
<td>3.32 ± 0.44</td>
<td>0.002 (Paired T-test)</td>
</tr>
<tr>
<td>Group II (N=60)</td>
<td>2.70 ± 0.29</td>
<td></td>
</tr>
</tbody>
</table>

Statistically significance between Group I and II

- Average thickness of each group, according to gender in Group I

<table>
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<tr>
<th>Group</th>
<th>Thickness (Avr. ± SD)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (N=34) (Male)</td>
<td>3.42 ± 0.39</td>
<td>0.467 (Wilcoxon signed rank test)</td>
</tr>
<tr>
<td>Group B (N=26) (Female)</td>
<td>3.17 ± 0.50</td>
<td></td>
</tr>
</tbody>
</table>

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Results

- Average thickness of each group, according to location in Group I

<table>
<thead>
<tr>
<th></th>
<th>Group a (N=34) (Right)</th>
<th>Group b (N=26) (Left)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (Avr. ± SD)</td>
<td>3.19 ± 0.40</td>
<td>3.39 ± 0.47</td>
</tr>
</tbody>
</table>

*P = 0.472 (Wilcoxon signed rank test)*

- Average thickness of each group, according to Gender.

<table>
<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (Avr. ± SD)</td>
<td>Male (N=34)</td>
<td>3.42 ± 0.39</td>
</tr>
<tr>
<td></td>
<td>Female (N=26)</td>
<td>3.17 ± 0.50</td>
</tr>
</tbody>
</table>

*P = 0.013 (Wilcoxon signed rank test)*

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Results

Ultrasonographic Features

- ALL cases
  - Hypoechochogenicity
  - Peritendinous fluid collection ("Target sign")
Conclusions

- Ultrasonography show a thickness of 3mm or more, hypoechoicity, peritendinous fluid collection in FHL tenosynovitis.
- We suggest that **Ultrasonography** is one of the most useful tool to diagnose the **FHL tenosynovitis at ankle**.

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References


- Inokuchi, S; Usami, N: Closed complete rupture of the flexor hallucis longus tendon at the groove of the talus, FAI 18:47 –49, 1997


