

## Total Gastrectomy in Gastric Conduit Cancer

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We report a very rare case of surgery on gastric conduit cancer. A 67-year-old male patient underwent esophagectomy and intrathoracic esophagogastrostomy for squamous cell carcinoma of the lower thoracic esophagus 27 months ago. Upon follow-up, a gastric carcinoma at the intra-abdominal part of the gastric conduit was found on an esophagogastroduodenoscopy. We performed total gastrectomy and esophagocolonojejunostomy in the manner of Roux-en-Y anastomosis. The postoperative course was not eventful and an esophagogram on the 10th postoperative day showed no leakage or stenosis of the passage. The patient was discharged on the 17th day with no complications.

Key words: 1. Esophageal cancer  
2. Conduit cancer

### CASE REPORT

A 67-year-old male patient had undergone esophagectomy and intrathoracic esophagogastrostomy for carcinoma of the lower thoracic esophagus 27 months earlier. The original pathologic condition was determined to be moderately differentiated squamous cell carcinoma invading the lamina propria without lymph node metastasis (clinical T1bN0M0). He had undergone follow-up chest computed tomograph and esophagogastroduodenoscopy once or twice a year and a gastric carcinoma at the intra-abdominal part of the gastric conduit was found. The tumor was a 2a+2c type lesion and located in the posterior wall of the antrum. Preoperative evaluation showed no lymphadenopathy or metastasis. The histologic diagnosis was tubular adenocarcinoma. Because of its morphology (flat and depressed type with ulceration), size (more than 10 mm) and poor localization, endoscopic mucosal resection

or partial gastric resection was not suitable (Fig. 1), so we decided to perform a total resection of the gastric conduit.

The whole procedures were performed in 3 stages: first thoracic, second abdominal, and third thoracic and abdominal approaches.

Because of previous intrathoracic esophagogastrostomy, it was necessary to check the intrathoracic condition and operability. The thoracotomy was performed with an antero-lateral thoracotomy via the fourth intercostal space. The whole surface of the lung and gastric conduit were firmly adhered. The esophago-gastric anastomosis was located at the upper part of the paratracheal area (Figs. 2, 3). After dissecting the adhesions between the pleura, lung, and gastric conduit with blunt and sharp procedures, we resected the gastric conduit at the level of the previous anastomosis. The intrathoracic portion of the esophagus was about 4 cm segment long, so we saved it as long as possible and inserted the 28

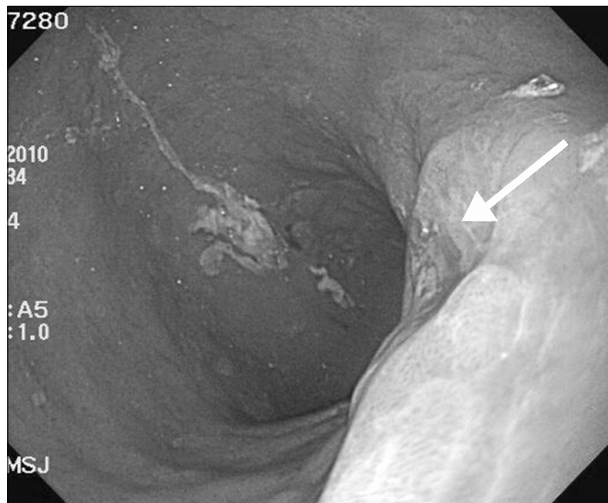
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Received: July 10, 2011, Revised: November 8, 2011, Accepted: November 11, 2011

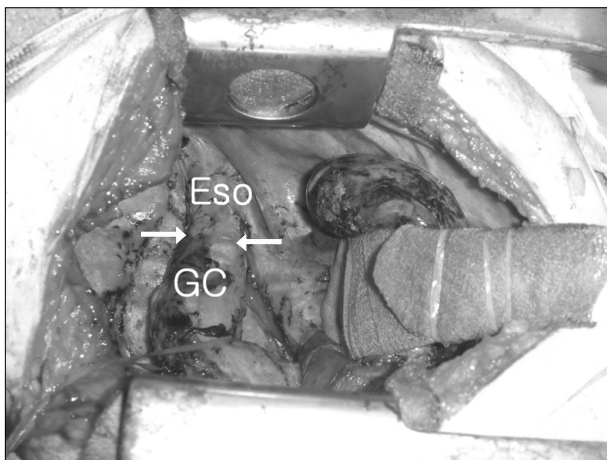
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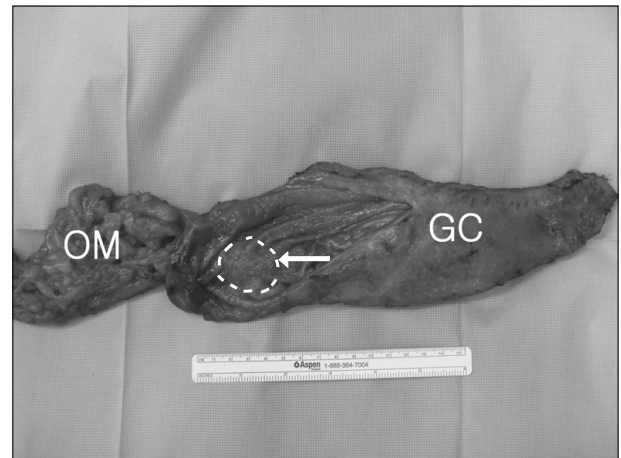
**Fig. 1.** Preoperative esophagogastroduodenoscopy showed the tumor (arrow) was a 2a+2c type lesion and located on the posterior wall of the antrum. Because of its morphology (flat and depressed type with ulceration), size (more than 10 mm), and poor localization, endoscopic mucosal resection or partial gastric resection was not suitable.



**Fig. 2.** The operation findings: arrows indicate the anastomotic site between the esophagus and gastric conduit (GC). Eso=distal part of esophagus.

mm anvil into it. There was no regional lymphadenopathy or palpable masses in the gastric conduit.

After closing the thoracotomy wound temporarily, the position was changed to supine. We approached the intra-abdominal space with a median laparotomy. The antral portion of the stomach was adhered to the diaphragm, liver, and surrounding structures. The cancer mass was not palpable.



**Fig. 3.** The gross specimen. Arrow and circle: gastric conduit (GC) cancer. OM=omentum.

The whole gastric tube was resected. The length and vasculatures of the transverse and descending colon were considered to be suitable for an esophageal conduit. The left side of the colon with a pedicle of the left colic artery was prepared for esophageal reconstruction. The proximal sigmoid colon was connected (end to side) to the proximal part of the transverse colon with a 28 mm end-to-end anastomosis (EEA) stapler. After the left-sided colon conduit into the thoracic cavity in the isoperistaltic manner, esophago-colonostomy was done with a 28 mm EEA stapler. The distal part of the colon conduit was anastomosed at the side of the proximal jejunum with a 25 mm stapler in the manner of Roux-en-Y anastomosis.

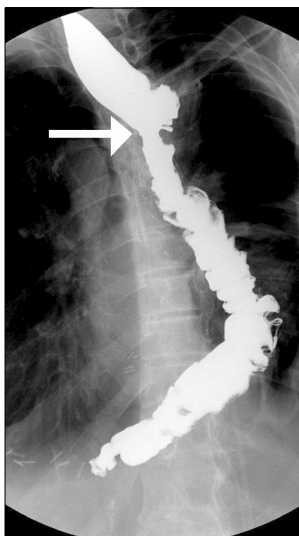
The operation time was 9 hours and 20 minutes. Two pints of packed cell were transfused during the operation. The pathology report showed a 1.5×1.0 cm tubular adenocarcinoma at stage T1aNOM0.

On the 10th postoperative day, an esophagogram showed no leakage or stenosis of the passage (Fig. 4). The postoperative period was uneventful and the patient was discharged on the 17th day.

The patient has received follow-up care for 7 months after surgery without any problems.

## DISCUSSION

After Warren and Gates reported on it in 1932, the concept



**Fig. 4.** The postoperative esophagogram showed no leakage or stenosis of the passage (arrow: anastomosis site between esophagus and left colon).

of multiple primary malignancies has been accepted widely and is supported by hypothesis of field cancerization [1]. Synchronous or metachronous multiple primary malignancies in esophageal cancer have since been reported with a frequency of about 10% [1]. Gastric conduit cancer is not only cancer arising in the remnant gastric conduit but also the second primary cancer following esophageal cancer. The incidence of gastric conduit cancer has been reported to be 0.2%–3.5% [2–4]. Although the etiology of the secondary carcinoma in the gastric conduit is not well known, gastric conduit cancer has been reported increasingly because of survival prolongation of esophageal cancer patients after surgery [2,5]. In our hospital, we have annually operated on about 30 esophageal cancer patients with gastric conduit and this surgical management of gastric conduit cancer was our first experience. Because thoracotomy with adhesiolysis is necessary for performing a reoperation, total resection of the gastric conduit reconstructed via the posterior mediastinal route

is very difficult [2,6]. In addition, it is more invasive because it requires reconstruction with another organ such as the colon, jejunum, or skin, for the conduit [2]. Therefore, it is important to detect the lesion at an early stage so as to treat it with minimally invasive surgery such as endoscopic mucosal resection or partial resection [3,5]. The prognosis depends on the stage and patient performance [3,4]. Therefore, careful, periodic endoscopic evaluation after operation in the patient with esophageal cancer is needed [1,3]. We had performed annual esophagogastroduodenoscopy evaluation and other radiologic studies twice in a year.

In conclusion, a careful, periodic, and endoscopic evaluation after surgery for esophageal cancer is needed for early detection of other primary malignancies. In addition, surgical treatment of gastric conduit cancer after esophageal cancer surgery was found to be possible and safe in our experience.

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