

## Upper gastrointestinal bleeding due to primary aortoenteric fistula

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### Rezumat

#### *Hemoragie digestivă superioară prin fistulă aortointestinală primară*

Fistula aortointestinală primară (PAEF - primary aortoenteric fistula) este o cauză rară dar cu importanță clinică de hemoragie catastrofică din sistemul gastrointestinal. "Herald bleeding" (hemoragie Herald) este un simptom caracteristic care se referă la cazul specific de hemoragie din sistemul gastrointestinal superior care se oprește temporar, dar după aceea începe din nou cu hemoragie masivă. Prezentăm cazul clinic al unui bărbat de 55 ani cu PAEF ca a fost admis cu hemoragie gastrointestinală superioară. Studiile endoscopice au fost negative și pacientul a fost laparotomizat. Nu au fost complicații postoperatorii. Suspiciunea, diagnosticul precoce și intervenția chirurgicală sunt importante pentru supraviețuire. Hemoragia gastrointestinală cu endoscopie negativă susține PAEF. Operația endovasculară este o opțiune considerabilă.

**Cuvinte cheie:** fistulă aortointestinală, hemoragie gastrointestinală, laparotomie

### Abstract

Primary aortoenteric fistula (PAEF) is a rare but clinically important cause of catastrophic gastrointestinal bleeding.

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"Herald bleeding" is a characteristic symptom which refers to specific case of upper gastrointestinal bleeding that stop temporarily spontaneously and then proceeds to massive bleeding. We present the case report of a 55-year-old male with PAEF who was admitted due to upper gastrointestinal bleeding. Endoscopic studies were unremarkable and patient underwent exploratory laparotomy. The postoperative course was uneventful. A high index of suspicion, early diagnosis and prompt appropriate surgical intervention are crucial for survival of patient with PAEF. Gastrointestinal bleeding combined with a negative endoscopy suggests PAEF. Endovascular operation is an attractive treatment option.

**Key words:** aortoenteric fistula, gastrointestinal bleeding, Herald bleeding, laparotomy

### Introduction

Aortoenteric fistula (AEF) is rare cause of upper gastrointestinal bleeding. AEF is classified as primary and secondary with the latter being more common (incidence rate from 1,5% to 4%) and ominous complication of aortoiliac reconstructive surgery (1). In contrast, primary fistula is rarer and involves both aneurysmal and non aneurysmal aorta (2). In current years, most cases of primary fistulas are due to atherosclerosis. They are mainly located in the third portion of the duodenum and are due to graft infection or corrosion of the wall of the duodenum and the aorta from either the graft or from other causes (aneurysm or tumour).

Diagnosis is usually made by angiography, endoscopy, computed tomography (CT) and magnetic resonance

imaging (MRI) studies. Main symptoms could be abdominal pain, hematemesis, and melena. In every case the management of AEF is surgical.

### Case report

*A 55-year-old man was admitted to our hospital for intermittent melenas during the past 6 months. He had no medical history and no history of surgery. He was a heavy smoker, neither alcoholic nor diabetic.*

*He was initially admitted with symptoms of anemia associated with melenas, and he was treated with omeprazole and blood transfusion at a local hospital. After the treatment, he underwent endoscopic studies which were unrevealing. When bleeding reoccurred, he was admitted to our hospital. Endoscopy, CT scan and arteriography within 48 hours after rebleeding had no findings. On the third hospital day, melena reappeared followed by hematemesis. The level of hemoglobin decreased from 6.8 gr/dl to 4.2 gr/dl, within a couple of hours, and blood pressure decreased below normal. After rapid blood transfusion, the upper gastrointestinal endoscopy was repeated and revealed a source of bleeding in the third portion of the duodenum.*

*Emergency laparotomy was performed: an aortoenteric fistula was found between the aorta and the third portion of duodenum. There was no duodenal tumour, ulcer or diverticulum, and no aortic aneurysm. There were observed small arteriosclerotic plates on the aortic wall. The wall of the aorta was closed by prolene 3-0 suture and reinforced by Teflon felt with an interpositioning omental flap. The duodenum was closed in two layers using vicryl 2-0 and silk 3-0 sutures. Patient's postoperative course was uneventful and he was discharged on the ninth postoperative day. He had no symptom after 2-year follow-up period.*

### Discussion

Aortoenteric fistulas are rare conditions: their incidence has been reported at 0.04% to 0.07% in autopsy series (3). Primary AEF commonly arises from atherosclerotic abdominal aneurysm, prosthesis, radiotherapy, and tuberculosis, whereas secondary AEF usually follows previous arterial reconstructive surgery. When the primary fistula is other than an aneurysm or when it is idiopathic, the diagnosis becomes difficult. For the two-thirds of patients, the diagnosis is made in the operating room (4, 5). The classic triad of abdominal pain, palpable mass and gastrointestinal bleeding only occurs in 6% to 12% of patients (6). Fistula is not always identified clinically but should be suspected whenever a patient with a history of aneurysm is presented with intermittent hemorrhage, the so-called "herald bleed" (7).

In our case, AEF was relevant to atherosclerosis. It occurred without indicative symptoms and signs, which made the early diagnosis difficult. "Herald bleeding" was also characteristic in this case. It refers to specific case of upper gastrointestinal bleeding that stop temporarily spontaneously and then proceeds to massive bleeding. Their

time of onset is variable between a few weeks to months.

According to the literature, primary AEF mostly occur in the third portion of the duodenum (8, 9) as in the presenting case.

Endoscopy, arteriography, and CT scan are useful in diagnosing primary AEF. Some researchers believe that contrast-enhanced CT scan is the diagnostic procedure of choice; in the hemodynamically stable patients whereas angiography rarely demonstrates the fistula tract (8) as the bleeding is usually not active at the time of the examination. CT showed no signs of AEF in our case; perhaps it is due to automatic closure of the fistula for a short period owing to decreased blood volume and clot formation, or absence of the fistula segments on the CT film. Endoscopy is essential. However, it has the potential risk of inducing massive hemorrhage by dislodging fresh thrombus in the fistula. In our case, endoscopy was repeated in order to achieve a diagnosis. We believe that making the patient undergo a laparotomy without diagnosis would be hazardous.

In summary, surgical therapy after upper gastrointestinal endoscopy is usually the answer to such a dangerous complication. Hence, clinical suspicion is crucial for the diagnosis, as there may be little time for confirmational investigations. However, with rapid strides in interventional techniques, endovascular repair modalities are currently available (10) lessening the morbidity and mortality of an open repair.

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