



Laparoscopic-Endoscopic Assisted Treatment of Acute Bleeding from Gastric Fundus

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In a large series of patients presenting with active upper gastrointestinal bleeding, 7% of the cases were diagnosed with rare non-variceal and non-peptic ulcer causes of acute bleeding, of which 45.5% had Dieulafoy ulcers. These lesions commonly manifested an abnormally large, tortuous, submucosal gastric artery eroded into the mucosa. Massive bleeding from Dieulafoy ulcers may be fatal, particularly in elderly patients with co-morbidities. Flexible endoscopy may prove to be difficult and bleeding lesions may be easily overlooked; nevertheless, it is the preferred tool for diagnosis and treatment of acute bleeding in these patients. When definitive bleeding control necessitates surgery, precise localization of the lesion is preferable prior to operation. The development of laparoscopic techniques has enabled treatment with minimal invasiveness.

We describe a patient with severe chronic disease, presenting with acute upper gastrointestinal bleeding and treated successfully by laparoscopy assisted by intraluminal flexible endoscopy (Endolap procedure) [1].

Patient Description

A 69 year old woman, hospitalized in the internal medicine ward due to exacerbation of chronic obstructive pulmonary disease, was admitted to our gastroenterology department after developing complaints of tarry stool for 2 days and hematemesis. Hemoglobin upon admission was 9.0 g/dl. Other conditions included chronic renal failure treated by hemodialysis three times

a week for the past 25 years, diabetes mellitus treated with insulin, and hypertension and ischemic heart disease. Physical findings upon admission included pallor, tachycardia, hypotension and melena on rectal examination.

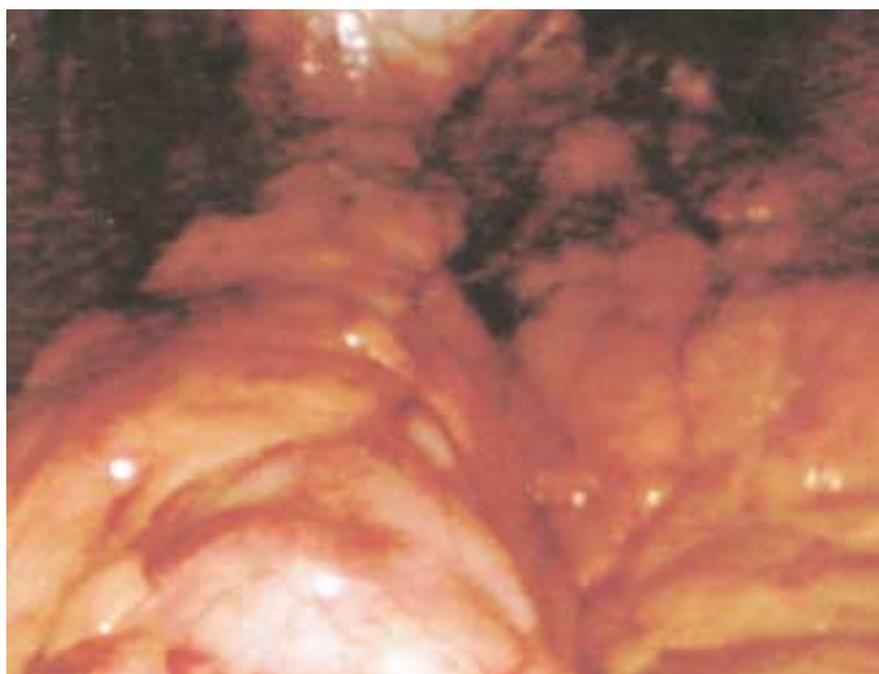
Two attempts to identify the origin of bleeding by gastroscopy failed. A massive clot in the great curvature of the stomach raised suspicion of bleeding from the fundus. Angiography also failed to demonstrate extravasations, and only diffuse vascular disease was confirmed. Bleeding persisted for 48 hours after admission and 6 units of packed red cells were transfused.

Incapability to maintain hemoglobin following multiple blood transfusion mandated surgical treatment.

Endoscopically guided laparoscopic fundus resection achieved cessation of bleeding. Pathologic study of the specimen confirmed a Dieulafoy lesion.

Surgical technique

The patient under general anesthesia was placed supine in the Lloyd-Davis position with the surgeon standing between the patient's legs. Pneumoperitoneum with CO₂ was obtained through a Veress needle. Four trocars were introduced to the upper



View of the proximal stomach after laparoscopic fundus resection.

abdominal wall. A 30° scope was introduced via the umbilical port.

“On table” gastroscopy helped to identify the point of bleeding by trans-illumination. Using an ultrasonic energy device the short vessels were divided and the proximal stomach was mobilized. The fundus was then excised by sequential application of Endo-GIA 45 mm and a second layer of running suture was performed [Figure]. Control of bleeding was confirmed by endoscopy. “On table” gastroscopy helped to identify Dieulafoy’s exulceration and to verify the removal of the lesion following resection. The patient was discharged 7 days after the operation, with no complications.

Comment

Delayed treatment of upper gastrointestinal bleeding can be lethal, especially in patients with chronic health deterioration. Dieulafoy’s lesion is an uncommon cause of bleeding that may be observed along the entire gastrointestinal tract, although more than 60% are gastric lesions. Optimal treatment and long-term outcome are unknown [2]. Flexible gastroscopy is the best approach to diagnose and treat this exulceration.

Several therapeutic approaches can

achieve cessation of bleeding, such as local adrenalin injection, heat probe, rubber band ligation, hemoclip, bipolar electrocautery, ligation and sclerotherapy [3]; however, definitive treatment of this type of lesion has traditionally been surgery.

Before the laparoscopic era, “on table” gastroscopy performed during open procedures was frequently used to identify bleeding lesions. With the advent and evolution of laparoscopy, the combination of endoluminal endoscopy and peritoneoscopy to treat gastric lesions was attempted [4]; this combination was called “endolap” [1].

Recently, two different endolap procedures were described. The first involves recognizing the bleeding vessel by gastroscopy, followed by clipping the feeding vessels by laparoscopy. The second original technique used was the introduction of trocars directly into the stomach, which allowed suturing and clipping of the bleeding vessels [5].

The development of laparoscopic techniques and devices such as the ultrasonic energy device and endo-staplers allows the surgeon to perform resections safely even during acute bleeding. Patients with severe chronic diseases can benefit from the advantages of minimally invasive ap-

proaches with a low risk of complication. Early operative treatment in elderly and chronically ill patients improves outcome. Laparoscopic-endoscopic assisted approaches should be considered treatment options in cases of acute bleeding from the proximal stomach when other conservative modalities have failed.

References

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