Is there an optimal technique to treat the bleeding diverticulum? Is diverticular bleeding a recurrent disease?

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Colonic diverticular bleeding is the most common cause of lower gastrointestinal bleeding in adults [1,2]. Bleeding can occur from an injured branch of the submucosal plexus vessels at the neck or along the dome of the diverticulum [3]. While the majority (approximately 80%) of bleeding is self-limited, some patients can develop massive bleeding – perhaps because the submucosal plexus is derived from a sizable submucosal artery. Endoscopically, the stigmata of recent bleeding from the diverticulum may be immediately visible [4] or may need to be exposed by inverting the diverticulum [5]. Inversion is achieved by using a cap, which, with gentle suction, will lead the diverticulum into it. The waterjet is very useful to wash the inverted diverticulum and provide optimal visualization.

Most of the recent endoscopic interventions to treat diverticular bleeding have centered on two techniques: clipping and ligation. Four techniques of endoscopic clipping have been described: (1) clips are applied directly onto visible stigmata of recent bleeding [4], (2) clips are applied along the neck when the stigmata is within the dome [6], (3) clips are deployed to approximate the mouth of the diverticulum, also when the stigmata is within the dome [7], and (4) a clip is deployed from within a cap, which is used to invert the diverticulum, to expose the stigmata, and to clip it [5]. Two ligation techniques have been described: (1) endoscopic band ligation in which the diverticulum is inverted into the banding cap and subsequently banded [8], and (2) endoscopic detachable snare ligation in which a small detachable loop is used to ligate the inverted diverticulum in lieu of the band [9]. These techniques have been found to be safe. In fact, we are not aware of a report of perforation with either technique in the treatment of bleeding colonic diverticulum. However, the short-term (<30 days) recurrent rebleeding rates vary.

The short-term rebleeding rates after clipping range from 0% [5] to 34.5% [7]. The lowest rate was observed when the clips were applied directly onto the bleeding vessel, around the neck of the bleeding diverticulum, or from within a cap. The highest rate occurred when the clips were used to approximate the opening of the diverticulum. It is conceivable that the approximation of the mouth of the diverticulum had led only to a temporary tamponade effect. With time, as the clips fall off, the injured vessel [3], which is unable to heal, rebleeds. The short-term rebleeding rates after band ligation range from 3.7% [10] to 15% [11].

In this issue, Nakano et al. describe the short-term risk of rebleeding after a successful endoscopic band ligation [12]. They used a historical group as the comparison and found that endoscopic band ligation was associated with less early rebleeding than endoscopic clipping (14% vs. 38%, respectively). However, the majority of the endoscopic clipping was done by closing the mouth of the diverticulum. Thus, the comparative group appeared to have been treated with a potentially less efficacious technique. Therefore, the question of which endoscopic method should be used to treat a bleeding diverticulum has not yet been answered. Future studies will also need to employ a randomized design.

Ikeya and colleagues from the same group studied the etiology and risk factors for short-term rebleeding after band ligation [13]. Very early rebleeding (e.g. within 12 hours after banding) was reported to occur from early band dislodgment, banding the wrong diverticulum, or development of an ulcer at the banded site. When rebleeding occurred a few weeks later, they found that bleeding occurred from other diverticulum. They studied the predisposing factors, but the number of patients (n=15) seemed too small to provide a meaningful result.

The reports by Nakano, Ikeya and colleagues in this issue [12,13] are of great interest. They provide additional data on the long-term rebleeding rates after a successful endoscopic treatment of diverticular bleeding. Their data and those of others suggest that diverticular bleeding seems to be a recurrent disease: the cumulative rates at 36 months were approximately 41% after banding and 68% after clipping. In comparison, we have previously reported that approximately 20% of patients with proven or presumed diverticular bleeding develop late rebleeding when followed with a mean follow-up time of about 3 years [5]. Nakano and colleagues also provide information on the rebleeding sites [12]. They performed routine follow-up colonoscopy in 24 of the 61 cases of endoscopic band ligation, and found scars on the initial banding site in 11 (46%), five of whom subsequently developed late rebleeding. Presumably, therefore, in these five patients, they bled from another diverticulum.

Data on the long-term recurrence bleeding rate are useful to develop the strategy to treat diverticular bleeding. Endoscopic therapy using clips or bands may be useful for emergency treatment. However, subsequent therapy may be needed to prevent recurrent bleeding. Patients may be advised to eliminate the use of NSAIDS, which appears to be a contributing factor in diverticular bleeding [14]. They may also be suggested, especially if they developed rebleeding, to have surgery or perhaps endoscopic band ligation to remove or to eliminate the remaining diverticuli, respectively.

The search for the ideal therapy for colonic diverticular bleeding, especially when the bleeding site is within the dome, is likely to continue. Neither clipping nor banding is currently frequently used. Perhaps these techniques are too cumbersome to perform. Akutsu et al. recently described using a small detachable ligation device in order to simplify the technique [9]. They found the technique to be safe and efficacious in a small number of patients. Unfortunately, the detachable device within a cap is also not used widely for its intended purpose, which is to perform variceal band ligation.

It is particularly pleasing to see that studies are being done to determine safe and efficacious techniques to treat diverticular bleeding. They add to the much needed information and provide a foundation towards refining the endoscopic technique and the overall strategy to treat diverticular bleeding.

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