

Case Study

MASSIVE HEMATEMESIS FROM GASTRIC DIEULAFOY'S LESION, A RARE CAUSE OF RECURRENT UPPER GI BLEEDING

ABSTRACT:

Background

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

40 years old married woman who was admitted with history of Massive Hematemesis for 17 days. Series of 3 Upper GI endoscopies were done, the first 2 remain inconclusive but on third EGD, patient was diagnosed as having a Dieulafoy's lesion.

Exploratory Laparotomy was done. Per operatively 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. Patient had a smooth recovery without any episode of bleeding. The only post-operative complication was superficial skin wound infection (SSI).

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

23 **Keywords:**

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

25 **Introduction:**

26 Dieulafoy's lesion is a fairly uncommon disease which represents an important etiology of acute
 27 gastrointestinal (GI) bleeding because of its tendency to cause massive, life-threatening, and recurrent
 28 bleeding.  sub mucosal arteriole , it maintain an abnormally large caliber of approximately 1-3
 29 mm [1] .Dieulafoy's lesions are typically presented with severe, active, gastrointestinal bleeding It is
 30 tly found in upper GI bleeding. Almost 75% of lesions are found in the stomach [2], The affected
 31 artery can protrude through a small defect in mucosa, become susceptible to  mechanical trauma
 32 of a minor level (*e.g.*, passage of food bolus in stomach or solid stool in colon), and  gradually erode
 33 into the lumen to cause severe acute GI bleeding [3]. Homeostatic therapy is paramount due to
 34 severity of bleeding from Dieulafoy's lesion. The bleeding should be controlled immediately by
 35 onsurgical and surgical intervention, otherwise morbidity and mortality is very high [4]

36 **Patient information:**

37 A 40-year-old married woman presented to gastro clinic with History of Hematemesis for 17 days.
 38 Hematemesis was episodic, with frequency of 2-3 times/ day, aggravated with meal intake
 39 approximately 2 cups of fresh and clotted blood per episode. Patient also had melena from same
 40 duration. Pt. has no history of such events in past but she has History of NSAIDS medication.


41 **Clinical findings:**

42 On neral Physical Examination, Patient was pale and anemic.Pulse= 110/ minute, Blood Pressure=
 43 100/60mmHg, Temperature= 98 F, Respiratory Rate = 16/ minute. Patient had Mild splenomegaly.
 44 The systemic examination was unremarkable.

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46

47

48 **Time line:**

49 **Table: 1 Labs Value**

50

51 **CBC:**

Date	Hb g/dl	Platelets x10 ⁹ /l	RBC x10 ¹² /l	WBC x10 ⁹ /l
08.04.17	6.5	107	3.34	4.7
14.04.17	10.6	128	3.53	4.5
20.04.17	9.0	211	2.80	9.0
22.04.17	7.3	180	2.26	4.2
24.04.17	8.2	169	2.62	7.09

52

53 **ELECTROLYTES** 

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

54

55 **Diagnostic assessment:**

56 Patient was admitted in Gastric ward and diagnostic v up was done. The esophageal, gastric and
 57 enal pathologies were among the differentials for this patient to focus. To have better idea of the
 58 cause and source of bleeding the following diagnostic assessment was done:

59 **CBC:** showed hemoglobin of 6.5 g/dl on admission. 

60 **Serology:** Hepatitis B, Hepatitis C, Dengue, Malaria screening and Liver Profile (**Table 1**) turn out to
 61 be Normal.

62 asound: showed Splenomegaly.

63 **Upper GI Endoscopy:** EGD was planned to have better look into Esophagus, stomach and
64 Duodenum to know the cause of Bleeding.

65 The first EGD reported the finding was “Pan Gastritis”. Patient was kept NPO, IV fluid and IV PPI
66 started. After 24 hours when oral diet was tried, she again developed Hematemesis.

67 As the first EGD remain inconclusive, patient was Re Endoscoped but no significant findings
68 found other than Clotted Blood. She was kept NPO for 3 days but conservative management failed
69 again. Whenever she was allowed to eat, the blood-stained vomiting occurred.

70 This time upper GI endoscopy revealed a visible vessel at the margin of body and fundus near lesser
71 curvature of stomach and *Dieulafoy’s lesion* was suspected. (*Figure 1*)



72
73 *Figure 1 showing a visible vessel at the margin of body and fundus near lesser curvature of*
74 *stomach*

76 **Therapeutic Intervention:**

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

- 78 1- Endoscopic Electrocoagulation, Sclerotherapy or Band ligation
- 79 2- Arterial embolization via Angiography
- 80 3- Surgical intervention
- 81 4- Laparoscopic intervention.

82 **Surgical Intervention:**

83 When EGD revealed the Dieulafoy's lesion, surgical consult was taken. Exploratory Laparotomy was
 84 done. per operative findings was "A lesion was found near greater curvature about 8- 10 cm from
 85 gastro esophageal junction with a pulsatile manner. It was sutured with 2/0 Vicryl by under run
 86 suturing. Two small non-bleeding ulcers were also found near pyloric region, also secured.
 87 Stomach was closed in two layers. N/G tube placed. Patient kept NPO for 5 days

88 **Outcomes:**

89 Post operatively, Patient had a smooth recovery without any episode of bleeding in N/G tube. She
 90 developed only superficial surgical wound infection (SSI)

91 **FOLLOW UP:**

92 Patient was discharged from hospital on her 7th day of surgery. Patient was scheduled for follow up
 93 after 2

94 weeks. On the day of follow up, Patient was assessed about symptoms and queries. brief

95 Examination was also done. According to the patient, her symptoms totally resolved and had no
 96 further

97 Episode of Hematemesis. The surgical wound infection was resolved.

98

99 **Discussion:**

100 Dieulafoy's Lesion was first reported by Gallard [5] in 1884; but it was described accurately 40 years
 101 later by George Dieulafoy a French surgeon [6], who found GI hemorrhage of fatal kind in 3 young
 102 asymptomatic male patients he called them as "exulceratio simplex".

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

105 The disease has been given many names, Some of the alternative names for 'Gastric
 106 Arteriosclerosis', 'Calibre Persistent Artery', 'Cirroid Aneurysm' and 'Sub mucosal Arterial

107 Malformation' [7]. One of the special features of the Dieulafoy's lesion is that they maintain an
 108 abnormally large caliber arteriole of approximately 1 to 3 mm (10 times larger than normal caliber of
 109 such sub mucosal vessels), despite their peripheral, sub mucosal location. Dieulafoy's lesions are
 110 typically presented with severe, active gastrointestinal bleeding; hence the name 'caliber persistent
 111 artery'

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

115 It is mostly found to cause Upper GI bleeding but can also cause middle GI bleeding and rarely cause
 116 lower GI bleeding.

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

120 Dieulafoy's lesion is the cause of almost 1.5% of acute upper GI bleeding [8, 9], and is responsible for
 121 almost 3.5% of jejunoileal GI bleeding [10].

122 The affected arteriole can protrude through a small defect in mucosa, become susceptible to even
 123 mechanical trauma of a minor level (e.g., passage of food bolus in stomach a solid stool in colon), and
 124 gradually is erode into the lumen to cause several acute GI bleedings. Every arterial pulsation
 125 transmits the mechanical pressure that can cause trauma to the fragile, thin layer of mucosa present
 126 over the vessel. On the other hand, flow through the artery that has been enlarged already, may cause
 127 hypo perfusion, ischemia and erosion of overlying mucosa from shunting and redistribution of blood
 128 perfusion. This "vascular steal" phenomenon (hypothesis) has a resemblance to that which sometimes
 129 produces pale mucosal halo that sometimes surrounds angiodysplasia.

130 The lesion is found to be more common in males than females with a  ratio of 2:1. The specific age
 131 at which this disease can occur is not precise but most of the cases reported on of people in the 6th or
 132 7th decades of their lives [8]

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

137 The patients presented with this disease are usually mptomatic before presented with acute
138 excessive GI bleeding, which can be displayed as hematemesis, melena or hematochezia [8, 11].
139 About half of the patients are presented with both hematemesis and melena [7]. Patients found with
140 colonic Dieulafoy's lesion are usually presented with profuse bright red blood per rectum. The
141 bleeding is typically severe owing to the arterial nature of the bleeding and the typical enlarged
142 arterial vessel.

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

151 The first Diagnostic test performed for a upper GI bleeding like Dieulafoy's lesion is
152 Esophagogastroduodenoscopy (EGD). If Upper GI endoscopy is unable to localize the lesion,
153 Angiography is done and seeing tortuous artery will signify the presence of Lesion. Technetium-
154 99m Labelled red blood cell scans is also an option in cases where Endoscopy is unable to find the
155 lesion.

156 There is no clear option for treating the Dieulafoy's lesion [12] The option for treatment is
157 chosen on the basis of presentation, location of the lesion and the access to expertise.

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 gut [13] surgical resection depends upon the location of lesion and clinical aspects patients.

Laparoscopic intervention is also recommended as it is least invasive option. But it depends on the well 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* [11] 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 to expertise. Surgical intervention is selected on basis of lesion's presentation and physical condition of patient. Since in our setting there is limited availability of expertise, therefore the option of surgical intervention was chosen to stop the massive hematemesis.

BREVIATION

GI	Gastrointestinal
CBC	Complete Blood Count
EGD	Esophagogastroduodenoscopy

IV	Intravenous
NG Tube	Naso-Gastric Tube
NPO	Nil Per Oral
NSAIDS	Non-steroidal anti-inflammatory Drugs
PPI	Proton Pump Inhibitors
Pt	Patient
SSI	Superficial skin wound infection

179

180 **DECLARATIONS**

181 **Ethics approval and consent to participate**

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

183 **Availability of data and material**

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

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