

Development of Gastro-lymphatic Fistula During Chemoradiotherapy for Advanced Esophageal Cancer: A Case Report

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Abstract. This is a case report of a gastro-lymphatic fistula which appeared during chemoradiotherapy for advanced esophageal cancer. A 60-year-old male was referred to the University of the Ryukyus Hospital because of a 10 kg monthly weight loss and dysphagia. Computed tomography (CT) scans indicated thickened esophageal wall at the lower thoracic esophagus and a swollen lymph node attached to the lesser curvature of the stomach. Histological analysis of the biopsy specimen revealed poorly differentiated squamous cell carcinoma and the diagnosis was of advanced esophageal cancer. A combination of chemotherapy (nedaplatin and 5-fluorouracil) and radiotherapy was initiated. After radiotherapy (20 Gy), CT scans revealed that the swollen lymph node penetrated the gastric wall resulting in a gastro-lymphatic fistula. Although gastrostomy and intestinal fistula repair were performed for gastric decompression and tube feeding, respectively, the patient's general status did not improve and he died two months after interruption of his chemoradiotherapy. The results indicate that there may be some risks of gastro-lymphatic fistula in patients treated with concurrent chemoradiotherapy for advanced esophageal cancer when there are possible signs of involvement by CT scans.

Esophageal carcinoma has proven one of the most difficult malignancies to cure, and locally advanced esophageal carcinoma is often refractory to current therapeutic approaches and has poor outcomes (1-4). Recently, in

patients with locally advanced esophageal cancer, it has been shown that local control and overall survival can be significantly improved with concurrent chemoradiotherapy compared with radiotherapy alone (5, 6). However, in patients with advanced esophageal or pulmonary malignancies, formation of an esophagorespiratory (ER) fistula, including esophagotracheal and esophagobronchial fistula, has been a serious complication associated with a dismal prognosis (7, 8). If a malignant ER fistula is left untreated, the patient soon develops pulmonary infection and sepsis, with a median survival time from diagnosis of 1 to 6 weeks (7, 8). Although complications such as esophago-bronchial (9) and esophago-mediastinal (10, 11) fistula have been reported, there have been no reports of patients with gastro-lymphatic fistula. In this paper, a case of gastro-lymphatic fistula which appeared during chemoradiotherapy for advanced esophageal cancer is reported.

Case Report

A 60-year-old male was referred to the University of the Ryukyus Hospital because of a 10 kg per month weight loss and dysphagia. On admission he was 158 cm tall, weighed 40 kg and had a performance status (PS) of 1 on the Eastern Cooperative Oncology Group (ECOG). Past medical history included alcoholic hallucination, dementia and hypertension. There were no abnormal laboratory findings. Carcino-embryonic antigen (CEA) and squamous cell carcinoma antigen (SCC) levels were 3 ng/ml and 0.8 ng/ml, respectively. Endoscopic examination revealed an advanced esophageal tumor extending from the lower thoracic esophagus to the esophagogastric junction (33-39 cm from the incisor teeth). Histological analysis of the biopsy specimen revealed poorly differentiated squamous cell carcinoma. Computed tomography (CT) scans showed a thickened esophageal wall at the lower thoracic esophagus and a swollen lymph node attached to the lesser curvature of the stomach (Figure 1).

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Figure 1. CT scans showed that the wall of the lower thoracic esophagus was thickened and a lymph node attached to the lesser curvature of stomach was swollen.

Based on these findings, the case was classified as a T3N1M0, stage III advanced esophageal cancer, according to the TNM classification of malignant tumors (12). Concerning treatment, surgical resection was planned at first, but the associated risk was judged to be high because of past medical history including alcoholic hallucination and dementia. As the family of the patient agreed to intensive treatment in the expectation of increased curability, chemoradiotherapy was initiated. At that time, the PS of the patient declined to 3 because of malnutrition. In August 2007, a combination of chemotherapy and radiation therapy was initiated. The initial treatment consisted of two courses of nedaplatin (CDGP) (drip infusion; 90 mg/m²) on day 1 and 5-fluorouracil (5-FU) (continuous infusion; 800 mg/m²) on days 2-6. Radiotherapy (6 MV X-rays to a total dose of 66 Gy in 33 fractions over 5 weeks) was delivered with antero-posterior field concurrently with chemotherapy. The treatment field included the primary tumor and the swollen lymph node with approximately 3 cm margins (Figure 2). After 20 Gy, the patient's temperature increased to 39°C. CT scans revealed the swollen lymph node had penetrated the gastric wall, which had resulted in a gastro-lymphatic fistula (Figure 3). Chemoradiotherapy was stopped in order not to worsen his condition. As the fistula was considered to be the cause of his fever, gastrostomy and intestinal fistula repair were performed to relieve gastric decompression and for tube feeding, respectively. However, the patient's general status did not improve and he died two months after cessation of chemoradiotherapy.

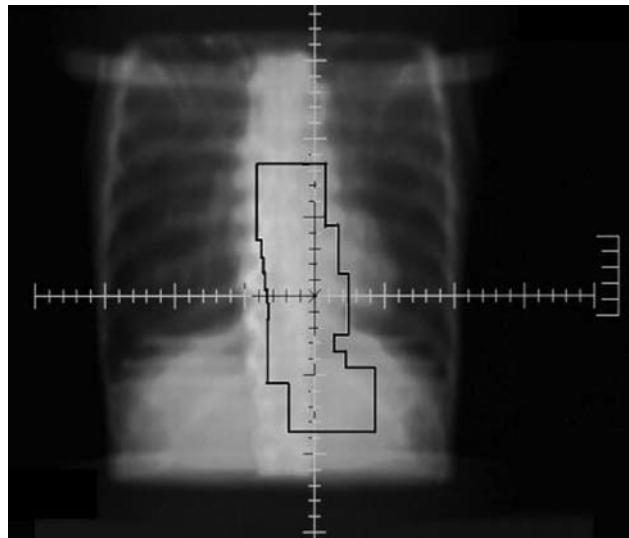


Figure 2. The treatment field included the primary tumor and swollen lymph node with adequate margins.



Figure 3. After 20 Gy, CT scans revealed that the swollen lymph node had penetrated the gastric wall and was the site of the gastro-lymphatic fistula.

Discussion

A gastro-lymphatic fistula developed during chemoradiotherapy in a patient with esophageal cancer. To the Authors' knowledge, this is the first report of such a case. Esophago-bronchial (9, 11) and esophagomediastinal (10, 11) fistulae occurring during radiotherapy for esophageal cancer have been previously reported, and these were associated with serious

complications (mediastinitis, pneumonia and empyema) that markedly deteriorate the quality of life. Although advanced esophageal cancer often metastasizes to lymph nodes, metastasis leading to the development of gastro-lymphatic fistula has never been reported. Gastro-lymphatic fistula appears to be a rare condition and when coexistent with other illness, it may be fatal. These results together with the present finding indicate that fistulae may be deleterious in some patients.

Abdominal CT scans before chemoradiotherapy found compression and almost complete penetration of the gastric wall by the swollen lymph node, which was close to the lesser curvature and the border was not clear. Although penetration was considered to be spontaneous, it is conceivable that chemoradiotherapy contributed to this complication. Once the fistula is formed, sepsis can occur because stomach fluid may flow into the lymphatic vessel and there may be risks of peritonitis because of fenestration of the lymph ducts or gastric wall. In our case, the gastro-lymphatic fistula was found by a CT scan two days after fever (39°C) developed. So it seemed that sepsis was already present at that time.

These results indicate the importance for clinicians to recognize that complications such as perforation and/or penetration can occur when CT scans show involvement of lymph node metastasis to the surrounding organs. Attention should be paid to the patient's condition and vital signs, and the decision to treat with chemoradiotherapy should depend on the degree and extent of wall involvement. Further studies are required to assess the risk of complications associated with using the degree of wall invasion as an indication for treatment.

In conclusion, there may be some risks of perforation due to metastasis of lymph nodes to the surrounding organs, such as the stomach, during the course of chemoradiotherapy for esophageal cancer. Therefore, treatment should be carefully designed and carried out if signs appear that indicate possible involvement of lymph node metastasis to the surrounding organs.

Conflict of Interest

There is no conflict of interest regarding the manuscript.

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