

# Endoscopic Band Ligation of Bleeding Dieulafoy Lesions: The Best Therapeutic Strategy

review the current position and our conclusions on the endoscopic treatment of bleeding Dieulafoy lesions.

The first mode of therapy advocated for bleeding Dieulafoy lesions was surgery, which was associated with high mortality and morbidity (related to the emergency subtotal gastrectomy). The advent of endoscopy significantly improved the diagnosis of Dieulafoy's lesion and offered safe and effective therapeutics options [1–4]. Based on the results described above and elsewhere, we concur that endoscopic therapies are now the first and the best option in the management of Dieulafoy's lesion.

There are now some data on the relative efficacies of different endoscopic treatment modalities in patients with bleeding Dieulafoy's lesion. Chung et al. [2] found that mechanical treatment (hemoclip and band ligation) successfully achieved primary hemostasis in 91.7% of patients, compared with a primary hemostasis rate of 75% in patients treated with injection therapy alone. Furthermore, the risk of rebleeding was much lower in the mechanical treatment group (6.3%) compared with the injection treatment group (33%). There appears to be consensus, therefore, that mechanical endoscopic therapies should be the first option in the management of Dieulafoy's lesion.

Available data suggest that endoscopic band ligation is technically easier than hemoclip application and injection methods, especially when the esophagogastric junction or the posterior wall of the proximal body of the stomach are involved [2]. Moreover, Cheng et al. [3] reported recently that hemostasis was achieved in 100% of patients treated with epinephrine injection plus heater probe coagulation, compared with a hemostasis rate of only 54% in patients treated with epinephrine injection alone. We believe, therefore, that endoscopic band ligation may be a better option than other endoscopic methods (and, in particular, sclerotherapy injection alone) in the management of Dieulafoy's lesion.

The treatment of bleeding Dieulafoy's lesion by endoscopic band ligation in our four patients began with the endoscopic location of the site of active hemorrhage. The initial perilesional injection of low-

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Dieulafoy's lesion is a vascular lesion that is widely recognized as a persistently engorged, tortuous artery in the muscularis mucosa which is not associated with inflammation or atherosclerosis. The incidence of this lesion in patients with upper gastrointestinal bleeding has been estimated to be between 0.3% and 6.7%. Clinically, these lesions manifest as massive gastrointestinal hemorrhage, with no preceding symptoms. If the lesion is not treated, patients continue to bleed intermittently over the following days [1]. The advent of therapeutic endoscopic management has resulted in significantly improved outcomes. Success rates between 75% and 96% have been reported for endoscopic intervention [1–3]. As a result, endoscopic management has replaced surgery as the gold standard for the diagnosis and treatment of Dieulafoy lesions.

We read with great interest the article by Romãozinho et al. [4] which described the clinical pattern and reported the long-term outcome in 70 patients admitted for acute upper gastrointestinal bleeding due to Dieulafoy's lesion. Endoscopic hemostasis was initially successful in 63 patients (91%); 11 patients (16%) required surgery because of eventual failure of endoscopic therapy. A total of 52 patients were followed up for between 32 months and 137 months after discharge from hospital and no further bleeding was noted. These results suggest that the long-term prognosis for Dieulafoy's lesion is excellent, even when patients are treated using endoscopic therapies alone.



Figure 1 A Dieulafoy lesion along the lesser curvature of the gastric antrum.



Figure 2 A Dieulafoy lesion on the lesser curvature of the stomach, after two band ligatures were placed on the bleeding vessel without complications.

The last four patients we admitted with acute upper gastrointestinal bleeding due to Dieulafoy's lesion have been treated with injection therapy and band ligation (two or three bands) (Figure [1], [2]) and no complications were noted after treatment. One experienced recurrent bleeding on day 5 after injection therapy alone. These patients have been followed up for between 12 months and 16 months and no further bleeding has been noted. Based on a recent study [3] and on our own experience, we would like to briefly

**Table 1** Clinical characteristics of four patients with bleeding Dieulafoy's lesion who were treated with endoscopic band ligation (EBL)

Patient No.	1	2	3	4
Age, years/gender	68/M	53/M	54/M	16/M
Location of Dieulafoy's lesion	Antrum	Corpus	Corpus	Fundus
Bleeding	Active	Protruding vessel	Active	Protruding vessel
Initial treatment	Injection therapy; EBL × 2	Injection therapy; EBL × 3	Injection therapy; EBL × 2	Injection therapy
Recurrence	No	No	No	Yes
Retreatment	–	–	–	Injection therapy; EBL × 3
Complications	No	No	No	No
Follow-up, months	8	12	12	10

dose epinephrine solution aided in the visualization of the bleeding vessel as a result of the temporary decrease or cessation of hemorrhage this produced. The mucosa and submucosa were then aspirated into the overtube, in which an elastic band was then applied to the bleeding vessel, producing an ischemic necrosis of the mucosa and submucosa [5]. It is important to consider, however, that band ligation is not without potential complications. If the ligature is not placed around the bleeding vessel in its entirety, significant rebleeding could result. However, we and other authors [2] did not find that this therapy resulted in recurrent bleeding. Another potential problem is the time required to prepare the equipment for band ligation.

In summary, these results suggest that different mechanical endoscopic therapies may offer an effective form of treatment in the management of bleeding Dieulafoy's lesion. However, further randomized, double-blind trials are needed to support the use of endoscopic band ligation as the definitive method in patients with bleeding Dieulafoy lesions.

**Competing interests:** not declared

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