

## Aorto-Digestive Fistula: A Serious Cause of Gastrointestinal Bleeding

Z. Benjelloun<sup>1\*</sup>, S. Roudi<sup>1</sup>, A. Ait Errami<sup>1</sup>, S. Oubaha<sup>2</sup>, Z. Samlani<sup>1</sup>, K. Krati<sup>1</sup>

<sup>1</sup>Departement of Hepato-Gastro-Enterology, Arrazihospital, Mohammed VI University Hospital Center, Marrakech 40000, Morocco

<sup>2</sup>Departement of Physiology, Faculty of Medicine, Cadi Ayyad University, Marrakech 40000, Morocco

DOI: [10.36347/sasjm.2023.v09i05.010](https://doi.org/10.36347/sasjm.2023.v09i05.010)

| Received: 02.03.2023 | Accepted: 21.04.2023 | Published: 07.05.2023

\*Corresponding author: Z. Benjelloun

Departement of Hepato-Gastro-Enterology, Arrazihospital, Mohammed VI University Hospital Center, Marrakech 40000, Morocco

### Abstract

### Case Report

Aortodigestive fistula is a rare and potentially serious cause of GI bleeding, with a very high mortality rate if not diagnosed and managed early. Upper gastrointestinal endoscopy, in addition to the CT scan, is a key examination in the diagnosis, provided that it is performed up to the third duodenum. An early and adapted surgical management remains the basis of the treatment of these fistulas, in addition to an anti-infectious treatment adapted to the identified germs, as well as all the pre- and postoperative resuscitation measures.

**Keywords:** Aorto-duodenal fistulas (ADFs), GI bleeding, Upper gastrointestinal endoscopy, Hemodynamically.

Copyright © 2023 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

Aorto-enteric fistula (AEF) is defined as an abnormal communication between the aorta and the gastrointestinal tract. Aorto-duodenal fistulas (ADFs) account for 75% of all AEFs and are a rare entity (prevalence approx. 0.07%). For the medical team, they represent a diagnostic and therapeutic challenge, because in case of delayed diagnosis, the mortality is between 30 and 100% [1, 2]. Depending on the etiology, a distinction must be made between primary and secondary ADF. Primary ADFs usually occur in the setting of abdominal aortic aneurysmal disease, whereas secondary ADFs mostly develop after vascular reconstructions of the aorta with vascular prostheses. Secondary DAFs are ten times more frequent than primary DAFs [3]. In the following, we present the case of a secondary DAF that occurred after a previous gynecological operation.

## PATIENT AND OBSERVATION

A 64-year-old female patient was brought to our emergency department by the paramedics because of hematochezia present for about 18 hours, increasing tachycardia for a few hours, and decreased general condition. She reported that she had never had such symptoms before. She also complained of mild nausea without vomiting. When questioned, she reported no abdominal pain or other symptoms. The personal history revealed treated hypertension and diabetes mellitus. In addition, a laparoscopic hysterectomy was performed about 5 years ago because of perimenopausal bleeding

disorders. Due to the discovery of endometrial cancer, this was completed by a laparoscopic para-aortic lymphadenectomy.

The patient presented to the emergency department in a significantly reduced general condition, with the following vital parameters: heart rate 110/min, blood pressure 102/55 mm Hg, temperature 36.2°C, oxygen saturation measured by pulse oximeter 96% in room air. Physical examination revealed diffuse pressure pain throughout the otherwise soft abdomen with regular bowel sounds. In addition, fresh blood was present at the anus.

Hemodynamically relevant gastrointestinal bleeding was suspected, and the patient was stabilized with fluid replacement and two erythrocyte concentrates. Subsequent emergency gastroscopy showed a large clot in the fundus and body of the stomach with no identifiable source of bleeding. The mucosa of the fundus and body of the stomach could not be evaluated because of the clot. The gastric antrum, duodenal bulb and second portion of the duodenum were otherwise normal.

In order to complete the examination, a colonoscopy was performed and it showed a large amount of old blood with several clots in the rectum and sigmoid colon, without localization of the hemorrhagic source.

In addition, a CT angiogram of the abdomen was performed as part of the localization diagnosis. It revealed a DAF with contrast passage into the transverse portion of the duodenum from the atherosclerotic infrarenal aorta but without aneurysmal lesion.

The patient underwent surgery with stenting of the infrarenal abdominal aorta. The subsequent evolution was normal, without complications.

## DISCUSSION

After the first description of a DAF by Astley Cooper in 1839, we now have approximately 800 case descriptions of primary and secondary DAFs in the scientific literature. Autopsy studies suggest an incidence of 0.02-0.07% for secondary fistulas following abdominal aortic procedures [4].

Secondary FEFs are rare complications after aortic reconstruction with prosthetic implants. They can also occur in the context of other vascular procedures on the abdominal aorta [5]. Other causes of secondary DAFs are even rarer, such as fistulas occurring after radiation therapy or in the setting of a tumor. Due to the anatomical proximity of the aorta to the duodenum, the third segment (horizontal portion) of the duodenum is the most frequently affected part, accounting for two-thirds of cases. The classic FEF triad of upper gastrointestinal bleeding (64%), abdominal pain (32%), and pulsatile abdominal mass (25%) occurs in only about 11% of all cases. The first upper gastrointestinal bleeding, called "herald bleeding", is usually self-limiting and occurs in about 30% of all patients. The suspected cause of herald bleeding is bleeding from a small fistula with clot formation. Massive bleeding occurs after erosion or dislocation of the clot. Secondary massive hemorrhage occurs after 6 hours in one third of patients [5, 6].

In the absence of abnormalities on gastroscopy and colonoscopy and in case of clinical suspicion of gastrointestinal bleeding, CT angiography should be considered. For the diagnosis of DAF, it has a sensitivity of 50-94% and a specificity of 85-100%. The therapeutic goals in FEF are to control bleeding, prevent infection, and ensure adequate peripheral perfusion. The available treatment options for the management of DAF are open reconstruction of the aorta and duodenum by exploratory laparotomy,

aneurysm resection and management with a graft, stenting, or extra-anatomic bypass surgery [2].

Prior to the development of current endovascular operative techniques, the standard treatment for FEF was exploratory laparotomy with resection of the fistula. This procedure is associated with increased morbidity and mortality of more than 50% in polymorbid patients and in the context of hypovolemic shock. Management of the fistula using endovascular techniques in the emergency setting has fewer septic complications and overall better survival rates and should therefore be preferred over open operations [7].

## REFERENCES

1. Dos Santos, C. R., Casaca, R., de Almeida, J. C. M., & Mendes-Pedro, L. (2014). Enteric repair in aortoduodenal fistulas: a forgotten but often lethal player. *Annals of Vascular Surgery*, 28(3), 756-762.
2. Lee, H. C., Wang, F. L., Huang, S. L., & Chang, Y. C. (2009). Potentially lethal enteric bleeding in the ED. *The American journal of emergency medicine*, 27(9), 1169-e1.
3. Lin, T. C., Tsai, C. L., Chang, Y. T., & Hu, S. Y. (2018). Primary aortoduodenal fistula associated with abdominal aortic aneurysm with presentation of gastrointestinal bleeding: a case report. *BMC Cardiovascular Disorders*, 18(1), 1-5.
4. Beuran, M., Negoï, I., Negoï, R. I., Hostiuc, S., & Paun, S. (2016). Primary aortoduodenal fistula: first you should suspect it. *Brazilian Journal of Cardiovascular Surgery*, 31, 261-263.
5. Ishimine, T., Tengan, T., Yasumoto, H., Nakasu, A., Mototake, H., Miura, Y., ... & Kato, T. (2018). Primary aortoduodenal fistula: a case report and review of literature. *International journal of surgery case reports*, 50, 80-83.
6. Miyamoto, K., Inaba, M., Kojima, T., Niguma, T., & Mimura, T. (2016). Intra-Aortic Balloon Occlusion (IABO) may be useful for the management of secondary aortoduodenal fistula (SADF): A case report. *International journal of surgery case reports*, 25, 234-237.
7. Papacharalambous, G., Skourtis, G., Saliveros, A., Karagannidis, D., Makris, S., Panousis, P., & Ktenidis, K. (2007). Endovascular treatment of a primary aortoduodenal fistula: 2-year follow-up of a case report. *Vascular and endovascular surgery*, 41(3), 265-270.