

## Case Report

# Laparoscopic Surgery after Endoscopic Submucosal Dissection in a Patient with Esophageal Achalasia and Early Esophageal Carcinoma : A Case Report

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### ABSTRACT

A 63-year-old man with a diagnosis of esophageal achalasia was examined at a clinic for follow-up. Upper gastrointestinal endoscopy showed esophageal carcinoma, which was treated with endoscopic submucosal dissection. The patient was referred to our hospital for surgical management of esophageal achalasia, and 2 months after endoscopic submucosal dissection, laparoscopic Heller-Dor surgery was successfully performed. Patients with esophageal achalasia are at high risk for esophageal cancer. Hence, preoperative gastrointestinal endoscopy should be performed for patients with esophageal achalasia to rule out concomitant malignant lesions. (Jikeikai Med J 2013 ; 60 : 35-8)

Key words : esophageal achalasia, esophageal carcinoma, endoscopic submucosal dissection, laparoscopic surgery

### INTRODUCTION

Esophageal achalasia is a primary esophageal motility disorder that causes saliva and food to be retained in the lower part of the esophagus<sup>1,2</sup>. Patients with esophageal achalasia are thought to be at increased risk for squamous cell carcinoma of the esophagus owing to the continuous exposure to pooled contents at the lower part of the esophagus<sup>3-5</sup>.

Herein we present a case of esophageal achalasia treated with laparoscopic Heller-Dor surgery 2 months after endoscopic submucosal dissection (ESD) for concomitant early esophageal carcinoma.

### CASE REPORT

A 63-year-old man with a 15-year history of dysphagia

was found at a clinic to have esophageal achalasia and was initially managed conservatively. Upper gastrointestinal (GI) endoscopy showed 2 grade IIa lesions in the mid-esophagus. One of these lesions was 30 to 32 cm distal to the incisors, and the other lesion was 3 cm further distal (Fig. 1a, b). Both lesions were diagnosed as early esophageal carcinoma with endoscopic and pathological examination and were treated with ESD (Fig. 2a, b). The patient was then referred to our department because he wished to undergo surgical treatment for esophageal achalasia.

Two months after ESD, the mucosa had healed, and no new lesions were detected with upper GI endoscopy. Preoperative computed tomography showed no abnormalities, such as lymphadenopathy. Therefore, we performed laparoscopic Heller-Dor surgery for esophageal achalasia (flask type, grade II). The details of the operative procedure have previously been published<sup>6</sup>. The operation was per-

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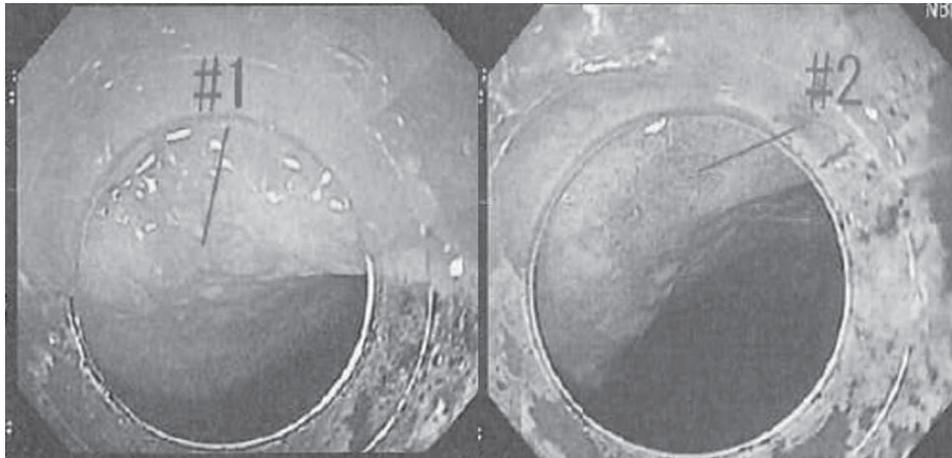


Fig. 1. Upper GI endoscopy revealed 2 grade IIa lesions in the mid-esophagus. One of these lesions was 30 to 32 cm distal to incisors (#1), and the other lesion was 3 cm further distal (#2).

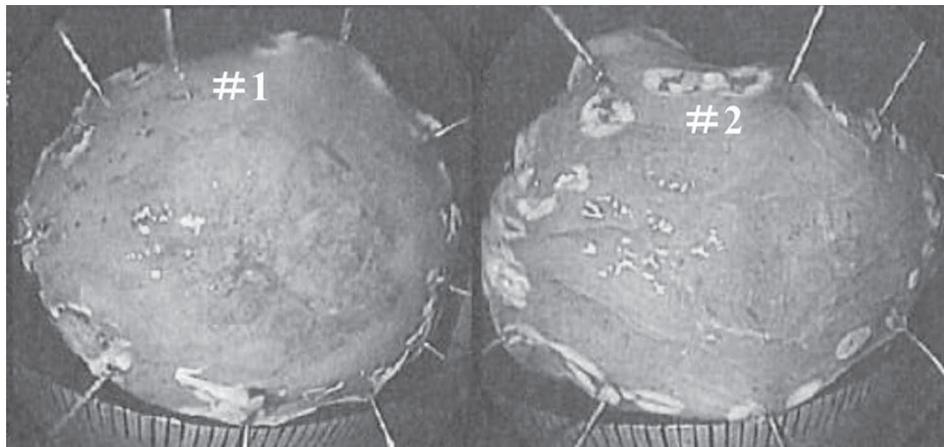


Fig. 2. The specimens of 2 lesions excised with ESD. The pathological diagnosis was squamous cell carcinoma, and both lesions had negative margins.

formed with a total of 4 trocars. First, the left hepatic lobe was elevated with a Nathanson Liver Retractor (Cook Medical, Inc., Bloomington, IN, USA) to secure a favorable surgical view around the esophageal hiatus, and the abdominal esophagus was exposed through selective proximal vagotomy (Fig. 3a). Exposure of the abdominal esophagus revealed no surrounding fibrosis or inflammation. Next, a Penrose drain was placed around the abdominal esophagus for safe retraction. A few short gastric vessels were divided to relieve tension from the wrap. An extramucosal longitudinal myotomy was performed to relieve obstruction through an incision from approximately 7 cm proximal to and 2 cm distal to the esophagogastric junction. At this stage, a 56-F esophageal bougie was inserted, and a myomectomy was performed so that the anterior half of the cir-

cumference of the esophagus consisted only of the bulging mucosa (Fig. 3b). For esophageal calibration, a 56-F esophageal bougie was inserted orally into the stomach. Furthermore, as an antireflux procedure, Dor fundoplication was performed (Fig. 3c). Finally, anchor and shoulder stitches were placed to prevent the abdominal esophagus and the fundic wrap from being dislodged into the mediastinum. The operation time was 174 minutes, and intraoperative blood loss was minimal.

Oral intake of water was started on the first postoperative day, and oral intake of food was started on the second day and advanced as tolerated. The patient was discharged on the fourth postoperative day. As of 18 months after the operation, he remains well and without symptoms.

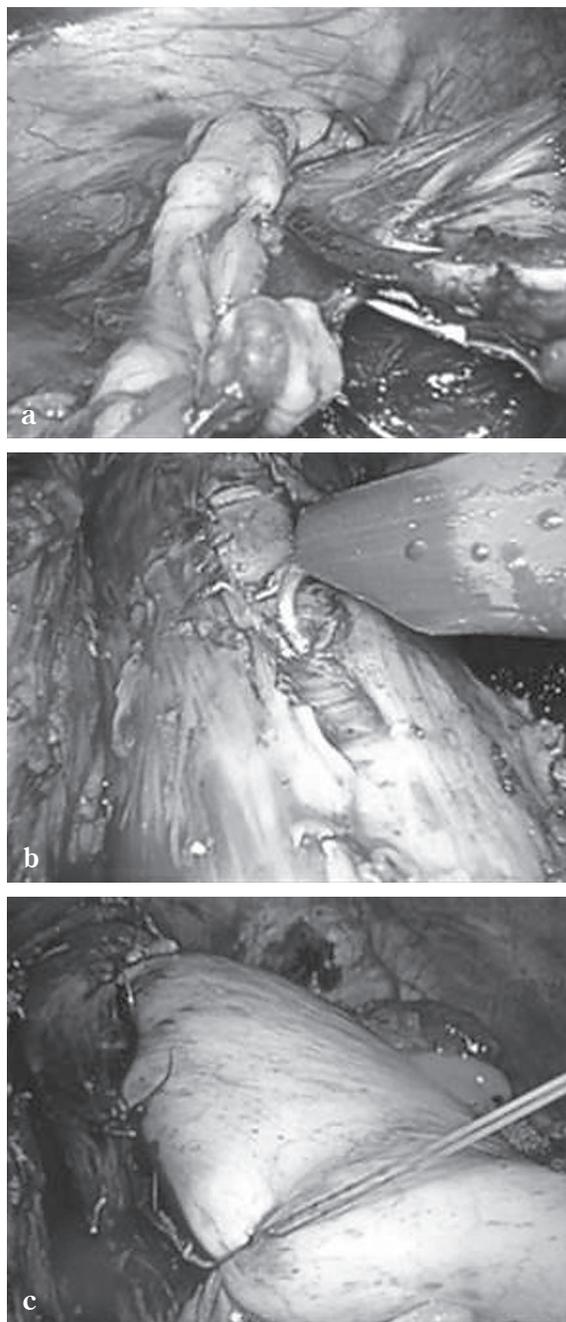


Fig. 3. The abdominal esophagus was exposed through selective proximal vagotomy. Exposure of the abdominal esophagus revealed no periesophagitis (a). After insertion of a 56-Fr esophageal bougie, extramucosal myotomy was performed from approximately 7 cm proximal to and 2 cm distal to the esophagogastric junction (b). After efficient extramucosal myotomy, Dor fundoplication was performed as an antireflux procedure (c).

## DISCUSSION

Esophageal achalasia is the most common primary motility disorder of the esophagus and is characterized by obstructed passage of food due to the absence of peristalsis of the body of the esophagus or by failure of the lower esophageal sphincter to relax during swallowing<sup>1,2</sup>. Because esophageal achalasia has a low incidence (1 per 100,000 population), its etiology is unknown<sup>7</sup>.

The relationship between esophageal achalasia and esophageal cancer was first noted by Fagge in 1872. Since then, esophageal achalasia has been considered a predisposing condition for esophageal squamous cell carcinoma<sup>8</sup>. Brucher and colleagues identified 4 patients with esophageal cancer in a cohort of 124 patients with primary esophageal achalasia and reported that the risk of esophageal cancer in patients with esophageal achalasia is 140 times as high as that in the general population<sup>5</sup>. Similarly, a recent study of 2896 patients has shown that patients with achalasia have a standardized incidence ratio of 11.0 for squamous carcinoma, with men having a greater risk of esophageal carcinoma than do women<sup>9</sup>.

Some investigators have reported that the link between achalasia and esophageal squamous carcinoma is a result of chronic exposure of the esophageal mucosa to retained saliva and food<sup>4,5</sup>. Bacterial overgrowth and stasis of other potentially noxious compounds are considered as causes of cancer occurrence. Meanwhile, esophageal carcinoma was also found in patients who had undergone surgery to improve esophageal clearance. The esophageal mucosa itself in achalasia appears to be associated with malignant potential<sup>10</sup>. Hence, preoperative GI endoscopy should be performed to rule out concomitant malignant lesions in patients with achalasia.

Treatments for achalasia include drug therapy, botulinum toxin injection, endoscopic balloon dilation, and surgery<sup>11</sup>. Heller introduced the first surgical option for achalasia, a myotomy technique, in 1913<sup>12</sup>. Since then, Heller myotomy was then combined with Dor fundoplication to prevent postoperative reflux esophagitis<sup>13</sup>. Now, laparoscopic Heller-Dor surgery is widely performed and is the standard surgery for achalasia<sup>14</sup>.

In the present case, we performed laparoscopic Heller-Dor surgery 2 months after ESD. Although we expected to find adhesion and fibrosis related to the previous ESD in

the mid-esophagus, esophageal myotomy could be performed safely. However, when the ESD scar overlies the myotomy site, consideration must be made either to shift the line of myotomy to avoid injuring the esophageal mucosa or to place a fundic patch after full-thickness incision with the Thal method<sup>15</sup>.

Zaninotto and colleagues have reported on 4 of 226 patients (1.8%) in whom squamous cell esophageal carcinoma developed 2, 8, 13, and 18 years after surgery<sup>16</sup>. Therefore, we plan to follow up the present patient with periodic upper GI endoscopy.

In conclusion, we have reported a case of esophageal achalasia successfully treated with laparoscopic Heller-Dor surgery in a patient who had undergone ESD for esophageal cancer.

Authors have no conflict of interest.

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