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Original Article

Acute Gastrointestinal Bleeding from Gastric Dieulafoy's Lesion in a Pregnant Woman with Chronic Hepatitis B Infection

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Abstract

Background *Dieulafoy's lesion is a rare but important cause of upper gastrointestinal bleeding (UGIB). It is a dilated submucosal artery that erodes the overlying mucosa and bleeds without causing ulcerations. Dieulafoy's lesion can be a cause of life threatening UGIB which can be identified and controlled successfully by endoscopic therapy. We present a rare case of a 40-year-old mother, in her 3rd trimester of pregnancy, who presented with voluminous bloody vomiting and melena of five days duration. Her past medical history was notable for chronic HBV infection with suppressed viral load. After thorough evaluation, endoscopy revealed Dieulafoy's lesion along the greater curvature of body of stomach, identified as the source of her UGIB. She was successfully treated with hemoclipping. On subsequent follow up, her hemoglobin levels were stable and she had no obstetric complications or recurrence of her symptoms. This paper highlights the unusual occurrence of Dieulafoy's lesion as a cause of UGIB in pregnancy and reviews current diagnostic and therapeutic recommendations.*

Keywords*: Dieulafoy's lesion, Upper Gastrointestinal bleeding, Pregnancy, Endoscopy, clipping*
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Introduction

Upper gastrointestinal bleeding (UGIB) is a commonly encountered life-threatening medical emergency, with a bleeding PUD being the most common cause. During pregnancy, however, mucosal tears from Mallory-Weiss syndrome are the most common causes, pertaining to the physiologic changes of pregnancy. Notably, there have been only two documented occurrences of Dieulafoy's lesion causing UGIB in pregnancy in the literature [1, 2].

Dieulafoy's lesion (DL) is a vascular malformation causing a dilated submucosal blood vessel that bleeds without ulceration [3]. Although it's hard to determine its true incidence, it's believed to account for 1-2% of UGIB cases [4, 5]. The challenges in diagnosing Dieulafoy's lesion, along with its historically high mortality rate of up to 80%, make it an important differential diagnosis in UGIB. Endoscopic interventions have significantly reduced the mortality associated with this condition. However, its diagnosis still requires high level of clinical suspicion and expertise [5].

In this paper, we describe a case of a 40-year-old pregnant woman in her third trimester of pregnancy who presented with symptoms of hematemesis and melena. Her past medical history of chronic HBV infection, without clinical signs of cirrhosis and no other apparent cause of UGIB, posed a diagnostic challenge.

Case Presentation

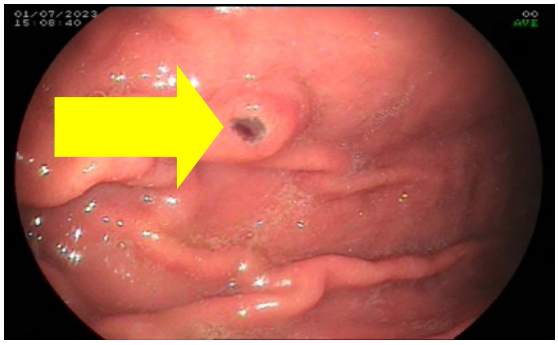
A 40-year-old woman in her third trimester of pregnancy, with a previous diagnosis of chronic hepatitis B infection under regular follow-up visited the Gastroenterology and Hepatology clinic at Lancet General Hospital after experiencing two episodes of voluminous coffee-ground vomiting and dark stools of five days duration. She had no history of nonsteroidal anti-inflammatory drugs (NSAIDs), antiplatelet, or anticoagulant use, no alcohol intake, and no prior treatment for PUD, nor did she have history of preceding vomiting, retching, or vascular disease in herself or family. Upon arrival, her vital signs were stable, and her physical examination was unremarkable except for pale conjunctiva and palmar pallor. There was no jaundice, palpable abdominal

organ, or signs of peritoneal fluid collection. Laboratory results showed hemoglobin was 9.1 g/dL, platelet count of 140,000 per microliter, and international normalized ratio (INR) of 1.19, with normal liver and renal function tests. Abdominal and obstetric ultrasound showed a normal third trimester pregnancy that was otherwise unremarkable. Her most recent HBV DNA level, done two months back, was 25 IU/mL.

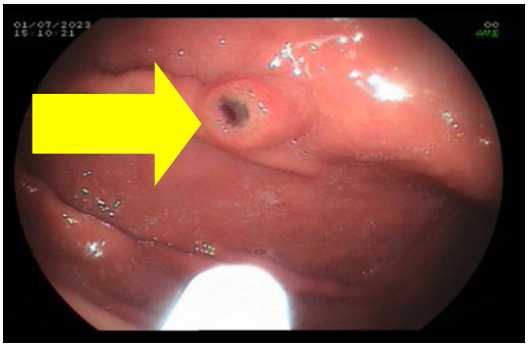
An esophagogastroduodenoscopy revealed a normal mucosa of the esophagus, fundus, antrum, and cardia of the stomach. However, a large protruding submucosal vessel with an overlying clot, but no active bleeding, was noted over the greater curvature of the stomach body. No ulcer or varices were identified. Endoscopic clipping was successfully performed at the base of the dilated vessel.

Obstetric evaluation performed on the same day of the procedure revealed normal findings, aside from the anemia. It was planned to shorten second stage of labor and to give iron supplements for the anemia. The patient was then started on daily oral doses of Esomeprazole 40 mg and Ferrous sulfate 325 mg. She was re-evaluated at the GI clinic two and four weeks post-discharge, with hemoglobin levels of 10 g/dL and 11 g/dL, respectively, and no further episodes of bleeding. She continued her ANC visit, and delivery was uneventful.

Endoscopic images showing the gastric Dieulafoy's lesion before and after clipping are shown in Figure 1.

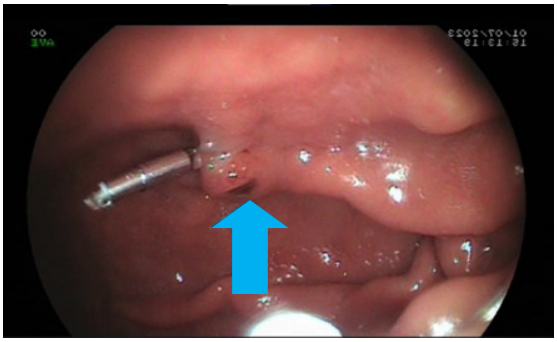


1A

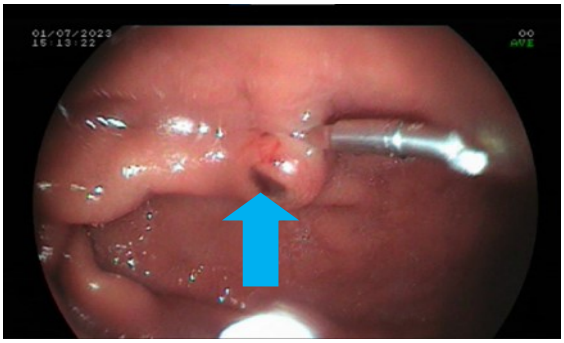


1B

Figures 1A and 1B show a big protruding submucosal vessel with an overlying clot over the greater curvature of the stomach body, without active bleeding (yellow arrow).



1C



1D

Figures 1C and 1D show the applied endoscopic clipping (blue arrow).

Discussion

Dieulafoy's lesion is a notable cause of UGIB, with the potential to cause severe, life-threatening, and recurrent episodes. It is characterized by a histologically normal tortuous submucosal vessel, measuring 1–3 mm in diameter, that protrudes through a small mucosal defect [5]. DLs account for 1% to 2% of all GI bleeding cases, with a recent mortality rate ranging from 9 to 13 % [6].

Although DL can develop anywhere along the GI tract, the gastric region is the commonest site representing 70% of cases, followed by duodenum (15%), esophagus (8%), colon, and rectum (2%) [5].

The etiologies and precipitating factors for DLs remain poorly understood. The lesions occur twice as commonly in males than females and are more common in the elderly population, though they can occur in any age group. Patients with DLs often have non-gastrointestinal

comorbidities such as cardiovascular disease, hypertension, diabetes, and chronic renal insufficiency.
While NSAIDs and anticoagulants are known to precipitate UGIB in individuals with DLs, no definitive causal link has been established between these medications, *Helicobacter pylori* infection, or PUD and the development of DLs[5, 6].

DL typically presents with acute GI bleeding in a patient with no prior history of gastric problems. About half of the patients with upper GI lesion present with both hematemesis and melena. The bleeding is arterial and therefore can be severe episodes, often causing hemodynamic instability and laboratory abnormalities [6].

Upper endoscopy is the first-line diagnostic modality to detect DLs. These lesions typically appear as a mucosal protuberance with a visible pigmented underlying vessel, without an associated ulcer. However, endoscopy detects the lesions in only 70% of cases. The lower diagnostic yield is attributable to small size of lesions, their challenging locations, and obscuration by active bleeding. Other diagnostic modalities include endoscopic ultrasonography (EUS), bleeding provocation, capsule endoscopy, and angiography [5-7].

The general treatment principle of UGIB should be followed in the management of DL bleeding. These include risk stratification, adequate resuscitation, blood product support, and securing hemostasis. Since patients with DLs are at risk of recurrent episodes of bleeding especially in the first 72 hours, securing hemostasis is critical. The methods include clipping, thermal or electrical coagulation, sclerotherapy, and Argon plasma coagulation. These techniques achieve initial hemostasis in about 90% of cases [5-7].

The safety of endoscopy during pregnancy remains uncertain. The major risks include fetal hypoxia, premature labor, trauma and teratogenesis due to sedative medications. In pregnant women, endoscopy should be performed only for strong indications and with strict fetomaternal monitoring. To minimize complications, it is recommended to delay the procedure until the third trimester, when possible, use the lowest effective dose of sedatives, and shortening the procedure time [8].

According to some reports, HBV DNA levels remain stable during pregnancy, and pregnancy is unlikely to affect the long-term course of chronic hepatitis B or its progression to decompensated liver disease and cirrhosis. Therefore, the primary focus during pregnancy remains taking necessary measures to reduce vertical transmission of the virus [9]. We could not find an association between hepatitis B infection and DL in our literature review.

The management of DL during pregnancy is similar to the general population [2]. In both reported cases of DL-induced UGIB during pregnancy, hemoclipping was used as the treatment modality. In our case, although the patient has chronic HBV infection and was at risk for variceal bleeding, the endoscopy identified DL on the greater curvature of the stomach and hemostasis was secured with clipping. The patient was discharged home with supportive treatment and experienced no obstetric complications or recurrence of bleeding.

Conclusion
Although rare in occurrence, Dieulafoy's lesion is an important cause of potentially severe, recurrent, and life -threatening UGIB. In patients with no identifiable cause of UGIB, DL should be considered including in pregnant women. Endoscopy is he cornerstone of both diagnosis and management, with high success rate. However, it requires a high level of clinical suspicion and expertise to identify these lesions. Early recognition and prompt intervention are crucial in managing UGIB caused by DL.

Ethical approval
Written consent was obtained from the patient for publication of this case report and associated images.

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Disclosure
All authors declare no competing interests of any kind in this publication.

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