## Supplemental Table. Reported cases of LVAD outflow graft obstruction

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Device type</th>
<th>Time of presentation</th>
<th>Clinical Presentation</th>
<th>Hemolysis</th>
<th>Diagnosis</th>
<th>Mechanism of obstruction</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hubbert (2017)¹¹</td>
<td>HM II</td>
<td>2 years</td>
<td>Low flows</td>
<td>No</td>
<td>CTA</td>
<td>Intraluminal thrombus</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Abraham (2015)¹⁷</td>
<td>HM II</td>
<td>2.5 years</td>
<td>Low flows &amp; heart failure</td>
<td>No</td>
<td>CTA</td>
<td>Thrombus causing angulation and narrowing of outflow graft</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Pham (2015)¹⁸</td>
<td>HM II</td>
<td>1 year</td>
<td>Low flows &amp; heart failure</td>
<td>No</td>
<td>CTA &amp; ventriculogram</td>
<td>Unclear (kink or obstruction)</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Cheng (2014)²⁰</td>
<td>HM II</td>
<td>1.5 years</td>
<td>Low flow &amp; dizziness</td>
<td>Not reported</td>
<td>CTA</td>
<td>Stenosis at the aorta-graft anastomosis</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Ganapathy (2013)²¹</td>
<td>HM II</td>
<td>6 months</td>
<td>Chest pain and heart failure</td>
<td>Not reported</td>
<td>CTA</td>
<td>Compression by pseudoaneurysm</td>
<td>Balloon angioplasty</td>
</tr>
<tr>
<td>Gruger (2018)¹²</td>
<td>HM III</td>
<td>2 years</td>
<td>Low flows &amp; heart failure</td>
<td>Not reported</td>
<td>CTA</td>
<td>Twisted outflow cannula</td>
<td>Stenting and surgical correction</td>
</tr>
<tr>
<td>Posada (2017)¹⁴</td>
<td>HM III</td>
<td>6 months</td>
<td>Low flows</td>
<td>Yes</td>
<td>CTA &amp; direct inspection†</td>
<td>Thrombus between outflow graft and bend relief</td>
<td>Heart transplant</td>
</tr>
<tr>
<td>Posada (2017)¹⁴</td>
<td>HM III</td>
<td>1 year</td>
<td>Low flows &amp; heart failure</td>
<td>No</td>
<td>CTA &amp; direct inspection†</td>
<td>Thrombus between outflow graft and bend relief</td>
<td>Heart transplant</td>
</tr>
<tr>
<td>Hanke (2016)¹⁶</td>
<td>HVAD</td>
<td>6 months</td>
<td>Heart failure, high flows and power spikes</td>
<td>Yes</td>
<td>CTA</td>
<td>Outflow graft thrombus</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Pieri (2017)¹⁵</td>
<td>HVAD</td>
<td>5 years</td>
<td>Heart failure &amp; low flows</td>
<td>No</td>
<td>Invasive angiography††</td>
<td>Unclear</td>
<td>Percutaneous stent</td>
</tr>
<tr>
<td>Retzer (2015)¹⁹</td>
<td>HVAD</td>
<td>1 month</td>
<td>Low flows</td>
<td>No</td>
<td>Ventriculogram</td>
<td>Stenosis at the aorta-graft anastomosis</td>
<td>Percutaneous stent</td>
</tr>
</tbody>
</table>

† At time of heart transplantation
†† Injection of contrast into proximal part of the outflow graft during invasive angiography
HM, HeartMate; CTA, Computed Tomography Angiography; HVAD, HeartWare