

Case Study

**MASSIVE HEMATEMESIS FROM GASTRIC DIEULAFOY'S
LESION, surgery as a curative option when lack of access
to expertise.**

ABSTRACT:

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

40 years old married woman who was admitted with a history of massive hematemesis for 17 days. Series of 3 upper gi endoscopies were done, and the patient was diagnosed with dieulafoy's lesion. 2 trails of local epinephrine via egd failed to stop hematemesis. Hence surgical consult was referred. Exploratory laparotomy was done. A lesion was found near greater curvature which was ligated.

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 there is less access to the availability of expertise.

Keywords:

Dieulafoy's lesion, Vascular Malformation, Upper GI bleeding,

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Introduction:

Dieulafoy's lesion is a fairly uncommon disease which represents an important etiology of acute gastrointestinal (gi) bleeding because of its tendency to cause massive, life-threatening, and recurrent bleeding [1]. It is a sub mucosal arteriole, with the ability to maintain an abnormally large caliber 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 paramount 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 are very high [5].

Dieulafoy lesion was first reported by Gallard [6] in 1884; but it was described accurately 40 years later by George dieulafoy a French surgeon [7], who found gi hemorrhage of a fatal kind in 3 young asymptomatic male patients he called them as "exelceratio simplex".

Dieulafoy's lesion can be relatively rare but is mostly under-recognized although it accounts for 1-2% of acute gi bleeding.

The disease has been given many names, some of the alternative names for 'gastric arteriosclerosis', 'calibre persistent artery', 'cirroid aneurysm' and 'sub mucosal arterial malformation' [8]. One of the special features of the dieulafoy's lesion is that they maintain an abnormally large caliber arteriole of approximately 1 to 3 mm (10 times larger than the normal caliber of such sub mucosal vessels), despite their peripheral, sub mucosal location. Dieulafoy's lesions are typically presented with severe, active gastrointestinal bleeding; hence the name 'caliber persistent artery'.

Dieulafoy's lesion is a very rare disease, represents archaeology of acute gastrointestinal bleeding because of its tendency to cause massive, life-threatening and recurrent bleeding; and its acquiescence to endoscopic therapy.

It is mostly found to cause upper gi bleeding but can also cause middle gi bleeding and rarely cause lower gi bleeding.

Almost 75% of lesions are found in the stomach usually close to the gastro esophageal junction, proximal stomach (6cm from gastro esophageal junction) or along the lesser gastric curve; but the lesions can also be found in duodenum or esophagus.

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 jejunoileal gi bleeding [11].

The affected arteriole can protrude through a small defect in the mucosa, become susceptible to even the mechanical trauma of a minor level (e.g., the passage of food bolus in the stomach a solid stool in the colon), and gradually erodes into the lumen to cause several acute gi bleedings. Every arterial pulsation transmits the mechanical pressure that can cause trauma to the fragile, thin layer of mucosa present over the vessel. On the other hand, flow through the artery that has been enlarged already, may cause hypo perfusion,

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ischemia, and erosion of overlying mucosa from shunting and redistribution of blood perfusion. This “vascular steal” phenomenon (hypothesis) has a resemblance to that which sometimes produces pale mucosal halo that sometimes surrounds angiodysplasia.

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The lesion is found to be more common in males than females with a sex ratio of 2:1. The specific age at which this disease can occur is not precise, but most of the cases reported are of people in the 6th or 7th decades of their lives [9]

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Patients suffering from this disease are often found to be having multiple comorbidities like cardiovascular diseases, hypertension, chronic renal insufficiency, and diabetes. These patients are not administered nonsteroidal inflammatory drugs because these drugs promote bleeding from dieulafoy's lesions underneath, which can result in clinical detection.

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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]. About half of the patients are presented with both hematemesis and melena [8]. Patients found with colonic dieulafoy's lesion are usually presented with profuse bright red blood per rectum. The bleeding is typically severe owing to the arterial nature of the bleeding and the typical enlarged arterial vessel.

These lesions can also be a cause of obscure gi bleeding but intermittent bleeding it may typically involve unusual bleeding sites in the gi that may be relatively inaccessible to basic endoscopy such as jejunum, ileum; the lesions are mostly small and inconspicuous despite the repetitive use of standard diagnostic techniques. The symptoms may mimic other diseases in the setting of acute gi bleeding. For example, two recent reports from Japan show patients whose initial clinical presentation and endoscopic findings suggested that they had gastric dieulafoy's lesions but who were subsequently diagnosed with gi stromal tumors, so dieulafoy's lesions are not associated with other vascular lesions of gi like angiodysplasia or hemangiomas.

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The first diagnostic test performed for an upper gi bleeding like dieulafoy's lesion is esophagogastroduodenoscopy (EGD). If upper gi endoscopy is unable to localize the lesion, angiography is done and seeing tortuous artery will signify the presence of a lesion. Technetium-99mm labeled red blood cell scans is also an option in cases where endoscopy is unable to find the lesion.

Therapeutic intervention:

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

- 1- Endoscopic electrocoagulation, sclerotherapy or band ligation
- 2- Arterial embolization via angiography
- 3- Surgical intervention
- 4- Laparoscopic intervention.

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

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Endoscopic procedure is preferred in easy access to lesions. The success rate is near to 90%. Endoscopic methods are further categorized as (i) thermal – electrocoagulation, heat

probe coagulation and argon plasma coagulation; (ii) regional injection – local epinephrine injection and sclerotherapy; and (iii) mechanical – 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. The limitation of this modality is ischemia to the sites supplied by the same artery

Surgical intervention is a classical treatment option, 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 patients.

Laparoscopic intervention is also recommended as it is a least invasive option. But it depends on the good localization of bleeding vessel.

The advancement in the modality of diagnosis has better 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.

Surgical intervention remains a better choice in case of massive hematemesis in settings where there is less availability of expertise. Surgical intervention is selected on the basis of lesion's presentation and physical condition of the patient.

Patient information:

A 40-year-old married woman was presented to gastro clinic with a history of Hematemesis for 17 days. Hematemesis was episodic, with the frequency of 2-3 times/ day, aggravated by meal intake approximately 2 cups of fresh and clotted blood per episode. The patient also had melena for the same duration. The patient had no history of such events in the past but her medication history included the use of NSAIDs (Non-Steroidal Anti-inflammatory Drugs), which she was self-medicating Diclofenac sodium (50mg) as needed for knee pain.

On general physical examination, the patient was pale and anemic. Pulse= 110/minute, Blood Pressure= 100/60mmHg, Temperature= 98 F, Respiratory Rate = 16/minute. The patient had mild splenomegaly. The systemic examination was unremarkable.

The patient was admitted in the gastric ward, and diagnostic procedures were done. The esophageal, gastric and duodenal pathologies were among the differentials for this patient to focus. To have a better idea of the cause and source of bleeding the following diagnostic assessments were done:

CBC (complete blood picture): showed a hemoglobin of 6.5 g/dl on admission.

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Serology: Hepatitis B, Hepatitis C, Dengue, Malaria screening and Liver profile (**Table 1**) turned out to be normal.

Ultrasound: showed Splenomegaly.

EGD was planned to have a better look into esophagus, stomach, and duodenum to know the cause of Bleeding. The first EGD reported the finding was "Pan Gastritis." The patient was kept NPO (nil per os), IV (Intravenous) fluid and IV PPI (proton pump inhibitors) were started. After 24 hours when oral diet was tried, she developed Hematemesis again. Since the first EGD remained inconclusive, the patient went through another Endoscopy, but no significant findings were found other than clotted Blood. She was kept NPO for three days, but conservative management failed again. Whenever she was allowed to eat, the blood-stained vomiting occurred. 3rd time upper GI endoscopy revealed a visible vessel at the margin of body and fundus near lesser curvature of stomach and **Dieulafoy's lesion** was suspected. (**Figure 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 greater curvature about 8- 10 cm from gastro esophageal 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 weeks. On the day of follow up, Patient was assessed about symptoms, and

brief examination was also done. The patient had no symptoms and no further episode of

Hematemesis. The surgical wound infection was resolved.

Discussion:

Dieulafoy's Lesion is acute GI (gastrointestinal) bleeding disorder, a rare but life-threatening due to recurrent bleeding. The affected artery can protrude through a

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small defect in the mucosa, become susceptible to even the mechanical trauma of a minor level and gradually erodes into the lumen to cause severe acute GI bleeding.

40 years old married woman who was admitted with a history of massive Hematemesis for 17 days. 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 greater curvature about 8- 10 cm from gastro esophageal 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.

Conclusion :

Dieulafoy's lesion is a rare cause of Upper GI bleeding. In this case, patient presented with massive hematemesis. 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.

DECLARATIONS

Ethics approval and consent to participate

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

Availability of data and material

All data and material are shared in Table (Lab Values) and Figures

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Table: 1 Labs Value

CBC :

Date	Hb g/dl	Platelets x10 ⁹ /l	RBC x10 ¹² /l	WBC x10 ⁹ /l
When admitted in 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 in 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 Surgical department, following work up was done before :

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	Negative	Dengue antibodies IgG	Negative
IgM ICT		ICT	



Figure 1 showing a visible vessel at the margin of body and fundus near lesser curvature of stomach

