

(4,5). Because her prodrome phase lasted approximately 3–4h, we suggested that the medicine administered in the earliest prodromal phase to forestall an imminent attack, similarly to patients with migraine (6). On medication during the next five prodromes, the typical vomiting attack was avoided. After 6-month follow-up, although prodromal symptoms prevailed, all five attacks were successfully avoided with the use of sumatriptan. Thus, she has been freed from the vomiting attacks since then. Although subcutaneous or intranasal administration of sumatriptan has been reported to improve the symptoms in CVS (4,5), to our knowledge, this is the first case where oral sumatriptan successfully resolved the symptoms. Sumatriptan, a selective 5-HT_{1B} and 5-HT_{1D} receptor agonist, represents a remarkable advance in the treatment of migraine (6). It is hypothesized that CVS is a variant of migraine because the headache may not be present, but an aura may be reported, which is part of the migraine spectrum (7). Therefore, we hypothesize that sumatriptan is effective against CVS because the pathogenesis is similar to that of migraine. The site of action of sumatriptan may be central because central neuronal pathways are involved in the pathophysiology of CVS (3) and a central site of action of sumatriptan in CVS has been proposed (8). In addition, we would hypothesize that gastric motility disorders such as rapid gastric emptying explain some of the symptoms of CVS (9). Oral sumatriptan administration delays gastric emptying and enhances gastric accommodation after meal ingestion (10,11), suggesting that oral sumatriptan corrects the problem with gastric motility, thereby preventing a vomiting attack. In conclusion, these data indicate that oral sumatriptan should be considered to be a therapeutic option for patients with CVS.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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¹Department of General Medicine, Asahikawa Medical University, Asahikawa, Japan;

²Department of Regional Medicine and Education, Asahikawa Medical University, Asahikawa, Japan. Correspondence: Toshikatsu Okumura, MD, Department of General Medicine, Asahikawa Medical University, Midorigaoka-Higashi 2-1-1, Asahikawa 078-8510, Japan. E-mail: okumurat@asahikawa-med.ac.jp

Successful Closure of Lateral Duodenal Perforation by Endoscopic Band Ligation After Endoscopic Clipping Failure

Yue Li, MD^{1,3}, Zelong Han, MD^{1,3}, Wei Zhang, MD¹, Xianfei Wang, MD^{1,2}, Aimin Li, MD¹, Yangzhi Xu, MM¹, Dan Zhou, MM¹, Tianmo Wan, MM¹, Jietao Zhong, MD¹, Wenting Mi, MD¹ and Side Liu, MD, PhD¹

doi:10.1038/ajg.2013.415

To The Editor: A 77-year-old woman was admitted to our hospital with recurrent abdominal pain and persistent fever of 2 weeks' duration. Laboratory findings and magnetic resonance imaging suggested the presence of a malignant biliary obstruction. Endoscopic retrograde cholangiopancreatography (ERCP) was therefore indicated. When the duodenal endoscope approached the duodenal papilla, an iatrogenic perforation measuring ~8 mm was observed in the lateral wall of the descending duodenum (**Figure 1**). Numerous attempts to seal the perforation using endoclips failed because the fragile edge of the tear and the tautness of the wall prevented adequate grasping. Next, a 6-cm-long 10 French (Fr) plastic stent was inserted into the narrow portion of the common bile duct, resulting in drainage of a large quantity of bile. After the procedure was completed, we shifted to gastroscopy combined with multiple-band ligators (Boston Scientific, SpeedBand SuperView Super 7 Multiple Band Ligators) to close the perforation. The transparent cap at the end of the ligator was aimed at the perforation site, and the perforated lesion, along with peritoneal fat, was suctioned into the ligator cup. Two elastic bands were subsequently released, resulting in complete closure of the perforation (**Figure 2a,b**). A 14Fr nasoduodenal tube was then placed for continuous suction and drainage. After the procedure, the patient was asymptomatic despite the development of pneumoretroperitoneum, confirmed by fluoroscopy and computed tomography (**Figure 3**). After 6 days of treatment with peripheral parenteral nutrition, intravenous administration of proton pump inhibitors, somatostatin, and broad-spectrum antibiotics, the patient's abdominal pain and fever subsided. Six months after the procedure, the patient remained asymptomatic. An additional gastroscopy performed 8 months later confirmed the absence of perforation.

Three distinct types of possible duodenal perforation during ERCP have been described, according to their anatomical location: type 1 at the lateral or medial duodenal wall, type 2 at the perivaterian segment, and type 3 at the biliary tree (1). Lateral or medial duodenal wall

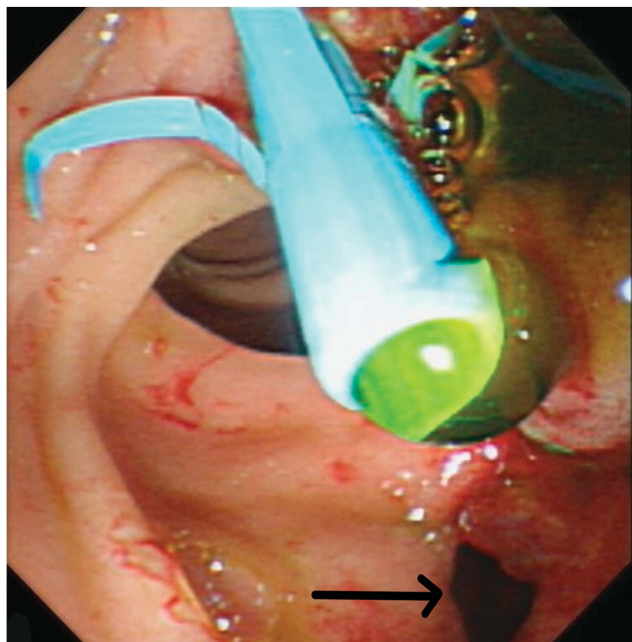


Figure 1. A plastic stent was successfully placed into the distal common bile duct. A large quantity of bile flowed from the stent's opening. A lateral duodenal perforation can be seen in the descending duodenum (arrow).

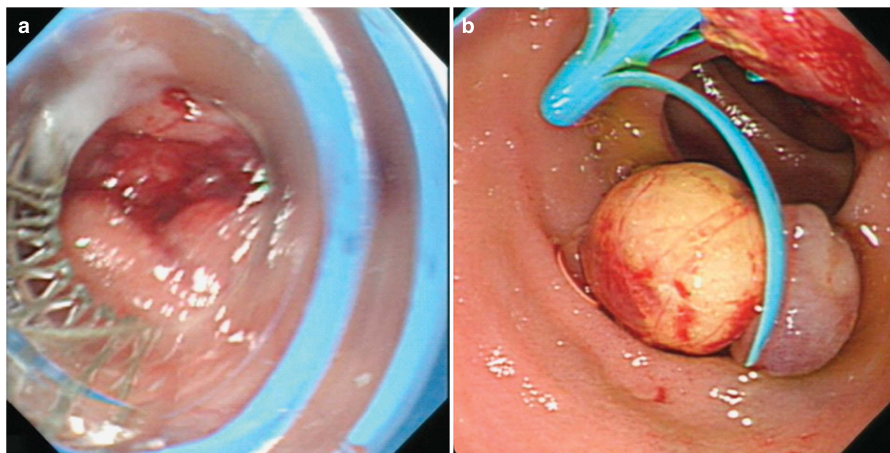


Figure 2. The procedure of endoscopic band ligation for the treatment of the perforation. (a) The transparent cap at the end of the ligator was aligned with the perforation site and used to immobilize the intestinal wall and peritoneal fat at the perforation site via suction. (b) Endoscopic view showing that the elastic band incorporated the intestinal wall and peritoneal fat, which helped achieve complete closure of the perforation.

perforations tend to be large and usually require surgical intervention (1). However, recent advances in endoscopic devices and techniques have enabled lateral wall perforations to be closed endoscopically. Currently, several endoscopic procedures,

including endoscopic clipping, endolooping, and injection of fibrin glue, have been proposed for treating duodenal perforation. Baron *et al.* (2) reported the first such case, in which five hemoclips were used to close a postsphincterotomy duodenal

perforation. Successful closure of a lateral duodenal perforation with fibrin glue after failed endoscopic clipping has also been reported (3). Nakagawa *et al.* (4) reported the endoscopic closure of a ~30 mm lateral duodenal perforation using endoloops and endoclips. A novel technique using endoclips, endoloops, and fibrin glue to close an endoscopic mucosal resection-related iatrogenic duodenal perforation was reported (5). Additionally, Baron *et al.* (6) outlined general principles for addressing endoscopic perforations and provided a framework for managing luminal endoscopic perforations.

Han *et al.* (7) first reported the use of Endoscopic band ligation (EBL), usually considered for variceal hemorrhage, to successfully close two colonic perforations after endoscopic closure with endoclips had failed. Recently, they presented a series of studies that evaluated the clinical efficacy and safety of the rescue EBL technique in gastric wall perforation following failure of primary endoclip closure (8).

Endoscopic management of a duodenal perforation is much more difficult than that of colonic and gastric perforations, and it may lead to serious consequences without early detection and management. Using a multiple-band ligator, we successfully repaired a lateral duodenal ERCP-related perforation. To our knowledge, this is the first report of a lateral duodenal perforation closed by EBL. Our results support the utility of this method in the nonoperative treatment of ERCP-related lateral or medial duodenal perforations after failure of endoclip placement. In our experience, EBL is easier and faster than endoclip placement, which can be considered for the primary repair of duodenal perforations.

ACKNOWLEDGMENTS

This project was supported by Guangdong Province Universities and Colleges Pearl River Scholar Funded Scheme.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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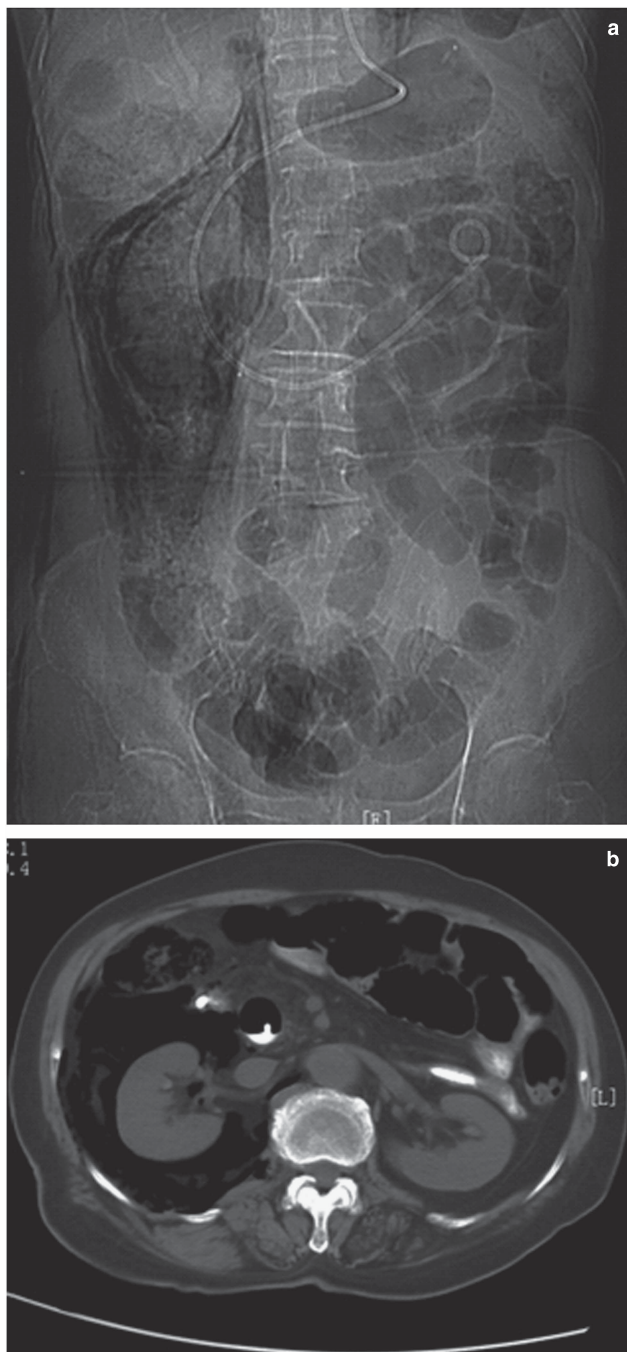


Figure 3. Imaging examinations confirmed the perforation after the procedure. (a) Fluoroscopic image obtained soon after closure of the perforation revealed free air in the retroperitoneal region. (b) Subsequent abdominal computed tomography confirmed the presence of pneumoretroperitoneum (arrow) in the right retroperitoneum without fluid collection.

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¹Guangdong Provincial Key Laboratory of Gastroenterology, Department of Gastroenterology, Southern Medical University, Nanfang Hospital, Guangzhou, China; ²Department of Gastroenterology, Affiliated Hospital of North Sichuan Medical College, Nanchong, China; ³The first two authors contributed equally to this work. Correspondence: Side Liu, MD, PhD, Guangdong Provincial Key Laboratory of Gastroenterology, Department of Gastroenterology, Nanfang Hospital, Southern Medical University, Guangzhou, China. E-mail: liuyue_1989919@126.com or liuside@163.com

Double Plastic Stents for Distal Malignant Biliary Obstruction: Preliminary Evidence for a Novel Cost-Effective Alternative to Metal Stenting

Christopher Lawrence, MD¹ and Joseph Romagnuolo, MD, MSc¹

doi:10.1038/ajg.2013.409

To the Editor: Biliary obstruction in pancreaticobiliary malignancy is effectively relieved by either metal or plastic biliary stents, with metal stents thought to provide longer relief but at considerably higher (~10×) cost. However, we demonstrated multiple plastic stents appear to have longer patency duration than single plastic stents in benign biliary strictures (1). We aimed to determine if multiple plastic