

Case Report; Primary Aortoenteric Fistula Due to Plum Kernel

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Abstract

Aortoenteric fistulas are defined as an abnormal connection between the aorta and any portion of the gastrointestinal tract. It can occur after aortic repair surgery or spontaneously (primary). The common clinical features of primary aortoenteric fistula are upper gastrointestinal bleeding, abdominal pain, and pulsatile abdominal mass. The reasons are inflammatory destruction of an aortic aneurysm, infection, tumors and ingestion of foreign bodies. We represent a case of a primary aortoenteric fistula due to plum kernel which is rarely seen. A 76-year-old man admitted to emergency department with abdominal pain. On computed tomography angiography, there was hypodense restricted lesion with widespread air image which was located around the abdominal aorta. It was determined that abdominal aorta is surrounded by organised hematoma. A plum kernel, was detected in the operating room, was the reason for the aortoenteric fistula. Graft was placed in the abdominal aorta. He died in the first day after surgery. Primary aortoenteric fistulas should be considered in differential diagnosis of abdominal pain, upper gastrointestinal bleeding and shock in patient with aortic aneurysm. Kernels of any fruit considered to be harmless just as plum kernel and should be noted that may cause aortoenteric fistula.

Keywords: Primary aortoenteric fistula, gastrointestinal bleeding, abdominal pain, plum kernel

Introduction

Aortoenteric fistulas (AEFs), are defined as an abnormal connection between the aorta and any portion of the gastrointestinal tract, are rare and life-threatening condition (1). The disease is classified into two types as primary and secondary. Primary AEFs occur spontaneous native aorta and secondary AEFs occur after vascular repair surgery. Clinical signs of AEFs consist of gastrointestinal bleeding, abdominal, back or flank pain, mild epigastric tenderness, pulsatile abdominal mass, hemorrhage shock and sepsis (2).

We represent a case of a primary aortoenteric fistula due to plum kernel which is rarely seen. The aim of this case report is to remind the AES, is a rare cause of gastrointestinal bleeding which is often seen in emergency department. Secondly, recalling that the fruit seed, is frequently passes through the intestine spontaneously, can cause a serious complication as aortoenteric fistula.

Case Report

A 76-year-old man admitted to the emergency department with nausea, vomiting, abdominal and back pain which

had been continued for 15 days. Past medical history of the patient was included chronic obstructive pulmonary disease, hypertension, diabetes mellitus and bladder stones. Vital signs in the emergency department were notable for a temperature: 36 pulse: 110 beats/min and blood pressure: 80/50 mm Hg. The patient's general condition was poor. Physical examination revealed widespread tenderness in the abdomen. Other examinations of the patient were unremarkable and the patient was evaluated for the etiology of abdominal pain. His laboratory results were as white blood cell count 22.000 per microliter, pH: 7.30 and lactate:14.5. The computed tomography angiography of the patient was evaluated by the radiologists as follows: There was hypodense restricted lesion with diffuse air image(abscess?) which was located around the abdominal aorta. This area, was measured as 26 mm as thickest, was surrounding the aorta in approximately 9 cm segment which was extending from the infrarenal level to the iliac artery bifurcation. Aneurysmatic dilatation was observed in proximal of the main iliac artery bifurcation, and diameter of abdominal aorta was measured as 4cm in approximately 3cm segment. Aneurysm associated extravasation was not observed. (Figure1-2)

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Figure 1. Coronal section from abdominal tomography image of patient.



Figure 2. Axial section from abdominal tomography image of patient.

Hemoglobin level was 8.5g/L in the laboratory result. Hematemesis was seen in the nasogastric catheter and endoscopy was performed. Upper gastrointestinal endoscopy showed coagulated blood in the gastric lumen, but bleeding focus and fresh blood was not detected. In the pylorus, pyloric duct, bulb and second part of the duodenum, a mass protruding lesion (external mass invasion? Vascular penetration?) was observed clot in the lumen, which is 3-4 cm distal above the bulb.

Operation was performed with the coordination of both cardiovascular surgery and surgery with suspicion of intraabdominal abscess, hematoma and aneurysm. It was determined that abdominal aorta is surrounded by organised hematoma and a plum kernel located posterior to the duodenum, was detected in the operating room. The plum kernel protruding from the duodenum to the aorta is thought to cause fistula. Abundant bleeding started after outbreak

of plum kernel during surgery. Bleeding was stopped and infected and necrotic tissue was debrided. Aortic aneurysm was replaced with prosthetic graft and the duodenal fistula was closed. Our patient died in the first day after surgery.

Discussion: Aortoenteric fistulas are more commonly seen after aortic graft surgery and the incidence of those varies between in 0.19% to 2%. The aortic fistulas that develop after aortic surgery are called as secondary aortoenteric fistulas. Primary aortoenteric fistulas which are spontaneously occur, are rare than secondary aortoenteric fistulas. In an autopsy study which performed on patients who died of massive gastrointestinal bleeding, primary aortoenteric fistulas detected in 0.04% to 0.07% of patients (3). Men, are older than 60 years, are at greater risk for fistula. More than 75% of all AEFs are located in the duodenum, especially the third portion of the duodenum (4). In 83% of primary aortoenteric fistulas are accompanied with abdominal aortic aneurysm. Dynamic pressure between an expanding aneurysm and a relatively fixed portion of bowel such as the third portion of the duodenum and repetitive pulsation of the aneurysm are thought to cause fistula formation by creating mechanical stress (5). Some rare causes include radiation, infection, tumors, peptic ulcers, Crohn's disease, septicaortitis due to salmonella infection, diverticular abscess and ingestion of foreign bodies which are the reason in 1% of primary aortoenteric fistula (6). In adults, foreign body ingestion is frequently associated with food and in 95% of the cases are accidental. While in 80-90% of foreign bodies are excreted spontaneously from the intestines, only in 10-20% of them require endoscopic intervention and less than in 1% of them require surgical intervention (7). The etiology of PAEF was plum kernel which was seen in our patient.

The most common clinical feature of PAEF is upper gastrointestinal bleeding (64%). Bleeding episodes range from a herald minor hemorrhage to life-threatening massive bleeding. Other symptoms are abdominal pain (32%), and a pulsatile abdominal mass (25%). However, the classical triad of symptoms known as Cooper's triad, includes abdominal, back or flank pain; gastrointestinal hemorrhage; and a pulsating abdominal mass, is concomitantly presented only in 11% of the patients (2,3). Our patient was presented with abdominal-back pain and shock in the emergency department. AEF may not have specific findings in the early period of the disease just as seen in our patient and this may delay the diagnosis. Approximately one thirds of patients may admit to a hospital with hypovolemia, hypotension and septic shock. Surgical mortality is approximately in 21% of the patients who were presented with shock (8).

The diagnosis of primary aortoenteric fistula is difficult and often delayed because of its rarity. Computed tomography angiography, which is a noninvasive method, is often the first option for diagnosis in emergent cases with sensitivity 94% and specificity 85% (9). The specific

CT findings of AEF include ectopic gas within the aorta, focal bowel wall thickening, and extravasation of contrast material into the bowel lumen.

Upper endoscopy is a good diagnostic method to rule out other causes of upper gastrointestinal bleeding such as ulcers and varices. Endoscopy with a water-soluble contrast medium is helpful in documenting the presence of an AEF only when there is leakage of oral contrast material from the disrupted bowel wall into the periaortic space. But this method should be performed only on a hemodynamically stable patient and a negative endoscopy does not rule out the possibility of an AEF. On the side endoscopy has the potential risk of inducing massive hemorrhage by dislodging fresh thrombus in the AEF (2).

Two thirds of patients are diagnosed during surgery. Even laparotomy may be negative in one-half of cases. Unfortunately, as many as 50 percent of cases are diagnosed postmortem. Our patient was diagnosed during surgical intervention (4).

The foundation of treatment for primary aortoenteric fistula consist of accurate and timely diagnosis, initial resuscitation and hemodynamic support, antibiotic therapy, surgical resection and debridement, and arterial and enteric reconstruction. The surgeon should debride the infected and necrotic tissue, correct the bleeding source, and restore arterial and intestinal continuity (6).

Traditional open repair of aortoenteric fistula associated with high morbidity and mortality. Endovascular repair may be an alternative for patients with hemodynamic instability. It has been suggested as a less invasive method to temporarily or definitively manage the AEF (10).

Conclusion: Primary aortoenteric fistulas should be considered in differential diagnosis of abdominal pain, upper gastrointestinal bleeding and shock in patient with aortic aneurysm and swallowed a hard body until proven otherwise. Kernels of any fruit considered to be harmless just as plum kernel should be noted that may cause aortoenteric fistula.

Patient consent form: *The case report has written in an anonymous characteristic, thus secret and detailed data about the patient has removed. Editor and reviewers can know and see these detailed data. These data are backed up by editor and by reviewers*

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