Median Arcuate Ligament Syndrome: Is It Real And How Best To Diagnose And Treat It

Professor Alan H Davies
Section of Vascular Surgery, Imperial College, Charing Cross & St Mary’s Hospital, London

Disclosures

- Commercial: Acergy, Vascular Insights, Medtronic, Vascutek, Urgo Laboratoire
- Grant: NIHR, BHF, Stroke Association, RCS, ESVS, Graham Dixon, Imperial College

MALS

Median arcuate ligament syndrome (MALS) is a rare vascular disorder first described in 1963. The median arcuate ligament (MAL) is a fibrous band connecting the right and left diaphragmatic crus; this usually lies superior to the origin of the celiac axis. Occasionally, the ligament crosses anterior to the aorta, at the level of the celiac trunk, leading to mechanical compression of the celiac artery, resulting in the clinical condition of MALS. The reported incidence of the anatomical anomaly in the general population is variable, ranging from 1.25% to 27%.5

Symptoms:

- Nausea
- Pain
- Diarrhoea
- Weight loss
Investigation

- Multiple GI investigation
- Duplex
- Angiography
- CT
- MRI

Editor’s Choice — Management of the Diseases of Mesenteric Arteries and Veins
Clinical Practice Guidelines of the European Society of Vascular Surgery (ESVS)

**Table 3. Duplex criteria of mesenteric arteries**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Normal (&lt; 5 mm)</th>
<th>Pathological (≥ 5 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intima-media</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommendation 13**

<table>
<thead>
<tr>
<th>Class</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>C</td>
</tr>
</tbody>
</table>

**Recommendation 14**

<table>
<thead>
<tr>
<th>Class</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>C</td>
</tr>
</tbody>
</table>

**ESVS Guideline**

CTA better than MRA?
Editor’s Choice – Management of the Diseases of Mesenteric Arteries and Veins
Clinical Practice Guidelines of the European Society of Vascular Surgery (ESVS)

Case 1
• Primary care physician
• Previous SMA syndrome & gastro-jejunostomy

Case 2
• Tri-athlete, potential Olympian
• Pain – RUQ on strenuous exercise
  Normal GI investigations
  Angiogram

Laparoscopic decompression as treatment for median arcuate ligament syndrome
M Habibkiewicz, PK Ramakrishnan, RM Henry, J Roy, A Bienzyński
Jagiellonian University Medical College, Krakow, Poland

Exercise-induced median arcuate ligament syndrome in athletes

Do not STENT ?

Median arcuate ligament syndrome: Open celiac artery reconstruction and ligament division after endovascular failure
Konstantinos T. Delis, MS, PhD, FHM, EBSC(ann); Peter Głowaciński, MD, FACS;
Marcia Scribner-Judy, JD, FACS; and Michael A. McKusick, MBA, EACCC. Wex
Treatment

- Stop extreme exercise
- Divide muscle
- Vascular reconstruction and avoid stenting
  - Laparoscopic division and plasty +/- stenting