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A RARE CASE OF PRIMARY AORTOENTERIC AND AORTOCAVAL FISTULA IN A PATIENT WITH ABDOMINAL AORTIC ANEURYSM

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Abstract: *Primary aortoenteric fistula is an extremely rare, but life-threatening clinical condition. Herein, we report the case of aortosigmoid and aortocaval fistulas in a patient with a history of abdominal aortic aneurysm. A 68-year-old man was admitted to the Emergency Department with a one-day history of rectal bleeding and syncope. There was a high suspicion of aortoenteric fistula with active bleeding. Therefore a computed tomography (CT) scan of the abdomen with intravenous contrast was performed and revealed a large abdominal aneurysm of the aorta (63/36/120 mm) between the infrarenal aorta and the emergence of the right common iliac artery. The thrombosed portion of the aneurysm presented a fistula towards the superior rectum. The patient was brought to the operating room where excision of the aortorectal fistula, aortic closure, and Hartmann I resection were performed. In the following days, the patient had a complicated clinical evolution and died four days later.*

INTRODUCTION

Aortoenteric fistula is a life-threatening condition, associated with high morbidity and mortality. It is well known that prompt surgery of the aneurysm lowers the mortality rate.(1,2)

Primary aortoenteric fistula involves the spontaneous development of an abnormal communication between the gastrointestinal tract and aortoiliac tree, the most common site of fistulization being located near the duodenum due to anatomic proximity; the lower gastrointestinal tract is the least affected.(3,4)

Secondary aortoenteric fistula occurs after vascular intervention, such as open repair or endovascular stent graft. Primary aortoenteric fistula is an extremely rare clinical condition, with annual incidence reported at 0.007 per million.(3)

The clinical signs includes catastrophic gastrointestinal bleeding, recurrent septicemia from enteric pathogen or may be clinically occult.

Because clinical signs have low specificity, imaging is imperative for the diagnosis. Herein, we report the case of an aortosigmoid fistula in a patient with a history of abdominal aortic aneurysm.

CASE REPORT

A 68-year-old man was admitted to the Emergency Department with a one-day history of rectal bleeding and syncope, without hematemesis or abdominal pain.

A diagnosis of extended deep vein thrombosis and aortic aneurysm had recently been established.

His records are significant for a history of active smoking, chronic obstructive pulmonary disease, dyslipidemia, arterial hypertension, and peripheral artery disease. His medication included apixaban, atorvastatin, indapamide, and bisoprolol.

On examination, the temperature was 36 ºC, blood pressure 110/70 mmHg, heart rate 75 beats per minute, and a respiratory rate of 15 breaths per minute with oxygen saturation of 96% in ambient air.

The hypogastric region of the abdomen was slightly tender on palpation, without active rectal bleeding at the time of presentation.

Rectal examination was positive for fresh blood. The left leg presented significant edema.

Haemoglobin was 10.2 g/dl, with a white cell count of 15.8 per cubic millimetre, and 365000 per cubic millimetre for platelets.

Blood levels of electrolytes, liver, and kidney function were in the normal range.

Given the patient history of aortic aneurysm, there was a high suspicion of aortoenteric fistula with active bleeding.

Therefore, a computed tomography (CT) scan of the abdomen with intravenous contrast was performed and revealed a large abdominal aneurysm of the aorta (63/36/120 mm) between the infrarenal aorta and the emergence of the right common iliac artery (figure no. 1).

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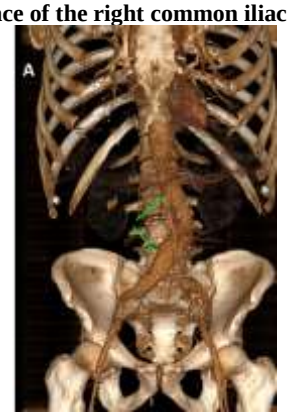
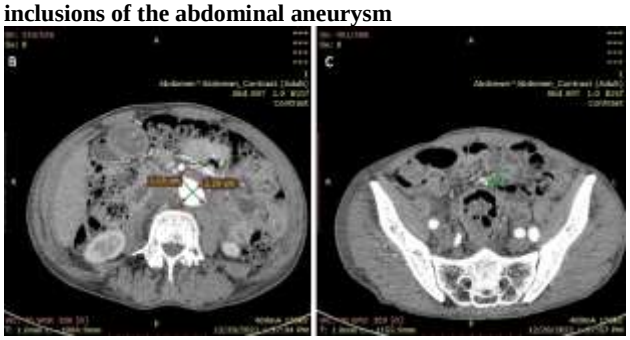
Figure no. 1. 3D volume rendering showing the abdominal aortic aneurysm (green arrows) between the infrarenal aorta and the emergence of the right common iliac artery



Moreover, the aneurysm presented air inclusions consistent with infection and also chronic thrombosis (figure no. 2).

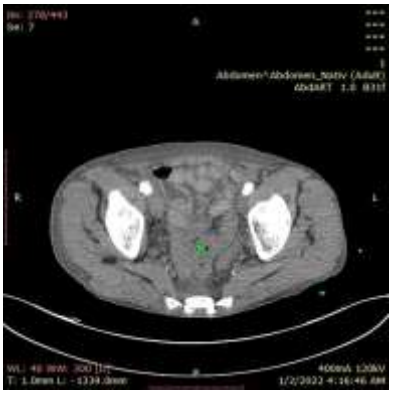
Figure no. 2. Axial plane showing thrombosis and air inclusions of the abdominal aneurysm



A filling defect consistent with right femoral, iliac, and inferior vena cava thrombosis was identified. At the time of investigation, there was no evidence of an aortoenteric fistula with extravasation of contrast material in the digestive tract. A few hours later, the general condition of the patient deteriorated with severe abdominal pain in the right iliac region, nausea, hematochezia, and hemodynamic instability.

The hematocrit decreased to 21% and the hemoglobin level dropped to 6 g/dl. Intravenous colloidal solutions, two units of packed red cells were administered and, after patient hemodynamic stabilization, an emergency CT scan was repeated. The thrombosed portion of the aneurysm presented a fistula towards the superior rectum, without extravasation of material contrast at that level (figure no. 3).

Figure no. 3. The thrombosed portion of the aneurysm presented a fistula (green arrow) towards the superior rectum



A fistula between the common iliac vein, inferior vena cava, and the thrombosed segment of the aneurysm, respectively were also discovered.

The patient was brought to the operating room where excision of the aortorectal fistula, aortic closure, and Hartmann I resection were performed. The patient was admitted to the intensive care unit, mechanically ventilated, but in a stable haemodynamic condition, without vasoactive medication. In the following days, the patient had a complicated clinical evolution and died four days later after the diagnosis of the aortoenteric fistula.

DISCUSSIONS

Primary aortoenteric fistula is an uncommon condition with a reported incidence below 1%, which most often appears in association with an atherosclerotic aortic aneurysm, as in this clinical case.(1,5) Classically, these patients present a herald bleeding, followed by massive bleeding, usually within hours to days later.

Abdominal imaging such as a CT scan of the abdomen should be part of the initial evaluation of patients with a high suspicion of aortoenteric fistula.(6) CT with intravenous contrast can show extravasation of contrast material or loss of tissue planes. Even if our patient did not show any of these signs, the presence of ectopic air inclusions suggested a communication between the aorta and gastrointestinal tract which made the diagnosis. This finding emphasizes the importance of abdominal imaging as an initial diagnostic test and the need for radiologists to be familiar with the spectrum of CT findings in aortoenteric fistulas.

The particularities of the presented clinical case are related to the large, infected abdominal aneurysm, associated with several fistulas, between the aorta and superior rectum and inferior vena cava, respectively. Also, the patient was on anticoagulant treatment, contributing to the bleeding. Moreover, the fistulas were originating from the thrombosed portion of the abdominal aneurysm which acted as a valve mechanism, plugging the fistula and saving the patients' life until the catastrophic gastrointestinal bleeding occurred.

CONCLUSIONS

This case emphasizes the rare, but potentially fatal pattern of aortoenteric fistulas, and also the challenges for the clinician to ensure a prompt diagnosis and treatment.

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