CASE REPORT

Pregnancy–puerperium-related Rupture of Abdominal Aortic Aneurysm


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Introduction

Reports of abdominal aortic aneurysms associated with pregnancy and the puerperium are rare. They are normally associated with acute arterial dissections, and aneurysms of the splenic, cerebral and renal arteries.

We present a patient with a ruptured abdominal aortic aneurysm during the puerperium and review the literature.

Case Report

A 36-year-old woman began experiencing left lumbar and back pain during the last trimester of her third pregnancy. After a full-term pregnancy and normal delivery, the pain severely worsened. There was no history of syphilis, endocarditis, tuberculosis, or use of injectable drugs. She came to the emergency room with intense back pain and diffuse abdominal pain and hypotension. Blood analysis revealed a haemoglobin of 10.3, haematocrits of 33%, and leukocytes of 6700. Abdominal ultrasonography showed fluid in the abdominal cavity but failed to demonstrate any masses. We present a patient with a ruptured abdominal aortic aneurysm during the puerperium and review the literature.

Fig. 1. Preoperative CT scan showing the saccular suprarenal abdominal aortic aneurysm and the haematoma surrounding it.

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Table 1. Time of dissection and aneurysm rupture related with pregnancy.

<table>
<thead>
<tr>
<th>Stage of pregnancy/puerperium</th>
<th>Dissection and aorta or branches rupture/percentage</th>
<th>Splenic artery aneurysm rupture/percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Third</td>
<td>51%</td>
<td>69%</td>
</tr>
<tr>
<td>Puerperium</td>
<td>20%</td>
<td>6%</td>
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median xiphopubic laparotomy, we accessed the suprarenal aorta via medial rotation of the viscera. When moving the spleen, the parenchyma was injured, requiring a splenectomy. An organised retroperitoneal haematoma was found to be firmly adherent to the superior portion of the body of the pancreas. The aorta was clamped near the diaphragm, above the renal arteries, and the distal portion of the superior mesenteric artery, as well. The haematoma was opened and a ruptured saccular suprarenal aortic aneurysm 3.5 cm in diameter and with a neck of 1.3 cm was found. The neck of the aneurysm was sutured and the patient remained stable. The surgery lasted 4.5 h, and aortic clamping time was 32 min.

Postoperative recovery was good, and the patient was discharged on the eighth day after surgery. The patient underwent CT and MR scans which were favourable (Fig. 2). Radiologic, laboratory, and clinical observations ruled out tuberculosis, syphilis, HIV infection, Salmonellosis, endocarditis, Marfan’s syndrome, Ehlers–Danlos syndrome (type IV), and the assay for autoimmune diseases was negative. The patient’s thoracic and abdominal computerised tomography did not display other aneurysms, aorta coarctation or hypoplasia, or congenital alterations, which could be associated with the aneurysm that was found. Nor did it show any evidence of degeneration of the medial layer, fibrodyplasia, aortitis, or infection.

Both experimental and clinical studies have shown that pregnancy is a risk factor for thoracic aortic dissections. During gestation, histological features in the arterial wall include fragmentation of reticulin fibres, loss of the normal corrugation of elastic fibres, diminished amounts of mucopolysaccharides, and hypertrophy associated with the hyperplasia of smooth muscle cells of the media layer. Therefore, arterial structure is changed in the gravid woman, 

Discussion

Aortic aneurysms are quite rare in young women. We hypothesise that the patient previously had an arterial lesion that evolved into a saccular aneurysm, because of the haemodynamic and biochemical changes caused by pregnancy. The patient did not have a history of abdominal trauma. Both the clinical history and diagnostic investigation were negative for cardiac valvar lesions suggesting endocarditis, which then could be the origin of a mycotic aneurysm. The patient was not immunosuppressed (HIV positive). She denied any history of fever or chills and there was no leucocytosis. Although a rare phenomenon, dissection of the aorta with its origin at the abdominal segment is being increasingly reported. In this described case, neither tomographic nor surgical findings revealed arterial dissection. Our patient did not have any signs or histological evidence of Marfan’s syndrome or Ehlers–Danlos syndrome (type IV), and the assay for autoimmune diseases was negative. The patient’s thoracic and abdominal computerised tomography did not display other aneurysms, aorta coarctation or hypoplasia, or congenital alterations, which could be associated with the aneurysm that was found. Nor did it show any evidence of degeneration of the medial layer, fibrodyplasia, aortitis, or infection.

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The use of a simple suture close to the aneurysm neck was done because of the patient’s haemodynamic conditions (second laparotomy in less than 12 h) and because of the excellent condition of the aorta near the aneurysm neck. The patient will need close follow-up over the years to verify the condition of the sutured aorta. The precise aetiology of this aneurysm remains unknown.
Fig. 2. Postoperative CT scan and magnetic resonance showing the appearance of the aorta after suture.

References

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