Duodenal Diverticular Bleeding After Endoscopic Retrograde Cholangiopancreatography: A Case Report and Review of The Literature

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Duodenal diverticulae are common with a variable incidence in different studies. Most duodenal diverticulae are asymptomatic and diagnosed incidentally. Duodenal diverticular bleeding is an infrequent complication, but it may be life-threatening with massive blood loss. We report a 70-year-old man who had duodenal diverticular bleeding 6 days after endoscopic retrograde cholangiopancreatography for extraction of common bile duct stones. Endoscopy was performed initially for hemostasis but failed to control the bleeding. Emergency angiography with superselective arterial embolization was performed. This patient recovered after embolization.

Keywords: duodenal diverticular bleeding, endoscopic retrograde cholangiopancreatography, transarterial embolization

Introduction

The prevalence of duodenal diverticulae in the general population varies from 2% to 25%¹². Fewer than 10 percent of duodenal diverticulae are ever symptomatic, and only one percent will require definitive treatment for complications, such as perforation, obstruction, and hemorrhage. Hemorrhage is a rare complication of duodenal diverticulae but it may result in significant morbidity³⁵.

Endoscopic retrograde cholangiopancreatography (ERCP) is an endoscopic technique used for both therapeutic and diagnostic purposes. It is a useful tool for the nonsurgical management of biliary and pancreatic disorders but also has a potential for serious complications.

We present a case of massive gastrointestinal hemorrhage from duodenal diverticulae after ERCP for extraction of common bile duct (CBD) stones.

Case Report

A 70-year-old man was admitted with yellowish discoloration of the eyes. He had hypertension without medication. He was seen by a local physician where ultrasonography of the liver was performed, revealing dilated intrahepatic ducts and CBD. He was transferred to our hospital for further management.
On admission, magnetic resonance cholangiopancreatography showed multiple stones inside the gall bladder and distal CBD with dilatation of the biliary tree, and a 2.1 cm juxtapapillary duodenal diverticula. ERCP with extraction of CBD stones was carried out successfully (Fig. 1).

Six days after ERCP, he experienced intermittent episodes of tarry stool with syncope. Laboratory investigation revealed anemia (hemoglobin 5.9 g/dl, hematocrit 18%). A gastrointestinal endoscopy was performed, and bleeding from the juxtapapillary diverticula with a visible vessel was noted (Fig. 2). Hemostasis via endoscopy was tried but failed and bleeding recurred. Emergency angiography was performed. Superselective angiography of the gastroduodenal artery (GDA) showed active extravasation of contrast medium in the GDA territory (Fig. 3A). Transarterial embolization (TAE) was performed until extravasation was not seen (Fig. 3B). No definite extravasation of contrast medium was noted after TAE angiography. The patient had no post-TAE complications and was discharged five days later in satisfactory condition.

**Discussion**

Most duodenal diverticulae occur on the medial side of the second portion of the duodenum within 2.5 cm of the ampulla of Vater and are asymptomatic. Only 5% to 10% of patients with duodenal diverticulae have clinical symptoms, of which 1% or fewer require treatment because of mechanical pressure effects or diverticulitis. Jaundice, cholangitis, pancreatitis, or duodenal obstruction may result from mechanical compression by diverticulae. Abscess, perforation, internal fistula, or hemorrhage can occur as an inflammatory sequel.
Fig. 2  Gastrointestinal endoscopy shows juxtapapillary diverticular bleeding with an exposed vessel (arrow)

Fig. 3  Angiography of the gastroduodenal artery (GDA). (A) Active extravasation of contrast medium is noted in the GDA territory with blood flow from a small branch of the GDA (arrow). (B) Superselective transarterial embolization was performed with microcoils and Gelfoam cubes (arrow)
The reported incidence of hemorrhage from duodenal diverticulae is about 7%, and most of hemorrhages can be diagnosed by endoscopic examination combined with angiography. Diagnosis of duodenal diverticular bleeding with angiography was first reported by Miller et al in 1970. Thereafter, endoscopy and angiography became the most useful modalities for diagnosing and managing duodenal diverticular bleeding.

Treatments of duodenal diverticular hemorrhage include endoscopic hemostasis, embolization, and surgery. The usefulness of endoscopic techniques as a definitive procedure has been reported, but it is limited because of a small number of cases and the high incidence of rebleeding. Surgical management was the mainstay of therapy before the 1990s, but the reported morbidity and mortality rates related to surgery for complications of duodenal diverticulae are high. Therefore surgeons should be extremely selective when performing elective duodenal diverticular surgery.

Successful superselective arterial embolization has been described. However, TAE must be done with extreme caution because of the complex vascular anatomy of the duodenum; pancreatitis, ischemic damage, and rebleeding have been reported after superselective arterial embolization for duodenal diverticular hemorrhage. Therefore, great care should be taken after the embolization, to detect not only pancreatitis and rebleeding, but also symptoms of obstruction, so that complications can be managed appropriately and in a timely manner.

ERCP is an endoscopic technique. It is used to detect biliary and pancreatic disorders and to undertake various therapeutic maneuvers. Although ERCP is a minimally invasive procedure, it can have serious complications such as pancreatitis, cholangitis, hemorrhage, and duodenal perforation. Some less common adverse events have also been reported, including cardiopulmonary complications, contrast allergy, impaction of a retrieval basket and numerous other events.

We reported a rare case of massive duodenal diverticular bleeding after ERCP for extraction of CBD stones. A gastrointestinal endoscopic study identified the bleeder and hemostasis was performed. However, bleeding recurred and emergency angiography with superselective transarterial embolization was performed. The bleeding was stopped immediately and the patient made an uneventful recovery.

References

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經內視鏡逆行性膽胰管攝影術後合併
十二指腸憩室出血：病例報告和文獻回顧

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十二指腸憩室為上消化道常見之變異。大多數患者為意外診斷，並無臨床症狀。出血為十二指腸憩室少見的併發症之一，但足以致命。我們在此報導一位患有總膽管結石和十二指腸憩室之患者。此患者在接受經內視鏡逆行性膽胰管攝影術後，引發十二指腸憩室出血。我們首先以胃腸道內視鏡治療出血但失敗，而後藉由血管栓塞術成功治癒十二指腸憩室出血。

關鍵詞：十二指腸憩室出血，經內視鏡逆行性膽胰管攝影術，血管栓塞術