

Ligation or clipping for diverticular bleeding?




Authors

Daisaku Ito, Masayuki Kitano

Institution

Second Department of Internal Medicine, Wakayama Medical University, Wakayama, Japan

Bibliography

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Corresponding author

Masayuki Kitano, MD, PhD, Second Department of Internal Medicine, Wakayama Medical University, 811-1 Kimiidera, Wakayama City, Wakayama 641-0012, Japan

Fax: +81-73-445-3616

kitano@wakayama-med.ac.jp

Colonic diverticulum is a common colon disease, especially in developed countries. Among patients with colonic diverticula, 70% to 85% are asymptomatic throughout their lifetimes [1]. The 1-, 5-, and 10-year cumulative bleeding rates in colonic diverticulum are 0.2%, 2%, and 10%, respectively [2]. Risk factors for diverticular bleeding include use of nonsteroidal anti-inflammatory drugs, low-dose aspirin, and antiplatelet drugs, smoking, and alcohol consumption.

Methods of achieving hemostasis for diverticular bleeding includes endoscopic hemostasis, transcatheter arterial embolization (TAE), and surgical colectomy. Endoscopic hemostasis can be performed immediately after diagnosis of acute lower gastrointestinal tract by colonoscopy and is often less invasive and therefore considered the first choice. No medications are available to prevent or cure diverticular bleeding, making colonoscopy the key modality for clinical management.

Diverticular bleeding is intermittent. The diverticulum responsible for bleeding must be identified among several diverticula for endoscopic hemostasis, although that may be difficult. Stigmata of recent hemorrhage, including active bleeding, non-hemorrhagic exposed blood vessels, and diverticulum with clots attached, should be identified [3].

After identifying the responsible diverticulum, the endoscopic hemostatic method is selected. Endoscopic hemostasis includes administration of epinephrine local injection, thermal coagulation, use of conventional clips, endoscopic band ligation (EBL), and ligation using an endoscopic detachable snare (EDSL). Recently, over-the-scope clipping has also been applied for diverticular bleeding.

In epinephrine local injection, diluted epinephrine is injected in the neck of the bleeding diverticulum. Early rebleeding rates ranged from 0% to 38%. Of the cases, 25% and 38% need TAE and surgery, respectively [4].

Thermal coagulation is hemostasis for coagulating exposed blood vessels in the diverticulum. Primary hemostasis was achieved in 80% to 100% of cases, and the early rebleeding rate was 0% to 50%. Of the cases, 24% and 20% had early rebleeding and needed surgery or TAE, respectively. No adverse events (AEs) were reported in the previous reports [4].

Endoscopic clipping is classified as either direct or indirect. In the direct method, clips are placed directly on the bleeding vessel. In the indirect method, the opening of the bleeding diverticulum is closed with clips in a zipper fashion [5]. Primary hemostasis is achieved in 83% to 100% of cases. Early rebleeding rates after endoscopic clipping ranged from 0% to 50%. Surgery or TAE was required in 0% to 33% of cases. No AEs were reported. Early rebleeding rates were 7% and 22% with direct and indirect clipping, respectively [4]. However, hemostasis with direct clip placement is sometimes considered to be difficult given the following three settings: 1) endoscopic observations in colonic diverticula; 2) insertion of endoclips into colonic diverticula, 3) instability of the endoscope [6].

Ligation therapy for diverticula consists of EBL and EDSL. EBL was first reported to be useful for colonic hemorrhagic lesions in 2000 by Witte [7]. EDSL was first reported by Akutsu et al. in 2015. In this method, removal of the scope to attach a ligation device and reinsertion for treatment are not needed [8]. Primary hemostasis of ligation therapy was achieved in 82% to 100% of cases. Early rebleeding rates ranged from 0% to 14%. TAE or surgery was needed in only 0.5% of 420 cases treated with endoscopic ligation therapy. These results show that ligation therapy is superior to conventional endoscopic hemostasis with epinephrine injection, thermal coagulation, and endoscopic clipping.

In the previous studies, EBL was superior to clipping methods in early rebleeding rate. Nagata et al. reported a significantly lower incidence of recurrent bleeding with ligation than with

clipping (direct and indirect methods) [9]. In this study, Kishino et al. evaluated the early rebleeding rate after hemostasis using EBL and the direct and indirect clipping methods. They used various devices under water immersion, and attempted to place endoclips directly on vessels. The early rebleeding rate with direct clipping was 5.9%, lower than most previously reported rates (0–50%). The hemostatic effect of direct clipping was as good as that of ligation therapy. They recommend direct clipping as the first choice of hemostatic method, because the bleeding point can be easily treated with the subsequent EBL even in case of rebleeding after direct clipping [10].

This article proposed a new strategy for diverticular bleeding. Direct clip placement can be the first treatment of choice for colonic diverticular hemorrhage before considering EBL. When direct placement of endoclips is not possible, EBL must be performed instead of indirect clipping because EBL is more effective. When performing endoscopic hemostasis for diverticular hemorrhage, preparation for both clip and EBL hemostasis is desirable.

Competing interests

The authors declare that they have no conflict of interest.

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