



Endoscopic submucosal dissection for early esophageal squamous cell carcinoma with esophageal-gastric fundal varices caused by liver cirrhosis: a case report

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Background: There is limited reporting of treatment options for early esophageal squamous cell carcinoma in esophageal-gastric fundal varices patients. Historically, surgery is the preferred treatment for squamous cell carcinoma; however, esophagectomy is associated with higher complications and death rates. The difficulty of such an operation was the varicose veins around the mucosa of the lesion. Possibility of concomitant intraoperative fatal bleeding. Previous studies have proved the effectiveness of endoscopic mucosal resection (EMR) paired with endoscopic injection sclerotherapy (EIS) for treating early esophageal cancers on esophageal varices.

Case Description: We reported an effective endoscopic treatment of such conditions in a 62-year-old man with liver cirrhosis. After seeking informed consent, we performed endoscopic submucosal dissection (ESD) of early esophageal squamous cell carcinoma after the eradication of esophageal-gastric fundal varices using EIS. The resection margins indicated negative for carcinoma and dysplasia, suggesting that no recurrence and complication occurred. The patient was discharged 5 days after ESD without any complications including perforation or bleeding. No complaint from the patient was received during the 1-week follow-up, and the patient was tolerating solid food. The pathological result of the two lesions both showed moderately differentiated squamous cell carcinoma of the esophagus, T1bN0M0. The resection margins suggested negative for both carcinoma and dysplasia according to pathological examination. There was no recurrence or adverse event during follow-up.

Conclusions: Our case presented the successful treatment of esophageal squamous cell carcinoma on esophageal-gastric fundal varices. This indicated that patients with cirrhosis and portal hypertension could also be treated with ESD, which could reduce trauma and discomfort and improve their quality of life. We recommend future studies to further investigate the indications of using endoscopic treatment for patients with cirrhosis.

Keywords: Endoscopic submucosal dissection (ESD); esophageal squamous cell; esophageal-gastric fundal varices; liver cirrhosis; case report

Submitted Nov 23, 2021. Accepted for publication Mar 22, 2022.

doi: 10.21037/tcr-21-2624

View this article at: <https://dx.doi.org/10.21037/tcr-21-2624>

Introduction

Squamous cell carcinoma of the esophagus is a common esophageal cancer in Asia (1). Historically, surgery is the preferred treatment for squamous cell carcinoma; however, esophagectomy is associated with higher complications and death rates (2). Recent studies suggested that endoscopic therapy, specifically endoscopic submucosal dissection (ESD), had similar results as surgical resection but with lower morbidity (3). We presented an early esophageal squamous cell carcinoma resected by ESD in a patient with esophageal-gastric fundal varices caused by severe liver cirrhosis. We present the following case in accordance with the CARE reporting checklist (available at <https://tcr.amegroupp.com/article/view/10.21037/tcr-21-2624/rc>).

Case presentation

A male patient aged 62 was admitted to the hospital for “liver cirrhosis diagnosed 9 months ago, and esophageal lesion found 9 months ago”. In November 2019, the patient was hospitalized due to liver cirrhosis. During gastroscopy, esophageal varices and esophageal mucosal hyperplasia were found. Biopsy was taken from the hyperplastic esophageal mucosa, and then pathological examination showed poorly differentiated squamous cell carcinoma of the esophagus. His total bilirubin was less than 34 $\mu\text{mol/L}$, prothrombin time was prolonged less than 4 seconds, albumin was less than 35 g/L, and the patient had no ascites and hepatic encephalopathy, so the Child-Pugh classification is A. The patient was diagnosed with alcoholic cirrhosis owing over 20-year drinking history. He drank about 2,000 mL of beer a day for more than 20 years. Gastroscopy and endoscopic ultrasonography indicated that there were superficial protruding lesions at 18–20 cm and 36–28 cm from the incisor, and the mucosa of the lesions was rough and eroded (*Figure 1*); the lesions were closely related to the submucosa of the esophagus without clear boundaries, though the muscularis propria and adventitia were clear, continuous, and complete, with no enlarged lymph node; esophageal and gastric fundal varices were visible (*Figure 2*).

We performed ESD after the eradication of esophageal-gastric fundal varices by endoscopic injection sclerotherapy (EIS). The operation procedure is as follows: we marked 0.5 cm outside the lesion, made a pre-incision 0.5 cm outside the mark, peeled alongside the submucosa and treated the wound with hot biopsy forceps (*Figure 3*). We

did not observe any bleeding or perforation. The patient was discharged 5 days after ESD without any complications including perforation or bleeding. No complaint from the patient was received during the 1-week follow-up, and the patient was tolerating solid food. The pathological result of the two lesions both showed moderately differentiated squamous cell carcinoma of the esophagus, T1bN0M0. The resection margins suggested negative for both carcinoma and dysplasia according to pathological examination. There was no recurrence or adverse event according to the routine gastroscopy (*Figure 4*) and CT scan during follow-up.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Discussion

ESD is recommended by the European Society of Gastrointestinal Endoscopy (ESGE) as the first-line option for treating superficial esophageal squamous cell carcinoma (4), and such recommendation is based on 15 series on ESD for superficial squamous cell carcinoma which suggested that ESD could achieve 83–100% *en bloc* resection rates, 78–100% complete resection rates, and 0–2.6% local recurrence rates. Therefore, ESD is recommended regime for treating M1 and M2 (intraepithelial, and invasion into the lamina propria, respectively) diseases.

Paris classification lesions 0-I and 0-III are usually less recommended candidates for endoscopic treatment as they have submucosal involvement, while in comparison 0-IIa, 0-IIb, and 0-IIc usually are intramucosal. Therefore, per Japan Esophageal Society guidelines recommendation, for Paris 0-II lesions with M1–M2 invasion and <2/3 circumferential extent, endoscopic resection should be considered (5,6).

The difficulty of such an operation was the varicose veins around the mucosa of the lesion. Previous studies have proved the effectiveness of endoscopic mucosal resection (EMR) paired with EIS for treating early esophageal cancers on esophageal varices (7,8). Additional studies indicated that ESD achieved higher complete *en bloc* resection rates independent of the size and location of the

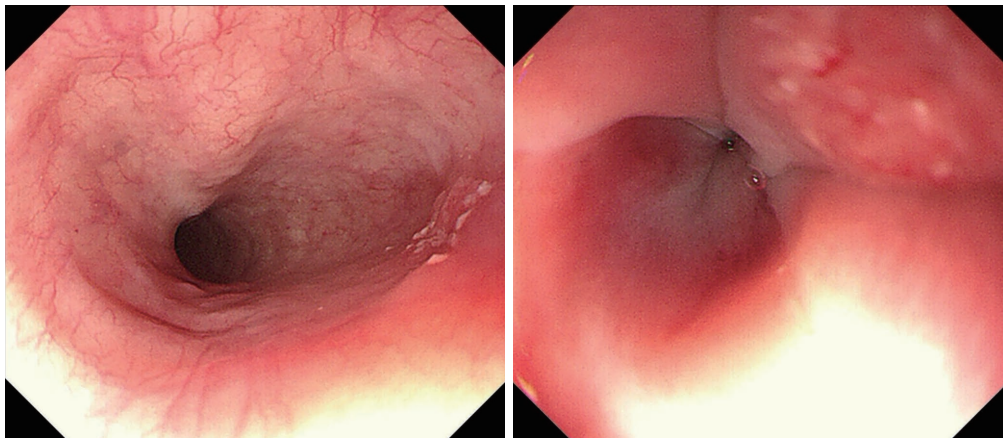


Figure 1 Superficial protruding lesions at 18–20 cm (left) and 36–28 cm (right) from the incisor in gastroscopy and endoscopic ultrasonography.

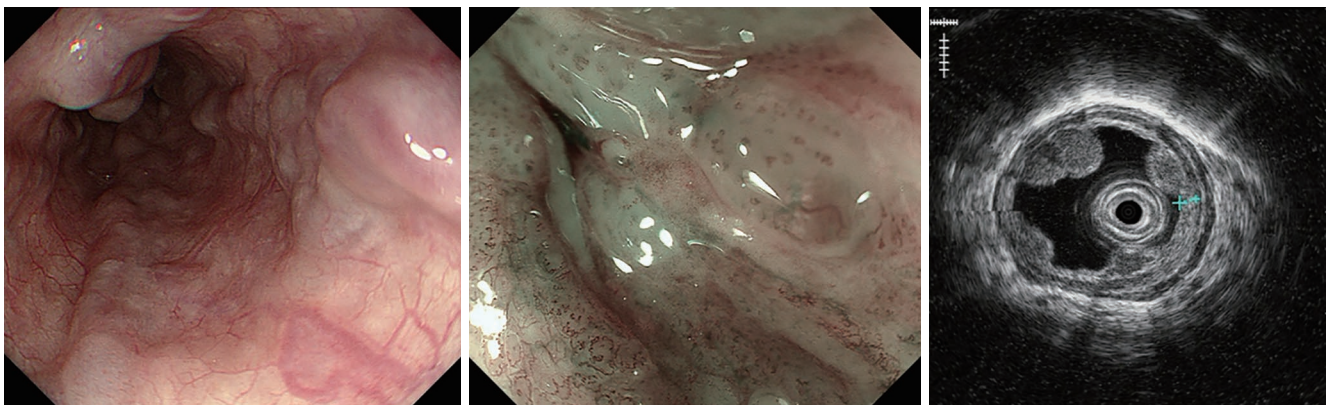


Figure 2 Esophageal and gastric fundal varices in gastroscopy and endoscopic ultrasonography.

tumour as well as the degree of fibrosis, which allowed more accurate pathological examination of early gastric cancers and assessment of curability without residual or recurrence, thus ESD is recommended over conventional EMR (9). To avoid fatal bleeding from gastric fundal variceal (GFV), complete resection was performed by ESD under the direct visualization of the submucosa, after the removal of esophageal-gastric fundal varices by EIS according to the examination of hemodynamics and the relative position between the early gastric cancer and esophageal-gastric fundal varices.

We injected sclerosing agent and tissue glue into the varicose vein at the cardia, hoping to block the blood vessels in front of the lesion to avoid serious bleeding during the

operation. EVL is Endoscopic esophageal varix ligation. In fact, it can also be operated after ligation at the varicose vein at the distal end of the lesion. However, our case is close to the dentate line, after ligation, the space for lesion resection is relatively small, and varicose veins may fall off and bleed during ESD. This case is very close to the dentate line, so we didn't choose the EVL. If we only annotate the sclerosing agent in the esophagus, it may make the scar under the lesion obvious. After weighing, we chose to annotate the sclerosing agent and tissue glue in the varicose vessels of the cardia and stomach.

In summary, our case presented the successful treatment of esophageal squamous cell carcinoma on esophageal-gastric fundal varices. This indicated that patients with

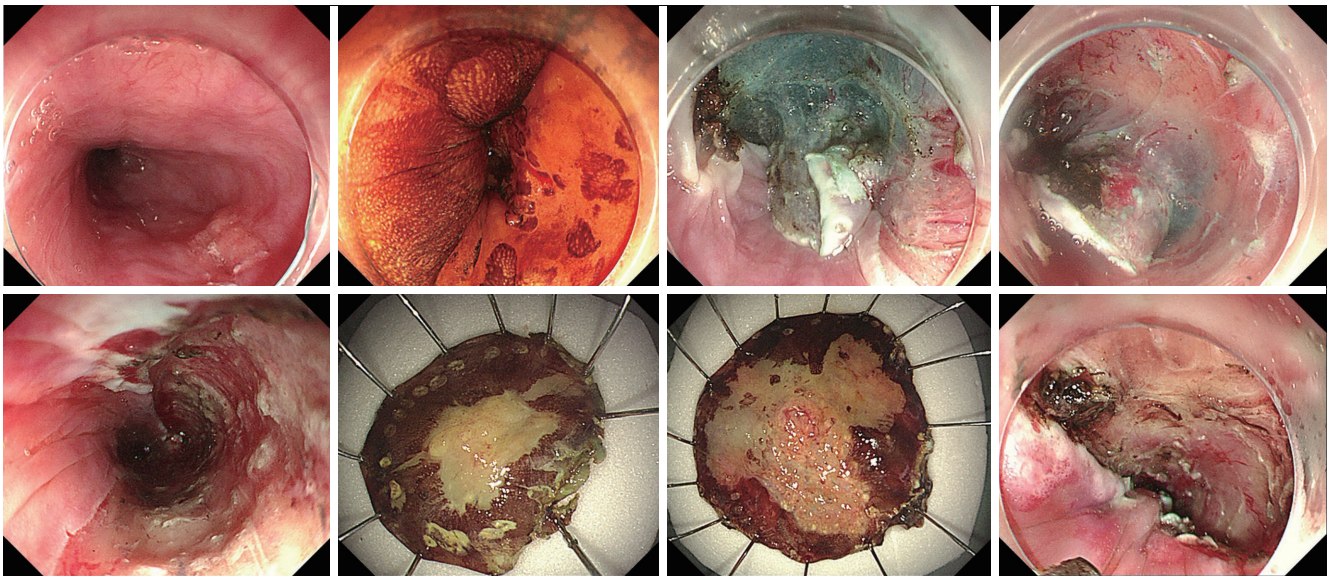


Figure 3 The lesion was peeled alongside the submucosa.

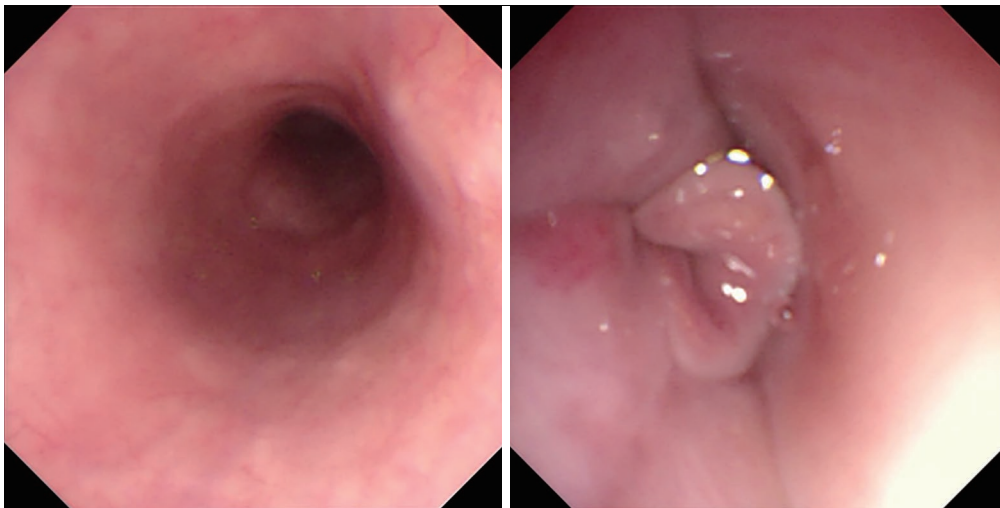


Figure 4 The routine gastroscopy was in 10 months after endoscopic submucosal dissection.

cirrhosis and portal hypertension could also be treated with ESD, which could reduce trauma and discomfort and improve their quality of life. We recommend future studies to further investigate the indications of using endoscopic treatment for patients with cirrhosis.

Acknowledgments

Funding: None.

Footnote

Reporting Checklist: The authors have completed the CARE reporting checklist. Available at <https://tcr.amegroups.com/article/view/10.21037/tcr-21-2624/rc>

Peer Review File: Available at <https://tcr.amegroups.com/article/view/10.21037/tcr-21-2624/prf>

Conflicts of Interest: All authors have completed the ICMJE

uniform disclosure form (available at <https://tcr.amegroups.com/article/view/10.21037/tcr-21-2624/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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Cite this article as: Wang J, Liu Y, He S, Zhang Y, Dou L, Sun L, Wang G. Endoscopic submucosal dissection for early esophageal squamous cell carcinoma with esophageal-gastric fundal varices caused by liver cirrhosis: a case report. *Transl Cancer Res* 2022;11(7):2433-2437. doi: 10.21037/tcr-21-2624