Efficacy of endoscopic treatment in anastomotic leaks occurring after gastrectomy

To the Editor,

I read with great interest the article by Seicean et al. [1] titled „Anastomotic Leakage After Gastric Surgery for Gastric Cancer". I wish to add a few points besides congratulating the authors' excellent study. They brought up anastomotic leakage following gastric resection that challenged the surgeon. They suggested that endoscopic treatment was appropriate for small anastomotic leaks (AL), and surgical repair was recommended for high-volume leaks or endoscopic treatment failure.

A dangerous side effect that happens in 5-8% of instances after gastrectomy is an anastomotic leak. Endoscopic treatments are becoming increasingly essential since revision surgery carries a high risk of morbidity and mortality [2, 3]. The Carboni classification, which categorizes anastomotic leaks based on fistula size, divides into 4 groups as follows: class I, no leakage; class II, <10% dehiscence; class III: 10% to 50% dehiscence; and class IV, more than 50% dehiscence [4]. The basic concept in treating AL leakage involves drainage of the leaked contents and closing the leakage site. It is feasible to drain the leaking content with a percutaneous drain, while endoscopically applied fully covered expandable metal stent (fcSEMS) closes the leakage site. Anastomotic leaks closure rate with endoscopic fcSEMS and percutaneous drainage combination therapy was 87.5% in our recently published study, which comprised 24 patients who underwent gastrectomy for malignancy, despite most of the cases being Carboni class 3 [5]. Moreover, endoscopic treatment was successful in a patient who developed complete dehiscence in the anastomosis and was in poor condition to undergo surgery. Reoperation following AL leaks is associated with high morbidity and mortality due to cases that are not amenable to surgery due to their poor condition, and the risk of recurrent leaks after repair of inflamed tissue is high [4].

The endoscopic success rate of AL is higher in esophagojejunal (EJ) anastomosis than in esophagogastric anastomosis (EG). In our study, the endoscopic treatment success rate in patients with EJ anastomosis was 94%, while it was 60% in EG anastomosis. The jejunum and esophagus have comparable sizes, which may be connected to that. Stent migration is the adverse event linked to fcSEMS that occurs most frequently. This may be minimized by using a clip to fix the proximal edge of the fcSEMS to the esophageal mucosa. Also, it might be corrected by repositioning the fcSEMS or retracting the migratory stent to cover the anastomosis line.

It is recommended to insert a nasojejunal tube in patients with fcSEMS placement to ensure the maintenance of enteral nutrition and to prevent the risk of aspiration. Considering that the duration of AL closure with fcSEMS is 4-8 weeks, providing enteral nutrition rather than long-term parenteral nutrition also prevents intestinal bacterial translocation.

A combination of fcSEMS endoscopic placement with percutaneous drainage treatment is a safe and effective treatment even with high-volume anastomotic leaks after gastrectomy. Reoperation of anastomotic leaks following gastrectomy has high morbidity and should be avoided unless conservative and endoscopic therapy has failed.

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Reply

To the Editor,

We appreciate the comment by Durak [1] with regard to our paper [2].

Several methods have been proposed for closing anastomotic leakage after total gastrectomy for gastric adenocarcinomas, based on various principles.

Firstly, mechanical closure of anastomotic leakage can be achieved endoscopically using fully covered expandable metal stents, vacuum therapy, or suturing devices, in combination with percutaneous drainage if [1]. This approach has been successfully applied in 5 out of 14 patients with type I and II esophagogastric tumors who underwent transthoracic or transhiatal anastomosis [2]. Surgical closure of anastomotic leakage should be reserved for cases with high-volume fistula and septic patients, although the mortality rate is high with surgical revision [2, 3]. The study mentioned by Carboni et al. [2] used a practical classification of anastomotic leakage based on clinical outcomes and endoscopic appearance, while the most commonly used Clavien-Dindo classification of postoperative complications is based on patient outcomes during hospitalization. The two classifications overlap, but we believe that the endoscopic appearance (less than 10% or more than 50%) can be difficult to assess precisely, potentially leading to bias in patient classification.

Secondly, the prevention of infection should include the use of antibiotics and drainage of fluid collections near the anastomotic leakage. Internal drainage can be achieved endoscopically using double pigtail stents, a method preferred for preserving the patient's quality of life. External drainage can be performed using percutaneous radiologically guided drainage, which is often the method of choice for draining local abscesses, especially in very frail patients. Surgical drainage along with revision surgery should be performed in septic patients.

Thirdly, ensuring proper nutritional status is crucial, as malnutrition is a risk factor for anastomotic leakage in patients undergoing gastrectomy [4]. For this purpose, enteral nutrition by naso-jejunal tube feeding is usually used, another option is intraoperative jejunostomy which may prolong recovery, but they are still preferable to parenteral nutrition.

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The endoscopic microanatomy of gastric reddish depressed lesions after *Helicobacter pylori* eradication via magnification and narrow-band imaging observation

To the Editor,

We have read with great interest the article by Tahara et al. [1] regarding reddish depressed lesions (RDLs) among patients after *Helicobacter pylori* eradication. We agree with the clinical follow-up of the patients, need for pathologic confirmation of the benign and malignant RDLs and subsequent treatment.

From an endoscopic perspective, white-light endoscopy (WLE) has been employed to verify the location of RDLs, and with the use of chromoendoscopy RDL borders are becoming clearer. However, the main goal of observation using magnification endoscopy with narrow-band imaging (ME-NBI) remains analysing the microvascular architecture and microsurface structure of the RDL at a more detailed level.

Endoscopic microanatomy of the gastric body and antral mucosa, such as collecting venules, gastric pits (GP) and crypt openings (CO), as well as the honeycomb/coil type subepithelial capillary network (SECN) and marginal crypt epithelium (MCE), has been confirmed in previous reports [2, 3]. The endoscopic microanatomy via ME-NBI observation of the microvascular architecture and microsurface structure of RDLs in both the figures provided in the study [1] was described using the "vessel plus surface (VS) classification system" introduced more than a decade ago [4]. Therefore, in this letter, we would like to pay close attention to the SECNs, GPs, MCEs and COs of the RDLs and surrounding mucosa (Fig 1).

In the non-neoplastic RDL image, to our view the authors poorly described the endoscopic microanatomy as "uniform vessels and surface" with an unclear demarcation line to the

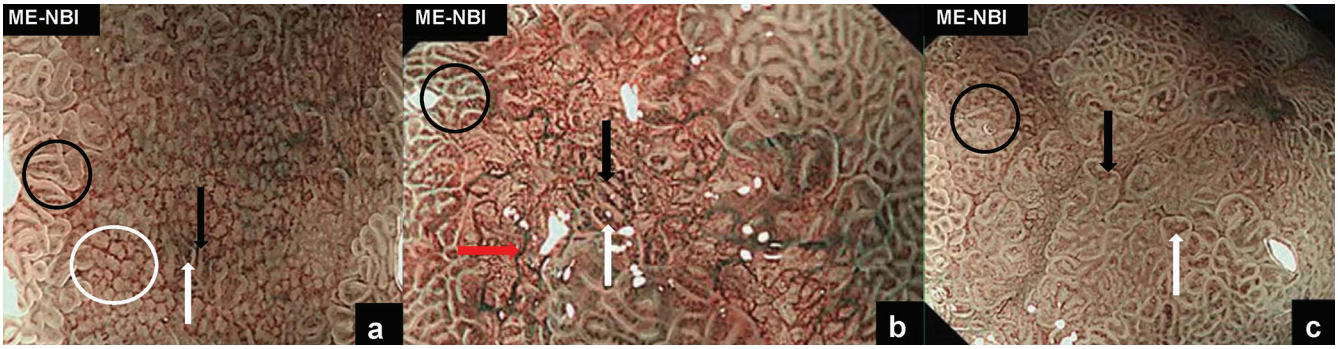

Fig. 1. a) Non-neoplastic reddish depressed lesion (RDL), b) neoplastic RDL, c) undiagnosed RDL via magnification and narrow-band imaging (ME-NBI) observations (images taken from J Gastrointestin Liver Dis. 29;33(2):164-169).

surrounding mucosa. However, with ME-NBI mode, the centre of the RDL contains a brown SECN (white arrow) and tiny crypts (black arrow). Away from the centre, the RDL contains the honeycomb type of the SECN and GPs, and there are also COs visible as black points (white circle). Outside of the RDL demarcation line, the coil type of the SECN and the MCE (black circle) are present (Fig 1a).

In the neoplastic RDL image, the authors described irregular microvessels without any features of the surface and a clear demarcation line to the surrounding mucosa. However, the centre of the RDL contains an irregular dark brown SECN (white arrow) and irregular tiny MCE (black arrow). Away from the centre there are new aberrant vessels (red arrow). The coil type of the SECN and the MCE (black circle) are outside of the RDL demarcation line (Fig 1b).

In the undiagnosed RDL image, the authors described "some irregularities" with respect to endoscopic microanatomy. In the RDL an enlarged brown SECN (white arrow) and elongated MCE (black arrow) are present. The coil type of the SECN and the MCE (black circle) are outside of the RDL demarcation line (Fig 1c).

The authors in this retrospective study used recorded WLE, chromoendoscopy and the conventional ME-NBI mode endoscopic images from endoscopic video information system Olympus GIF-H260Z/H290Z [1]. Conventional ME with a mechanical addition at the top of the scope requires more time, skill and special endoscopic training, all of which make the procedure more complicated. Two studies recently evaluated a new way of endoscopic magnification via near focus (NF) - developed by Olympus Medical Systems [2, 5]; both conclude that NF achieves significant diagnostic yields regarding endoscopic microanatomy. Therefore, in future research on the microarchitecture of the gastric mucosa, due to its pragmatic uses NF should be used as a tool for endoscopic magnification.

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Colorectal mucosa-associated lymphoid tissue lymphoma and *Helicobacter pylori* eradication treatment: a report of 5 cases

To the Editor,

Colorectal mucosa-associated lymphoid tissue (cMALT) lymphoma is rare. Although MALT lymphoma of the stomach is thought to be associated with *Helicobacter pylori* (HP) infection, and its eradication is widely accepted as first-line treatment [1, 2], no clear guidelines have been established for the standard treatment of cMALT lymphoma.

Table I. Summary of Colorectal MALT Lymphoma Cases and their Courses

Case	Age (y)	Sex	Position	HP infection	Effect	Observation period (months)
1	69	F	R	+	regression	66
2	67	F	A	-	regression	9
3	76	M	R	-	no change	47
4	52	F	A	-	another site	69
5	67	F	S	-	enlargement	112 (rituximab, operation)

R: rectum, A: ascending colon, S: sigmoid colon

First-line treatment of localized cMALT is considered to be chemotherapy, surgery, and follow-up [3], although there have been many reports of endoscopic resection in recent years [4].

In this study, the courses of five patients with stage I cMALT lymphoma treated with HP eradication as primary therapy after consultation with the patients and hematology/oncology departments are presented (Table I). *Helicobacter pylori* eradication therapy was performed in all patients (vonoprazan 20 mg, amoxicillin 750 mg, clarithromycin 200 mg twice daily for 7 days), and one positive patient had successful eradication and tumor resolution. Of the four HP-negative patients, one showed a tendency toward tumor enlargement and underwent surgery after chemotherapy. The histopathology and endoscopic course of one HP-negative case are presented. The initial endoscopic findings were seen as submucosal tumor-like bumps in the ascending colon (Fig. 1a), but the characteristic dendritic vessels of cMALT were not identified. Results of immunostaining of pathological tissues were CD3(-), CD10(-), CD20(+), BCL2(+), BCL6(-), MIB1(<10%), EBER(-), and AE1/3[Lymphoepithelial lesion(+)] (Fig. 1b,c). Two months after HP eradication therapy, no tumor changes were observed (Fig. 1d). After 27 months, a new appendiceal lesion appeared (Fig. 1e), but at the 4-year follow-up, there was no trend toward enlargement (Fig. 1f), and the patient is now under observation. In all cases, including the present case, the stage of the disease has remained at stage I on CT and other imaging examinations during follow-up. Since there have been reports of tumor resolution in HP-negative patients following antibiotic therapy [5], the prognosis for localized colorectal MALT lymphoma without metastasis is currently considered good. However, there were cases in which the tumor disappeared after HP eradication therapy and did not recur, whereas there were cases in which new lesions appeared in other colonic sites after the tumor disappeared, and cases in which lymphofollicular hyperplasia was diagnosed at the end of the ileum, but cMALT lymphoma was diagnosed on biopsy examination. Endoscopic follow-up of stage I cMALT lymphoma should be performed at least once a year, especially for lesions at the end of the ileum.

In the present study, some cases showed a tendency to resolve with eradication therapy regardless of the presence or absence of HP, suggesting that eradication therapy may be a less invasive first-line treatment option.

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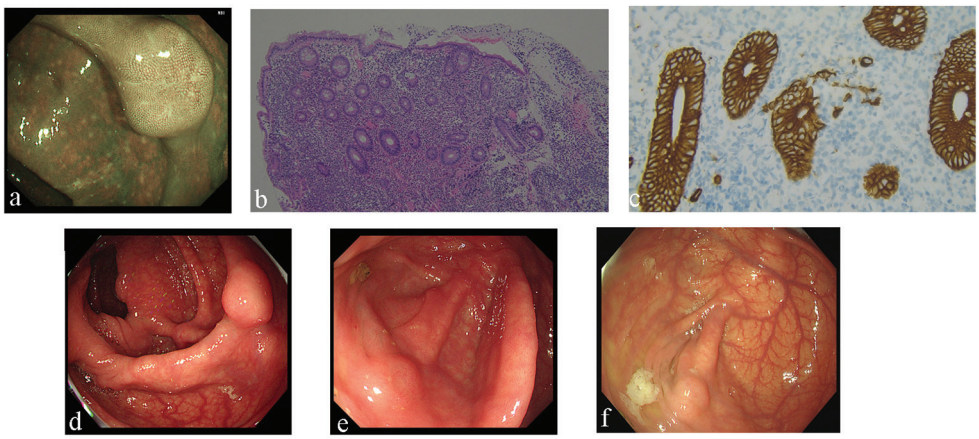

Fig. 1. (a) A submucosal tumor-like growth, 10 mm in size, is observed in the ascending colon (before eradication therapy); (b) HE staining shows diffuse, dimly nodular proliferation of medium-sized lymphocytes with pale cytoplasm in the mucosal intrinsic layer; (c) Keratin staining shows monocytoid B-cell proliferation and a lymphoepithelial lesion; (d) No change in the submucosal tumor-like growth in the ascending colon (2 months after eradication); (e) Flat submucosal tumor-like elevation in the cecum (27 months after eradication); (f) Submucosal tumor-like elevation has not significantly changed in the cecum (4 years after eradication).

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Ensuring safe retrieval of migrated metal stent using endoscopic sheath device

To the Editor,

Endoscopic placement of a metal stenting is a widely accepted and effective technique for managing pancreatic and biliary diseases [1]. However, stent dislodgement often complicates the retrieval process, and addressing the dislodgement typically requires tools such as snares or forceps. The absence of a dedicated retrieval device adds further complexity to this scenario [2-4]. This report describes a notable case involving successful employment of an endoscopic sheath device (EndoSheather; Piolax, Inc., Kanagawa, Japan) for safe retrieval of a migrated metal stent (MS) [5]. The EndoSheather serves as a delivery system, allowing for smooth insertion of the retrieval device through its indwelling outer sheath, which bridges to the target space (Fig.1a). Furthermore, it demonstrated enhanced maneuverability of the retrieval device, facilitating secure extraction of the migrated MS with minimal damage to surrounding tissue.

A 64-year-old woman who had been diagnosed with obstructive jaundice and liver metastasis from pancreatic head cancer underwent fully covered self-expandable MS implantation to address distal bile duct stenosis. Although initial improvements were observed, contrast-enhanced computed tomography on day 18 revealed MS-associated cholecystitis and a contiguous intrahepatic penetrated abscess. Endoscopic ultrasound-guided drainage was performed with placement of an MS into the gallbladder and an endonasal abscess drainage (ENAD) tube into the deeper part of the abscess cavity. Upon adding plastic stents (PS) to address insufficient abscess control on day 34, the MS was inadvertently pushed into the gallbladder. Ultimately, two PSs and an ENAD tube were placed, resolving the abscess. On day 39, to retrieve the migrated MS, an attempt was made to directly insert biopsy forceps through the fistula hole along the axis of the placed

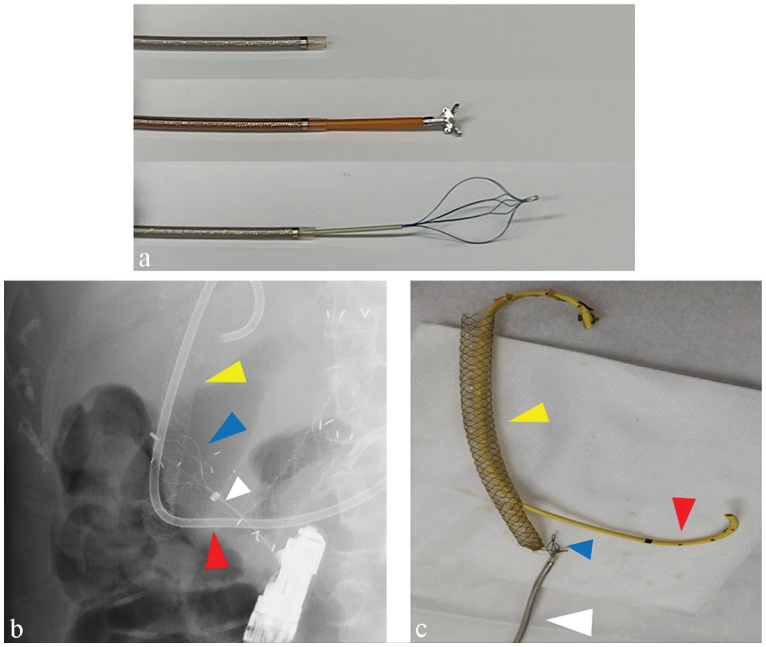

Fig. 1. (a) The outer sheath of the endoscopic sheath device (EndoSheather). The sheath tip has a radiopaque marker. A biopsy forceps or a retrieval basket can be inserted through the sheath; (b) Fluoroscopic image of the metal stent being grasped by a basket catheter (blue arrowhead). The endoscopic sheath device (white arrowhead) was used to successfully grasp the migrated metal stent (yellow arrowhead) with the basket catheter through the outer sheath. The red arrowhead indicates the plastic stent; (c) Photograph of removed migrated metal stent along with the plastic stent (white arrowhead; EndoSheather, yellow arrowhead; migrated metal stent, blue arrowhead; basket catheter, red arrowhead; plastic stent).

PS, but this proved to be impossible. Therefore, employing an endoscopic sheath device, retrieval device such as biopsy forceps and basket catheter were safely advanced through the outer sheath into the gallbladder, enabling secure grasping of the MS. Success was achieved in grasping the edge of the dislodged stent, leading to its successful removal (Fig.1b and 1c, white arrowhead; EndoSheather, yellow arrowhead; migrated MS, blue arrowhead; basket catheter, red arrowhead; PS). In our detailed procedure, a 0.025-inch guidewire was first inserted into the target space, followed by smooth insertion of this sheath device with a tapered tip of the inner catheter. Subsequently, the inner catheter was removed, whereas the outer sheath remained in place inside the target space. This sheath can be approached close to the migrated MS along the guidewire. Hence, it allowed for the safe insertion of the retrieval device, such as each biopsy forceps, the retrieval basket (Boston Scientific) and snare (Boston Scientific), through the sheath device. Additionally, the position of the retrieval device could be adjusted due to enhanced maneuverability until grasping the migrated stent, providing successful retrieval of the migrated MS.

The endoscopic sheath device enhanced the maneuverability of the retrieval device and facilitated safe and successful retrieval of the migrated MS, providing a minimally invasive alternative to potential open surgery.

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Hemorrhagic shock secondary to a duodenal Dieulafoy's lesion

To the Editor,

A 32-year-old male was admitted to our department due to persistent melena for one week. Three days before this admission, he underwent endoscopy at his local hospital, but the cause of gastrointestinal bleeding was not determined. Physical examinations showed pale face and palpebral conjunctiva, but no abdominal tenderness and rebound tenderness. Laboratory tests showed that hemoglobin concentration was 74g/L (reference range: 130-175g/L). Emergency endoscopy was scheduled in order to identify the cause of the bleeding and perform endoscopy-guided hemostasis. However, he became suddenly unconscious before endoscopy, and his blood pressure dropped to 60/30mmHg. After volume resuscitation and blood transfusion, he underwent emergency endoscopy. Fresh blood was spurting from a mucosal defect at the junction of duodenal bulb and descending part, suggesting a diagnosis of duodenal Dieulafoy's lesion (DL) (Fig. 1A). The lesion was sutured by three metal clips (Fig. 1B), and then hemostatic powder was sprayed under endoscopy (Fig. 1C). Subsequently, no active bleeding was observed. Melena disappeared after endoscopic therapy, and his hemoglobin concentration gradually rose to 100g/L. Ten days later, upper gastrointestinal endoscopy was performed again, showing one metal clip remained with inflammatory duodenal mucosa.

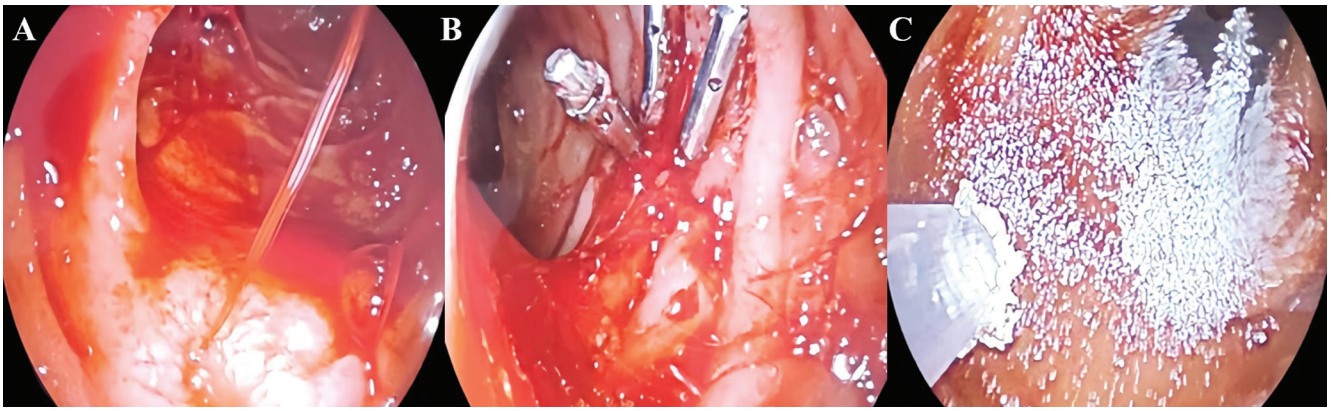

Fig. 1. Upper gastrointestinal endoscopy showing massive bleeding spurting from a Dieulafoy's lesion (A), and endoscopic treatment by metal clips and (B) hemostatic powder spraying (C).

Fecal occult blood test became negative. Thus, he discharged without any discomfort.

Only 1.5% of acute upper gastrointestinal bleeding episodes are associated with DLs [1]; they predominate in the stomach, but are relatively rare in the duodenum, being reported in only several scattered cases [2]. The culprit artery does not shrink to the size of mucosal capillary, but becomes caliber-persistent artery with a diameter of 1-3 mm. This is almost 10 times the diameter of a normal mucosal capillary [3]. Gastrointestinal bleeding from DL is sudden and massive, and usually do not have other gastrointestinal symptoms, such as abdominal pain. If the initial hemostasis fails, bleeding recurs within less than 72 hours [4]. Because the DL is potentially life-threatening, early diagnosis and treatment are crucial. Endoscopy has gradually been recommended to diagnose DL, but repeated endoscopy is required in some cases where the lesion is small or covered by blood clots. On endoscopy, several classical features can be observed at a mucosal defect (less than 3 mm) or normal surrounding mucosa [3], as follows: 1) active arterial blood spurting or micropulsatile streaming; 2) a protruding vessel with or without active bleeding; and 3) fresh and punctate clots. Endoscopic treatment is also preferred for DL, primarily including hemoclips, endoscopic band ligation, argon plasma coagulation, epinephrine injection, or their combination. With the development of endoscopic treatment, the mortality secondary to DL bleeding has been substantially reduced. Vascular embolization or surgery is considered unless endoscopic treatment is technically impossible or fails [5].

In conclusion, our case highlights the importance of recognizing DL as a rare cause of acute upper gastrointestinal bleeding, especially in the cases where disease progression is very rapid, and chronic abdominal symptoms are lacking. Sometimes, repeated endoscopy is also necessary to detect missed DL, even if the initial findings are negative. Additionally, endoscopic hemostatic procedures are effective in most of emergent cases.

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Vessel compression technique using the sheath of an FNA needle during EUS-guided choledochoduodenostomy

To the Editor,

Endoscopic biliary stenting under endoscopic retrograde cholangiopancreatography (ERCP) guidance is the gold standard technique for treating malignant biliary obstruction. On the other hand, biliary drainage under a percutaneous or enteroscopic approach is indicated for patients who failed ERCP or have an inaccessible papilla due to surgically altered anatomy. Endoscopic ultrasound-guided biliary drainage (EUS-BD) has been developed. EUS-BD can be mainly divided into two kinds of procedures, EUS-guided choledochoduodenostomy (CDS) and hepaticogastrostomy (HGS). EUS-CDS is indicated for patients who fail biliary deep cannulation or duodenal obstruction expected duodenal bulb obstruction [1-3]. Various techniques have reportedly prevented double mucosal puncture [4, 5], but no technique to prevent bleeding has been reported. To prevent bleeding, vessel injury should be prevent using color Doppler image. However, if vessel is observed on puncture route, changing puncture axis is usually attempted. In this situation, adequate puncture route might not be obtained. On the other hand, vessel compression technique might be useful because puncture axis is not changed. Technical tip for vessel compression technique is following. When a mucosal vessel is observed, the sheath of the FNA needle is advanced. The vessel is then compressed using the up angle of the elevator, and puncture is subsequently performed. By doing so, mucosal vessel injury can be prevented. A successful case of EUS-CDS without mucosal vessel injury using compression technique is reported.

A 77-year-old man was admitted to our hospital with unresectable cancer of the head of the pancreas. For his obstructive jaundice, biliary drainage under ERCP guidance was attempted, but biliary cannulation failed. Therefore, EUS-CDS was attempted. First, the echoendoscope was inserted into the duodenum, and the common bile duct was identified. According to the color Doppler image, a mucosal vessel was observed around the puncture route (Fig. 1a). To prevent vessel puncture, the sheath of the FNA needle was inserted into the duodenal wall. Then, using the up angle of the elevator of the echoendoscope, the mucosal vessel was compressed (Fig. 1b). The common bile duct was then punctured without vessel injury. After bile juice was aspirated, contrast medium was injected. On cholangiography, lower common bile duct obstruction was observed. After 0.025-inch

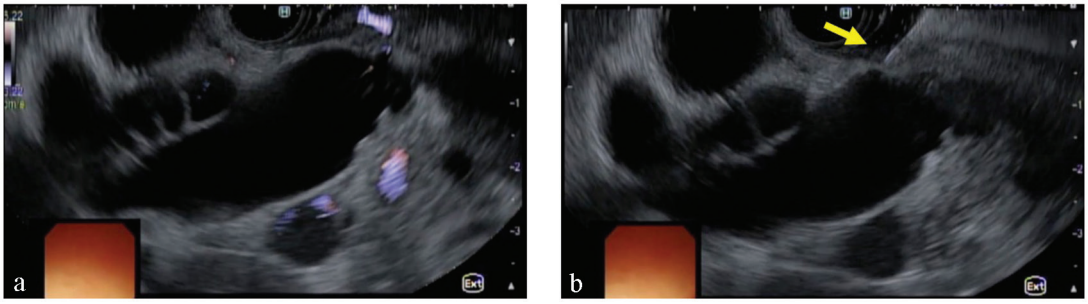

Fig. 1. (a) Mucosal vessels are observed on endoscopic ultrasound using color Doppler imaging; (b) The sheath of the needle is advanced (arrow); by doing so, the vessel is compressed.

guidewire deployment, tract dilation was performed using an electrocautery dilator. Finally, self-expandable metal stent deployment was successfully performed without any adverse events.

In conclusion, the technique presented may be helpful for preventing mucosal vessel injury by the FNA needle during not only EUS-FNA, but also interventional EUS such as EUS-CDS.

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