

Gastro-bronchial Fistula, an Uncommon Complication of Transhiatal Esophagectomy: A Case Report

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Abstract Background: Gastro-bronchial fistulas are rare complication of esophagogastric anastomosis operations. They occur either in the early or late postoperative period. They have different etiological factors according to time of development. They have different prognostic feature due to the reason which cause fistulas. Therefore, differential diagnosis of gastro-bronchial fistula should be urgently done as soon as possible. Herein, we present a case of gastro-bronchial fistula which is rare and has valuable radiological findings. **Case report:** A 41 year old woman who had a cough, dyspnea, dysphagia, weight loss and retrosternal pain was admitted to local government hospital of Van. At the end of evaluation, the diagnosis was consistent with esophageal carcinoma. Then transhiatal esophagectomy with gastric pull-up and cervical anastomosis was performed. Three months after surgery, she developed cough, dyspnea and aspiration pneumonia. Therefore, chest X-ray was taken and chest computed tomography (CT) demonstrated gastro-bronchial fistula. After diagnosis of gastro-bronchial fistula, the patient was consulted with thoracic surgery department and surgical treatment was decided. The patient was taken to the thoracic surgery department. She was cachectic, therefore total parenteral nutrition was started on. While she was waiting for surgical procedure, she had severe dyspnea. Finally she died due to aspiration and cardiopulmonary arrest. **Conclusion:** Gastro-bronchial fistula is a rare and devastating complication of esophageal resection that may be difficult to diagnose. Poor prognosis is mainly due to the development of recurrent chest infections, malnutrition and difficulty in surgical repairing in contrast to esophageal type. The diagnosis can be done either with bronchoscopy or computed tomography of chest. Surgery and endobronchial stenting are main alternative treatment modalities of this rare and fatal complication of esophagectomy.

Keywords: gastro-bronchial fistula, transhiatal esophagectomy, gastric pull-up, esophageal carcinoma

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1. Introduction

Gastro-bronchial fistula is a rare complication which occurs between the tracheo-bronchial tree and stomach in patients who undergo esophagogastric anastomoses. When occur in the early postoperative period the most likely cause of gastro-bronchial fistula is dissection injury or post operative mediastinitis. When occur late, the commonest cause is tumour recurrence. But nonmalignant causes, such as radiation necrosis and tracheobronchial erosion caused by the gastric staple line, are also recognised. The prognosis is poor due to the development of recurrent chest infections and malnutrition [1].

2. Case Report

A 41 year old woman who had a cough, dyspnea, dysphagia, weight loss and retrosternal pain was admitted

to local government hospital of Van. Upper gastrointestinal endoscopy and endoscopic biopsy was performed. She had ulcerovegetative lesion at the 23 cm of esophagus. Pathological diagnosis was consistent with esophageal well differentiated squamous cell carcinoma. Then transhiatal esophagectomy with gastric pull-up and cervical anastomosis was performed. Pathologic staging was determined as T3N3M0. She referred to our Medical Oncology Department of Yuzuncu Yil University of Van. At the end of evaluation, due to the high risk recurrence of disease chemotherapy was planned. For radiotherapy she referred to the radiation oncology department. Then chemoradiotherapy was planned by radiation oncology department. As a result of technical reasons, chemoradiotherapy has been postponed. Firstly, she had 2 cycle of 5-FU plus cisplatin combination chemotherapy. Then she developed cough, dyspnea and aspiration pneumonia. She was started on oral antibiotic therapy. Infection was cured but she was still complaining of cough and dyspnea. Therefore, chest X-ray was taken

and the image on [Figure 1](#) was seen. Later, chest computed tomography (CT) demonstrated gastro-bronchial fistula ([Figure 2](#)). After diagnosis of gastro-bronchial fistula, the patient was consulted with thoracic surgery department and surgical treatment was decided.

The patient was taken to the thoracic surgery department. She was cachectic, therefore total parenteral nutrition was started on. While she was waiting for surgical procedure, she had severe dyspnea. Finally she died due to aspiration and cardiopulmonary arrest.

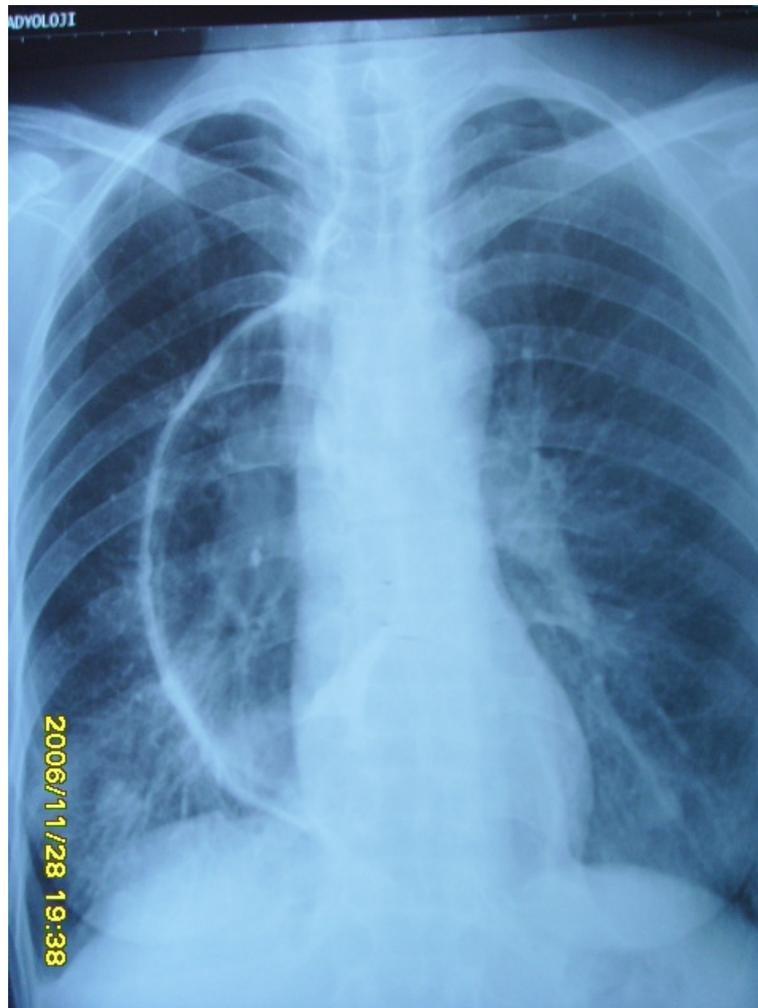


Figure 1. Chest X-ray of the patient with oesophagogastric anastomosis.

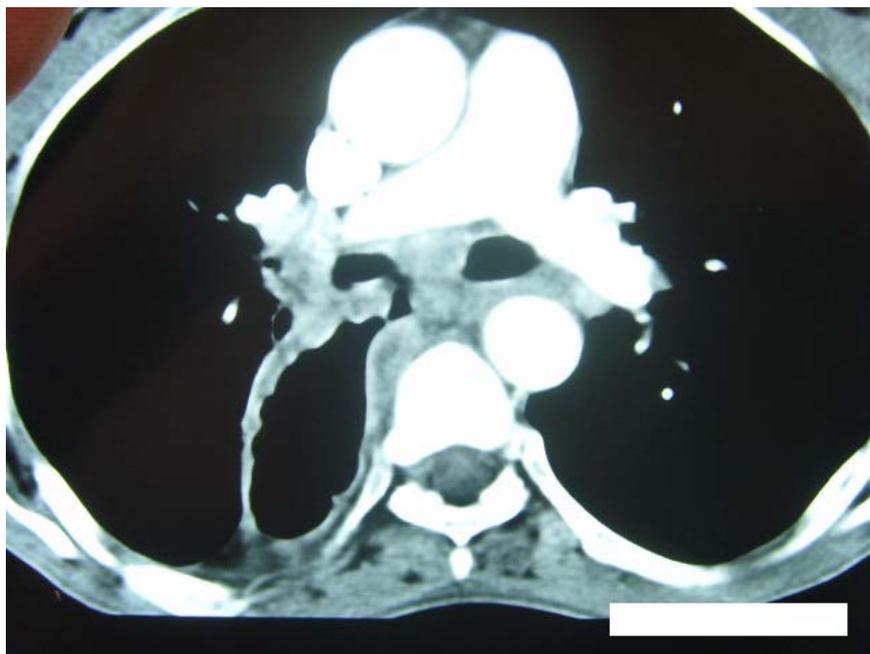


Figure 2. CT scan of chest, showing fistula between right main bronchus and Stomach

3. Discussion

Esophageal cancer continues to be a morbid disease with low survival even with therapy. Surgery remains as the primary treatment modality in localized disease. There are various surgical approaches described, each with its own advantages and drawbacks. The surgical approaches commonly employed for middle-third esophageal growths are transhiatal and transthoracic [2]. Pulmonary complications, anastomotic leaks, gastric stasis and anastomotic strictures are mostly encountered complications after transthoracic total esophagectomy. Fistula formation between the respiratory and gastrointestinal tract is a potentially fatal complication, therefore it should be early treated [3]. They occur either between respiratory tract and esophagus or between respiratory tract and stomach. Anastomotic fistulas between the stomach and the tracheobronchial tree after gastric pull-up are rare and devastating complication of esophagectomy, and reports in the literature are few [4]. Diagnosis of gastro-bronchial fistula is mostly difficult and no agreement on the treatment. Dyspnea and cough in the postoperative period in patients who undergo transthoracic esophagectomy are most often due to pulmonary embolism, atelectasis, consolidation or aspiration pneumonitis. However, these usually occur in the first week after surgery. According to Pramesh GS et al, it can only be diagnosed when a bronchoscopy is done to rule out other causes of acute respiratory symptoms [2]. However, as in our case, has developed in late course of postoperative period and it can also be diagnosed by mean of chest computed tomography. So bronchoscopy is an effective procedure but not only the unique diagnostic equipment of diagnosis, and CT is another alternative radiologic imaging technique which can be used for diagnosis. There were various presentations of broncho-gastric fistula in the literature. Some patients had an acute presentation while others had a chronic presentation. As in our case, Kron IL et al presented a case which was a late complication following a transhiatal esophagectomy while others were usually acute complications [5]. A gastro-bronchial fistula has also been reported following Nissen's fundoplication [6]. The management of gastro-bronchial fistula following esophagectomy was not well defined. The options available are endobronchial stenting and surgical closure of the fistula. Endobronchial stenting is an attractive option in that it avoids the morbidity of reoperation in an already compromised patient. However,

experience is limited and it may not completely seal off the fistula. It may, however, have a role in the management of chronic or small fistula, and in patients with a prohibitively high surgical risk. Although with high morbidity, surgery would probably be the optimum definitive management of this issue. Though only conjectural, early surgery would probably give better results than surgery resorted to after a period of conservative management [2].

4. Conclusion

Late development of a gastro-bronchial fistula is a rare and devastating complication of esophageal resection that may be difficult to diagnose [7]. A gastro-bronchial fistula has poor prognosis compare to the esophago-bronchial fistula. Poor prognosis is mainly due to the development of recurrent chest infections, malnutrition and difficulty in surgical repairing in contrast to esophageal type. The presentation is that of respiratory distress with cough dyspnea and chest infection. The diagnosis can be done either with bronchoscopy or computed tomography of chest. Surgery and endobronchial stenting are main alternative treatment modalities of this rare and fatal complication of esophagectomy.

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