POPLITEAL ARTERY ENTRAPMENT SYNDROME

(PAES)

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WHAT IS IT?

• Vascular disease
• Effects the popliteal artery
• Abnormal relationship in musculotendinous structures
• Most commonly from the medial gastrocnemius head
• PAES could be congenital
<table>
<thead>
<tr>
<th>Table 1</th>
<th>Popliteal entrapment syndrome classification (Popliteal Vascular Entrapment Forum)⁶</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type I</strong></td>
<td>The popliteal artery passes medially and then deep to the normal medial head of gastrocnemius.</td>
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<td><strong>Type II</strong></td>
<td>The medial head of gastrocnemius inserts more laterally than usual. The popliteal artery descends normally but passes medially to the muscle.</td>
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<td><strong>Type III</strong></td>
<td>The medial head of gastrocnemius has an accessory slip arising more laterally that compresses the popliteal artery.</td>
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<td><strong>Type IV</strong></td>
<td>The popliteal artery is compressed by running deep to the popliteus muscle or by an anomalous fibrous band.</td>
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<td><strong>Type V</strong></td>
<td>Primary popliteal vein entrapment.</td>
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<tr>
<td><strong>Type VI</strong></td>
<td>Functional entrapment with no anatomical abnormality.</td>
</tr>
</tbody>
</table>
ANATOMY

Gastrocnemius muscle
Popliteal artery
Popliteal vein
Popliteus muscle

https://my.clevelandclinic.org/health/diseases/17375-popliteal-artery-entrapment-syndrome-paes

https://www.howtorelief.com/gastrocnemius-origin-insertion-action-nerve-supply/
SIGNS AND SYMPTOMS

- Numbness
- Aching
- Cramping
- Fatigue
- Swelling
- Claudication
- Lack of pulse in feet
  - Commonly in dorsalis pedis, and posterior tibialis arteries
<table>
<thead>
<tr>
<th>COMMON POPULATION</th>
<th>PERCENT OF POPULATION</th>
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<tbody>
<tr>
<td>• Male athletes</td>
<td>• Male to female ratio 15:1</td>
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<td>• Young adults</td>
<td>• Less than 3% congenital</td>
</tr>
<tr>
<td>• Young female athletes</td>
<td>• underdiagnosed in athletic populations</td>
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<td></td>
<td>• Bilateral cases 29%-67%</td>
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</tbody>
</table>
CAUSES

- Congenital
- Hypertrophy
- Exercise/training
  - Running, rugby, soccer
DIAGNOSIS

- Referral to vascular specialist
- Ankle brachial pressures with exercise
- Computed tomographic angiography
- Duplex ultrasound
TREATMENT

- Requires vascular intervention
- Musculotendinous release of popliteal artery
- Anticoagulants
- Serious cases cause arterial bypass
  - Saphenous vein
  - Superficial femoral artery autograft
TIMELINE OF PATIENT

- Numbness started occurring in the foot during exercise
- Discoloration of the toes and sole of the foot
- Referral to the physician was not immediate
- During physical activity loss of function in the 5th toe occurred
- Toes on the right foot were significantly colder when compared to the left
- Numbness and discoloration started to occur in non-sports related activities
- An appointment was made to see a general physician
• No pulse was detected on the dorsalis pedis artery
• Referral to a vascular specialist was ordered
• Doppler ultrasound was used on arteries in the foot
• Duplex ultrasound was done on the right leg and foot
• Referral to a vascular surgeon was ordered
• CT angiography was ordered
• Results revealed narrowing of the anterior tibial arteries
• Amlodipine was prescribed for increased blood flow to extremities
• No further treatment options have been made
REFERENCES

- https://search-proquest-com.ezproxy.gardner-webb.edu/docview/1495445499/fulltextPDF/3105B7C62BEB4E32PQ/1?accountid=11041
- https://search.proquest.com/docview/2081317365/fulltextPDF/E1312A2D35A4413CPQ/1?accountid=11041