

Case Report

## Esophagobronchial Fistula after Laparoscopic Antireflux Surgery : Report of a Case

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### ABSTRACT

A 61-year-old man with gastroesophageal reflux disease visited our department complaining of dysphagia. Examination revealed a sliding hiatal hernia 6 cm long, reflux esophagitis of Los Angeles classification Grade D, and a shortened esophagus with stricture. As a first-line therapy, lansoprazole was administered at a dose of 60 mg, twice the standard dose, for acid inhibition. Endoscopic balloon dilation was performed 7 times but produced minimal symptomatic improvement. Therefore, laparoscopic Toupet fundoplication was performed. The duration of surgery was 144 minutes, and the blood loss was minimal. The postoperative course was uneventful, and the patient was discharged on postoperative day (POD) 7. A fever developed on POD 15, but chest radiography and barium esophagography showed no abnormalities. However, on POD 19 the patient complained of chest pain, cough, and hemoptysis. At this time, a barium esophagogram revealed an esophagobronchial fistula. The white blood cell count was 24,100/mm<sup>3</sup>, and the C-reactive protein level 29.4 mg/dl. A percutaneous endoscopic gastrostomy was placed on POD 22, and enteral alimentation was started on POD 23. The fistula had closed by POD 40, and oral intake was resumed. Finally, the patient was discharged from the hospital in good general condition on POD 51.

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Key words : gastroesophageal reflux disease, esophagobronchial fistula, laparoscopic fundoplication, short esophagus, esophageal stricture

### INTRODUCTION

Laparoscopic antireflux surgery (LARS), which has become the standard surgical treatment for gastroesophageal reflux disease (GERD), achieves excellent outcomes and has a success rate of greater than 90%<sup>1</sup>. On the other hand, peptic esophageal stricture due to GERD is the most frequent type of benign esophageal stricture. The incidence of peptic esophageal stricture is low and has been decreasing since the 1990s as the use of proton-pump inhibitors has increased<sup>2</sup>. We report on a patient with GERD

and esophageal stricture in whom esophgobronchial fistula developed after LARS.

### CASE REPORT

A 61-year-old man was referred to our department for further evaluation of dysphagia and esophageal stenosis. He had heartburn due to GERD that had been untreated for 5 years. Barium esophagography revealed gastroesophageal reflux and a 6-cm-long sliding hiatal hernia (Fig. 1A, B). Endoscopic examination revealed a sliding hiatal hernia, re-

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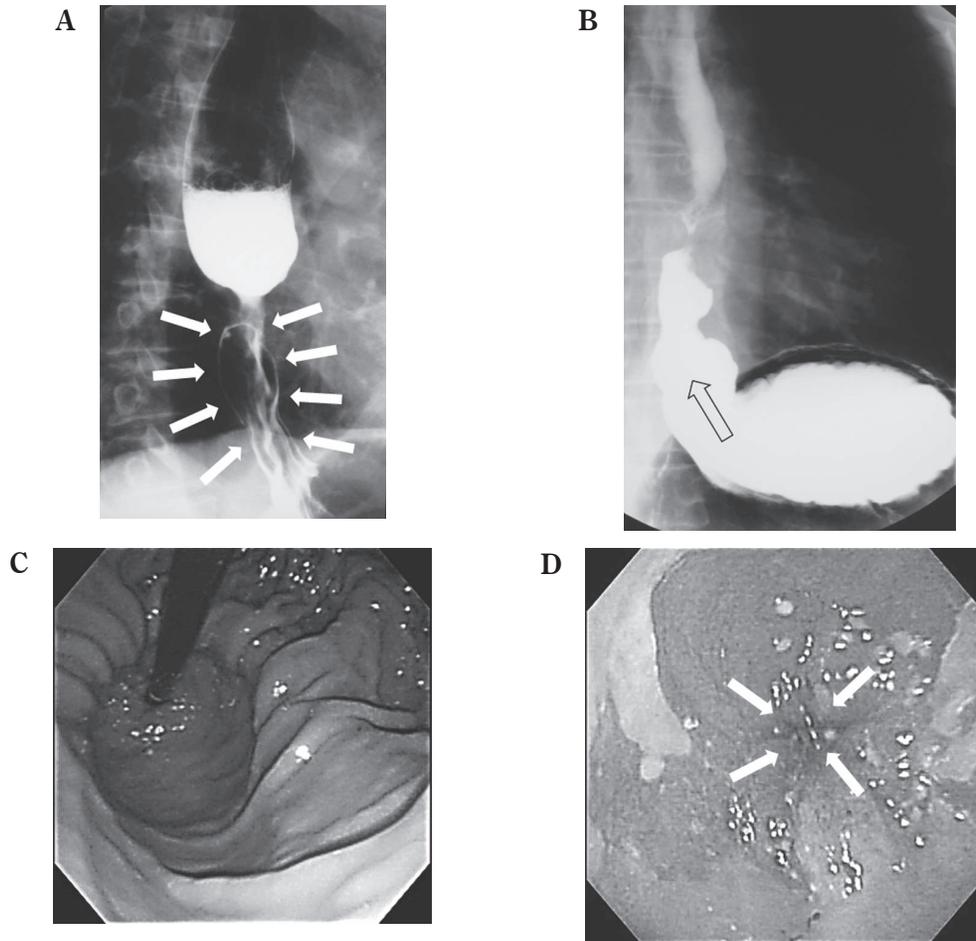


Fig. 1. Barium esophagogram and endoscopic examination

- A : A barium esophagogram shows a 6-cm-long sliding hiatal hernia (arrows).  
 B : Gastroesophageal reflux was confirmed (arrow).  
 C : Retroflexed endoscopic view from the stomach shows the opened cardia. The stenosis is seen proximally.  
 D : Endoscopic view of the distal esophagus shows stenosis due to reflux esophagitis at the squamocolumnar junction (arrow).

flux esophagitis of Los Angeles classification Grade D, and a shortened esophagus with stricture (Fig. 1C, D). No cancerous lesions were identified with endoscopic biopsy.

As a first-line therapy, lansoprazole was administered at a dose of 60 mg, twice the standard dose, for acid inhibition. During this treatment, endoscopic balloon dilation was performed 7 times but produced no improvement of the dysphagia (Fig. 2). Therefore, laparoscopic Toupet fundoplication was performed; a 56-Fr esophageal bougie was used to dilate the esophagus during this procedure. The duration of surgery was 144 minutes, and blood loss was minimal. The postoperative course was uneventful, and the patient was discharged on postoperative day (POD) 7.

The patient visited our outpatient clinic with fever on



Fig. 2. A barium esophagogram obtained after endoscopic esophageal balloon dilation had been performed 7 times. The esophageal stenosis remained.

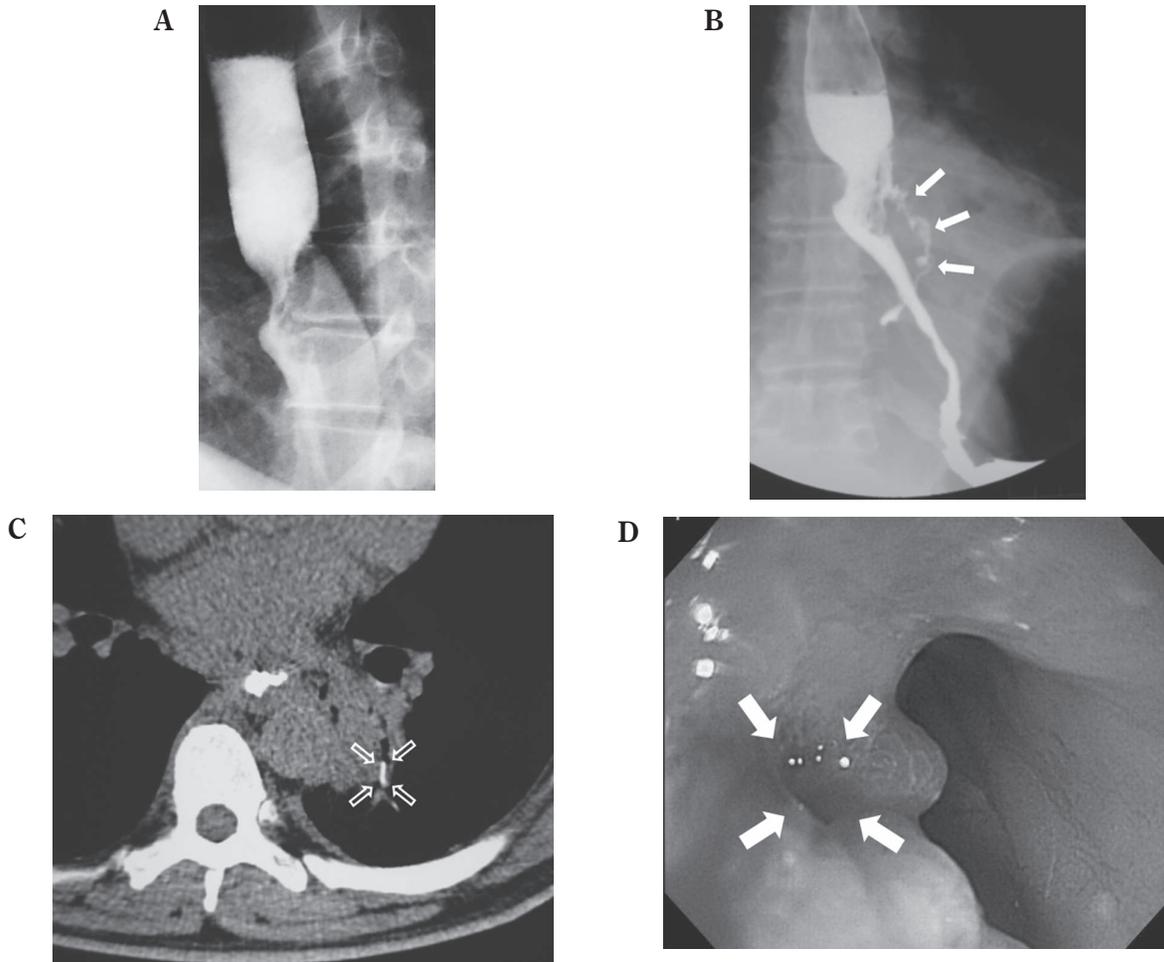


Fig. 3A. A barium esophagogram obtained on POD 15 showed no evidence of esophagobronchial fistula.

Fig. 3B. An esophagobronchial fistula was confirmed on POD 19 (arrows).

Fig. 3C. Computed tomography of the chest revealed barium in the bronchial tube (arrows).

Fig. 3D. An esophagobronchial fistula at the distal esophagus was confirmed with endoscopy on POD 22 (arrows).

POD 15, but the results of chest radiography and barium esophagography were unremarkable (Fig. 3A). On POD 19, he complained of chest pain, cough, and hemoptysis; laboratory examinations showed a white blood cell count of  $24,100/\text{mm}^3$  and a C-reactive protein level of 29.4 mg/dl. Barium esophagography and computed tomography of the chest revealed an esophagobronchial fistula (Fig. 3B, C, D).

The patient was immediately hospitalized and received nothing per mouth. A percutaneous endoscopic gastrostomy was placed on POD 22, and enteral alimentation was started the next day. The fistula had closed by POD 40, and oral intake was resumed (Fig. 4A, B). The patient was discharged in good general condition on POD 51. As of more than 3 years after surgery, the patient remains in good health without recurrence of esophagobronchial fistula.

## DISCUSSION

With the widespread use of proton-pump inhibitors, esophageal stenosis due to GERD has become less frequent<sup>3</sup>. On the other hand, some patients, such as the present patient, have proton-pump inhibitor-resistant GERD. At the patient's first visit, the esophagus was found to be both stenotic and shortened. Collis gastroplasty is an important component of LARS in patients with a shortened esophagus<sup>4</sup>. In the present case, however, Collis gastroplasty was unnecessary because intraoperative exposure and dissection around the abdominal esophagus resulted in smooth retraction into the abdominal cavity without tension.

To the best of our knowledge, esophagobronchial fistu-

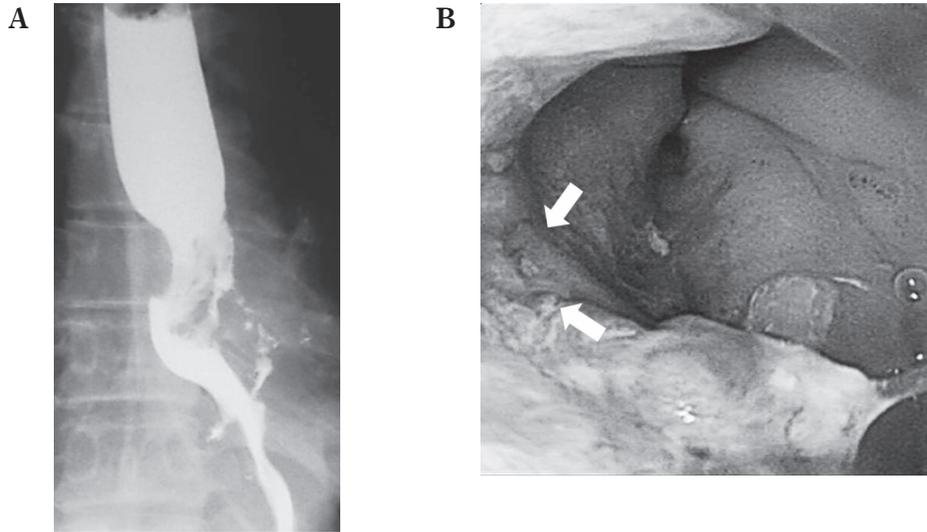


Fig. 4A. A barium esophagogram obtained on POD 40. The fistula remained, but there was no communication between the esophagus and bronchus.

Fig. 4B. Endoscopy 6 months after surgery showed that esophagobronchial fistula had completely healed (arrows).

la after LARS has not been reported previously. We believe the esophagobronchial fistula in the present case can be attributed to esophageal inflammation due to reflux esophagitis. In addition, the integrity of the wall of the esophagus was likely decreased by endoscopic balloon dilation being performed 7 times. Therefore, we suspect that the mechanical damage to the stenotic esophagus, due to the insertion of a 56-Fr esophageal bougie during surgery, resulted in the postoperative development of esophagobronchial fistula.

Enteral alimentation via temporary gastrostomy has been used for about 25 years to improve nutrition in patients with benign esophagorespiratory fistula<sup>5</sup>. Rogoff has reported that enteral alimentation was helpful to seal of an esophageal perforation earlier with drainage tubes<sup>6</sup>. For the present case, a percutaneous endoscopic gastrostomy was placed and enteral alimentation was started 2 days after esophagobronchial fistula was confirmed. With this treatment strategy, the fistula closed within 3 weeks, and oral intake was resumed. We recommend that a percutaneous endoscopic gastrostomy be placed promptly when an esophagobronchial fistula develops after surgery.

Authors have no conflict of interest.

## REFERENCES

1. Mardani J, Lundell L, Engstrom C. Total or posterior partial fundoplication in the treatment of GERD: results of a randomized trial after 2 decades of follow-up. *Ann Surg.* 2011; 253: 875-8.
2. Pregon I, Hritz I, Tulassay Z, Herszenyi L. Peptic esophageal stricture: medical treatment. *Dig Dis.* 2009; 27: 31-7.
3. Bansal A, Kahrilas PJ. Treatment of GERD complications (Barrett's, peptic stricture) and extra-oesophageal syndromes. *Best Pract Res Clin Gastroenterol.* 2010; 24: 961-8.
4. Houghton SG, Deschamps C, Cassivi SD, Allen MS, Nichols FC, 3rd, Barnes SA, et al. Combined transabdominal gastropasty and fundoplication for shortened esophagus: impact on reflux-related and overall quality of life. *Ann Thorac Surg.* 2008; 85: 1947-52.
5. Gerzic Z, Rakic S, Randjelovic T. Acquired benign esophago-respiratory fistula: report of 16 consecutive cases. *Ann Thorac Surg.* 1990; 50: 724-7.
6. Rogoff PA. Treatment of an esophageal perforation with enteral alimentation and transgastric drainage: case report. *Cardiovasc Intervent Radiol.* 1991; 14: 247-9.