Scientific Research Publishing

Open Journal of Gastroenterology, 2024, 14, 80-86
https://www.scirp.org/journal/ojgas
ISSN Online: 2163-9469
ISSN Print: 2163-9450

Challenges in Diagnosing and Managing Dieulafoy's Lesions: A Case Report Highlighting the Importance of Clinical Suspicion and Multidisciplinary Approach in Obscure Gastrointestinal Bleeding

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How to cite this paper: Abraamyan, F., Misra, N., Tran, K., Mahmood, K., Coombs, B. and Lingala, S. (2024) Challenges in Diagnosing and Managing Dieulafoy's Lesions: A Case Report Highlighting the Importance of Clinical Suspicion and Multidisciplinary Approach in Obscure Gastrointestinal Bleeding. *Open Journal of Gastroenterology*, **14**, 80-86.
https://doi.org/10.4236/ojgas.2024.143008

Received: February 14, 2024
Accepted: March 22, 2024
Published: March 25, 2024

Abstract

Upper gastrointestinal bleeding remains a significant cause of hospital admissions. Even though the incidence of peptic ulcer disease and gastritis is decreasing, the incidence rates in neoplasm, Dieulafoy's lesions, angiodysplasia, and esophagitis are trending up, which necessities physicians to be aware of those pathologies and their specifics. Here, we represent a case of a 62-year-old male on dual antiplatelet therapy who was transferred to our hospital due to severe melena with suspicion of upper gastrointestinal bleeding. Due to hemodynamic instability, the patient was intubated and started on vasopressors. However, several repeated EGDs and CTs of the abdomen with GI bleeding protocol did not reveal the location of active bleeding to stop it. At the same time, clinically, the patient was hemodynamically unstable with continued melena. On the last EGD, a small area of concern resembling gastric varix was clipped for identification purposes, and the patient underwent a selective angiogram with further diagnosis of Dieulafoy's lesion, which was successfully embolized. Our case demonstrates that Dieulafoy's lesions can present as severe life-threatening hemorrhage, hard to diagnose with traditional methods such as EGD or CTs, in which case it is recommended to proceed with an angiogram sooner rather than later for further diagnosis and treatment if needed.

Keywords

Upper Gastrointestinal Bleeding, Dieulafoy's Lesion, Angiodysplasia, Melena, Hematochezia, EGD, Angiogram, Embolization

1. Introduction

Upper gastrointestinal (GI) bleeding remains a significant cause of hospital admissions, with a notable incidence rate of about sixty-seven per 100,000 individuals. While the incidence of peptic ulcer disease and gastritis is decreasing, the incidence rates in neoplasm, Dieulafoy's lesions, angiodysplasia, and esophagitis are trending up, necessitating physicians to be aware of those pathologies and their specifics [1].

Dieulafoy's lesion accounts for 1% - 5.8% of cases of acute upper GI bleeding and can cause both upper or lower GI bleeding with mortality rates between 9% and 13% [2] [3] [4]. Although the incidence rate is uncommon, Dieulafoy's lesion is frequently difficult to diagnose, which makes it challenging to control the bleeding [5].

We present a rare and challenging case of massive hematochezia that demanded extensive interventions, including multiple transfusions, intubation, and vasopressor support. This case shows the critical need for heightened awareness and consideration of less common etiologies in GI bleeding, such as Dieulafoy's lesion, particularly when standard diagnostic procedures fail to yield clear results.

2. Case Presentation

A 62-year-old male patient with a complex medical history, including previous gastric bleeding, dual antiplatelet therapy (Aspirin and Plavix) following drug-eluting stent placement, heart failure with mid-range ejection fraction (HFmrEF, 47%), hypertension (HTN), hyperlipidemia (HLD), chronic alcohol abuse and previous GI bleeding requiring clip placement, was urgently transferred to our facility for advanced intervention due to suspected upper gastrointestinal (GI) bleeding. Upon arrival, CBC showed hemoglobin (Hb) 10.7 g/dL, platelet 310k, BUN 43 mg/dL, Creatinine 1.0 mg/dL, INR 1.2; initial imaging found no abnormality in the liver suggestive of cirrhosis. Due to hemodynamic instability following hemoglobin drop, the patient was intubated, started on vasopressors, and a massive transfusion protocol was initiated. The first EGD (esophagogastroduodenoscopy) revealed a significant amount of old blood without evidence of active bleeding (**Figure 1**). CT abdomen with GI bleeding protocol did not find any active GI bleeding as well. Repeat EGD on the following day showed a large amount of old blood with no evidence of active bleeding and no evidence of esophageal or gastric varices. However, the patient continued to have melena, requiring additional blood transfusions. Due to severe ongoing bleeding, he underwent a repeat third EGD, which did not reveal active bleeding again. CTA did not reveal active bleeding as well. However, on the fourth urgent EGD, a small non-bleeding mucosal lesion resembling a gastric varix was found (**Figure 2**). Still, it could not be clipped. Hemospray was applied, and the lesion was marked by a clip to be easily identified by interventional radiology. Due to overt obscure upper GI bleeding, he underwent a selective angiogram. He was

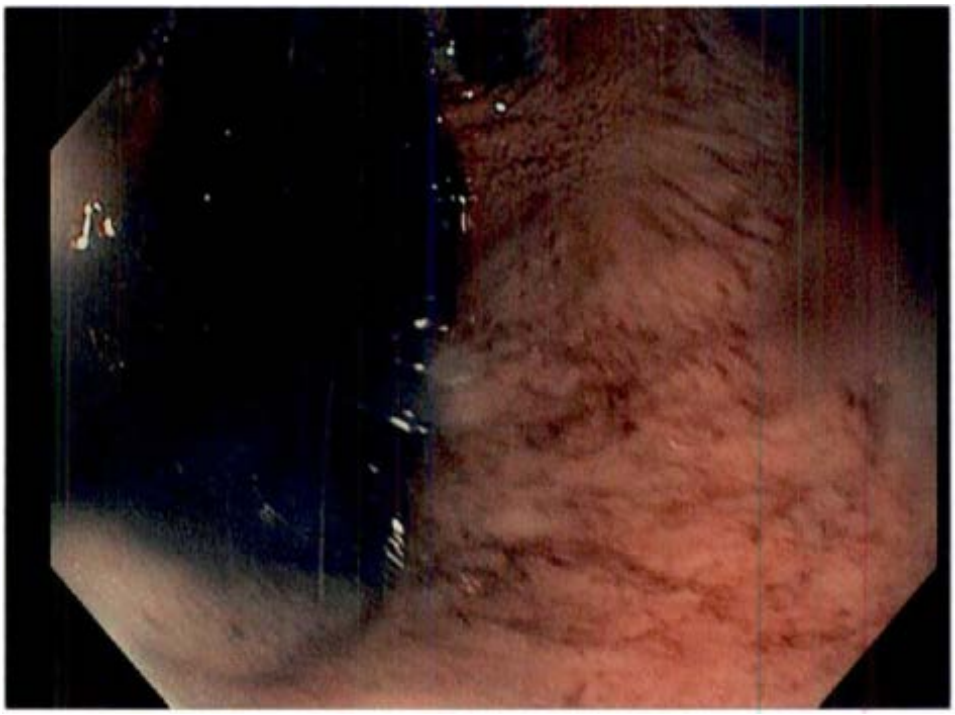

Figure 1. EGD: large amount of dark blood and blood clots in stomach fundus.

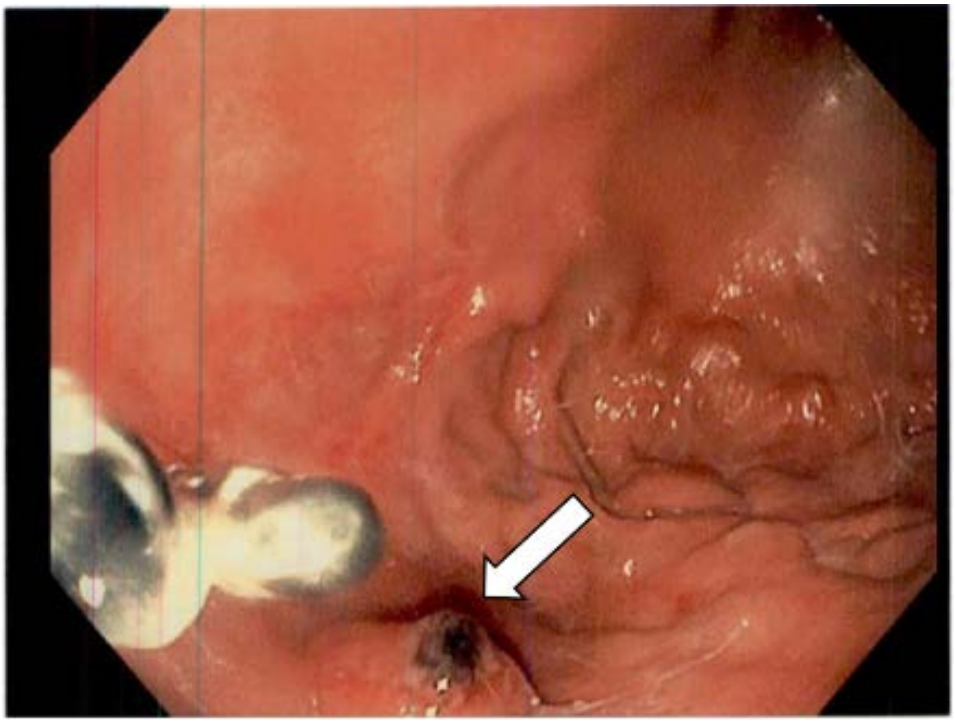

Figure 2. Non-bleeding mucosal lesion like gastric varix found in stomach fundus.

noted to have a dilated inferior phrenic artery and numerous tortuous arteries near the gastric cardia, suggestive of arterial malformation (**Figure 3**). He underwent prophylactic coil foam and Gel foam embolization. After this, no further bleeding was reported, and he remained hemodynamically stable.

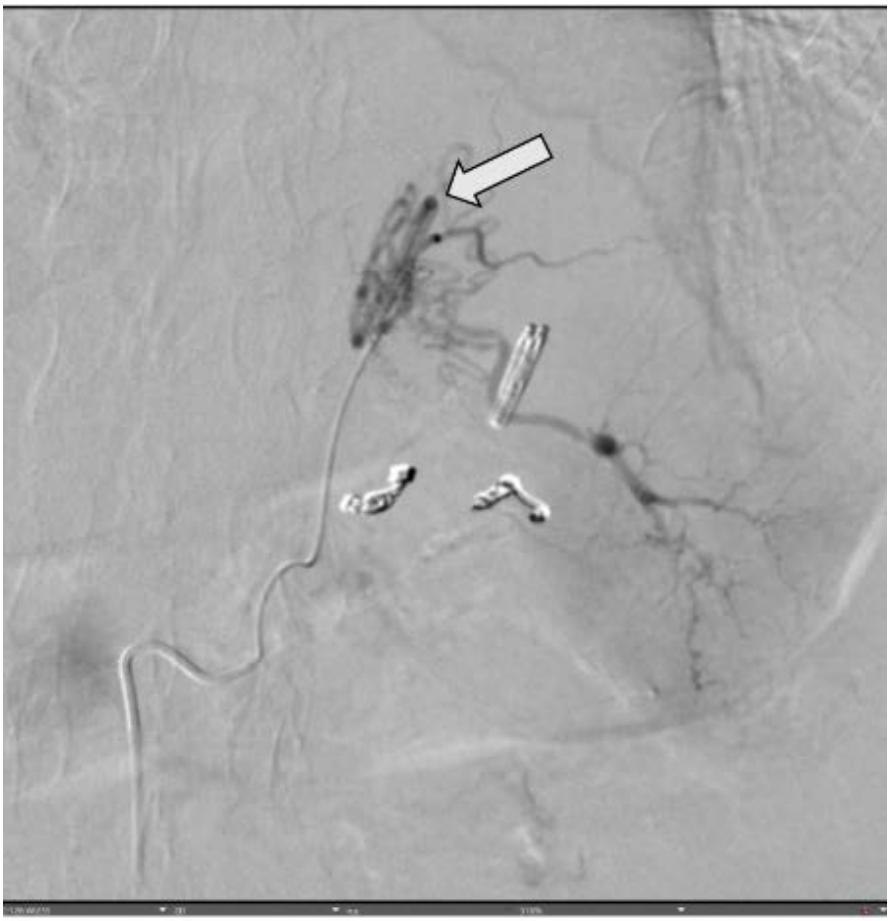

Figure 3. Angiogram: Abnormal torturous blood vessel representing Dieulafoy's lesion.

3. Discussion

Dieulafoy's lesions were named by French Surgeon Georges Dieulafoy after describing three fatal hemorrhages in asymptomatic men. It's now understood to be an abnormally dilated submucosal artery that erodes through normal gastrointestinal mucosa. Unlike the normal arterial tree, which, like branches of a tree, progressively narrows with each branch, Dieulafoy's lesion maintains a constant arterial caliber of 1 - 3 mm despite its very deep submucosal location within the wall, which is ten times the normal size of capillaries [6]. Constant pulsations of these vascular malformations can breach the gastrointestinal mucosal barrier, leading to spontaneous and potentially massive bleeding episodes.

Males are two times as affected as often as females, and incidence is higher in the elderly population. Most lesions are found in the stomach (80% - 90% of cases are found on the lesser curvature close to the gastroesophageal junction) [7] [8] [9]. Two theories discover the pathophysiology of Dieulafoy's lesion. The first is that the lesion usually remains unidentifiable due to protection of the overlying mucosa; when a peptic ulcer forms, it completely erodes with arterial bleeding, leading to hemorrhage. Another theory is the development of localized ischemia and breakdown of the mucosa from constant arterial pulsations, which

results in erosion and rupture of the artery [10].

Clinical presentation usually depends on location, ranging from upper GI bleeding with hematemesis or melena. Still, there are also cases of lower GI bleeding presenting as hematochezia or fresh bleeding per rectum. Studies report that bleeding caused by the nature of the lesion is often severe, and hemodynamic instability is present in almost 80% of the cases [11] [12]. A causal relationship between Dieulafoy's lesion and the use of aspirin or NSAIDS has been researched but has not been found conclusive [13]. However, in our case, the patient was on dual antiplatelet therapy, which made the bleeding even more challenging to control.

Endoscopy remains the standard of care as an initial diagnostic test. Still, studies report only a 70% yield due to the frequently small appearance of the lesions as pigmented protuberances from exposed vessel stumps [7]. Hemostasis by Endoscopic Therapy can be achieved by using hemostatic clips, sclerotherapy, argon plasma coagulation, thermocoagulation, or electrocoagulation, which are all recommended as initial therapy, with control of hemostasis found in 90% of cases. Most cases will go to endoscopy or angiography once identified, and only a few will proceed to surgery. However, low awareness about Dieulafoy's lesion contributes to substantial morbidity, with mortality of up to 80% associated with this lesion due to the life-threatening bleeding that can occur in these cases [12] [13].

In the case we encountered, a vascular anomaly was in a stomach region that was challenging for endoscopic evaluation and remained undetected on CT imaging due to the lesion's slow bleeding rate. Our patient had a total of 4 EGDs that did not allow us to adequately visualize Dieulafoy's lesion due to old blood and blood clots. He also had several nonrevealing CTAs and, due to continuous bleeding, underwent a transfusion of three units of blood, one unit of platelets, and one unit of plasma. Even though on the last EGD, a small lesion was seen, however, it was not actively bleeding. It anatomically resembled a gastric varix, in which case empiric placement of clip or performing electrocoagulation is contraindicated. The patient was sent to the IR for further diagnosis and treatment. Since a suspicious lesion was already marked, it helped the IR to quickly identify the right vessel that occurred to be abnormally dilated and long, tortuous artery deeply penetrating gastric mucosa-Dieulafoy's lesion. The seen protuberance was most likely from exposed vessel stumps, but clipping was contraindicated due to its resemblance to gastric varix on EGD. In our case, due to the size and location of the vessel, embolization was the best treatment approach successfully performed.

Our case shows that other management modalities, including interventional radiology and surgery, should be considered in cases with refractory bleeding, non-conclusive EGD, and negative CT results. Given that Dieulafoy's lesions are typically identified unexpectedly, healthcare professionals need to maintain a high index of suspicion for this rare condition, comprehend its clinical implications, and be proactive in applying the correct therapeutic approach.

4. Conclusion

Dieulafoy's lesion is a rare but compelling cause of acute gastrointestinal bleeding due to the severity of its presentation, which can be life-threatening. Both diagnosis and treatment are challenging. In cases of severe bleeding and nonrevealing EGDs and CTs, it is recommended to proceed with angiography sooner rather than later for a more definitive solution, sometimes requiring radical treatment with embolization. Further studies and case reports are encouraged to spread awareness and make recognizing rare causes of severe gastrointestinal bleeding more efficient.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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