

Pyopneumothorax as A Presentation of Spontaneous Esophagopleural Fistula Due to Esophageal Cancer: A Case Report

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INTRODUCTION

Esophagopleural fistula (EPF) is a rare medical condition that can be caused by malignancy, trauma, or esophageal procedure. It is associated with high morbidity and high mortality due to empyema and nutritional deficiency. In patients with esophageal cancer, the incidence of EPF formation is 4,9%. In this case report, we present a male patients with EPF due to esophageal cancer coinfecting with pleuritis tuberculosis.

CASE DESCRIPTION

A 47-year-old male was admitted to the ER with sudden onset of breathlessness and dysphagia in 5 days. He also complained chronic cough since 6 months. The patient was also a smoker and an alcoholic for 30 years.

On physical examination, his respiratory rate was 24/min and heart rate 124/min. Chest x-ray showed right side hydropneumothorax.

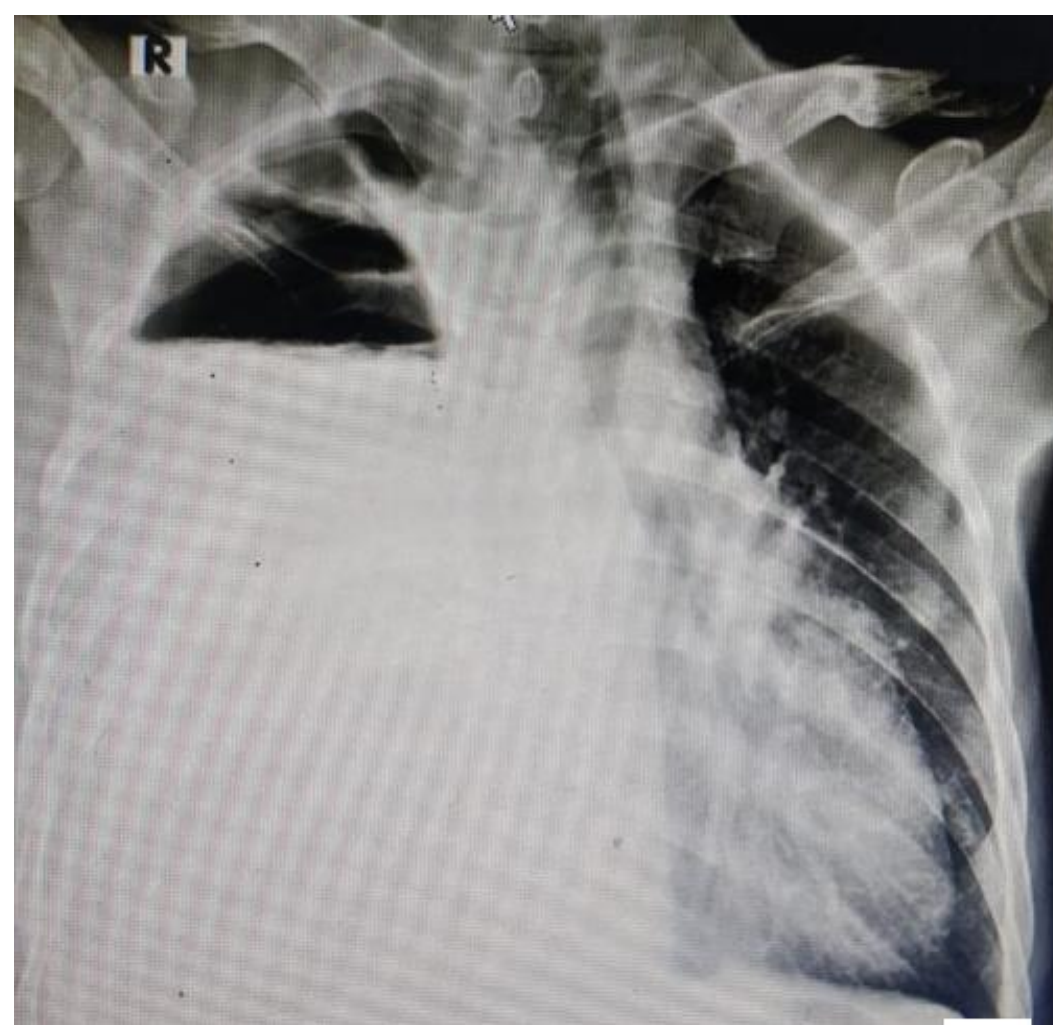


Fig 1. Chest x-ray showed hydropneumothorax on the right side.

Chest tube was inserted in sixth intercostal space and we evacuated 1500 ml empyema. We evaluated chest CT scan and the result was right hydropneumothorax with right lung abscess, proximal esophageal dilatation, while esophageal fistula still cannot be ruled out.

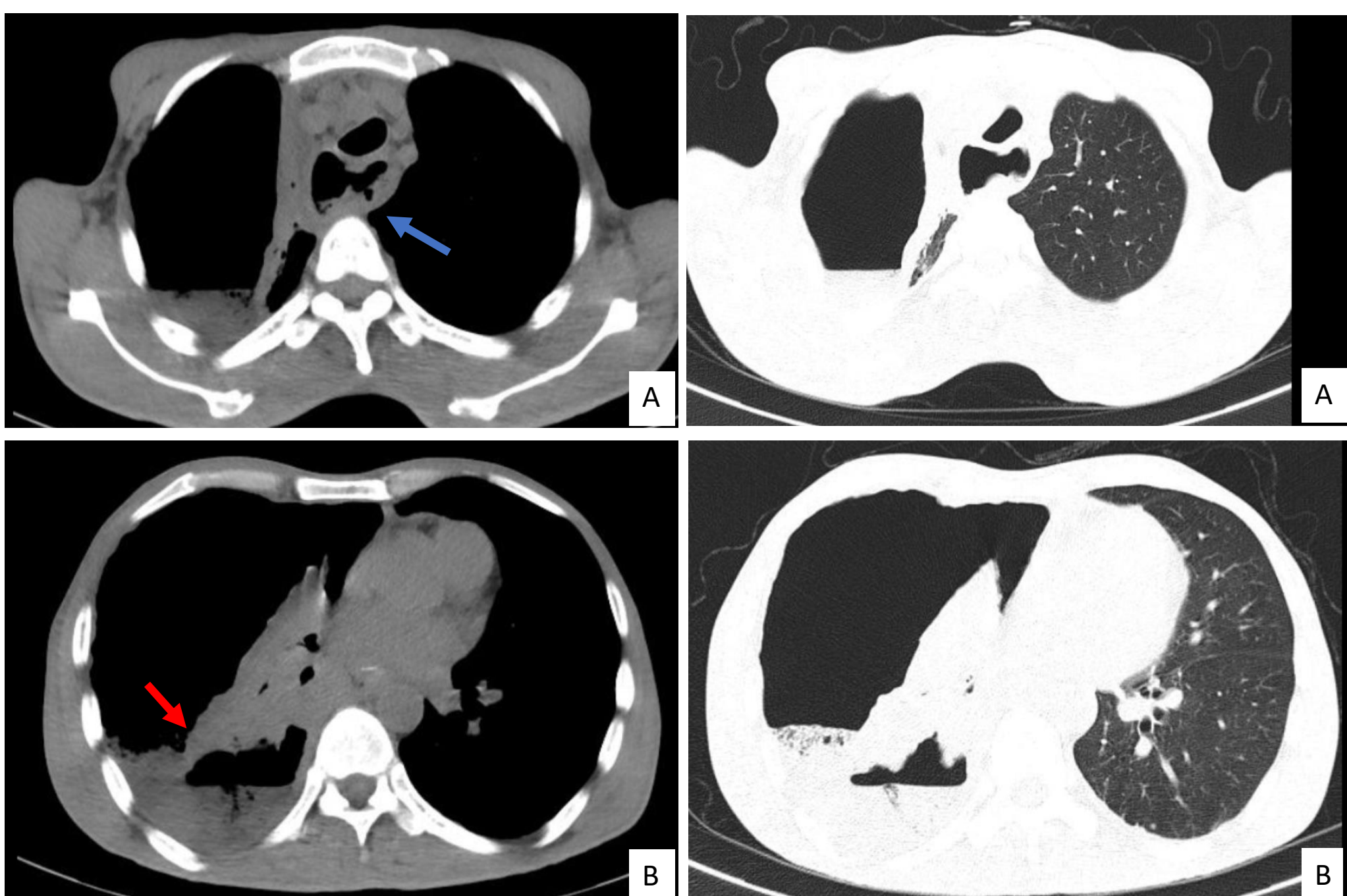


Fig 2 A) Chest CT scan, red arrow: esophageal dilatation. B) Blue arrow: right lung abscess.

Bronchoscopy was performed to the patient, where we found compression to the intermediate truncus. Medical thoracoscopy showed thickening all over the parietal and visceral pleura, causing the right lung failed to expand. Histopathological examination of the pleural biopsy showed chronic granulomatous inflammation and caseous necrosis (suggestive of tuberculosis), and LPA test was positive for *Mycobacterium tuberculosis*. Other than tuberculosis, pleural fluid culture was also positive for *Escherichia coli* and bronchial washing was positive for *Klebsiella pneumoniae*.



Fig 2. A) Bronchoscopy showed compression to the intermediate truncus. B) Medical thoracoscopy showed pleural thickening and pleural peel. C) Pathology showed granulomatous inflammation area (blue arrow) and caseous necrosis (red arrow) (HE, 400x).

During thoracoscopy, we suspected vomit-like odor from the pleural fluid and there were food debris. Activated carbon-digesting test were performed and it leaked through the chest tube, confirming that a fistula between the esophagus and the pleural cavity have been formed. In esophagoscopy, we found tumor along the esophageal wall. The tumor was irregular-shaped, fragile and bleed easily, we could not find the fistula but morphologically, the tumor could easily perforated or ruptured to the mediastinal or pleural cavity. Esophageal biopsy confirmed squamous cell carcinoma with moderate differentiation.

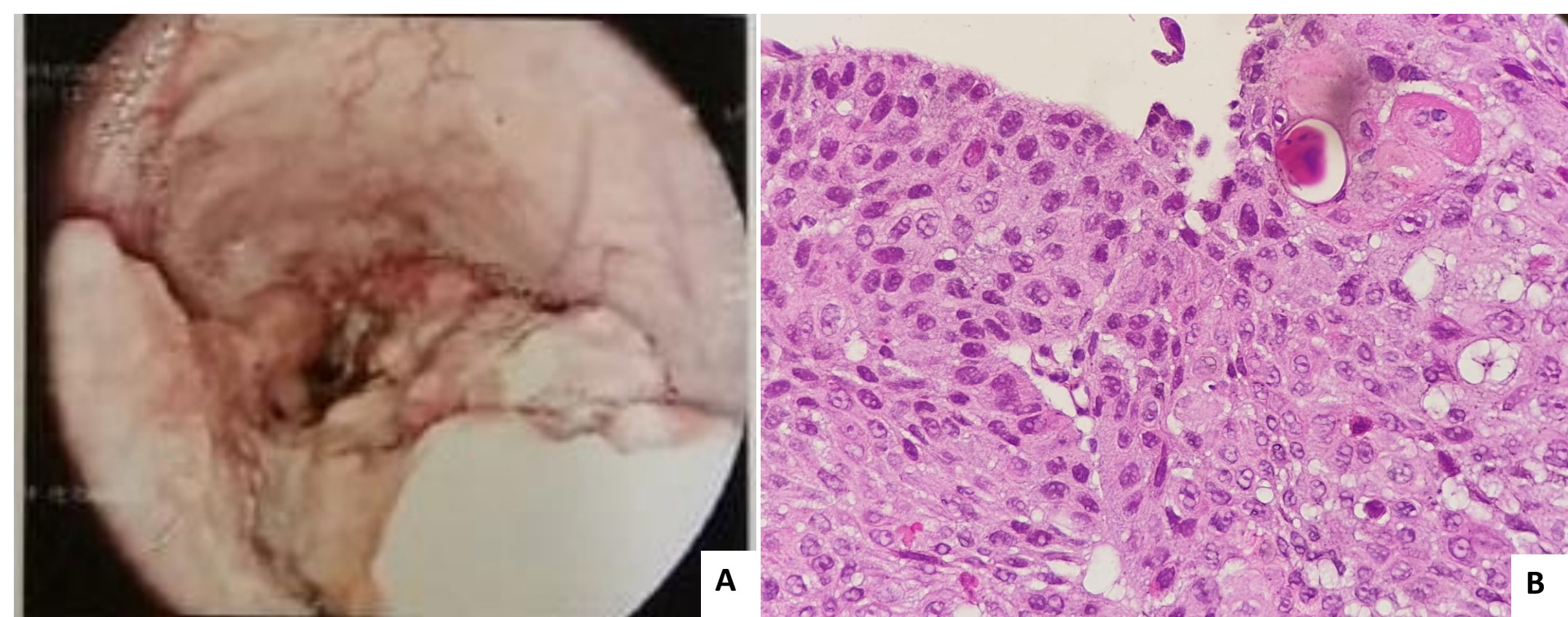


Fig 3. A) An irregular-shaped esophageal tumor was found in esophagoscopy. B) Pathology confirmed squamous cell carcinoma with moderate differentiation (HE, 400x).

DISCUSSION

Anatomically, esophagus has a contact to pleura on the right side, so consequently, any processes in the middle part of the esophagus could easily spread to the right pleura. Esophagopleural fistula could lead to several complications in the mediastinum, pleura, and lungs, causing mediastinitis, empyema, and aspiration pneumonia. In our case, mediastinitis was caused by co-infection between *M. tuberculosis* and *Klebsiella pneumoniae*, which caused severe sepsis to the patient. The patient's condition was also require him to not take any oral intake, therefore his nutritional needs was not fulfilled despite out efforts to switch the intake to total parenteral nutrition and liquid diet after gastrostomy.

For the esophageal cancer, the standard of care is esophagectomy, and since the tumor location is in the upper esophagus, the stomach will be pulled up to meet end-to-end with the remaining esophagus. The patient's condition deteriorated due to sepsis and DIC before we could perform the surgery.

CONCLUSION

The formation of EPF is an uncommon condition and it has no specific clinical condition. Performing examination thoroughly is the key to the right diagnosis, starting with simple tests like "activated-carbon digesting test", could confirm that the pleural fluid was generated from the digestive system. In more advanced settings, chest CT-scan, medical thoracoscopy, esophagogram, and esophagoscopy should confirm our presumption of EPF development.

REFERENCES:

1. Light RW. Pleural Diseases. Philadelphia; 2013. 209–246 p.
2. Liu PS. Am J Roentgenol. 2006;186:1627–9.
3. Duranceau A. Ann Thorac Surg. 1984;37:346–54.

4. Giménez A. Radiographics. 2002;22:247–58.
5. Wechsler RJ. Am J Roentgenol. 1986;147:907–9.
6. Abbas G. Ann Cardiothorac Surg. 2017;6:131–6.