Jejunal Dieulafoy Lesion Causing Gastrointestinal Hemorrhage: A Case Report and Literature Review (Post-print)

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Abstract

Dieulafoy disease refers to a condition in which feeding arterial branches of the gastrointestinal tract fail to evolve into capillaries after entering the mucosa, but instead maintain a constant caliber and are damaged under the impact of high-pressure blood flow. This disease is a rare vascular malformation that predominantly occurs in the stomach, while Dieulafoy disease in the small intestine is extremely rare with few reported cases. We herein report a case of a patient admitted with "intermittent hematochezia for 1.5 years, recurring for 1 week," who was diagnosed with jejunal Dieulafoy ulcer under enteroscopy and treated with hemoclip combined with sclerosing agent injection for hemostasis; re-examination by enteroscopy at 1 month postoperatively showed complete healing of the lesion. Through analysis of the diagnosis and treatment course of this case, we aim to provide a reference for clinicians in managing obscure gastrointestinal bleeding.

Full Text

Case Report of Jejunal Dieulafoy' s Disease Causing Gastrointestinal Bleeding and Literature Review

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Abstract

Dieulafoy' s lesion is a vascular malformation characterized by an abnormally large-caliber arterial branch in the gastrointestinal submucosa that fails to taper into capillaries, maintaining a constant diameter that becomes damaged under high-pressure blood flow. Although a rare vascular anomaly predominantly occurring in the stomach, jejunal involvement is exceedingly uncommon with few reported cases. We present a 59-year-old male admitted with intermittent hematochezia for 1.5 years, recurring for one week, who was diagnosed with jejunal Dieulafoy' s ulcer by single-balloon enteroscopy. The lesion was successfully treated with combined titanium clip placement and sclerosing agent injection, achieving complete healing confirmed by follow-up enteroscopy one month post-procedure. This case illustrates the diagnostic and therapeutic approach to obscure gastrointestinal bleeding and provides valuable insights for clinical management.

Keywords: Dieulafoy' s lesion; obscure gastrointestinal bleeding; jejunum; single-balloon enteroscopy

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1. Case Report

A 59-year-old male presented to the Department of Gastroenterology at the 940th Hospital of Joint Logistic Support Force on October 15, 2021, with a chief complaint of intermittent hematochezia for 1.5 years, recurring for one week. The patient had experienced multiple episodes of similar symptoms 1.5 years prior, accompanied by palpitations, chest tightness, fatigue, dizziness, and profuse sweating. He had visited several external hospitals where gastroscopy revealed chronic atrophic gastritis with erosion, while colonoscopy and abdominal CT showed no abnormalities. Symptomatic supportive treatment had provided temporary improvement. He had a two-year history of hypertension without standardized antihypertensive therapy and denied any surgical history, trauma history, or drug and food allergies. Family and personal histories were unremarkable.

Physical examination revealed: temperature 37.1°C, respiratory rate 18

breaths/min, pulse 78 beats/min, blood pressure 148/75 mmHg. The patient was alert and oriented with anemic appearance but no scleral icterus. The abdomen was flat and soft without tenderness, guarding, or palpable masses. Bowel sounds were 4/min with no other significant abnormalities.

Laboratory findings: White blood cell count $4.26\$\times10^{\{9\}/L, neutrophilcount2.80\times10}\{9\}/L, redbloodcellcount2.61\times$ Inflammatory markers: interleukin-6 19.20 pg/ml, procalcitonin 17.50 ng/ml, C-reactive protein 6.11 mg/L. Liver function: total protein 53.30 g/L, albumin 32.10 g/L.

Initial Diagnosis: (1) Gastrointestinal bleeding with hemorrhagic anemia; (2) Chronic atrophic gastritis with erosion; (3) Hypertension (Stage 1, low-risk group)

Management: The patient received proton pump inhibitors, hemostatic agents, blood transfusion, fluid resuscitation, and supportive care, but hematochezia persisted. On hospital day 3, emergency single-balloon enteroscopy (SBE) was performed, revealing abundant fresh blood in the duodenum and proximal jejunum. The scope was advanced to approximately 1.5 m beyond the pylorus in the jejunum without identifying the bleeding source [Figure 1: see original paper]. During withdrawal, after thorough irrigation and suctioning, a 0.5 cm × 0.5 cm superficial depressed ulcer was identified in the upper jejunum with a visible traversing vessel and adherent clot [Figure 2: see original paper]. Pulsatile bleeding was observed without surrounding inflammatory changes, consistent with a Dieulafoy' s ulcer [Figure 3: see original paper]. Hemostasis was achieved through combined sclerosing agent injection and titanium clip placement [FIGURE:4-5]. Post-procedure abdominal plain radiography confirmed titanium clip positioning in the upper jejunum [Figure 6: see original paper]. Contrast-enhanced abdominal CT showed no abnormalities. The patient' s condition stabilized and he was discharged home. One-month follow-up SBE demonstrated complete ulcer healing with two residual titanium clips [Figure 7: see original paper]. No recurrent bleeding was observed during seven months of subsequent follow-up.

Endoscopic Findings: SBE demonstrated abundant fresh blood in the duodenal and proximal jejunal lumen [Figure 1: see original paper]. After scope withdrawal with irrigation and suctioning, a superficial depressed ulcer with adherent clot was identified in the upper jejunum [Figure 2: see original paper]. The ulcer surface showed no inflammatory changes but exhibited pulsatile bleeding [Figure 3: see original paper]. Hemostasis was achieved through sclerosing agent injection [Figure 4: see original paper] and titanium clip placement [FIGURE:5A-B]. Post-procedure standing abdominal plain radiography confirmed titanium clip location in the upper jejunum [Figure 6: see original paper]. One-month follow-up SBE showed complete Dieulafoy ulcer healing [Figure 7: see original paper].

2. Discussion

Gastrointestinal bleeding represents one of the most common and life-threatening medical emergencies worldwide, with an annual incidence of 80-150 cases per 100,000 population. Clinical manifestations and severity depend on bleeding location and volume, with common causes including peptic ulcer disease, gastroesophageal varices, and vascular ectasia [2-3]. Less than 5% of cases remain obscure after initial evaluation.

First described by Gallard in 1884 as "miliary aneurysm," Dieulafoy' s lesion was accurately characterized by French surgeon Paul Georges Dieulafoy in 1898 as a simple exulceration [5]. Current understanding recognizes Dieulafoy' s lesion as an aberrant, persistently large-caliber artery (1-3 mm diameter) in the submucosa that protrudes into the mucosal layer, rupturing and causing massive hemorrhage with fibrinoid necrosis at the lesion base. This rare but potentially fatal cause accounts for 1-2% of acute upper gastrointestinal bleeding [3,6] with a male predominance (2:1 ratio) [1]. Patients are typically asymptomatic until the overlying epithelium erodes completely or the artery becomes fully exposed, presenting with melena, hematemesis, or hematochezia—most commonly melena. Most patients exhibit hemodynamic instability, though rare cases of gallbladder Dieulafoy lesions present with epigastric pain without overt bleeding. While typically acute and massive, chronic occult bleeding may occasionally occur [7].

Although Dieulafoy' s lesions can occur throughout the gastrointestinal tract, over 80% are located in the proximal stomach within 6-10 cm of the gastroesophageal junction [8]. Jejunal involvement is exceptionally rare, comprising only 2.6% of all Dieulafoy lesions [9]. The pathogenesis remains unclear, with two prevailing hypotheses: (1) bleeding originates from congenitally abnormal, dilated, and tortuous submucosal arteries that protrude and rupture; or (2) mucosal erosion from various factors causes arterial exposure and ischemic stress, including chronic gastritis, prior surgery, tobacco, alcohol, NSAIDs, anticoagulants, stress, and cardiopulmonary failure [10-11].

Jejunal Dieulafoy's disease causes recurrent massive hemorrhage, making biopsy contraindicated. Diagnosis typically requires technetium-labeled red blood cell scintigraphy or digital subtraction angiography, though transient hemostasis during examination may cause false-negative results. Recent advances in small bowel imaging, including capsule endoscopy and balloon-assisted enteroscopy, have significantly improved diagnostic yield. Endoscopic features include: (1) 2-5 mm lesions appearing as focal mucosal defects or shallow erosions, occasionally as small polypoid changes; (2) pulsatile arterial protrusion with or without active bleeding; (3) fresh clot or thrombus adherence; and (4) well-demarcated lesions without inflammatory changes [12]. Histopathology reveals abnormally enlarged, tortuous arteries in the muscularis mucosae with hyperplasia, anchored by Wanken fiber bundles, with thrombus formation at ruptured arterial stumps [13].

Endoscopic therapy is first-line treatment for jejunal lesions, with mechanical

methods (band ligation and hemostatic clips) considered safest and most effective [14]. Approximately 5% of patients require surgical intervention when endoscopic or angiographic approaches fail, though surgery may struggle to identify occult lesions.

Jejunal Dieulafoy' s disease often faces delayed diagnosis and treatment due to atypical presentations and limited small bowel endoscopy availability. Clinicians should suspect small bowel bleeding when gastroscopy, colonoscopy, and abdominal CT fail to identify a source in patients with hematochezia. Prompt small bowel endoscopy enables definitive diagnosis and therapeutic intervention. For institutions lacking small bowel endoscopy capability, alternative modalities include capsule endoscopy, CT/MR enterography, CT angiography, angiography, nuclear scintigraphy, barium studies, and when necessary, surgical exploration or intraoperative endoscopy, followed by medical, endoscopic, or embolization therapy [3]. Endoscopic hemostasis success rates range from 75-100%, while angiographic initial hemostasis reaches 95% [13].

Our patient underwent negative gastroscopy and colonoscopy at external hospitals with persistent bleeding despite conservative therapy. Transfer to our institution and emergency SBE identified a Dieulafoy' s ulcer in the upper jejunum, successfully treated with combined sclerotherapy and clip placement, resulting in hematochezia cessation and progressive hemoglobin recovery. One-month follow-up enteroscopy confirmed complete healing, validating treatment efficacy. Recurrence risk after Dieulafoy bleeding varies from 9-40%, with higher rates following single-modality endoscopic therapy, making repeat endoscopic surveillance crucial for prevention. Prognosis for acute Dieulafoy bleeding is superior to that of peptic ulcer bleeding, with modern endoscopic advances dramatically reducing mortality from 80% to 8.6% [15].

In conclusion, jejunal Dieulafoy' s lesion represents a rare cause of massive gastrointestinal bleeding that should be considered in cases of obscure recurrent hemorrhage. Prompt diagnosis and appropriate treatment, potentially combining multiple modalities, are essential for successful management.

Author Contributions

Bao-Yin Zhao: Conceptualization, manuscript drafting and revision.
Zhao-Jun Liang, Li-Xia Zhang, Dong Jia: Literature search and data collection.
Shun Chen, Yao-Yue Jiang, Xiang-Xiang Zhu: Manuscript review, analysis and discussion.
Xiao-Hui Yu, Yong-Lin Yang: Final approval and funding acquisition.

Conflict of Interest

All authors declare no conflict of interest.

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Note: Figure translations are in progress. See original paper for figures.