Surgical treatment of chronic exertional leg pain: Combined functional popliteal entrapment syndrome and chronic exertional compartment syndrome

Kenneth J. Hunt, MD
Daniel Hurwit, MD
Michael Fredericson, MD
Jason T. Lee, MD
Stanford University
Department of Orthopaedic Surgery
Department of Vascular Surgery
No conflict to disclose

• “Surgical treatment of chronic exertional leg pain: Combined functional popliteal syndrome and chronic exertional compartment syndrome.”
• Presenter: Kenneth J. Hunt, MD
• My disclosure is in the Final AOFAS Mobile App.
• I have no potential conflicts with this presentation.
Introduction

• Vascular pathology in the lower extremities of athletes can be painful, limit activity, and be of great clinical significance due to the potential for chronic and prolonged ischemia.

• Often confused or coexistent with chronic exertional compartment syndrome (CECS), the diagnosis of functional popliteal artery entrapment syndrome (FPES) can be difficult, but is extremely important, due to the risk of arterial stenosis, thrombosis, and aneurysm.¹
Introduction

• No clear consensus exists for the diagnostic work-up of FPES.
  – Ultrasound, PPG, MRI/MRA, and ABI have been investigated.\textsuperscript{2,3}

• Due to the frequent necessity to differentiate FPES and CECS, we developed a highly specialized algorithm for the workup, diagnosis, and operative treatment of FPE.
  – Compartment pressure testing, provocative CT-A, and debulking of the medial head of the gastrocnemius and lower extremity fasciotomy were investigated.
Introduction

• Hypotheses:

1) CTA with provocative maneuvers and compartment pressure testing will allow objective, reliable differentiation of FPES and CECS in patients with subjective history of symptoms.

2) When indicated, myotomy of the gastrocnemius with or without fasciotomy will improve objective and subjective measures of claudication in both conditions.
Methods

• Retrospective review of 21 high performance athletes unable to compete due to confirmed claudication in the lower extremity.

• Patients evaluated using a unique compartment testing and CT-A protocol.
  – History of symptoms and bilateral ABI with and without exertion, PPG, diagnostic CT-A, and CT-A after maneuvers evaluated pre-operatively.
Methods

• As indicated, patients underwent debulking of the anterolateral quadrant of the medial gastrocnemius muscle with or without fasciotomy.
  – The volume of muscle debulked intra-operatively was recorded.

• Post-operatively, ABI and PPG were repeated, and patients were followed to monitor return to function, return to sport, and for any complications or further surgery.
Results

• All 21 patients met radiographic criteria for FPES and underwent myotomy.
  – 7/21 (33.3%) underwent concurrent fasciotomy for confirmed CECS.

• 9 patients had bilateral symptoms.
  – All 30 popliteal arteries demonstrated complete obliteration on CT-A with provocative maneuvers.
  – All resting ABIs were normal. 42% had abnormal exercise ABIs.
## Results

### Post-operative results

<table>
<thead>
<tr>
<th>Mean follow-up</th>
<th>Avg. change ABI</th>
<th>Return to function</th>
<th>Return to sport</th>
<th>Recurrent symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 months</td>
<td>0.00</td>
<td>+ fasciotomy</td>
<td>- fasciotomy</td>
<td>6/21 (28.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7/7 (100%)</td>
<td>14/14 (100%)</td>
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<tr>
<td></td>
<td></td>
<td>+ fasciotomy</td>
<td>- fasciotomy</td>
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<tr>
<td></td>
<td></td>
<td>5/7 (62.5%)</td>
<td>7/14 (50%)</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

• In patients with FPES, our unique testing protocol can guide surgical intervention.
• Pain free walking and short distance and functional outcomes were excellent post-operatively.
• Only about half return to their previous level of elite sports competition.
• FPES should be considered in young athletes with activity-related lower extremity pain who have failed all conservative options.
References


Thank You