Case report

Dieulafoy’s Surprise: An Unexpected Source of Upper Gastrointestinal Bleeding - A Case Report

Abstract

The patient presented with symptoms typical of UGIB, including hematemesis and melena. Diagnostic gastroscopy revealed a Dieulafoy's lesion in the gastric fundus.

Multiple endoscopies were required for a definitive diagnosis, consistent with the challenging nature of identifying Dieulafoy's lesions. Endoscopic treatment was employed, combining injection therapy with mechanical methods such as hemoclip application, which is considered the most effective approach. The patient responded well to endoscopic therapy, achieving successful hemostasis. However, given the 10% risk of rebleeding within the first 30 days post-treatment, close follow-up was planned. This case highlights the importance of considering Dieulafoy's lesion in the differential diagnosis of UGIB, especially when initial endoscopic findings are inconclusive. Early recognition and appropriate endoscopic intervention are crucial for the successful management of this potentially life-threatening condition.

Keywords: GI bleeding; Hematemesis; Gastroenterology

Introduction

Dieulafoy's lesion, also known as caliber persistent artery, is a rare vascular anomaly that can cause severe gastrointestinal bleeding. It features an unusually large artery (1-3 mm) in the submucosa that erodes the overlying mucosa without forming an ulcer. The epidemiology of this lesion is 160 cases per 100,000 patients in the US [1]. Most commonly found in the stomach, these lesions can lead to life-threatening bleeding, presenting as vomiting blood or dark stools. Diagnosis is typically made via endoscopy, which has a 70% success rate. Treatment often involves endoscopic methods like clips or coagulation, effective in about 90% of cases. Despite advancements, the mortality rate remains 9-13% due to the risk of severe bleeding [2,3].

Case presentation

Ethics Statement: This study is exempted from review by the Institutional Review Board. Written informed consent was obtained from the patient.

A 40-year-old Indian male, known hypertensive and not on medications, was admitted to the emergency room with a history of sudden episodes of vomiting up blood four times since the day before. He had revealed that he had consumed two cans of beer after lunch that day. Episodes of vomiting began as soon as he consumed lunch. The first episode of vomiting consisted of fresh bright red blood that was visible at the initial projectile. He then had three more episodes of vomiting in 2-hour intervals during his sleep. He reported clotted dark blood in the last three episodes of vomiting. He also complains of upper abdominal pain, left-sided chest pain, radiating to the back as well as shoulder and neck pain during the episodes of vomiting. He is a chronic smoker. No allergies. Vital signs in ER: - BP- 132/92 mmHg, Temp- 36.8°C, Pulse- 112 bpm. The abdomen was soft on physical examination with mild tenderness in the epigastric region. Bowel motions were normal. Labs on admission: CBC:

Hb 16.6, WBC 10, Platelet count 352; APTT 43.8, PT 15.1, INR 1.39, Amylase 58, Lipase 34, CRP 0.6, Albumin 4.01, Total bilirubin 2.11, Direct bilirubin 0.97, Indirect bilirubin 1.14, AST 195, ALT 126, TSH normal, HbA1c 6.51. His lipid profile was within normal limits. ECG and Troponin T were normal. Abdominal ultrasound findings were suggestive of:- •Diffuse fatty liver, Grade 1. •No free fluid or peritoneal collection.

He was admitted to the ICU for more intensive management. Due to continuous vomiting of blood with dark brown stools, an urgent upper GI endoscopy was performed which revealed a pulsatile vessel in the submucosa of the fundus with active bleeding covering the body and the antrum, suggestive of a **Fundal Dieulafoy's lesion**. Hemostasis was achieved with the placement of two hemoclips on the vessel.

Post-endoscopy, the patient was stable with no further complaints of hematemesis or black-colored stools. Repeated labs: CBC: Hb 10.8, WBC 9.9, Platelet count 203; APTT 30.3, PT 11.4, INR 1.05, Blood typing, ABO: B, Blood typing Rh(O): Positive.

He was on Octreotide and Pantoprazole infusion for 72 hours and received 2 packed red blood cells and 2 fresh frozen plasma products.

The patient was advised for laser ablation if rebleeding occurs in the future.

The patient was discharged after 4 days of hospitalization with no complications.

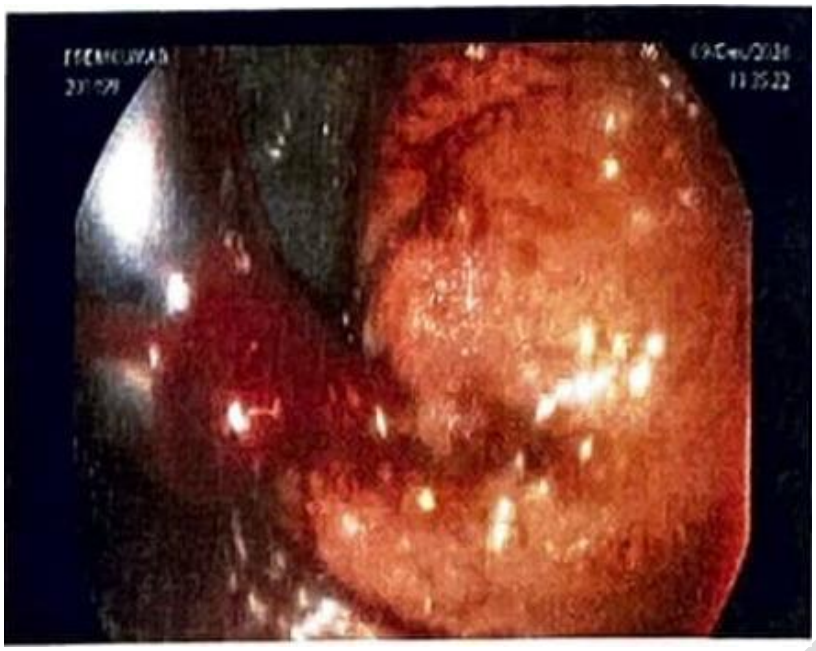

Figure 1: Endoscopy reveals an active bleeding hemorrhagic lesion

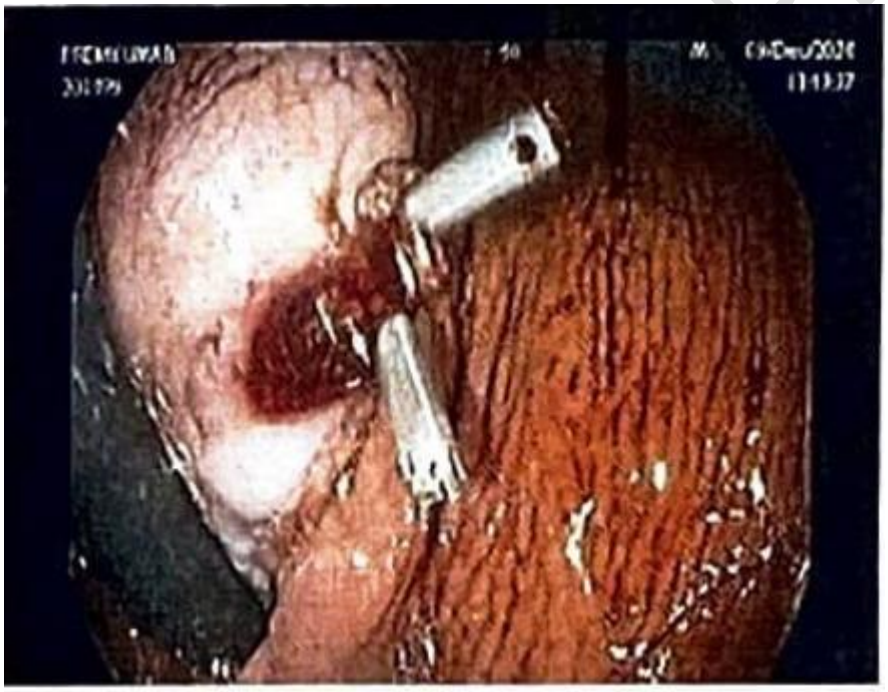

Figure 2: The endoscopy picture lesion is clamped with two hemoclips.

Discussion

Acute upper GI bleeding (UGIB) refers to gross GI blood loss originating proximal to the ligament of Treitz that usually manifests as fresh blood haematemesis, “coffee ground”

emesis, and/or melaena with or without hemodynamic compromise The incidence of UGIB is approximately 160 cases per 100,000 population per year in the US [1]. In the United Kingdom, UGIB accounts for 70,000 hospital admissions annually, with most cases being nonvariceal [4]. UGIB appears to occur four times more likely than lower gastrointestinal bleeding (LGIB). In most clinical settings, the majority of acute upper gastrointestinal bleeding episodes (80%–90%) are attributed to non-variceal causes. The most common non-variceal sources include peptic ulcers in the stomach or duodenum (20%–50%), gastroduodenal erosions (8%–15%), erosive esophagitis (5%–15%), Mallory–Weiss tears (8%–15%), arterio-venous malformations or gastric antral vascular ectasia (GAVE) (5%), and less frequent conditions such as Dieulafoy's lesions or malignancies in the upper gastrointestinal tract. Dieulafoy's lesion is believed to account for about 1-2% of cases of acute and chronic upper gastrointestinal bleeding [5,6]. Here, we report a rare case of fundal Dieulafoy's lesion as a cause of UGIB.

Dieulafoy's lesion, also known as caliber persistent artery, is a rare vascular malformation, which happens to be a very uncommon cause of potentially life-threatening GI bleeding. Dieulafoy's lesion involves a histologically normal artery that is aberrantly located in the submucosa. Unlike typical arteries, it lacks a primary ulcer and directly erodes the overlying epithelium. This artery, which does not usually branch into the mucosa, maintains an abnormally large diameter of 1 to 3 mm—approximately 10 times the size of a typical mucosal capillary [1,2].

Its pathophysiology is not fully understood. However, two main hypotheses explain the development of Dieulafoy's lesion. The first suggests a congenital predisposition leading to an abnormally dilated artery with a heightened risk of protrusion, rupture, and bleeding. The second hypothesis attributes its occurrence to degenerative changes caused by oxidative and

ischemic stress from various factors, such as chronic gastritis, prior surgeries, alcohol consumption, or the use of non-steroidal anti-inflammatory drugs (NSAIDs) [2,7,8].

Dieulafoy's lesions are most commonly found in the proximal lesser curvature of the stomach, representing at least 71% of reported cases [7]. However, they can also occur in other locations, including the esophagus, duodenum, jejunum, ileum, colon, rectum, and anal canal. The duodenum and colon are the second and third most frequent locations among these alternative sites, respectively [9].

Its presentation primarily depends on the location of the lesion. The most common presenting symptom of Dieulafoy's lesion is recurrent, often massive, hematemesis accompanied by melena, occurring in 51% of cases. The lesion may also present with hematemesis alone (28%) or melena alone (18%). Notably, it is characteristically not associated with symptoms such as dyspepsia, anorexia, or abdominal pain. On initial examination, findings may include hemodynamic instability, postural hypotension, and anemia. Studies report a mean hemoglobin level at admission ranging from 8.4 to 9.2 g/dL [7,10]

The diagnosis of Dieulafoy's lesion is made through gastroscopy, with the source of bleeding identified during the initial endoscopy in 70% of cases. However, multiple endoscopies may be required, with 6% of patients needing three or more procedures for a definitive diagnosis, making it a challenging work-up. Common reasons for a failed first endoscopy include a large amount of bright red blood in the stomach lumen, obstructing visibility (44%), or the lesion being small, subtle, and easily overlooked (56%) [11]

Endoscopic methods are the preferred treatment for Dieulafoy's lesions that are easily accessible, with reported success rates exceeding 90% [7,9]. Endoscopic hemostatic procedures can be classified into three categories: 1) thermal-electrocoagulation, heat probe coagulation, and argon plasma coagulation; 2) regional injection techniques, including local

epinephrine injection and sclerotherapy; and 3) mechanical methods, such as banding and hemoclip application. Each of these techniques has distinct advantages and disadvantages regarding hemostatic effectiveness and technical considerations, resulting in varying success rates. Endoscopic hemostasis is successful in 90–100% of cases, though multiple endoscopic procedures may be required for both diagnosis and treatment [11]. Treatment for Dieulafoy's lesion includes the injection of adrenaline (1:10,000 ratio), application of hemoclips or ligation, plasma coagulation, and monopolar or bipolar electrocoagulation [12]. While injection therapy is less effective, it can be quickly applied to control bleeding in cases of heavy hemorrhage, followed by combined mechanical or thermal therapies for successful hemostasis. Mechanical hemostasis is considered the safest and most effective method, with endoscopic hemoclips proving more effective than injection therapy alone [13]. Endoscopic band ligation (EBL) is a useful option when hemoclip intervention fails, although there is a risk of ulcer formation, particularly in cases involving variceal ligation [14]. The most effective hemostasis method combines injection and mechanical therapies.

Despite successful endoscopic hemostasis, rebleeding occurs in approximately 10% of patients, with the highest risk during the first 30 days following treatment [15]. The risk of rebleeding is higher when adrenaline is applied alone, without being combined with mechanical therapy or electrocautery.

Conclusion

Fundal Dieulafoy's lesion is a very uncommon source of GI bleeding, it is essential to diagnose it early and have an early intervention to stop the bleeding and prevent further complications for the patient. It is diagnosed and treated with adrenaline via upper

endoscopy, and chances of recurrence are very high so therefore, regular follow-up visits are essential to improve the patient's quality of life.

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