

Primary Aorto-Duodenal Fistula with *Enterococcus Foecalis* Infection: A Rare But Life Threatening Etiology of Gastro-Intestinal Bleed

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Abstract

Aortoduodenal fistula is a rare and serious condition. It can be primary and secondary. Clinical presentation is characterized by the classic triad of GI bleed, abdominal pain and palpable abdominal mass that occur in only 11% of cases. Accurate and rapid diagnosis should be considered since any delay has a deleterious effect on patient's life. We are reporting a case of primary aortoduodenal fistula presenting initially with acute and massive GI bleed.

Introduction

Aorto Duodenal Fistula (ADF) is a rare entity but life-threatening condition; it is classified either as primary aortoduodenal fistula (PADF) that develops between the aorta and the third or fourth portion of the duodenum without prior reconstructive procedures on the abdominal aorta and can be the cause of massive gastrointestinal (GI) bleeding, and secondary ADF produced by erosion of an aortic prosthesis into the digestive tract [1]. PADF It is first described by Cooper in 1822 [2]. The first case report was described by Salmon in 1843 [3].

Case report

A 71 years old male patient previously healthy, smoker, non-alcohol consumer presented initially for 1 day history of painless bright red blood per rectum. Patient denied gastro-intestinal, respiratory or urinary symptoms. To note that 2 months prior to this presentation he reports having left lower quadrant pain radiating to the back treated occasionally with non-steroidal anti-inflammatory (NSAIDS) and antalgic medications.

Upon presentation his physical examination revealed a temperature of 36.9 degrees, Blood Pressure of 110/70 mmHg with tachycardia of 107 bpm and saturation of 97%. The pertinent findings on his physical exam were a pulsatile abdominal mass without tenderness or guarding.

Laboratory investigation was significant for anemia with hemoglobin of 6.8 g/dl and increase in white blood cell with 21 770 and C-reactive protein of 28.6 mg/l (normal <5mg/l), also we

found coagulation defect with an INR of 1.34, hypoalbuminemia of 2.9g/dl and creatinine 1.87mg/dl

The Esophagogastroduodenoscopy till the second duodenum was normal. The ultrasound showed an abdominal aortic aneurysm of 7.2 cm with a thrombus found in the right antero-lateral lumen of the aneurysm, bilateral common iliac arteries aneurysm of 4.7 cm on the right and 3.7 cm on the left side and right hypogastric artery aneurysm of 6? cms.

An abdomino-pelvic Computed Tomography scan without intravenous injection (creatinine = 1,87 mg/dl) was done and showed the same result of the ultrasound with a close contact of the aneurysm with the fourth portion of the duodenum (Figure 1, 2 and 3)

Arteriography was deferred since the patient had kidney injury with a creatinine level of 1.87 mg/dl. In view of these findings, an aorto-duodenal fistula was suspected and vascular surgery team was consulted and urgent laparotomy was scheduled. Intraoperatively, an infrarenal abdominal aortic aneurysm was seen, extending to the iliac arteries bilaterally associated with an aortoduodenal fistula between the aneurysm and the 4th of duodenal segment; The Duodenum was closed adequately by sutures followed by placement of a Dacron graft between the aorta and external iliac arteries with exclusion of the aorta, both common iliac arteries and the right hypogastric artery aneurysms; the left hypogastric artery is retrogradely vascularized by the left external iliac artery. Culture of the fistula was positive for *Enterococcus Foecalis* treated with IV antibiotics for 2 weeks than switched to PO treatment. The First follow-up at the outpatient clinic, fifteen days after discharge, shows normal vital signs and physical examination.

Discussion

We report a case of primary aorto duodenal fistula presenting with lower GI bleed, secondary to infected aneurysm with *Enterococcus foecalis* treated surgically and medically with good final outcome.



Figure 1, 2, and 3: CT scan abdomen without IV contrast showed heterogeneous abdominal aortic aneurysm of 7 cm and its direct contact with 4th duodenal segment suspecting the presence of fistula

Till date less than 300 cases of PADF have been reported in the literature [4]. The incidence of PADF is 0.04-0.07 % [5]. Aneurysm constitutes 70% of cases, but aortitis (infectious or inflammatory) can be a cause [6, 7]. Other possible factors are tumors, foreign body, radiotherapy, diverticulitis, appendicitis, gallstones, ulcers and infection mainly salmonella and klebsiella but sometimes tuberculosis, syphilis, mycosis, streptococcus and staphylococcus [2, 4, 6, 7]. In addition, case reported by Dilek et al showed PADF in patient with rheumatoid arthritis on steroid therapy which can be the risk factor of connective tissue fragility and fistula formation [4].

The fistula may occur in other region of the GI tract such as esophagus, jejunum, ileum and colon [2, 8]. The GI bleed is the most common and serious clinical presentation (64%) and maybe associated with abdominal pain (32%) or palpable mass (25%) [2, 9]. This classic triad is only found in 11% of patients [6]. The severe GI bleeding and hemorrhagic shock can be preceded hours to weeks by "herald bleeds" that are mild and self-limited [3, 10].

The diagnosis is difficult due to nonspecific clinical presentation. CT scan, endoscopy and angiography can be used [3, 11]. Ct scan, the most suitable diagnostic test when PADF is suspected, can show air in the retro peritoneum with loss of aneurysmal wall and disappearance of the fat between the aneurysm and the duodenum and sometimes contrast leakage into the GI tract which is pathognomonic finding [2, 12]. Endoscopy can only be performed if hemodynamically stable patient and negative result does not rule out PADF because it does not allow visualization of the distal duodenum [2, 13]. It is mainly used to rule out other causes of upper GI bleed [2]. Angiography is not reliable in diagnosis PDAF. Magnetic resonance imaging, ultrasound, colonoscopy and tagged white blood cell scans are of limited value [14].

Even with surgical treatment, the mortality is 18 to 93% [4]. PADF associated with infected aneurysm has a worse prognosis than ADF associated with aneurysm alone with postoperative mortality more than 50% [2].

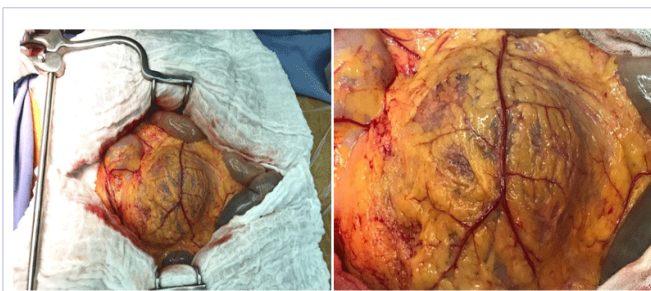


Figure 4: Intraoperative aorto abdominal aneurysm

Conclusion

In summary, the presentation of primary aorto duodenal fistula could be very challenging without previous history of self-limited bleed or the classical triad of GI bleed, pain and abdominal palpable mass, making a delayed and difficult diagnosis. Although the most used diagnostic tools are CT scan of the abdomen

and pelvis, EGD and arteriography, the etiology of bleed could be missed and the last resort would be urgent exploratory laparotomy.

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