Aorto-enteric Fistula:
A Rare Cause of Gastrointestinal Bleeding

Teck-Jin Yang¹,², Yen-Hsi Chen¹, Hsien-Hua Tsao¹, Lin-Yen Kuan¹,*

ABSTRACT

Gastrointestinal bleeding is a common disease seen in the emergency department. In the majority of patients, endoscopy should be the initial diagnostic procedure. However, a surgical consultation should be considered in patients with high-risk clinical features and ongoing hematochezia. We present a 76-year-old man who visited the emergency department with a large, fresh, bloody stool passage at night and hemodynamic instability despite resuscitation with intravenous fluids and blood product transfusion. Computed tomography angiography showed a ruptured descending aortic penetrating atherosclerotic ulcer with aorto-enteric fistula. Endovascular aneurysm repair was performed, and the patient was discharged 10 days after admission.

Keywords: gastrointestinal bleeding, aorto-enteric fistula, computed tomography angiography

INTRODUCTION

Aorto-enteric fistula is a rare cause of gastrointestinal bleeding [1]. The high mortality and low incidence rate of this disease makes this a diagnostic challenge. The classical triad of an aorto-enteric fistula is gastrointestinal bleeding, abdominal pain and a pulsating mass [2]. However, this triad is present in less than 11% of cases [3]. Delayed diagnosis and incorrect management of this potentially lethal clinical phenomenon can become a true emergency room nightmare.

CASE REPORT

A 76-year-old man with a medical history of hypertension, peptic ulcer disease, colitis and hemorrhoid was brought to the emergency department with the chief complaint of a large, fresh, bloody stool passage at night. On arrival, all vital signs were normal, with a blood pressure of 134/86 mmHg; however he was experiencing tachycardia (114 beats/min). His physical examination revealed no tenderness of the abdomen, with normal bowel sounds. Blood tests revealed a decreased hemoglo-
bin of 11.1 and serum sodium, lipase, and alanine transaminase (glutamate pyruvate transaminase) levels of 133, 51 and 53 respectively.

However, bloody stool passage occurred 3 times with a total of 1850 g, and complaint of lower abdominal pain was noted afterwards. Intravenous fluid challenge, blood transfusion, proton pump inhibitor, and transamin were administered, before performing computed tomography angiography (CTA).

CTA (Figure 1A, 1B) showed active contrast extravasation from a ruptured descending aortic penetrating atherosclerotic ulcer (PAU), with contrast medium pooling and hematoma (black arrow). The patient was then transferred to a medical center. Endovascular aneurysm repair (EVAR) was performed successfully and he was discharged 10 days after admission. At the 1-month follow-up, the patient was doing well.

The 1-month follow-up abdominal CT scan showed abdominal aortic aneurysm with rupture status post EVAR, with metallic stent graft and resolving retroperitoneal hematoma over the left abdomen(Figure 2).

**DISCUSSION**

Hematochezia is commonly associated with lower gastrointestinal bleeding, but may also occur from a brisk upper gastrointestinal bleeding. Acute overt lower gastrointestinal bleeding is a common disease observed in the emergency department, and accounts for ~20% of all cases of gastrointestinal bleeding [4]. In the majority of patients, colonoscopy should be the initial diagnostic procedure and needs to be performed within 24 hours of patient presentation after adequate colon preparation [5]. Risk factors for mortality in lower gastrointestinal bleeding include old age and comorbidity [6].

CTA should be considered before angiography for localization of the bleeding site [4]. It is a di-
Aortic fistula is a rare cause of gastrointestinal bleeding that is widely available and highly accurate at localizing the bleeding site [7]. Together with a surgical consultation, it should be considered in high-risk patients with ongoing bleeding, who do not respond adequately to resuscitation and are unlikely to tolerate bowel preparation and colonoscopy [8,9].

In this case, CTA showed a ruptured descending aortic penetrating atherosclerotic ulcer with an aorto-enteric fistula to the distal duodenum and hematoma.

An aorto-enteric fistula is a communication of the abdominal aorta into the intestinal tract [10]. It may be primary or secondary. Primary fistula is very rare and its incidence ranges from 0.04 to 0.07% [1]. It is usually a complication developing from a pre-existing atheromatous aneurysm of abdominal aorta. Rarely, it may be related to an mycotic aneurysm, vasculitis, tuberculosis or syphilitic aortitis [11-13]. Secondary fistula is far more prevalent and its incidence ranges from 0.6% to 4% [14]. It occurs as a sequel to surgery for an abdominal aortic aneurysm [10].

Aorto-duodenal fistulae are the most common type (60%) owing to the close relationship between the duodenum and the underlying abdominal aorta [15].

The mortality rate of untreated aorto-enteric fistula is nearly 100% and surgery is the only definitive treatment [15]. Techniques are roughly divided into endovascular grafting and extra-anatomical repair. The former is the favored approach owing to much lower mortality rates [16-17]. With endovascular aneurysm repair (EVAR), the aortic aneurysm is repaired using a stent graft. The application of EVAR for a range of aortic diseases includes thoracic aortic aneurysm, type A & type B aortic dissection, aortic aneurysm rupture, penetrating aortic ulcers, intramural haemorrhages, and traumatic aortic injuries [18].

Delaying surgical intervention until after a massive gastrointestinal hemorrhage increases mortality to around 74% [19].

In summary, aorto-enteric fistula should be suspected in any high-risk patient with ongoing and poor response to resuscitation.

REFERENCES


主動脈腸道痿管：一個不尋常的消化道出血的原因

楊德仁1,2，陳彥希1，曹先華1，管麟雁1,*

中文摘要

消化道出血在急診室是一種常見的疾病，大部份此類病患是以內視鏡檢查作為初步的診斷處理，然而，對於具有高風險臨床特徵及持續便血之病患務必考慮外科會診。我們報告急診就醫之一名 76 歲男子，其自半夜開始大量鮮血便且經由靜脈內輸液及輸血復甦後仍然無法穩定其血流動力學，電腦斷層血管攝影術影像發現降主動脈穿透性粥狀動脈硬化破裂合併主動脈腸室痿管，因此施行了血管腔內主動脈瘤修復手術，病人於住院十天後平安出院。

關鍵字：消化道出血，主動脈腸道痿管，電腦斷層血管攝影術