

Esophageal carcinoma presenting with pyopneumothorax : a case study

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Abstract

We describe a 69-year-old male who presented with high fever, progressive right chest pain and shortness of breath. A chest radiograph showed a right massive hydropneumothorax. After diagnostic assessment, an esophagomediastinal fistula complicated by squamous cell carcinoma of the esophagus was subsequently confirmed. Clinical signs were significantly improved by chest tube insertion, antibiotic therapy and esophageal stent implantation. (*Acta gastroenterol. belg.*, 2011, 74, 79-81).

Key words : esophageal carcinoma, pyopneumothorax, esophagomediastinal fistula.

Introduction

Dysphagia is the most common initial complaint by patients with esophageal carcinoma. Although esophageal carcinoma is sometimes accompanied by esophageal perforation as a life-threatening problem, pyopneumothorax is relatively rare. Anastomotic leakage and fistula are common complications after esophago-gastric surgery. However, we encountered a patient harboring esophageal carcinoma complicated by esophagomediastinal fistula who did not had surgery and initially presented with massive pyopneumothorax. This case suggests that esophageal carcinoma must be carefully ruled out as a contributory factor of pyopneumothorax.

Case report

A 69-year-old male presented to the emergency department with fever, progressive right chest pain and shortness of breath. His medical history was unremarkable except for alcoholism and that he was a heavy smoker. On admission, his blood pressure was 94/56 mmHg, pulse rate 140 beats/min, respiration rate 25 breaths/min and temperature 37.7°C. On physical examination, the breathing sound was found to be decreased in the entire right lung field.

The white blood cell (WBC) count was 14,380/mm³, with 92.1% neutrophils in a differential count, and the C-reactive protein (CRP) level was 39.88 mg/dL. Arterial blood gas analysis showed a pH of 7.368, bicarbonate (HCO₃⁻) concentration was 15.3 mmol/L and the partial pressure of carbon dioxide was 27.2 mmHg. A chest radiograph showed massive pleural effusion on the right side with passive collapse of the right lung (Fig. 1). Computed tomography (CT) of the chest revealed a mas-



Fig. 1. — Chest radiograph showing a massive right hydro-pneumothorax.

sive hydropneumothorax on the right side and circumferential wall thickening (about 6.0 cm in length) of the esophagus at the subcarinal level (Fig. 2). A chest tube was inserted and more than 1000 mL of massive, turbid, malodorous pus was drained out. Upper gastrointestinal (UGI) endoscopy demonstrated a segmental mass (from 23 to 32 cm below incisor) with ulceration and the orifice of a fistula in the middle esophagus (Fig. 3) because of squamous cell carcinoma, which was detected by pathological examination. A follow-up fiber-optic bronchoscopy revealed no obvious abnormal findings.

The patient was treated with intravenous antibiotics and total parenteral nutrition, and he was not permitted to eat or drink after admission. However, he was sent to an intensive care unit (ICU) in view of sepsis and acute

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Fig. 2. — Noncontrast computed tomography scan of the chest showing a massive hydropneumothorax on the right side and circumferential wall thickening of the middle esophagus.

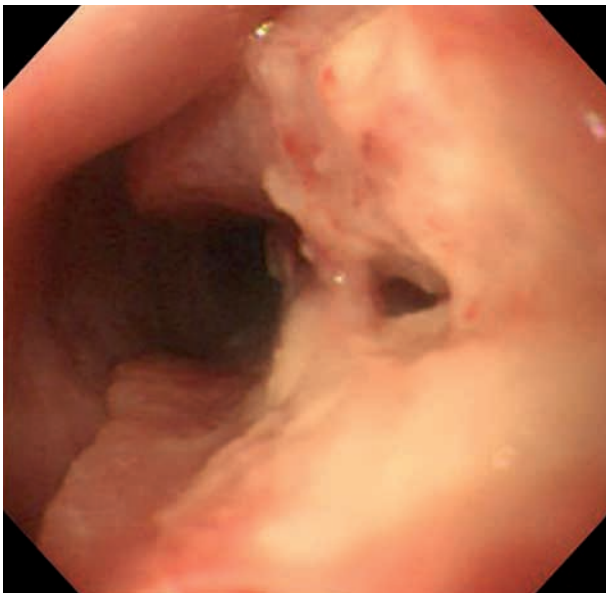


Fig. 3. — Endoscopic view demonstrating a segmental mass with ulceration and the orifice of a fistula in the middle esophagus.

respiratory failure (mental confusion, fever, tachycardia, hypotension and hypoxemia) on the second day after admission. Endotracheal intubation with ventilator support was applied initially and the endotracheal tube was removed one week later, after resolution of acute respiratory failure. After 10 days in the ICU, the patient was transferred to an ordinary ward in a relatively stable condition. One week later, although he became afebrile and follow-up laboratory data showed an attenuated WBC count of $10,000/\text{mm}^3$ and CRP of 8.36 mg/dL , the esophagomediastinal fistula had not closed completely. We performed another UGI endoscopy and placed a metallic stent (15 cm in length with 12 cm polyurethane covering; Ultraflex, Boston Scientific, Natick, MA,

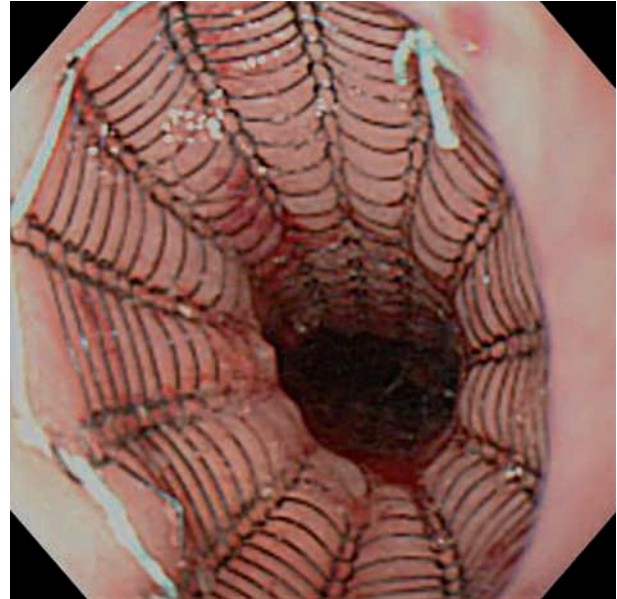


Fig. 4. — Endoscopic view demonstrating the metallic esophageal stent.

USA) into the esophagus, with the fistula covered by the polyurethane-covered part of the stent (Fig. 4). The patient had an uneventful recovery with a decreased amount of drainage (less than 100 mL per day) and we removed the right side chest tube three days after placing the stent. He gradually resumed a regular diet and was discharged one week later. We advised the patient to attend the outpatient department of oncology for further treatment; however, he and his family preferred supportive treatment in consideration of his advanced age, cachexia, complications of chemoradiotherapy and end-stage cancer. The patient had regular follow-up at an outpatient department of thoracic surgery for two months and the stent had maintained a good outcome for the patient. The patient died because of terminal disease after three months of follow-up.

Discussion

Esophageal carcinoma is among the most challenging oncologic problems. Because of its inaccessible anatomic location, diagnosis is often delayed until patients are in the late stages of the disease. Quint *et al.* reported metastases in 18% of 838 patients newly diagnosed with esophageal carcinoma by CT scans, plain radiographs and bone scans (1). There is little difficulty in considering and establishing the diagnosis of esophageal carcinoma if it presents with well-known symptoms and even subsequent obstruction of the esophagus. In contrast, early diagnosis is complicated by an esophageal carcinoma that presents without the typical symptoms or when metastasis assumes the prevalent clinical role.

Esophagomediastinal or esophagobronchial fistulas may occur spontaneously in benign, malignant diseases or secondary to therapeutic measures (chemotherapy,

radiotherapy, endoscopic therapy or surgical resection with anastomosis). The most common signs and symptoms of perforation of the esophagus include chest pain, fever, subcutaneous emphysema, pneumothorax and pneumomediastinum. However, pyopneumothorax attributed to esophageal cancer is rare.

Palliative therapy is generally considered for patients with newly diagnosed esophageal cancer mainly because the disease has already spread outside the esophagus. Patients with distant metastatic lesions are better treated with other methods, such as chemotherapy or radiotherapy. In addition, because of poor results with surgical treatment, there are numerous alternative therapies for patients with esophagomediastinal or esophagobronchial fistula. Some alternative modalities have been reported for treating complications, and they include fibrin glue to seal fistulas (2,3), intubating a flexible tube (4), injection of ethyl-2-cyanoacrylate (5), endoscopic laser coagulation (6), endoscopic clip application (7), placement of an expandable stent (8,9) and maintaining concurrent chemoradiotherapy (10). More prospective trials are required to assess further the efficacy and safety of these treatments.

Conclusion

This is a rare report of pyopneumothorax in a patient with esophageal carcinoma before diagnosis of the primary tumor, and without initial presentation of dysphagia. Otherwise, esophageal carcinoma complicated with esophagomediastinal or esophagobronchial fistula should be considered as a differential diagnosis in patients with pneumothorax, pleural effusion, pulmonary emphysema or mediastinal abscess on chest radiographs.

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