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Case Report

Digestive Hemorrhage on Secondary Aorto-Duodenal Fistula. About a Case at the HASSAN II University Hospital in Fez, Morocco

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Abstract

Secondary aorto-duodenal fistula (ADF) is a rare and life-threatening complication that occurs within a few years after aortic reconstruction. The main symptom is digestive hemorrhage. Our observation underlines the important role of endoscopy in the preoperative diagnosis of aorto-duodenal fistulas.

Keywords: *Digestive Haemorrhage; Aorto-Duodenal Fistula; Aortic Surgery*

Introduction

The diagnosis of FAD should be discussed and ruled out in all patients presenting with GI bleeding in the context of vasculitis, abdominal aortic aneurysm (primary FAD) or a history of aortic reconstruction surgery with or without aortic prosthesis (secondary FAD). We report the observation of an aorto-duodenal fistula in a patient with a history of aortic prosthesis who is hospitalized for a GI bleed. This observation highlights the role of endoscopy in the diagnosis of this condition.

Case Observation

We report the observation of a 52-year-old patient with a history of angiobehcet under treatment with cyclophosphamide; operated on 5 years ago for abdominal aortic aneurysm and followed for 4 months for venous thrombosis of the right lower limb treated with anti-vitamin K. The patient was admitted to the emergency room for medium-abundant rectorrhosis, complicated a few hours later by the occurrence of two episodes of hematemesis with melena in a few hours.

Initial clinical examination found a Glasgow score of 15, pale, hemodynamically stable with a heart rate at 100bat/min and blood pressure at 120/80mmHg and slightly polypneic.

Abdominal examination showed epigastric tenderness with fresh melena on digital rectal examination. The biological assessment carried out on admission showed a haemoglobin of 9 g/dl normocyte normochrome, white blood cells at 13500/mm^3, platelets 310 000/mm^3, INR at 1.41, an O+ grouping. The gastroduodenal fibroscopy carried out up to the 3rd duodenal portion revealed a yellowish convex ulcer with a tissue texture and the presence of a guide wire within the ulcer (Figure 1). At the time of fibroscopy the patient presented

with hemodynamic instability. She was transferred to resuscitation where she presented with altered consciousness and hemorrhagic shock. The patient was transfused with two red blood cells and placed on a vasoactive drug. Vascular surgeons were called in. They asked to supplement with an abdominal angioscan which objectified a fistula between the aorta is the 3rd duodenal portion with minimal extravasation of contrast material (Figure 2).

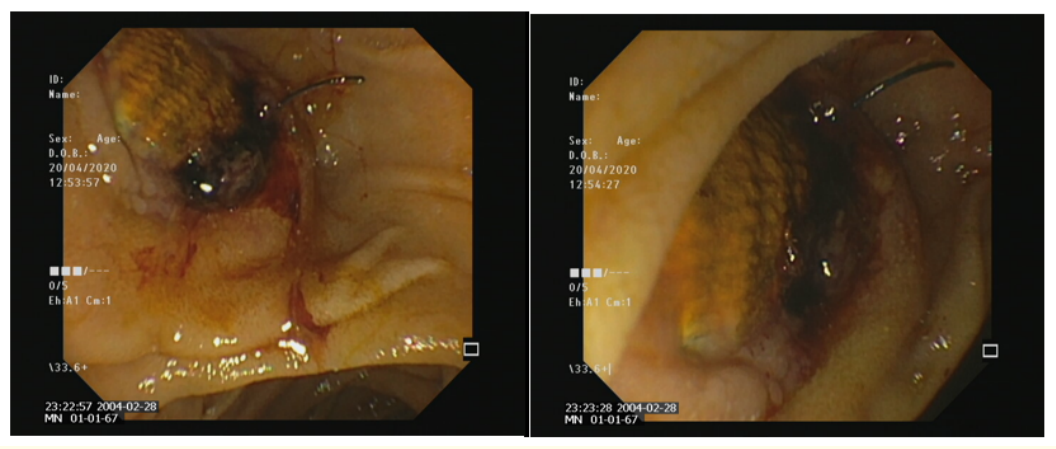

Figure 1: Endoscopic view. 3rd duodenal portion, visualization of the aortic prosthesis (yellow color) through the ulcer and the presence of a guide wire within the ulcer with an adherent clot.

Figure 2: CT view in sagittal reconstruction showing aorto-duodenal fistula (arrow).

Patient is admitted to the operating room. Surgical exploration showed a duodenoprosthetic fistula and consisted in the liberation of the fistula, with resection of the proximal part of the prosthesis removing the fistula. In addition, the patient was transfused with 3 red

blood cells and placed on antibiotic therapy. On leaving the operating theatre, the patient remained unstable, intubated, ventilated and sedated under high dose of vasoactive drugs and then transferred to intensive care. The patient died of hemorrhagic and septic shock at 12 hours postoperatively.

Discussion

Aorto-digestive fistulas are a direct communication between the lumen of the abdominal aorta and the digestive tract. They occur with a prevalence of 0.1 to 4%, most often following vascular reconstruction surgery with or without the insertion of an aortic prosthesis [1,2].

Fistulisation can be performed in any segment of the digestive tract from the oesophagus to the colon, but duodenal location, particularly the 3rd duodenum, remains the most common site in 80% of cases. This preferential localization results from the anatomical characteristics of the 3rd duodenal portion [2].

Furthermore, the pathogenic mechanism of this disease is poorly elucidated, and several hypotheses have been put forward: postoperative occurrence of an infected or uninfected haematoma; erosion of the duodenal lining by the prosthesis secondary to the constant systolic pulsation of the prosthesis which comes into direct contact to the duodenum, and the infection of the duodenal prosthesis resulting in the weakening of the anastomotic sutures which then breaks [3-6].

The symptoms indicative of secondary ADF are represented by the often incomplete clinical triad: digestive hemorrhage, abdominal pain and sepsis. Digestive hemorrhage most often occurs through the neck with minimal bleeding initially and rapidly recurring until massive bleeding as in our patient's case [2-6]. Thus the occurrence of a digestive hemorrhage in a context of vasculitis, abdominal aortic aneurysm or abdominal aortic surgery are in favor of the diagnosis.

According to the series, the average interval between the implantation of the prosthesis and the occurrence of a digestive haemorrhage is 3 years, with extremes between 2 days and 15 years [1-5].

Esogastroduodenal fibroscopy is a fundamental investigation performed as an emergency procedure in a hemodynamically stabilized patient and, if necessary, under anesthesia in the operating room, leading to a positive diagnosis. Several endoscopic aspects have been reported in the literature [7-13]. It can highlight: arterial bleeding in the duodenum (D2-D 3), a large pulsatile adherent clot in the D3, an ulceration with dark red borders bleeding into the D2-D3, a hemorrhagic ulceration on a pulsatile convex area, the protrusion of the prosthesis in the intestinal lumen and looks like a greenish-yellow mass with a tissue texture, the visualization of the meshes of the prosthesis at the bottom of an ulceration at the level of the 3rd duodenum and sometimes a suture thread protruding into the digestive lumen which is the case of our patient. All these endoscopic images are very suggestive of a fistula [13]. If such a discovery has been made, further investigation is not absolutely mandatory and surgical exploration can be undertaken without waiting for the results of another diagnostic procedure. In fibroscopy, the exploration is often limited to the second duodenal portion, and therefore its lesions may be missed during an initial exploration, making it advisable to explore as far as possible for better diagnostic cost-effectiveness [1-3].

An abdominal angioscanner will be more contributive with a sensitivity and specificity that varies considerably depending on the series (40 - 90% sensitivity and 33 - 100% specificity) [8] and may show arguments in favour of an aorto-duodenal fistula such as: the presence of a peri-prosthetic collection with air bubbles; thickening and/or retraction of the intestinal walls on contact, minimal extravasation of the contrast material in the 3rd duodenal portion. However, normal angioscanning does not rule out the diagnosis, especially if endoscopic signs are in favor [9,10].

Arteriography is performed in a thermodynamically stable patient, for diagnostic and therapeutic purposes if possible. It may show extravasation of contrast material or a fistula between the duodenum and the aortic stump. Therapeutic arteriography by embolization

or stenting is performed in fragile patients with a co-morbid field and in whom a heavy surgical procedure is often risky. This technique is little reported in the literature [7-12].

Surgical treatment should not be delayed by increasing the number of additional examinations [7]. Various surgical procedures have been used to repair secondary fistulas, including duodenoraphia, local repair of defects, excision of the graft and its replacement [11-13]. These conservative methods have been associated with 80% mortality. Currently these methods are only justified for small fistulas without peri-prosthetic infection or pseudoaneurysm. The current treatment consists of duodenoraphia, graft resection and aortic ligation with extra-abdominal angioplasty if necessary.

Aorto-duodenal fistula remains a rare but serious complication after reconstructive vascular surgery, with an estimated mortality of 58 - 80% [13,14], is related to the presence of haemorrhage and sepsis. Although the incidence of secondary ADF has decreased to 0.5% [15] due to advances in vascular surgery, patients with aorto-duodenal fistula still have a poor prognosis due to bleeding and infection.

Conclusion

Esogastroduodenal endoscopy is a method of choice in the early diagnosis of aorto-duodenal fistula, is recommended in any patient undergoing digestive hemorrhage with a context of aortic aneurysm or vascular reconstruction. It is the key diagnostic procedure, thus allowing early and life-saving surgery and avoiding the multiplication of additional tests that can delay management.

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