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Role of intraoperative enteroscopy in the management of obscure gastointestinal bleeding at the time of video-capsule endoscopy

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Abstract

BACKGROUND: This study aimed at evaluating the role of intraoperative enteroscopy (IOE) for the management of obscure gastrointestinal (GI) bleeding in patients who had been preoperatively explored by video-capsule endoscopy (VCE).

METHODS: Eighteen patients who underwent IOE for obscure GI bleeding were prospectively recorded between November 2000 and January 2007. The bleeding site was preoperatively localized by VCE in the small bowel in 15 patients, but the origin of bleeding remained unknown in 3 patients.

RESULTS: In the 3 patients with negative VCE, IOE was normal, but intraoperative conventional endoscopy identified gastric (n = 1) and colonic (n = 2) lesions. Among the 15 patients with VCE positive for small-bowel lesions, laparotomy and IOE yielded localization and treatment (surgical n = 11 and endoscopic n = 2) guidance for 13 of 15 (87%) lesions. At median 19-month follow-up, 3 bleeding recurrences (3 of 15 [20%]) were recorded, resulting in a 73% therapeutic efficacy of IOE.

CONCLUSIONS: IOE remains useful for the management of obscure GI bleeding when preoperative VCE is positive for small-bowel lesions that are not reachable by nonoperative enteroscopy. When VCE is negative, new conventional endoscopy should be proposed instead of IOE.

Standard evaluation (ie, routine combination of upper gastrointestinal [GI] endoscopy and colonoscopy) fails to reveal the source of bleeding in approximately 5% of patients with gastrointestinal GI hemorrhage.[1] These cases of obscure GI bleeding[2] are mainly reported to be of small-bowel origin in 45% to 75% of patients.[3–5] The small bowel is known to be difficult to explore, and the precise bleeding site is consequently hard to identify. Mesenteric arteriography and radiolabeled red-cell scintigraphy are useful but only in cases of brisk bleeding, with diagnostic yields of 35% to 60% and 40% to 50%,[6–9] respectively. Push-type enteroscopy allows the surgeon to explore the proximal part of the jejunum with an insertion depth of approximately 80

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cm by way of the peroral approach.[10–12] Therefore, intraoperative enteroscopy has long been considered uniquely suited for complete small-bowel exploration. In 2000, the present team reported the results, with a diagnostic yield of 80%, of such exploration.[13] In addition, intraoperative enteroscopy (IOE) is of major interest for concomitant treatment of the lesions. New techniques have recently developed and have enlarged the field of small-bowel exploration. Double-balloon enteroscopy (DBE) has progressively replaced push enteroscopy. In a recent prospective series, DBE showed insertion depth (230 cm vs 80 cm) and diagnostic yield (73 vs 44%) significantly higher than obtained by push enteroscopy. Nevertheless, complete small-bowel exploration remains irregular and is reported to range from 15% to 86%[10,14] of cases. Video-capsule endoscopy (VCE) now allows the entire small intestine to be regularly explored by a noninvasive procedure that has a sensitivity of 95%.[15]

VCE has been routinely used in this hospital since 2000 and the present investigators, like other teams, consider it a routine work-up in patients with obscure GI bleeding.[15] Nevertheless, once the bleeding source has been identified by VCE, subsequent intraoperative localization of the exact site fails to be obtained by external inspection and palpation in a majority of cases and necessitates the use of IOE. In the opposite case, when VCE has failed to determine the bleeding site, the question is raised of whether IOE can be proposed for further small-bowel exploration. To evaluate the remaining role of IOE in the management of obscure GI bleeding, the investigators prospectively studied patients who underwent IOE after preoperative VCE.

Patients and Methods

Patients

All patients who underwent intraoperative small-bowel endoscopy between November 2000 and January 2007 were prospectively recorded. Twenty intraoperative enteroscopies were performed in 18 patients (11 men and 7 women) who had a median age of 63.5 years (range 26 to 80), a median weight of 75 kg (range 55 to 83), and a median height of 166 cm (range 150 to 182). All the patients underwent preoperative exploration, and IOE was performed electively. Preoperative exploration, past medical and/or surgical history, procedure duration, and technical refinements were recorded for each patient. Medical evaluation focused on the patients' proclivity to bleed, with particular attention paid to blood dyscrasias, heart valve disease, anticoagulation, and chronic medical conditions associated with clotting disorders. Recurrent bleeding history, transfusion requirements, and the results of preoperative studies were also recorded.

Table 1 Associated diseases and treatments in 18 patients with obscure GI bleeding

Disease/treatment	No. of patients (%)
Arterial hypertension	5 (28)
Cardiac valve disease	3 (17)
Cardiac dysrythmia	3 (17)
Diabetes	3 (17)
Alcoholism	3 (17)
Thromboembolic disease	2 (11)
Chronic hepatitis	2 (11)
Coronary artery disease	2 (11)
Inferior limb arteriopathy	2 (11)
Chronic renal failure with hemodialysis	1 (5)
Chronic renal failure without hemodialysis	1 (5)
Liver cirrhosis	1 (5)
Chronic leukemia	1 (5)
Lymphoma	1 (5)
Hemochromatosis	1 (5)
Anticoagulation	1 (5)
Chronic pancreatitis	1 (5)
Hypothyreosis	1 (5)
Abdominal aortic aneurysm	1 (5)
HIV infection with Kaposi's disease	1 (5)

Preoperative GI bleeding

Gastrointestinal bleeding was considered as obscureovert in 14 patients (melena; n = 7) as hematochezia (n = 7), and as obscureoccult (n = 4 patients). The median duration of GI bleeding history was 5 months (range 1 to 144). The median number of bleeding episodes was 2 (range 1 to 16). Median preoperative transfusion requirements were 7.5 U (range 2 to 44) among 16 of the 18 patients. Bleeding had stopped or was of moderate intensity at the time of IOE, which was always performed electively. Eight patients (44%) had a history of laparotomy unrelated to GI bleeding. Another patient had previously undergone surgery 2 times for small-bowel localizations of Kaposi's disease as shown by GI bleeding. Associated diseases, including predominant arterial hypertension, diabetes, cardiac dysrhythmia, and heart valve diseases, are listed in Table 1. All patients underwent esophagoduodenoscopy, colonoscopy, enteroscopy (push enteroscopy [n = 13], DBE [n = 3], and both [n = 2]), and VCE. The time frame between VCE and IOE was 3.3 ± 4.8 months. The modalities of preoperative diagnostic evaluation of GI bleeding are listed in Table 2.

Patient subgroup with positive preoperative VCE. In these 15 patients, the bleeding site was localized preoperatively in the small bowel by VCE in all cases. In 5 patients, the bleeding site was also localized by DBE (n = 2), celiomesenteric arteriography (n = 2), or push enteroscopy (n = 1).

Patient subgroup with negative or discordant preoperative VCE. Findings in these 3 cases were as follows: in case no. 1, all of the explorations were negative; in