CASE REPORT

Acute Hepatic Ischaemia Due to Aortic Dissection: Successful Treatment with Suprarenal Aortic Stenting

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Introduction

Peripheral vascular complications of aortic dissection have been well described and may occur in nearly one-third of cases.\(^{1}\) Hepatic ischaemia, an uncommon consequence of aortic dissection, usually occurs in the setting of systemic hypotension and in conjunction with ischaemia to other organs. We report a rare case of isolated hepatic ischaemia resulting from chronic aortic dissection. Suprarenal aortic stenting was successful in relieving the hepatic ischaemia.

Case Report

A 56-year-old woman with a chronic DeBakey Type I aortic dissection had undergone prior graft repair of the ascending aorta and coronary artery bypass grafting. Eight months later she presented with chest pain and a 4.7 cm descending thoracic aortic aneurysm. Although the dissection involved the entire aorta, the abdominal aorta was not aneurysmal. The patient underwent graft repair of the descending thoracic aortic aneurysm. The distal end of the graft was sutured to the aorta at the level of the diaphragm such that both the true and false lumina were perfused.

The patient had an uneventful initial postoperative course. On the fourth postoperative day, however, the patient exhibited acute mental status changes and developed mild upper gastrointestinal bleeding. Although she remained haemodynamically stable and did not have any physical findings suggestive of abdominal visceral ischaemia, serum chemistries demonstrated marked elevation of total bilirubin and hepatic enzyme levels (Table 1).

A CT scan of the abdomen demonstrated the residual dissection involving the abdominal aorta at the level of the diaphragm and continuing distally. The origins of the coeliac axis and superior mesenteric artery, perfused by the true lumen, appeared to be compromised by the false lumen. Delayed phase images of the liver demonstrated mottling, suggestive of ischaemia (Fig. 1).

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Fig. 1. CT scan of the abdomen revealing aortic dissection and hepatic mottling (large arrows). The true lumen is being compressed by the false lumen of the aortic dissection (small arrow).
Table 1. Acute hepatic ischaemia due to aortic dissection.

<table>
<thead>
<tr>
<th></th>
<th>Before stenting</th>
<th>4 h</th>
<th>7 h</th>
<th>2 days</th>
<th>3 days</th>
<th>10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT (U/L)</td>
<td>4202</td>
<td>2458</td>
<td>2182</td>
<td>1318</td>
<td>913</td>
<td>121</td>
</tr>
<tr>
<td>AST (U/L)</td>
<td>1030</td>
<td>569</td>
<td>494</td>
<td>2000</td>
<td>107</td>
<td>33</td>
</tr>
<tr>
<td>Total bilirubin (µmol/l)</td>
<td>39.3</td>
<td>54.7</td>
<td>58.1</td>
<td>80.4</td>
<td>66.7</td>
<td>20.5</td>
</tr>
<tr>
<td>Leukocytes (10⁹ cells/l)</td>
<td>34</td>
<td>27</td>
<td>25</td>
<td>21</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Improved flow to the visceral vessels (Fig. 3). Within hours of the procedure the patient’s serum transaminase levels and leukocyte count had decreased – this trend continued throughout her subsequent recovery (Table 1).

The patient was discharged home after 25 days in the hospital, and remains well 1 year after her hospitalisation.

**Discussion**

Visceral vessel occlusion leading to hepatic ischaemia is an uncommon consequence of aortic dissection. This situation carries a high mortality rate due to associated haemodynamic instability and ischaemia of other organs. Isolated hepatic ischaemia caused by aortic dissection is very rare and has been universally fatal.²⁻⁴

Traditionally, aortic dissection causing branch vessel occlusion has been treated by graft repair with concomitant fenestration and visceral reconstruction when necessary.¹ With recent advances in endovascular technology, percutaneous stenting of the true aortic lumen, with percutaneous fenestration when necessary, has become an increasingly favoured management option.⁵

In our patient, isolated hepatic ischaemia caused by aortic dissection was successfully managed by percutaneous aortic stent placement.

**References**