

Bleeding Dieulafoy's Lesion of the Duodenum as Treated by Endoscopic Metal Clip Placement



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Abstract

Dieulafoy's lesion (DL) is a rare source of gastrointestinal tract bleeding that may occur at any site in the gastrointestinal tract and may be difficult to detect by endoscopy. DL is characterized by a large, tortuous arteriole in the submucosa. This is a case of duodenal DL that is detected and treated by endoscopy. This article is part of an expert video encyclopedia.

Keywords

Dieulafoy's lesion; Duodenum; Endoscopic treatment; Enteroscopy; Gastrointestinal bleeding; Metal clip; Video.

Video Related to this Article

Video available to view or download at doi:10.1016/S2212-0971(13)70091-8

Materials

- GIF H-180J; Olympus Medical Systems Europe, Hamburg, Germany.
- Metal clip
 - Quick Clip; Olympus Medical Systems Europe, Hamburg, Germany.
 - Long Clip (Olympus HX - 610 - 090L); Olympus medical Europe, Hamburg, Germany.
 - Clip - applicator (Olympus HX - 110 UR); Olympus medical Europe, Hamburg, Germany.
- Water jet irrigation system: Olympus OFP; Olympus Medical Systems Europe, Hamburg, Germany.

Background and Endoscopic Procedures

Dieulafoy's lesion (DL) is a rare reason for intestinal bleeding that may occur at any site in the gastrointestinal tract and is responsible for up to 4% of acute upper gastrointestinal bleeding cases.^{1,2} DL is characterized by a congenital single large, tortuous arteriole in the intestinal submucosa, which may not have undergone normal branching and possesses a caliber of 1–5 mm, which is more than 10 times the normal diameter of mucosal capillaries. It was named after Paul Georges Dieulafoy (1839–1911), a French physician who described this phenomenon for the first time in 1898.

The lesion bleeds into the gastrointestinal tract through a minute defect in the mucosa, which might have been provoked by protrusion of the pulsatile arteriole. The site of this

lesion is most often found in the stomach and less frequently in the duodenum.¹

For treating DL, endoscopy is a safe and an effective method. Several endoscopic techniques have been described, including application of hemoclips, injection therapy, thermal probes, laser therapy, and endoscopic band ligation. Permanent hemostasis is achieved in more than 90% cases with endoscopic therapy. Mechanical methods of endoscopic hemostasis provide permanent hemostasis in up to 100% of cases, and rebleeding rates were significantly lower with injection therapy.^{3–7}

Key Learning Points/Tips and Tricks

- Hemoclippping might be superior to injection therapy in DL.
- The initial use of injected epinephrine may slow down the blood flow and allow for better visualization of the lesion in some cases, facilitating successful treatment with hemoclippping.

Complications and Risk Factors

Complications of DL of the duodenum are similar to other causes of intestinal bleeding, i.e., hemodynamic compromise, low blood pressure, and low cardiac output. Older patients are especially at risk of cardiac decompensation. Perforation is a very rare but life-threatening complication.

Endoscopic therapy might cause infection or – very rarely – perforation. In the case of using endoscopic band ligation to stop bleeding from DL, a newly formed ulcer caused by the band ligation may itself cause bleeding.

Risk factors for DL are *Helicobacter pylori* infection, gastrinoma, and chewing bubble gum in an excessive way causing increased production of gastric acid. Chronic high blood pressure is thought to promote the development of large, tortuous arterioles in the submucosa. Moreover, Crohn's disease may be a risk factor for developing DL, and excessive use of tobacco, alcohol, and medications such as nonsteroidal

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anti-inflammatory drugs, especially taken together with steroids, are referred as risk factors.

Alternatives

- Fibrin glue injection, thermal/heater probes, argon plasma coagulation, and bipolar electrocoagulation are alternatives to hemoclipping but might be less readily available at some centers.
- Laser therapy and endoscopic band ligation might be regarded as second-line interventions.
- Surgery might be necessary in rare cases when endoscopic treatment fails.

Scripted Voiceover

Time (min:sec)	Voiceover text
0:01	At the transition of the first to second portion of the duodenum, there is a pulsatile bleeding detected by upper gastrointestinal tract endoscopy.
0:14	Repeatedly flushing the actively bleeding lesion with water helps identify the exact localization of the bleeding source. There is only a minute mucosal defect at this Dieulafoy's lesion, which might be difficult to detect by endoscopy, in case the lesion does not actively bleed.
0:50	A hemoclip is advanced through the working channel of the endoscope and repeated flushing through an auxiliary water channel helps to place the clip correctly. Sucking remnant blood and water from the lumen additionally improves visibility of the lesion.
1:22	In case a first hemoclip only reduces blood flow, a second or even third clip may be useful to completely and permanently stop the bleeding.

2:00 Final inspection of the treatment result, after ample cleansing of the area of interest with injecting water, confirms complete termination of active bleeding. There is a very low probability of recurrence when applying mechanical endoscopic hemostasis in Dieulafoy's lesion.

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