





Endoscopic Submucosal Dissection for Early Gastric Cancer in A Cirrhotic Patient: Case Report and Review of Literature

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Abstract

Keywords

- cirrhotic
- early gastric cancer
- endoscopic submucosal dissection

Endoscopic resection techniques like endoscopic mucosal resection and endoscopic submucosal dissection have become the cornerstone for the management of early cancers of the gastrointestinal tract. Risks associated with endoscopic resection may be exacerbated by the presence of background cirrhosis with its attendant complications. With complex alterations in hemostasis in patients with cirrhosis, management of patients undergoing endoscopic resection is more challenging. In this article we discuss a case of early gastric cancer in a patient with background chronic liver disease and thrombocytopenia managed using endoscopic submucosal dissection.

Introduction

Liver cirrhosis is a risk factor for not only primary liver cancer but also extrahepatic malignancies including gastric cancer.^{1–3} Compared with noncirrhotic patients, patients with cirrhosis have an increased risk of poor prognosis for nonhepatic abdominal surgery.⁴ Liver cirrhosis is usually accompanied by complex alterations in the hemostatic system including thrombocytopenia and prolonged prothrombin time, resulting in high risk of bleeding during surgery.^{5,6} Various studies have shown cirrhosis as one of the important risk factors for gastrectomy-associated postoperative complications like ascites, wound infection, and postoperative bleeding.^{7,8}

Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are minimally invasive techniques for the treatment of early gastric cancer (EGC) with excellent outcomes.^{9–11} Data on use of these modalities in

patients with chronic liver disease and its complications remain sparse. We report a rare case of EGC with background chronic liver disease treated with ESD.

Case Report

A 52-year-old man with a history of alcohol-related chronic liver disease was on surveillance for esophageal varices. There was no history of decompensation in form of ascites, bleed, jaundice, or encephalopathy. Baseline investigations revealed hemoglobin of 8.9 g/dl with platelets of 50,000/mm³. Liver function tests revealed low albumin (3.2 g%) with normal liver enzymes and bilirubin. There was no ascites or encephalopathy. On upper endoscopy, a Paris 0-IIa + IIc lesion of approximately 2.5 cm size was seen in the distal body along the anterior wall. The lesion on narrowband

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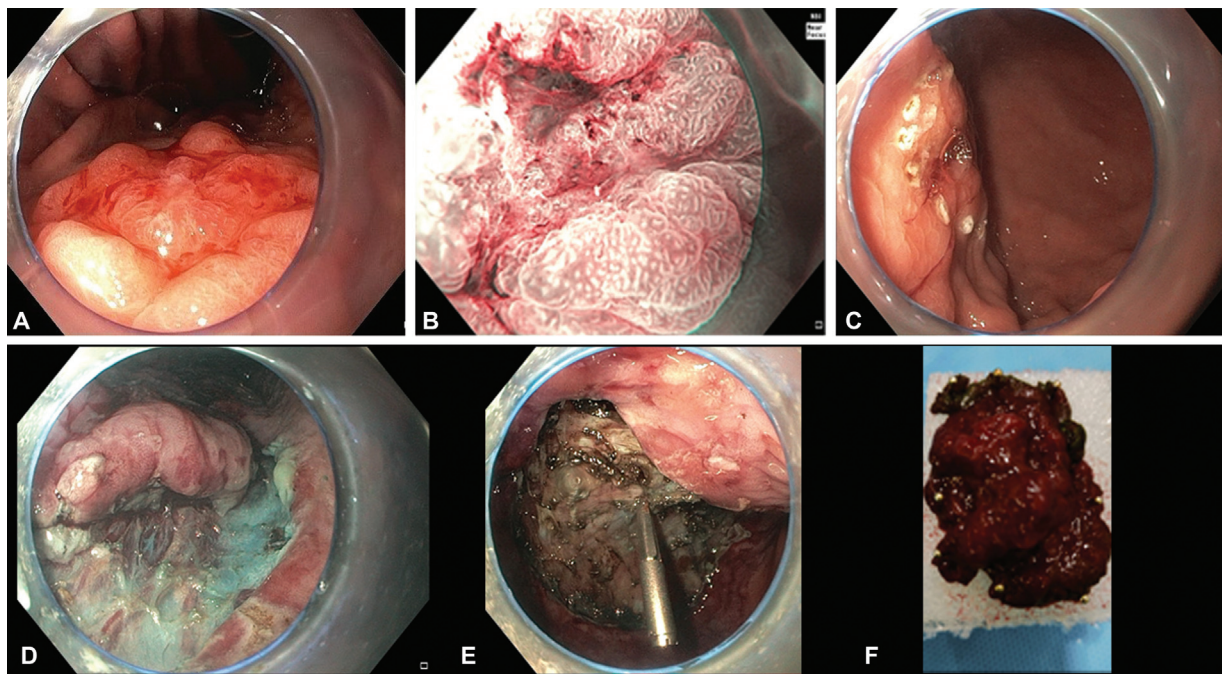


Fig. 1 (A) Lesion along the anterior wall of the stomach on white light endoscopy. (B) Narrowband imaging (NBI) showing changes of early gastric cancer on vessel plus surface (VS) classification. (C) Lesion edges marked using a knife. (D) Submucosal dissection done with the base seen lifted using a solution of methylene blue and Gelofusine. (E) The base seen after endoscopic submucosal dissection (ESD) with clip applied at the site of potential suspected bleed. (F) ESD specimen.

imaging (NBI) as per the vessel plus surface (VS) classification showed changes suggestive of EGC (►Fig. 1). Biopsy was taken using nonspiked forceps from the lesion suggestive of high-grade dysplasia without evidence of invasive adenocarcinoma. There were small esophageal varices with mild portal hypertensive gastropathy also seen. Computed tomography (CT) showed evidence of cirrhosis with collaterals without any obvious thickening in the stomach. Endoscopic ultrasound (EUS) done for assessing depth using radial echoendoscope showed the lesion involved only the mucosal layer with periportal and subcarinal lymphadenopathy. The lymph nodes on EUS-guided sampling turned out reactive. The case was discussed in a multidisciplinary team meeting and the patient was planned for ESD. The patient was started on nonselective beta blockers for variceal prophylaxis.

Risks of the procedure including added risk of bleeding were explained considering a background of Child A cirrhosis. The platelet count prior to the procedure was 46,000/mm³ with international normalized ratio (INR) of 1.57. The patient underwent thromboelastography (TEG) to evaluate the risk of bleeding and to guide transfusion. TEG showed an elevated *R* value (>10 minutes), smaller α angle with low maximum amplitude (<55 mm) pointing to increased time till fibrin clot formation, low fibrin cross-linking, and low strength of clot formation. He received one single donor platelet (SDP) and two packs of fresh plasma just prior to the procedure; no other preventive measures (like octreotide or somatostatin infusion) were used. The procedure was done under general anesthesia. Site marking was done initially using a dual knife, and injection was given at the base of the lesion using Gelofusine with methylene blue solution (a total of ~80 mL was injected). Initial incision was done using dry

cut (Effect 3, 60 W). Dissection was carried out with Swift Coag (Effect 3, 50 W). Hemostasis during dissection was done using a dual knife and also Coagrasper (Soft Coag; Effect 5, 100 W). The procedure was uneventful without any significant bleeding or muscle injury. The base of the dissection was clean and hemoclips were applied at sites of potential delayed bleeding risk. The total procedure time was 100 minutes. Once extubated, the patient was observed in recovery for 4 hours. No intra- or immediate postprocedure complications were reported. The patient was subjected to TEG after the procedure, which showed prolonged *R* time and low amplitude. A repeat platelet count was 51,000/mm³ and considering the risk of potential delayed bleeding, 1 unit of SDP was given.

The patient was started on liquid diet in the evening after the procedure and discharged after observation for 2 days for potential delayed bleed. The histopathology of the resected specimen showed high-grade dysplasia with a focus of intramucosal adenocarcinoma with invasion of the muscularis mucosa and both circumferential and vertical margins free of tumor (►Fig. 2). The tissue was greater than 0.1 mm from the base. The patient was started on medications for eradication of *Helicobacter pylori*. Follow-up at 1 month was uneventful with no postprocedure decompensation. The patient is planned for a follow-up at 6 months with a scar biopsy planned at that time.

Discussion

Patients with cirrhosis have an increased risk of bleeding during ESD/EMR of a gastric lesion due to rebalanced hemostasis (due to an effect on both anticoagulants and

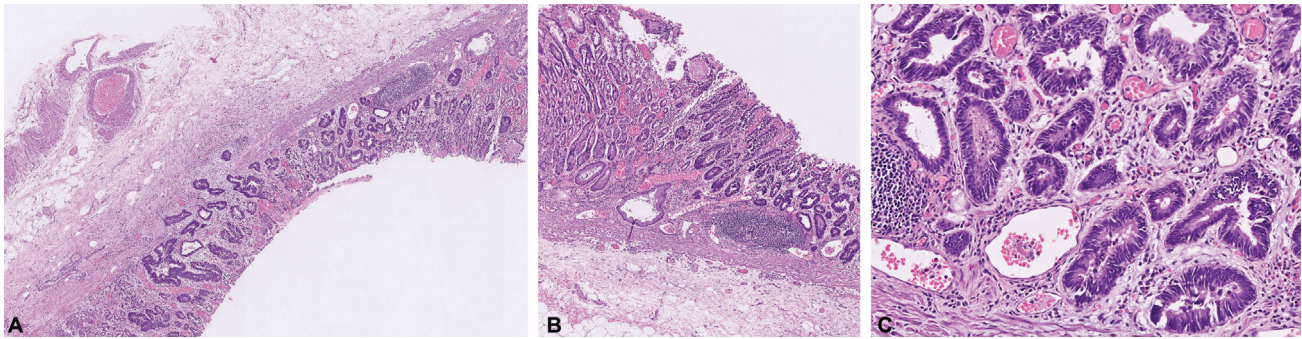


Fig. 2 Histopathology showing early gastric cancer. (A) Endoscopic submucosal dissection (ESD) specimen with the free base. (B) Normal gastric glands (left) and dysplastic glands (right). (C) Dysplastic glands (higher magnification).

procoagulants), thrombocytopenia, and portal gastropathy (congested gastric mucosa that is more prone to bleed). Most gastroenterology societies advocate a restrictive strategy for blood transfusion (although not for plasma-based blood products) to cirrhotic patients making things more complicated as undercorrection of blood parameters may further add to the risk of bleed and overcorrection may exacerbate portal hypertension increasing risk of complications of cirrhosis. Transfusion of blood products based on TEG (both pre- and postprocedure) can thus aid in preventing complications like bleeding as well as overcorrection of coagulation and blood parameters.^{12,13} Also, a recent systematic review showed that while incidence of immediate bleeding was higher in patients with cirrhosis, there was no statistically significant difference in any of the other outcomes between the patient (cirrhotic and noncirrhotic) groups.¹⁴

With improved survival in patients with background cirrhosis, there may be a higher rate of detection of early tumors in these individuals due to the commonality of background risk factors. With more lesions detected early on endoscopy, endoscopic resection represents a potential noninvasive alternative to surgery in these high-risk patients, without significant risk of deterioration of Child-Pugh status.¹⁵ While status of background liver disease may impact outcomes of resection, Choe et al¹⁶ found that the rate of en bloc resection, complete removal, and postprocedure complications of ESD in gastric cancer with both Child A and Child B were similar. Hence, endoscopic resection is safe and effective for treating gastric cancer even in advanced cirrhosis. For lesions greater than 2 cm in size, the Japan Gastroenterological Endoscopy Society (JGES)/Japanese Gastric Cancer Association (JGCA) guidelines recommend ESD over EMR considering higher rates of en bloc resection. Hence, ESD was chosen in this patient.¹⁷

In a propensity-score-matched analysis by Kim et al,¹⁸ which included 17 cirrhotic patients who underwent ESD/EMR for gastric cancer, there was no difference in rates of en bloc resection (94.1%) and complications like bleeding (11.8%)/perforation (0%) compared to noncirrhotic patients. Another systemic review by Repici et al,¹⁹ which included 68 ESD procedures performed for gastric cancer in cirrhotic patients, showed successful en bloc removal in 88.2% with post-ESD bleeding and perforation in 13.1 and 1.6%, respectively (which were successfully managed endoscopically).

They concluded that advanced cirrhosis with either INR greater than 1.3 and/or platelet count less than 105,000/mm³ should be regarded as high risk of bleed. Despite a high INR and low platelet count, our patient did not have a history of bleeding. A pre- and postprocedure TEG helped guide our strategy for transfusion and also gauge the risk of bleeding in our patient.

We conclude that ESD can be done in a safe manner despite a cirrhosis background and portal hypertension with an elaborate preprocedure evaluation for the status of background liver disease and coagulation parameters with TEG. Close monitoring for delayed bleed may help avert a catastrophe. Pre- and postprocedure TEG may help guide transfusion in this subset of patients.

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Conflict of Interest

None declared.

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