Aorto-enteric fistula formation
secondary to infection
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Patient: 76 years, female

Clinical History:

Aorto-enteric fistula formation is a well recognised complication of abdominal aortic aneurysm repair. In this case we demonstrate the classical CT signs of aorto-enteric fistula of soft tissue attenuation around the graft, perigraft fluid collection and extravasation of contrast from the graft into the bowel

Imaging Findings:

Five weeks after an emergency repair of a leaking abdominal aortic aneurysm the patient presented with fresh rectal bleeding. She was in hypovolaemic shock and had a raised C Reactive Protein of 212 units (normal range 0-5 units). A CT abdomen and pelvis was performed with only intravenous contrast but no oral contrast. Figure 1 (sagittal reconstruction) shows the aortic straight graft in situ with low attenuation density in the perigraft distribution throughout its length. The coronal reconstruction (figure 3) also clearly illustrates the eccentric thrombus surrounding the graft and peri-graft collection. A focus of extra-luminal contrast is seen at the anterior aspect of the graft approximately 3 cm below the origin of the left renal artery (figure 2). There is an associated focal breach in the calcified wall suggesting dehiscence at the site of the proximal anastomosis secondary to infection or a pseudoaneursym. There is striking high density throughout the distal small bowel and large bowel with attenuation values consistent with contrast or clotted blood (Figure 4). This indicates the presence of a fistula between the aorta and bowel. At surgery performed immediately after the CT an infected aortic graft was found and this was excised and bilateral axilla-femoral bypass grafting was performed.
Discussion:

The incidence of aorto-enteric fistula is rare and has been reported to be between 0.6-2.0% with mortality ranging from 65-100%. Gastro-intestinal haemorrhage is the commonest mode of presentation with a moderate "herald bleed" occurring prior to an exsanguinating haemorrhage. Fistula formation may be seen as soon as three weeks after surgery. The most common site of erosion is at the proximal anastomosis of an aortic graft into the distal duodenum or duodeno-jejunal flexure. Any GI bleed in a patient with an intra-abdominal graft should raise the suspicion of an aorto-enteric fistula. OGD and CT are the two modalities utilised for diagnosis. Upper GI endoscopy provides a diagnosis in 50% of cases although the fistula is frequently not visualized. The CT signs of aorto-enteric fistula are perigraft fluid collection, perigraft air and soft tissue attenuation around the graft. In those with acute gastro-intestinal bleeding direct extravasation of contrast medium from the aortic graft into bowel can be demonstrated as in this case (reference 2). The focus of extra-luminal contrast at the proximal aspect of the prosthesis is the most likely site of the fistula. The standard treatment for this condition is axillary bifemoral graft with removal of the infected graft. Helical CT plays a vital role in the diagnosis of this surgical emergency.

Differential Diagnosis List: Aortoenteric fistula secondary to an infected straight aortic graft.

Final Diagnosis: Aortoenteric fistula secondary to an infected straight aortic graft.

References:


Description: Figure 1: Sagittal CT image demonstrating aortic stent with peri-graft soft tissue density.

Origin:
**Description:** Axial image demonstrating aortic stent in situ with surrounding thrombus and perigraft low attenuation. A focus of extra-luminal contrast can be seen which is the probable site of the fistula.

**Origin:**
Description: Coronal image demonstrating the stent, surrounding thrombus and peri-graft low attenuation. There is active haemorrhage into the bowel. Origin:
**Description:** MIP demonstrating high attenuation within the bowel due to active haemorrhage from the bowel. N.B. No oral contrast has been given to the patient. **Origin:**