

Clinical presentation and endoscopic management of Dieulafoy's lesions in an urban community hospital

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Abstract

AIM: To identify rates of occurrence, common clinical and endoscopic features, and to review the outcome of endoscopic management of Dieulafoy's lesions in the upper gastrointestinal (GI) tract in an urban community hospital setting.

METHODS: Endoscopic data from esophagogastroduodenoscopies (EGDs), done at Wyckoff Heights Medical Center, Brooklyn, NY between 2000 and 2006 were reviewed to identify patients with Dieulafoy's lesions. Demographic data, medical history, examination findings, lab data, endoscopic findings and details of therapy for patients treated for Dieulafoy's lesions were reviewed retrospectively.

RESULTS: Dieulafoy's lesions were documented to be the cause of bleeding in approximately 1% of patients presenting with upper gastrointestinal bleeding, while they were detected in only 2 patients when the indications for EGDs were different from active GI bleeding. When we analyzed EGDs performed in patients above age 65 years presenting with gastrointestinal bleeding, prevalence of Dieulafoy's lesions approached 10 percent. The most common location of the lesion was the body of stomach (7), followed by the cardia (4) and the esophagus (2). One patient had this lesion in the fundus and one patient in the duodenal apex. All patients were initially treated endoscopically with epinephrine injection, in eight cases heater probe was applied following epinephrine and endoscopic clips were applied in two cases. All but one of the patients did well in near and intermediate term follow-up (average follow-up period of 18 mo). One patient died of multi-organ failure during the same hospital stay. Average length hospital stay was 7 d.

CONCLUSION: Community hospital gastroenterologists and endoscopists should be aware that Dieulafoy's lesions are an uncommon cause of upper GI bleeding among elderly patients. Early accurate diagnosis through emergent endoscopy and endoscopic therapy, especially in patients with multiple co-morbid conditions, can be very effective and life saving.

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Key words: Dieulafoy's lesion; Gastrointestinal bleeding; Community Hospital; Endoscopic treatment; Obscure GI bleeding

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INTRODUCTION

Dieulafoy's lesion consists of a small submucosal artery that protrudes through a tiny mucosal defect anywhere in gastrointestinal tract and is reported to be an uncommon, but important cause of major gastrointestinal bleeding especially in the elderly. Dieulafoy's lesion was first described by Gallard in 1884 and later named for the French surgeon Dieulafoy. The majority of Dieulafoy's lesions occur in the proximal stomach, but they have also been reported in the esophagus, small and large bowel^[1-3]. Typically, diagnosis is made by endoscopy where therapeutic endoscopy is the treatment of choice^[4-7].

This study describes the clinical presentation and endoscopic management of 15 consecutive cases of Dieulafoy's lesion in Wyckoff Heights Medical Center in Brooklyn NY, an urban community hospital, between years 2000 and 2006. This study shows that Dieulafoy's lesion is a frequent finding among elderly patients presenting with massive upper gastrointestinal bleeding in a community hospital setting and outcomes of management are similar to published results from tertiary care centers.

MATERIALS AND METHODS

Endoscopic data from emergent esophagogastroduodenoscopies (EGDs) done at Wyckoff Heights Medical

Table 1 Analysis of EGDs findings performed at Wyckoff Heights Medical Center between June 2000 and September 2006

Findings	Hematemesis and or Melena (Total 834)	Melena (Total 460)	Hematochezia (Total 330)	All Indications (14000)
AVM	3	10	2	N/A
Esophagitis	206	122	63	N/A
Gastritis	589	360	281	N/A
MW tear	18	22	2	N/A
Tumor	9	4	0	N/A
Ulcer	245	198	71	N/A
Varices	128	45	15	N/A
Dieulafoy's Lesion	11	1	1	15

Center, Brooklyn, NY between 2000 and 2006 for GI bleeding were reviewed. All the cases were performed by 3 board certified gastroenterologists with more than 10 years of experience. EGD report database was searched for endoscopic findings of Dieulafoy's lesion during this period. The study was reviewed and approved by our Institutional review board. Endoscopic diagnosis of Dieulafoy's lesion is based on following published criteria^[8], (a) active arterial spurting, oozing of blood from minute mucosal defect (less than 3 mm), (b) visualization of protruding vessel with or without active bleeding within a minute mucosal defect or normal appearing mucosa or, (c) densely adherent clot with a narrow point of attachment to a minute mucosal defect or normal appearing mucosa. Demographic data, medical history, examination findings, lab data, endoscopic findings and details of therapy of patients with Dieulafoy's lesions obtained from their medical charts were reviewed retrospectively.

RESULTS

Results of analysis of EGDs performed for acute gastrointestinal bleeding in Wyckoff Heights Medical Center between June 2000 and September 2006 are shown in Table 1. Dieulafoy's lesion was documented to be the cause of bleeding in approximately 1% of patients presenting with upper gastrointestinal bleeding, while it was detected in only 2 patients when the indication was other than active GI bleeding. When we analyzed EGDs performed in patients above age 65 years presenting with gastrointestinal bleeding, prevalence of Dieulafoy's lesions approached 10 percent (12/123). Mean age of the patients was 79 (SD 8.4), the youngest patient was 61 years old, while the oldest was 92. Six of the 15 patients were female. Thirteen of the 15 patients presented with overt acute gastrointestinal bleeding with hypotension and tachycardia requiring blood transfusion. Mean transfusion requirement was three units of packed red cells. Nine patients presented with hematemesis, one had melena, two had melena and hematemesis, and one had hematochezia alone. Two had anemia with occult gastrointestinal bleeding with no history of overt bleeding. Average hemoglobin at presentation was 9.5 gm (SD 1.5). Summary of patient characteristics and endoscopic findings are shown in

Table 2 Summary of 15 cases with Dieulafoy's Lesion treated at Wyckoff Heights Medical Center between June 2000 and September 2006

Patient	Age (yr)	Hgb at Presentation (gm/dL)	Location of Dieulafoy's Lesion	Endoscopic Treatment
1	76	7.6	Esophagus	Epinephrine
2	81	7.9	Esophagus	Epi + Heater Probe
3	87	11.2	Cardia of Stomach	Epinephrine
4	90	9.8	Body of Stomach	Epinephrine
5	92	10	Cardia of Stomach	Epinephrine
6	78	11.2	Fundus of Stomach	Epi + Heater Probe
7	68	7	Body of Stomach	Epi + Heater Probe
8	73	10.3	Body of Stomach	Epi + Heater Probe
9	79	11.3	Body of Stomach	Epi + Heater Probe
10	71	9.9	Body of Stomach	Heater Probe
11	61	11.2	Body of Stomach	Epi + Heater Probe
12	84	8.8	Body of Stomach	Epi + Heater Probe
13	80	7.8	Duodenum	Epinephrine
14	82	8.7	Fundus	Epi + Endoclip
15	86	9	Fundus	Epi + Endoclip

Table 2. The most common location of the lesion was the body of stomach (7), followed by cardia (4) and esophagus (2). One patient had this lesion in the fundus and one patient in the duodenal apex. All the cases were identified on index endoscopy. All of the patients were initially treated endoscopically with epinephrine injection (1:10000 dilution) and in 8 cases heater probe was applied following epinephrine. In two patients endoclips were used. Five patients underwent repeat procedures during the same hospital admission, two of them for rebleeding and the others to confirm the initial findings. Both of the rebleeding patients had heater probe applied during the first endoscopy and probe application was repeated during the subsequent endoscopy to successfully control bleeding. The most often reported additional findings were hiatal hernia (4) and antral erythema (8). All the patients had comorbidities, most common being hypertension followed by coronary artery disease and type 2 diabetes. All but one of the patients did well in near and intermediate term follow-up (average follow-up period of 18 mo). Follow up data was also obtained from chart-review. One patient died of multiorgan failure during the same hospital stay. Average length hospital stay was 7 d.

DISCUSSION

The pathogenesis of Dieulafoy's lesion is not clearly understood, but elongation and tortuosity of a submucosal artery associated with aging may be a factor. Histological description of a Dieulafoy's lesion shows an artery of 1-3 mm in diameter which is ten times the diameter of a normal submucosal capillary^[9].

Dieulafoy's lesion is an important, but uncommon cause of massive GI bleeding especially from the upper GI tract. These lesions can easily be missed on endoscopy unless the lesion is actively bleeding because these vessels are normally retracted. Studies have described Dieulafoy's lesion as the cause of upper GI bleeding in 1%-5.8% of cases. In our series, 0.1% of EGDs showed this lesion when all the indications for EGD were included (15 of 14000) as opposed to about 1% in patients presenting with upper GI bleeding (13 of approximately 1200). Patients affected are typically elderly with significant comorbid conditions. Gender variation was noted (slight male to female predominance).

There have been several endoscopic modalities used successfully to treat Dieulafoy's lesions. Thermal and/or mechanical methods, hemoclippping and heater probe had better results in retrospective as well as prospective trials^[10-12]. Endoscopic hemoclip application, endoscopic band ligation, heater probe application, Nd:YAG, with or without injection therapy have all been shown to be effective in various studies. Initial hemoclip therapy was mostly successful (94.1%-95.2%) with a low recurrence rate^[13-15]. Endoscopic heater probe and endoscopic band ligation had similar results^[16]. Endoscopic sclerotherapy also had good results in one study^[17]. If endoscopic therapy fails, management with other options like angiography with embolization or surgery is indicated. Wedge resection is the surgical procedure of choice. Recurrences can occur, though very rare^[13-16]. Long-term results were excellent for endoscopic methods of therapy^[16-19]. Mortality was generally low with prompt diagnosis and treatment but one study reported higher mortality due to comorbidities and higher age^[20].

Clinical features and management outcome of our series of patients with Dieulafoy's lesion from an urban community hospital were similar to results reported in the literature. One percent of patients presenting with upper GI bleeding were diagnosed with this condition. The patients were elderly with multiple comorbid conditions. The diagnosis of this lesion was increased sharply if the indication was active upper GI bleeding in elderly patients. Standard therapy with epinephrine and heater probe coagulation of the lesion was very effective and resulted in a good patient outcome. Although injection therapy alone with epinephrine was used in five patients with successful outcome, it is considered suboptimal treatment based on current literature and is not recommended. Based upon our experience endoclip application is the optimal treatment modality for these lesions. Initial injection with epinephrine did not interfere with the application of endoclips.

Based upon these results we conclude that community hospital gastroenterologists and endoscopists should be aware that Dieulafoy's lesions are an uncommon, but important finding among elderly patients with upper GI bleeding. Early accurate diagnosis through emergent endoscopy and therapy, especially in patients with multiple comorbid conditions, can be very effective and life saving.

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