

## Gastrointestinal Sistem Kanamalarının Nadir Bir Nedeni: Sekonder Aortoenterik Fistül A Rare Cause of Gastrointestinal Hemorrhage: Secondary Aortoenteric Fistula

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### Öz

Aortoenterik fistül, geçirilmiş aort cerrahisi varlığına göre primer ve sekonder olarak sınıflandırılır. Sekonder aortoenterik fistül, rekonstrüktif aorta cerrahisi sonrası gelişen, nadir görülen ve ölümcül gastrointestinal kanamalara neden olan bir komplikasyondur. Gastrointestinal kanama semptomlarıyla başvuran hastalarda alışılmış tanıların dışında kalan aortoenterik fistül tanısını koyabilmek için detaylı bir anamnez gerekir. Bu çalışmada, kanlı kusma ve karın ağrısı şikayetleri ile başvuran, 20 yıl önce geçirilmiş aorta cerrahisi öyküsü olan ve yapılan endoskopide kanama odağı saptanmayan, batin BT ve operasyon sonrasında aortoenterik fistül tanısı konulan 78 yaşında erkek hasta sunulmakta, patogenezi ve tanı prosedürleri vurgulanmaktadır.

**Anahtar Kelimeler:** Gastrointestinal kanama, aort diseksiyonu, aortoenterik fistül

### Abstract

Aortoenteric fistula is classified as primary and secondary according to the presence of previous aortic surgery. Secondary aorto enteric fistula is a rare and fatal complication that develops after reconstructive aortic surgery. In patients presenting with gastrointestinal hemorrhage symptoms, a detailed anamnesis is required to diagnose aortoenteric fistula, which is outside the usual diagnoses. In this study, a 78-year-old male patient who presented with the complaints of bloody vomiting and abdominal pain, who had a history of aortic surgery 20 years ago and who had no bleeding focus at the endoscopy performed, was diagnosed with aortoenteric fistula after abdominal tomography and surgery, and pathogenesis and diagnostic procedures are emphasized.

**Keywords:** Gastrointestinal hemorrhage, aortic dissection, aortoenteric fistula

### INTRODUCTION

Aortoenteric fistula (AEF) is defined as an abnormal tract between the aorta and the gastrointestinal tract. It is divided into two as primary and secondary. Secondary aortoenteric fistula is a rare but fatal complication of reconstructive aortic surgery (1). Hemorrhage due to aorto-enteric fistula is mostly fatal unless diagnosed and treated early (2). The frequency of secondary aortoenteric fistulas increased as a result of the advances in vascular surgery treatment and aggressive approaches (1). Although this condition can develop at any time after aortic reconstructive surgery, it is usually seen within a few months and years after surgery and its frequency varies between 0.4% and 4% (1-3). The process results from necrosis and

ischemia caused by recurrent pulsation of the aortic aneurysm near the intestinal wall (4,5). AEF usually occurs in the posterior part of the third part of the duodenum (6). The third part of the duodenum is the most vulnerable intestinal segment against vascular occlusion due to its retroperitoneal fixation and proximity to the aorta (7).

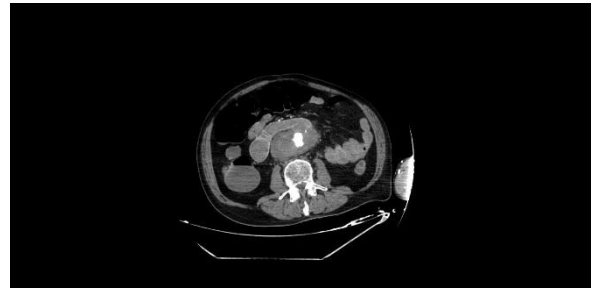
### CASE REPORT

A 78-year-old male patient who had a history of aortic graft operation 20 years ago and was diagnosed with coronary artery disease and hypertension presented to our emergency department with complaints of abdominal pain and bloody vomiting for 2 hours. Blood pressure was evaluated as arterial:120/80 mm/Hg, heart rate:130 beats /min, oxygen saturation in room

air:97%, body temperature:36.7 Physical examination, GCS(glaskow coma scale):15, cooperative, oriental, cardiovascular and respiratory examinations are normal, wide spread tenderness was detected during abdominal examination. The rectal examination of the patient with active hematemesis was evaluated as natural transmission. In laboratory findings, WBC:15.600/mm<sup>3</sup>, Hb:10.8gr/dl, Plt:701.000/mm<sup>3</sup>, AST:30U/L, ALT:17U/L, BUN:25.68mg/dL, creatinine:0.93 mg/dL, Na:134 mmol/L, K:4.5mmol/L. Active hemorrhage focus could not be detected in endoscopy and duodenoscopy. Giant coagulum foci were observed in the pylorus, bulbus and duodenum. Contrast enhanced computed abdominal tomography and angiography were performed, and he was hospitalized in the surgical intensive care clinic upon the suspicion of aortoenteric fistula (Figure 1), in addition to the aortic aneurysm starting from the infradiaphragmatic level to the iliac bifurcations. The patient who developed hypotension and tachycardia and subsequently cardiac arrest was pulsed after 5 minutes of CPR (cardiopulmonary resuscitation) and the patient was taken to emergency operation by cardiovascular surgery and general surgery. During the operation, it was observed that the aortic diameter was aneurysmatic 6 cm above, and the aorta was fistulized to the third part of the duodenum. Aortic and bilateral iliac arteries were clamped and the fistula was repaired. Following the closure of the abdomen, the patient was transferred to the surgical intensive care clinic. The patient, who was followed up in the surgical intensive care unit, died on the second postoperative day.

## DISCUSSION

Aorta enteric fistula is the development of fistula between the aorta and the gastrointestinal tract. Two types of aortaenteric fistulas have been described: Primary aortaenteric fistula (PAEF) and secondary aortaenteric fistula (SAEF) (8,9).



**Figure 1.** Patients with Preoperative Contrast Abdominal Tomography.

PAEF is rare, and its incidence has been reported between 0.04% and 0.07% in large autopsy series (8-10). In PAEF, fistula typically occurs due to aneurysm developing as a result of atherosclerosis and mostly in elderly patients. There is no history of aortic surgery. Rare causes of PAEF include radiation, carcinoma, mycotic aneurysm, septic aortitis due to salmonella infection, diverticular abscess, duodenal ulcer, and foreign bodies (8-10). In PAEF, fistula formation usually develops between the aorta and the 3rd and 4th sections of the duodenum (9,11,12). The annual incidence of SAEF is about 1% (0.6-2) (13). The average duration of SAEF after aortic surgery is 2.8 years (1). SAEF was reported at the earliest on the 2nd day after aortic surgery and at the latest on the 27th year. Our case had a history of aortic graft surgery 20 years ago. A patient with SAEF may clinically manifest as upper or lower gastrointestinal (GI) hemorrhage, sepsis and/or hemodynamic instability. After GI hemorrhage, sepsis or fever are the most common clinical pictures in patients with SAEF (14,15). The clinical presentation of our case was abdominal pain that has been going on for 20 days and bloody vomiting for 2 hours. The choice of diagnostic method in aorto-enteric fistula depends on the clinical situation. In a hemodynamically stable patient, endoscopy is the first preferred method (16). If there is clinical suspicion in cases where there is no bleeding source that can be determined by endoscopy, easily accessible, non-invasive and safer radiographic methods such as computed tomography (CT) should be preferred for

diagnosis. There are no guidelines for the diagnosis and treatment of AEF, so an individualized approach is required for each patient. However, the survival rate is inversely proportional to the time between the onset of bleeding and surgical intervention. Emergency exploration laparotomy should be performed as soon as the diagnosis is made in patients who are hemodynamically unstable (17). Other methods that can be used include magnetic resonance imaging, intravascular ultrasound, arteriography nuclear scans, digital subtraction angiography, multi-detector CT scan, and single photon emission computed tomography (for stent graft infection) (18,19). Active bleeding focus was not detected in endoscopy and duodenoscopy performed on our patient. Giant coagulum foci were observed in the bullous and duodenum in the pylorus. Contrast-enhanced CT was taken on clinical suspicion. In addition to the aortic aneurysm starting from the infradiaphragmatic level to the iliac bifurcations, aortoenteric fistula was detected.

In patients with a history of aortic surgery, early diagnosis of aortoenteric fistula enables surgery with low risk without bleeding and sepsis (20). Repair of AEF depends on maintaining perioperative blood resuscitation, surgical repair, infection control via empirical intravenous antibiotics, and maintenance of hemodynamic stabilization, as well as revascularization and maintenance of perfusion in the lower limb (17,20). In our case, it was observed that the intraoperative aortic aneurysmatic 6 cm above the diameter and the aorta fistulized to the third part of the duodenum. AEF has been repaired. The patient died on the 2nd postoperative day. The prognosis in patients with AEF depends on the patient's hemodynamic status, the application of the surgical technique, and the time to surgery. In the literature, it is reported that the total mortality rate of PAEFs is 80-100% and the perioperative mortality rate is 18-63% (16,21,22). In a study on patients with SAEF, the mortality rate was reported as 45.8% in the first

month, 34% in 3 years and 27.4% in 5 years (15).

In our case, we presented the importance of detailed anamnesis in order to diagnose aortaenteric fistula and high mortality despite early diagnosis and treatment. In patients presenting with GI bleeding, AEF diagnosis should be considered when there is a history of aortic surgery, abdominal aortic aneurysm accompanied by abdominal pain.

In conclusion, the diagnosis of aortaenteric fistula should be considered in patients presenting with GI bleeding, with a history of aortic surgery, abdominal aortic aneurysm accompanied by abdominal pain. Contrast-enhanced CT and upper gastrointestinal endoscopy can provide early diagnosis. Early diagnosis and timely surgical intervention will be life saving in this patients' group. In our case, despite the detailed history of the patient and CT angiography and early surgery with suspicion of AEF, mortality of the disease was inevitable.

We thought that the case we presented would be beneficial in terms of explaining that there is a need for extensive research involving the life span and mortality of patients undergoing surgery.

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