



Massive Hematemesis from Gastric Dieulafoy's Lesion, Surgery as a Curative Option When There is Lack of Access to Expertise

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Dieulafoy's lesion is an acute GI (gastrointestinal) bleeding disorder, a rare but life-threatening condition due to recurrent bleeding. The affected arteriole can protrude through a small defect in the mucosa, becomes susceptible to the mechanical trauma even of a minor level and gradually erodes into the lumen to cause severe acute GI bleeding.

A 40-year-old married woman was admitted with a history of massive hematemesis for 17 days. A series of 3 upper GI endoscopies were done, and the patient was diagnosed with Dieulafoy's lesion. Local epinephrine via EGD failed to stop hematemesis following which surgical consultation

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was duly referred. Exploratory laparotomy was done that showed a lesion near the lesser curvature. The lesion was ligated with under-run suturing. Surgical intervention was selected on the basis of lesion's presentation and clinical aspects of the patient. Surgical intervention remains a better choice in case of massive hematemesis in a setting where the access to the availability of expertise is low.

Keywords: Dieulafoy's lesion; vascular malformation; upper GI bleeding; surgical intervention.

1. INTRODUCTION

Dieulafoy's lesion is a fairly uncommon disease which represents an important aetiology of acute gastrointestinal (GI) bleeding because of its tendency to cause massive, life-threatening, and recurrent bleeding [1]. It is a submucosal arteriole, with the ability to maintain an abnormally large calibre of approximately 1-3 mm [2]. Dieulafoy's lesions are typically presented with severe, active gastrointestinal bleeding. It is mostly found in upper GI tract. Almost 75% of lesions are found in the stomach [3], the affected artery can protrude through a small defect in mucosa, and can become susceptible to mechanical trauma of even a minor level (e.g., passage of food bolus in stomach or solid stool in colon), and gradually erodes into the lumen to cause severe acute GI bleeding [4]. Homeostatic therapy is of paramount importance due to the severity of bleeding from Dieulafoy's lesion. The bleeding should be controlled immediately by nonsurgical and surgical intervention. Otherwise, morbidity and mortality rates are very high [5].

Dieulafoy's lesion was first reported by Gallard [6] in 1884; but it was described accurately 40 years later by George Dieulafoy's a French surgeon [7], who found GI haemorrhage of a fatal kind in 3 young asymptomatic male patients which he then called "exulceratio simplex". The disease has been given many names, some of the alternative names are "gastric arteriosclerosis", "calibre persistent artery", "cirroid aneurysm" and "sub mucosal arterial malformation" [8].

Dieulafoy's lesion can be relatively rare but is mostly under-recognized although it accounts for 1-2% of acute GI bleeding. Dieulafoy's lesion is the cause of almost 1.5% of acute upper GI bleeding [9,10], and is responsible for almost 3.5% of jejuno-ileal GI bleeding [11]. The patients presented with this disease usually show no symptoms, before presented with acute, excessive GI bleeding, which can be displayed

as hematemesis, melena or hematochezia [9,12].

The first diagnostic test performed for Dieulafoy's lesion is esophagogastroduodenoscopy (EGD). If upper GI endoscopy is unable to localize the lesion, angiography is done and visualization of a tortuous artery will signify the presence of a lesion. Technetium-99 m labelled red blood cell scans is also an option in cases where endoscopy is unable to find the lesion.

There is no clear option for treating the Dieulafoy's lesion [13]. The option for treatment is chosen by the presentation, the location of the lesion and the access to expertise.

According to guidelines, the therapeutic options for Dieulafoy's lesion are:

- 1- Endoscopic procedure
- 2- Angiography
- 3- Surgical intervention
- 4- Laparoscopic intervention

Endoscopic procedure is preferred in easy access to lesions. The success rate is near to 90%. Endoscopic methods are further categorized as electrocoagulation, local epinephrine injection, sclerotherapy, banding and haemoclip. Angiography is another modality of treatment, used to embolize actively bleeding lesions. It is helpful when the endoscopic methods fail to achieve hemostasis.

Surgical intervention is a classical treatment option. It is mostly done by under-running of the lesion or a wedge resection of the affected section of the gut [14]. Surgical resection depends upon the location of the lesion and clinical aspects of the patient. Laparoscopic intervention is also recommended as it is least invasive among the options. But it depends on the good localization of bleeding vessel.

The advancement in the modality of diagnosis has decreased the mortality from 80% to 8.6%. According to Luis et al. [12] the results of

Dieulafoy's lesion present in GI are better as compared to bleeding from gastric or duodenal ulcers.

2. PATIENT INFORMATION

A 40-year-old married woman presented with a history of hematemesis for 17 days. Hematemesis was episodic with the frequency of 2-3 times in a day, which aggravated with intake of food. According to the patient, there were approximately 2 cups of fresh and clotted blood per episode. She also had melena for the same duration. Her medication history included the use of NSAIDs (Non-Steroidal Anti-inflammatory Drugs). The patient was self-medicating with diclofenac sodium (50 mg) as needed for knee pain. The patient denied the occurrence of hematemesis in the past.

On general physical examination, the patient looked pale. She was hypotensive(100/60mmHg) and having tachycardia (Pulse= 110/ minute). She was afebrile with a respiratory rate of 16 respirations per minute. Abdominal examination showed mild splenomegaly.

The patient was admitted to the gastric ward and basic diagnostic tests were done. Complete blood picture (CBC) showed a haemoglobin count of 6.5 g/dl at that time. Screening tests for Hepatitis B, Hepatitis C, Dengue, Malaria were done and their results were in normal range. The liver profile was also in the normal range (Table 1). Ultrasound showed splenomegaly.

EGD was planned to have a better look into oesophagus, stomach, and duodenum to know the cause of bleeding. The first EGD reported "Pan Gastritis". The patient was kept NPO (nil per os) and IV (Intravenous) fluid along with IV PPI (proton pump inhibitors) were started. After

24 hours when food was taken orally, she developed hematemesis. Since the first EGD remained inconclusive, the patient went through another Endoscopy, but no significant findings were reported other than clotted blood. She was kept again kept NPO for three days, but conservative management failed again. After 3 days, she was suggested to take food orally but this time the blood-stained vomiting occurred again. She was planned for 3rd-time upper GI endoscopy, but this time it revealed a visible vessel at the margin of body and fundus near lesser curvature of stomach and Dieulafoy's lesion was suspected (Fig. 1).

When EGD revealed the Dieulafoy's lesion, two attempts of regional injection – local epinephrine injection was done but failed to stop hematemesis. Due to non-availability of further management options and expertise, massive hematemesis and location of the lesion, further management was halted and surgery department was consulted for further plans.

Exploratory laparotomy was done. Per-operative findings, "A lesion was found near lesser curvature about 8- 10 cm from gastro oesophageal junction with a pulsatile manner. It was sutured with 2/0 Vicryl by under run suturing. Two small non-bleeding ulcers were also found near the pyloric region that was secured as well. Stomach was closed in two layers. N/G (Nasogastric) tube was placed. The patient was kept NPO for five days.

Post operatively, the patient had a smooth recovery without any episode of bleeding in N/G (Nasogastric) tube. She developed only surgical site infection (SSI) The patient was discharged from hospital on her 7th day of surgery. The patient was scheduled for follow up after two

Table 1. Labs value

CBC:

Date	Hb g/dl	Platelets x10 ⁹ /l	RBC x10 ¹² /l	WBC x10 ⁹ /l
When admitted to gastro ward (before surgical ward admission)				
1 st day	6.5	107	3.34	4.7
7 th day	10.6	128	3.53	4.5
13 th day	9.0	211	2.80	9.0
17 th day	7.3	180	2.26	4.2
When admitted to the surgical ward				
Day of admission	8.2	169	2.62	7.09
2 weeks after surgery	12.0	220	4.42	7.90

Electrolytes:

On day 17th, when patient was referred to the surgical department, the following work up was done before:

Test	Results	Test	Results
Sodium	133.4 mmol/L	Urea	55 mg/dl
Potassium	3.35 mmol/L	Creatinine	0.7 mg/dl
Chloride	99.8 mmol/L	Prothrombin Time	15 sec
Alk Phosphatase	187 u/L	APTT	34 sec
ALT	24 u/L	INR	1.28
Gamma-GT	14u/L	Bilirubin Total	0.7 mg/dl
HBsAg	Negative	Anti HIV	Negative
HCV antibodies	Negative	Anti H.Pylori	Negative
Dengue Antibodies IgM ICT	Negative	Dengue antibodies IgG ICT	Negative



Fig. 1. Showing a visible vessel at the margin of body and fundus near lesser curvature of the stomach

weeks. On the day of follow up, Patient was assessed for symptoms, and brief examination was also done. The patient had no symptoms and no further episode of hematemesis. The surgical wound infection was resolved.

3. DISCUSSION

Dieulafoy's Lesion is acute GI (gastrointestinal) bleeding disorder, a rare but life-threatening condition due to recurrent bleeding. The affected artery can protrude through a small defect in the mucosa, becomes susceptible to even the mechanical trauma of a minor level and gradually erodes into the lumen to cause severe acute GI bleeding.

A 40 years old married woman was admitted with a history of massive hematemesis for 17 days. A series of 3 upper GI endoscopies were done, and the patient was diagnosed with Dieulafoy's lesion. Due to the failure of 2 attempts of local epinephrine injection via EGD and lack of further expertise, the surgical department was consulted. Exploratory

Laparotomy was done. Per-operatively 'A lesion was found near lesser curvature about 8- 10 cm from gastro oesophageal junction that showed a pulsatile manner'. It was sutured with 2/0 Vicryl, by under run suturing. The patient had a smooth recovery without any episode of bleeding. The only post-operative complication was surgical site infection (SSI).

Surgical intervention is selected on the basis of lesion's presentation and clinical aspects of the patient. Surgical intervention remains a better choice in case of massive hematemesis in setting where there is less access to the availability of expertise.

4. CONCLUSION

Dieulafoy's lesion is a rare cause of upper GI bleeding. In this case, the patient presented with massive hematemesis. A series of 3 EGD were done to diagnose the disease. Two attempts of local epinephrine injection via EGD failed to stop hematemesis. Due to lack of access to expertise, massive hematemesis, and site of lesion,

surgical intervention was done. Surgical outcomes were satisfactory.

CONSENT

Written consent was obtained from the patients for publication of the study

ETHICAL APPROVAL

The research work has received ethical approval.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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