World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(CASE REPORT)

Gastrointestinal bleeding due to a dieulafoy lesion in the duodenum: A case report

Lamyae Marhraoui *, Yousra Kirami, Dafrallah Benajeh, Sidi Adil Ibrahimi and Nada Lahmidani

Department of Hepato-Gastroenterology – Hassan II University Hospital –Faculty of Medicine, Pharmacy and Dentistry – Sidi Mohammed Ben Abdellah University – Fez– Morocco.

World Journal of Advanced Research and Reviews, 2025, 26(02), 3422-3426

Publication history: Received on 05 April 2025; revised on 14 May 2025; accepted on 16 May 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.26.2.1840

Abstract

Dieulafoy's ulcer is a rare but potentially life, threatening vascular anomaly of the gastrointestinal tract. It is characterized by the erosion of the wall of a submucosal artery, most commonly in the stomach, though it can also occur elsewhere along the digestive tract. While the gastric location is most frequently reported, extragastric cases, particularly in the small intestine, have also been described. This lesion is often associated with significant gastrointestinal bleeding, which may be severe or even fatal. Prompt diagnosis is essential to ensure appropriate therapeutic intervention, usually endoscopic, and to prevent serious complications such as perforation or massive hemorrhage.

We present a rare case of Dieulafoy's ulcer located in the duodenum, an uncommon site, and discuss the diagnostic and therapeutic challenges it poses, as well as its relevance in the management of gastrointestinal bleeding.

Keywords: Dieulafoy Lesion; Endoscopy; Hemostatic Clips; Duodenum; Gastrointestinal bleeding

1. Introduction

Dieulafoy's lesion (DL) is a an uncommon but potentially fatal cause of gastrointestinal hemorrhage. It represents a vascular malformation characterized by a small, abnormally dilated artery that follows a tortuous path within the submucosa [1]. Although considered congenital, the frequency of DL appears to increase with age [2]. Dieulafoy's lesions account for approximately 1% to 5.8% of cases of acute gastrointestinal bleeding [3,4], often presenting as sudden, massive hemorrhage that can lead to hemodynamic instability or even death.

The stomach is the most common site of involvement, while duodenal lesions are much less frequent, comprising only around 15% of cases [5]. Endoscopy is the most effective diagnostic tool, allowing identification of up to 70% of lesions [2]. Typical endoscopic features include an isolated protruding vessel surrounded by normal-appearing mucosa, or less commonly, a small round or oval superficial ulcer [6,7]. The visible vessel typically measures between 1 and 3 mm in diameter [8]. The lesion may be actively bleeding, either spurting or oozing, or may be obscured by an adherent clot [6].

Despite the potentially life-threatening nature of this condition, there are no established guidelines for its management, particularly for duodenal lesions, which remain sparsely reported in the literature. In this report, we present a case of duodenal DL successfully diagnosed and treated endoscopically, with informed consent obtained from the patient

* Corresponding author: Lamyae Marhraoui

2. Case presentation

We report the case of an 82-year-old woman with past medical history of hypertension, diabetes, myocardial infarction treated with stenting, complicated by atrial fibrillation. She was on dual antiplatelet therapy as well as on a direct oral anticoagulant.

The patient was admitted for evaluation of melena that had persisted for two days prior to admission. There was no hematemesis, abdominal pain, or other digestive or extra-digestive symptoms.

Upon initial examination, she was conscious, with a Glasgow score of 15, a heart rate of 105 bpm, and a blood pressure of 120/80 mmHg. Her abdomen was soft, with no signs of peritoneal irritation or palpable masses. Digital rectal examination confirmed melena. The patient did not show any signs of heart failure.

Laboratory tests revealed hypochromic microcytic anemia (hemoglobin 8.7 g/dL), with preserved renal function and normal prothrombin time. She received two units of packed red blood cells given continuous active bleeding.

After hemodynamic stabilization (fluid resuscitation, transfusion, etc.), an esophagogastroduodenoscopy (EGD) was performed. It showed normal esophageal mucosa, fresh blood in the stomach and duodenal bulb, and an actively bleeding point on normal-appearing mucosa in the first portion of the duodenum (Figure 1). Bleeding resumed after lavage, suggestive of a Dieulafoy's ulcer.

Endoscopic hemostasis was achieved with local adrenaline injection followed by placement of two hemoclips, which successfully controlled the bleeding. (Figure 2)

Figure 1 Dieulafoy's lesion: active bleeding from the duodenum

Figure 2 Treatment of Dieulafoy's lesion with two hemostatic clips

No further bleeding occurred after the endoscopic treatment, and the patient's stool cleared 24 hours later.

The patient was hospitalized for 8 days and discharged with a hemoglobin level that stayed stable around 10 g/dL after receiving oral iron supplementation.

3. Discussion

The Dieulafoy lesion is a vascular malformation of the gastrointestinal tract (GIT), first described in 1898 by French surgeon Paul Georges Dieulafoy as 'exulcerated simplex. It is a rare cause of life-threatening gastrointestinal bleeding, accounting for approximately 1% to 2% of all cases and 6.5% of non-variceal upper gastrointestinal bleeding [9][10].

In adults, Dieulafoy lesions are found twice as frequently in men as in women (2:1) [11]. Although Dieulafoy lesions can occur in all age groups, they are most common in elderly individuals, particularly in their fifth decade, often accompanied by multiple comorbidities such as cardiovascular disease, hypertension, chronic kidney disease, and diabetes mellitus, as well as prolonged use of certain medications, including NSAIDs and anticoagulants [12].

Dieulafoy lesions are often asymptomatic unless the overlying mucosa erodes, leading to bleeding. Symptoms are related to blood loss, which can result from either intermittent or massive gastrointestinal hemorrhage. Melena is the most common presentation, followed by hematemesis, hematochezia, iron deficiency anemia (IDA), hemoptysis, or hemodynamic instability. In rare cases, a Dieulafoy lesion of the gallbladder may present with upper abdominal pain without obvious bleeding [13].

A biopsy is not recommended for diagnosing Dieulafoy lesions due to the increased risk of bleeding. Histological examination of the lesion has shown a normal artery with occasional amyloid deposits [14].

Macroscopically, the lesion appears as a pseudopolyp. Actively bleeding lesions have an arterial size of 1 to 2 mm, with arterial spurting and mucosal erosions up to 5 mm in size. Microscopically, the artery contains an elastic lamina and extends into the muscularis mucosae. Dieulafoy lesions can be distinguished from gastric ulcers histologically by the absence of subintimal fibrosis and mucosal inflammation [15].

Direct endoscopic visualization of the Dieulafoy lesion is the gold standard method for diagnosis. Most patients are diagnosed after a single endoscopy; however, poor visualization of the GIT due to blood or food particles may necessitate multiple procedures. The endoscopic visual diagnostic criteria required for diagnosing a Dieulafoy lesion are as follows:

- Normal mucosa surrounding small mucosal lesions with active pulsatile bleeding less than 3 mm in size.
- Visualization of a protruding vessel from a slight defect or normal mucosa.
- Observation of a fresh clot attached to a defect in the normal mucosa [16].

There is no consensus on the treatment of Dieulafoy lesions. Several endoscopic treatment options are available, including local injection of epinephrine, sclerotherapy, thermal or argon plasma coagulation, banding, and hemoclipping. The choice of therapeutic technique will depend on the clinical presentation, lesion site, and available surgical and endoscopic expertise [5].

Mechanical hemostasis, including banding and hemoclips, is the safest and most effective treatment [18]. A study by Alis et al. showed that endoscopic band ligation (EBL) was associated with a lower risk of recurrent bleeding and a shorter hospital stay compared to sclerotherapy [17]. Hemoclipping has proven to be effective in treating Dieulafoy lesions, with a success rate of 95% [19]. Combination therapy yields better outcomes than monotherapy for treating Dieulafoy lesions. During endoscopic treatment, the bleeding site is often marked with India ink to facilitate future identification in case of recurrent bleeding [20]. If endoscopic treatment fails, surgical options such as wide wedge resection or partial/wedge gastrectomy are performed.

The mortality and morbidity associated with Dieulafoy lesions have decreased significantly to 8.6% since the advent of endoscopy [21]. Hemostasis is successfully achieved in 80 to 85% of cases treated with endoscopy.

4. Conclusion

Due to the subtle nature of the disease, it is often initially missed, leading to delayed treatment and subsequent adverse complications. The most common complication is massive spontaneous gastrointestinal hemorrhage, which can be fatal

if left untreated. Intermittent blood loss can lead to iron deficiency anemia (IDA) and, in severe cases, hemodynamic instability. In some cases, it may worsen pre-existing comorbidities. Several effective endoscopic techniques are available to control bleeding. The combination of injection therapy and mechanical therapy reduces the risk of rebleeding.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Santos T, Serra M, Oliveira A, Fernandes C. Dieulafoy lesion of the gallbladder: A rare cause of hemobilia and acute pancreatitis - Case report. Int J Surg Case Rep. 2020; 66:207-210. [PubMed] [DOI] [Cited in This Article: 2] [Cited by in Crossref: 3] [Cited by in RCA: 3] [Article Influence: 0.5] [Reference Citation Analysis (0)]

[2] Marangoni G, Cresswell AB, Faraj W, Shaikh H, Bowles MJ. An uncommon cause of life-threatening gastrointestinal bleeding: 2 synchronous Dieulafoy lesions. J Pediatr Surg. 2009; 44:441-443. [PubMed] [DOI] [Cited in This Article: 2] [Cited by in Crossref: 33] [Cited by in RCA: 40] [Article Influence: 2.5] [Reference Citation Analysis (0)]

[3] Baxter M, Aly EH. Dieulafoy's lesion: current trends in diagnosis and management. Ann R Coll Surg Engl. 2010; 92:548-554. [PubMed] [DOI] [Cited in This Article: 3] [Cited by in Crossref: 190] [Cited by in RCA: 178] [Article Influence: 11.9] [Reference Citation Analysis (0)]

[4] Kolli S, Dang-Ho KP, Mori A, Gurram K. The Baader-Meinhof Phenomenon of Dieulafoy's Lesion. Cureus. 2019;11: e4595. [PubMed] [DOI] [Cited in This Article: 1] [Cited by in Crossref: 2] [Cited by in RCA: 3] [Article Influence: 0.5] [Reference Citation Analysis (0)]

[5] Yılmaz, T. and Kozan, R. (2017) Duodenal and Jejunal Dieulafoy's Lesions: Optimal Management. Clinical and Experimental Gastroenterology, 10, 275-283.

[6] Chaer RA, Helton WS. Dieulafoy's disease. J Am Coll Surg. 2003; 196:290-296. [PubMed] [DOI] [Cited in This Article: 2] [Cited by in Crossref: 74] [Cited by in RCA: 83] [Article Influence: 3.8] [Reference Citation Analysis (0)]

[7] Yoshikumi Y, Mashima H, Suzuki J, Yamaji Y, Okamoto M, Ogura K, Kawabe T, Omata M. A case of rectal Dieulafoy's ulcer and successful endoscopic band ligation. Can J Gastroenterol. 2006; 20:287-290. [PubMed] [DOI] [Cited in This Article: 1] [Cited by in Crossref: 14] [Cited by in RCA: 49] [Article Influence: 2.6] [Reference Citation Analysis (0)]

[8] Morowitz MJ, Markowitz R, Kamath BM, von Allmen D. Dieulafoy's lesion and segmental dilatation of the small bowel: an uncommon cause of gastrointestinal bleeding. J Pediatr Surg. 2004; 39:1726-1728. [PubMed] [DOI] [Cited in This Article: 2] [Cited by in Crossref: 20] [Cited by in RCA:21] [Article Influence: 1.0] [Reference Citation Analysis (0)]

[9] Marangoni G, Cresswell AB, Faraj W, Shaikh H, Bowles MJ. An uncommon cause of life-threatening gastrointestinal bleeding: 2 synchronous Dieulafoy lesions. J Pediatr Surg. 2009 Feb;44(2):441-3.

[10] Mansfield G, Sabharwal R, Bansi DS, Cohen P, El-Masry N, Jackson JE. Dieulafoy lesions: rare but often overdiagnosed? Observations based upon a case of small bowel haemorrhage and a critical review of the literature. Clin Radiol. 2012 Jan;67(1):78-80.

[11] Baxter M, Aly EH. Dieulafoy's lesion: current trends in diagnosis and management. Ann R Coll Surg Engl. 2010 Oct;92(7):548-54.

[12] Saleh R, Lucerna A, Espinosa J, Scali V. Dieulafoy lesion: the little-known sleeping giant of gastrointestinal bleeds. Am J Emerg Med. 2016 Dec;34(12): 2464.e3-2464.e5.

[13] Wu JM, Zaitoun AM. A galling disease? Dieulafoy's lesion of the gallbladder. Int J Surg Case Rep. 2018; 44:62-65.

[14] Christoffersen RK, Nielsen TS, Vesterby A. Dieulafoy lesion of the esophagus causing massive upper gastrointestinal bleeding and death: a case report. Am J Forensic Med Pathol. 2012 Jun;33(2):186-7.

[15] Shin HJ, Ju JS, Kim KD, Kim SW, Kang SH, Kang SH, Moon HS, Sung JK, Jeong HY. Risk Factors for Dieulafoy Lesions in the Upper Gastrointestinal Tract. Clin Endosc. 2015 May;48(3):228-33.

[16] Dogan U, Gomceli I, Koc U, Habibi M, Bulbuller N. Rectal dieulafoy lesions: a rare etiology of chronic lower gastrointestinal bleeding. Case Rep Med. 2014; 2014:180230.

[17] Alis H, Oner OZ, Kalayci MU, Dolay K, Kapan S, Soylu A, Aygun E. Is endoscopic band ligation superior to injection therapy for Dieulafoy lesion? Surg Endosc. 2009 Jul;23(7):1465-9.

[18] Nojkov B, Cappell MS. Distinctive aspects of peptic ulcer disease, Dieulafoy's lesion, and Mallory-Weiss syndrome in patients with advanced alcoholic liver disease or cirrhosis. World J Gastroenterol. 2016 Jan 07;22(1):446-66. [PMC free article] [PubMed]

[19] Ünal F, Çakır M, Baran M, Duygulu Ş, Aydoğdu S. Application of endoscopic hemoclips for nonvariceal upper gastrointestinal bleeding in children. Turk J Gastroenterol. 2014 Apr;25(2):147-51.

[20] Garg R. Bleeding from a gastric Dieulafoy lesion. Emerg Med J. 2007 Jul;24(7):520.

[21] Alshumrani G, Almuaikeel M. Angiographic findings and endovascular embolization in Dieulafoy disease: a case report and literature review. Diagn Interv Radiol. 2006 Sep;12(3):151-4.