

Role of endoscopy in the management of acute diverticular bleeding

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Abstract

Colonic diverticulosis is one of the most common causes of lower gastrointestinal bleeding. Endoscopy is not only a useful diagnostic tool for localizing the bleeding site, but also a therapeutic modality for its management. To date, haemostatic methods have included adrenaline injection, mechanical clipping, thermal and electrical coagulation or combinations of them. The results of all published data are herein reviewed.

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Forty percent of lower gastrointestinal bleeding (LGB) is due to colonic diverticulae. Inversely, bleeding complicates only 5% of all cases of colonic diverticulosis^[1]. In most of cases, hemorrhage ceases spontaneously; however, in 20% it persists, thus imposing an emergency treatment^[2].

Endoscopic hemostasis is a proven therapy in some indications of LGB, such as in the post-polypectomy bleeding and the post-radiation rectitis^[3,4]. Nevertheless, any attempt of endoscopic treatment presupposes either a certain diagnosis or a strong presumption of the bleeding

lesion, which may not always be evident. Since the end of 1980's, the benefit of an emergency colonoscopy in this setting has been investigated, but yielded contradictory conclusions (Table 1). After adequate bowel preparation urgent colonoscopy is incomplete in 0%-45% of cases and the risk of complications does not exceed 11%. The method allows positive diagnosis in approximately two thirds of cases and hemostasis in one third and may result in a shorter duration of hospitalization^[5-13]. The timing of colonoscopy has little or no impact on the diagnostic yield, but when it is performed early (within 24 h following admission) it seems associated with a better clinical outcome^[12-14].

The criteria proposed by Zuckerman for attributing LGB to diverticulosis are inspired by the Forrest classification of bleeding gastro duodenal ulcers^[15]. They include typical endoscopic stigmata such as active bleeding, visible vessel and adherent clot and presumptive findings, such as presence of fresh blood within one or more bowel segments and diverticular erosions. Using these criteria, a lower bleeding could undoubtedly be attributed to diverticulosis in only 20% of cases. In all other cases, the diverticular origin of bleeding is either presumed indirectly by the absence of any other lesion or considered as incidental^[16].

Endoscopic treatment aims to stop active bleeding, reduce the risk of recurrence, diminish transfusion needs and avoid surgery. To date, haemostatic methods have included adrenaline injection, mechanical clipping, thermal and electrical coagulation or associations of them. All of them are of similar efficacy, but mechanical clipping also offers the theoretical advantage of marking the bleeding site, which might be useful in case of relapse^[17]. Beyond these traditional techniques, Farrell, based on the previous work of Witte *et al*, has reported 4 cases of diverticular bleeding treated by elastic band ligation and suggested that this might be a promising method not only for the hemostasis, but for diverticular reversion as well^[18,19]. Concerning APC, despite its excellent results in vascular malformations, it has never been tested in the setting of diverticular hemorrhage, to our knowledge.

Apart of three original studies including only one prospective trial, all other published data are limited to some case reports. In the first study, Jensen *et al* compared 10 endoscopically managed patients with certain diverticular bleeding to 17 non-treated historical controls. Endoscopic treatment included diluted adrenaline injections in cases of active bleeding, bipolar coagulation in cases of visible vessel and association of

Table 1 Summarized data of the largest series evaluating the efficacy of endoscopy in the diagnosis and the management of lower gastrointestinal bleeding

Author	Publication year	Number of patients	Incomplete colonoscopy (%)	Positive diagnosis (%)	Endoscopic hemostasis (%)	Complications (%)
Jensen ^[5]	1988	80	0	74	39	5
Richter ^[6]	1995	78	11.5	90	13	NS
Geller ^[7]	1997	524	2	42	17	0.5
Kok ^[8]	1998	190	16	78	5	0
Prakash ^[9]	1998	30	0	60	6	0
Chaudhry ^[10]	1998	85	2	97	31	3.5
Ohyama ^[11]	2000	345	45	89	14	11
Schmulewitz ^[12]	2003	415	NS	89	10	0.002
Strate ^[13]	2003	144	5	90	10	NS

NS: Not stated.

Table 2 Summarized data of all studies evaluating the efficacy of therapeutic endoscopy in the management of diverticular bleeding

Author	Publication year	Type of study	n	Therapy	Early recurrence	Complications	Follow-up period (mo)
Johnston ^[21]	1986	Case Report	4	Coagulation	0	0	NS
Bertoni ^[22]	1990	Case Report	1	ADR	0	0	NS
Kim ^[23]	1993	Case Report	1	ADR	0	0	NS
Savides ^[24]	1994	Case Report	3	Coagulation	0	0	NS
Foutch ^[25]	1996	Case Report	4	Coagulation	1	0	NS
Ramirez ^[26]	1996	Case Report	4	ADR	0	0	NS
Hokama ^[27]	1997	Case Report	3	Clips	0	0	NS
Prakash ^[28]	1999	Case Report	3	Coagulation	0	0	NS
Jensen ^[16]	2000	Prospective	10	ADR, Coagulation, ADR + Coagulation	0	0	NS
Ohyama ^[11]	2000	Retrospective	6	ADR ± Coagulation ± Clips	0	0	NS
Bloomfeld ^[20]	2001	Retrospective	13	ADR ± Coagulation	5	0	35
Smoot ^[14]	2003	Retrospective	7	ADR (4), Clips (2), Thermocoagulation (1)	0	0	NS
Cuillierier ^[29]	2003	Case Report	2	ADR	0	0	3-18
Simpson ^[30]	2004	Case Report	2	ADR + Clips	0	0	4-30
Total			63		6 (9.5%)	0 (0%)	

NS: Not stated.

both methods in cases of an adherent clot. None of the treated patients relapsed during a 30 mo observation period, whereas 9 of the 17 controls (52%) presented a recurrence within 3 years and 6 of them (35%) failed to avoid surgery^[16]. In the study of Bloomfeld, although the haemostatic methodology was similar to the previous study, results were less encouraging. Of 13 patients with active diverticular bleeding endoscopically treated, 5 and 3 presented an early or a late recurrence (up to 35 mo), respectively, thus a success rate of 46%^[20]. Finally, in the most recent study of Smoot *et al*, endoscopic haemostasis carried out in 7 patients actively bleeding, was proven both effective and free of complications^[14]. The methodology and the results of all relevant studies and reports are presented in Table 2. Summarizing the above data, one could say that out of 63 patients endoscopically managed, 6 (9.5%) presented an early relapse of bleeding and none a method-related complication. However, the long-term efficacy of endoscopic therapies is not demonstrated and randomized trials including larger number of patients are needed to make safe conclusions.

Thus, based on the above data one can conclude that in cases of lower GI bleeding, urgent colonoscopy after an adequate bowel preparation should be attempted. Endoscopic hemostasis might help patients to avoid at

least emergency surgery, if a diverticular origin seems certain or highly probable.

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