https://doi.org/10.22491/2357-9730.125213

Aorto-enteric fistula: a case report

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ABSTRACT

A case report focused on imaging aspects of an aorto-enteric fistula (AEF) in a 39-year-old patient with a recent diagnosis of classic Hodgkin Lymphoma with multiple enlarged retroperitoneal lymph nodes. AEF is a pathologic communication between the aortic lumen and any portion of the gastrointestinal tract. Without prompt intervention, the associated mortality approaches 100%. Early clinical suspicion is essential for a successful outcome and the role of imaging is fundamental to diagnose it. Owing to its widespread availability, short acquisition time, and high resolution, CT with intravenous contrast has become the first-line modality for imaging evaluation of suspected aorto-enteric fistula.

Keywords: *Aorto-enteric fistula; Aorto-duodenal fistula; Duodenal fistula*

Clin Biomed Res. 2023;43(2):213-215

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CASE PRESENTATION

A 39-year-old patient that had a recent diagnosis of classic Hodgkin Lymphoma with multiple enlarged retroperitoneal lymph nodes, yet to be staged, was admitted to the hospital with intense back pain and large volume hematemesis[1]. At first assessment, the patient was medicated, stabilized and submitted to esophagogastroduodenoscopy (EGD), which did not show active bleeding. After a few hours, the patient had another episode of large volume hematemesis with subsequent hemorrhagic shock. Due to the absence of active bleeding at the EGD and to the presence of enlarged and suspicious lymph nodes near the second and third portions of the duodenum, as shown in prior abdominal computed tomography (CT) scan (Figure 1a), the gastroenterology staff recommended a CT angiography to investigate the bleeding site. The exam showed retroperitoneal heterogeneous collection with gas bubbles around the aorta and contrast leakage from infrarenal aorta into the third duodenum portion (Figures 1b and 1c), findings diagnostic for aorto-duodenal fistula. Then, the patient was sent to the hemodynamics department for endovascular repair, which confirmed active bleeding originated from the infrarenal aorta and was successfully corrected with stent insertion and angioplasty (Figures 2a, 2b and 2c).

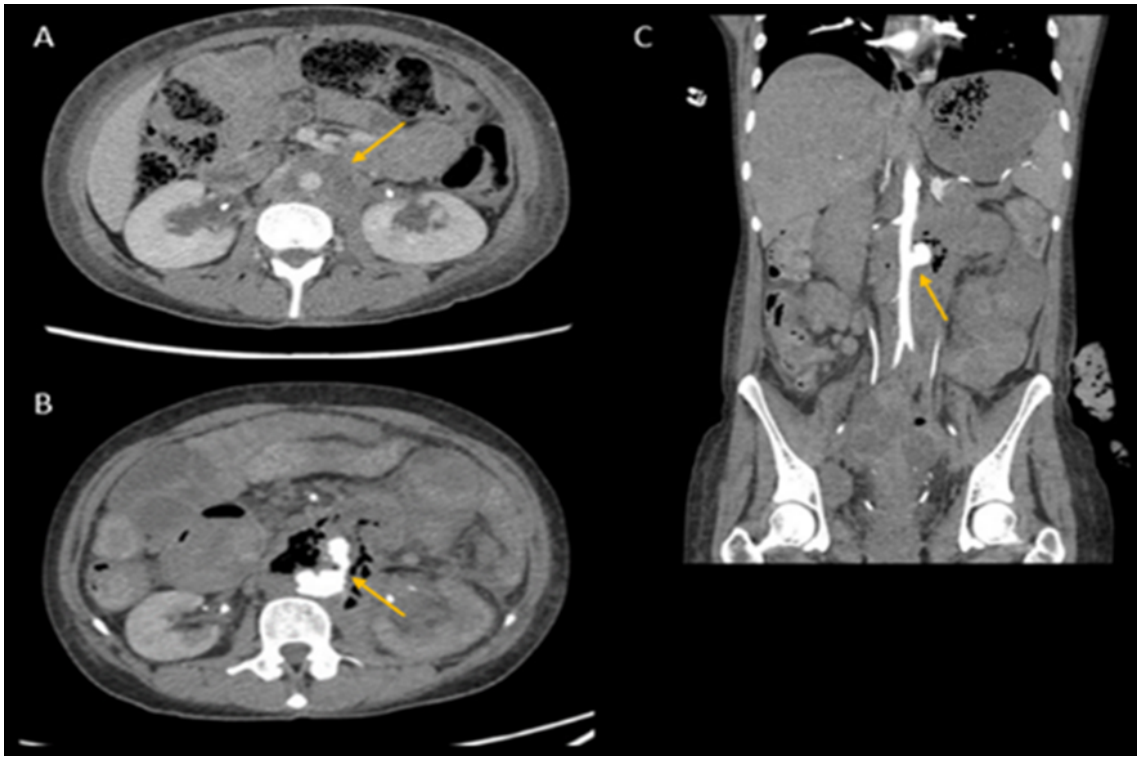

Figure 1: A. venous phase of CT with intravenous contrast a few months before the admission to the hospital shows large and necrotic periaortic lymph nodes (arrow); B and C: axial and coronal contrast enhanced CT views show gas bubbles around the aorta and contrast leakage (arrow) from infrarenal aorta into the third duodenum portion, findings that are diagnostic for aorta-duodenal fistula.

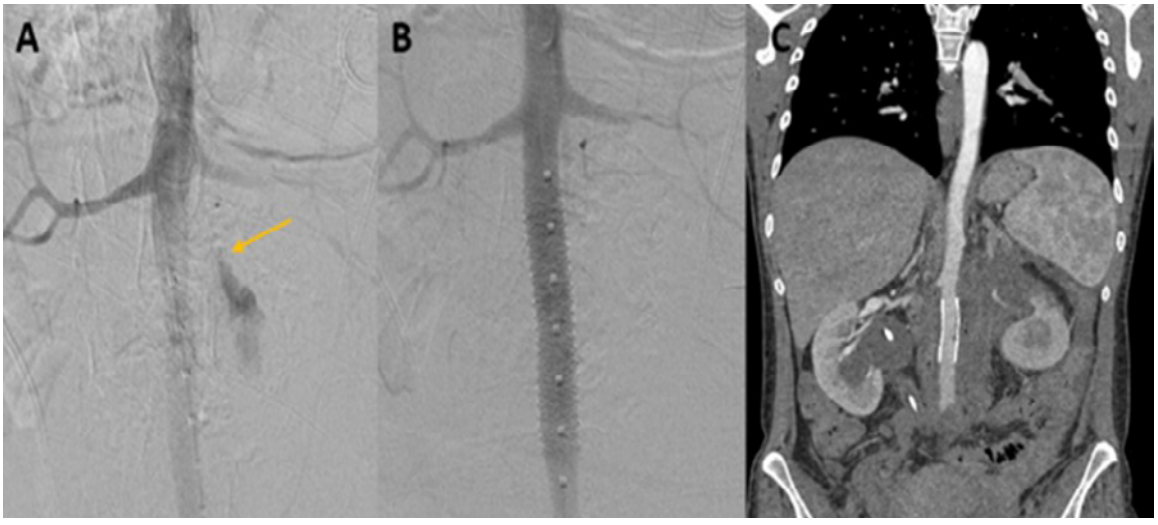

Figure 2: A: Angiography shows active bleeding (arrow) in the infrarenal aorta; B and C: Endovascular repair and control intravenous contrast CT four months after.

DISCUSSION

Aorto-enteric fistula (AEF) consists of a pathologic communication between the aortic lumen and any portion of the gastrointestinal tract[2]. Without prompt intervention, the associated mortality approaches 100%[3]. The main clinical signs are abdominal pain and an intermittent herald hemorrhage, resulting from repeated tamponaded of the fistula by thrombus formation[4].

Aorto-enteric fistula may be primary or secondary: primary aorto-enteric fistula (PAEF) occurs in patients with no previous aortic surgery or trauma[2], as in our case; secondary AEF occurs as a complication of aortic reconstructive surgery, being far more common than primary ones. Both categories, however, are relatively rare, with an incidence of 0.02–0.07% for primary and of 1% for secondary fistulas[2,3].

PAEF are almost always related to a pre-existing aortic aneurysm[2]. Nevertheless, other less common causes can be encountered, like inflammatory or infectious aortitis, actinic lesions, foreign bodies, and abdominal tumors[5]. The duodenum, especially its third and fourth portions, is the most common site of fistula, representing 80% of the AEF, involving the third portion in two-thirds of cases[5,6].

Early clinical suspicion is essential for a successful outcome[1,4]. As our patient had no prior history of surgical intervention nor aortic aneurysm, the bleeding was initially investigated by an EGD, to rule out other causes of upper GI bleeding. However, the absence of active bleeding at the EGD does not rule out an aorto-duodenal fistula[4]. Moreover, the length of the endoscope does not allow the visualization of the distal duodenum, where the fistula was located.

Owing to its widespread availability, short acquisition time, and high resolution, CT with intravenous contrast has become the first-line modality for imaging evaluation of suspected aorto-enteric fistula[3]. The signs that strongly suggest a PAEF are the loss of continuity and air bubbles in the aortic wall, which are pathognomonic, and the visualization of the contrast within the GI lumen[2].

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Received: 27 jun, 2022
Accepted: 24 oct, 2022