

Esophageal Cancer Causing Severe Bronchial Airway Obstruction – A Case Presentation

**K. G. Lynrah¹, Iadarilang Tiewsoh^{1*}, Anamika Das¹, Evan Synrem¹,
Bhupen Barman¹, Evarisalin Marbaniang² and Arnab Kalita³**

¹General Medicine, North Eastern Indira Gandhi Regional Institute of Medical Sciences, Shillong, 793018, India.

²Department of Pathology, NEIGIRHMS, Shillong, 18, East Khasi Hills, Meghalaya, India.

³Department of Radiology, NEIGRIHMS, Shillong -18, India.

Authors' contributions

This work was carried out in collaboration among all authors. Author KGL evaluated and did the bronchoscopy of the patient. Authors BB, IT, AD and ES were the treating doctors of the patient. Author EM was the pathologist who studied the histopathological slides and author AK commented on the imaging studies of the patient. Author IT drafted the manuscript and final opinion on the manuscript was taken from all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Esophageal cancer is one of the leading malignancies of the gastrointestinal tract with the commonest symptom being dysphagia to solids and liquids. This is a case of esophageal cancer who presented to us with loss of appetite, weight and bronchospasm not relieved by bronchodilators. Esophageal cancer can affect the upper part of the esophagus or lower part of the esophagus. When the mass lesions are supra bifurcal they have thirty percent tendency of involving the airways.

Here we describe a case of a middle aged male, chronic smoker who presented with wheezing on and off for 3 months along with loss of appetite and weight. This was followed by worsening symptoms of breathing difficulty and productive cough for 3 weeks prior to admission. He was initially treated with bronchodilators but never improved. On evaluation he was found to have

*Corresponding author: E-mail: itiewsoh@gmail.com, iadarilang@yahoo.com;

esophageal cancer which had invaded the pericardium and the right and left main bronchus resulting in the respiratory symptoms which was thought to be due to chronic obstructive airway disease.

Conclusion: Thus in this case report it tells us that - airway disease is not only because of inflammation of the airways caused by chronic obstructive airway disease or bronchial asthma but can be cause by other obstructive pathologies which arise from the airways or from adjacent structures of the airways.

Keywords: Airway obstruction; wheeze; asthma; carcinoma; esophagus.

1. INTRODUCTION

Esophageal cancer is one of the most commonly encountered malignancy in both males and females worldwide. As per the data by the International Agency for Research on Cancer, carcinoma esophagus is the eighth most common cancer with an estimated 456000 new cases in 2012 (3.2% of the total) and the sixth most common cause of death from cancer with an estimated 400000 death (4.9% of the total) [1]. The commonest symptoms of carcinoma esophagus are dysphagia and loss of weight. Other symptoms noted are hiccups, regurgitation of fluids or food, refractory cough and aspiration pneumonia [2]. This is an unusual presentation of esophageal carcinoma who had wheezing on and off for 3 months, where he was always labeled as a case of chronic obstructive airway disease.

2. PRESENTATION OF THE CASE

A middle aged male 54 year old, businessman by occupation presented to the casualty with the chief complaints of productive cough and breathing difficulty for 3 months prior to admission with loss of appetite and weight. There were no associated symptoms of fever, chest pain, orthopnea, paroxysmal nocturnal dyspnea or hiccups. For the same he was admitted in the intensive care unit in his local place for 12 days where he was treated as acute exacerbation of chronic obstructive airway disease. He is a chronic smoker for the last twenty years with daily consumption of one packet per day making it 20 pack years. At the emergency on evaluation he was afebrile with blood pressure of 110/70 mmHg, heart rate of 106/min, regular, jugular venous pressure was normal, with room air oxygen saturation being 70% and 94% with 8 liters of oxygen therapy, respiratory rate of 36/min. There were no clubbing, lymphadenopathy, or edema. Upper airway examination was normal however a noisy breathing was noted. Respiratory examination had inspiratory and expiratory rhonchi all over the chest with the use

of accessory muscles. In view of his impending respiratory failure he was shifted to intensive care unit where he was given ventilator support by non-invasive mode of ventilation and supportive therapy. On evaluation he was found to have Type 1 respiratory failure with partial pressure of oxygen 65mmhg and PF ratio of 130. His chest x-ray and electrocardiogram. (Fig. 1) were normal. Otolaryngology consultation was also taken where no abnormality was detected in the upper airway. So at this point the possibility of central airway obstruction or lower airway obstruction was kept. Hence an immediate visualization of the airway was done by bronchoscopy. On bronchoscopy, an endobronchial growth involving both the right and left main bronchus was noted (Fig. 2) and the biopsy taken from both sites was suggestive of a poorly differentiated squamous cell carcinoma (Fig. 3). The routine and relevant investigations were also carried out (Table 1). In view of the squamous cell carcinoma of the right and left main bronchus without lung parenchymal lesions on the chest x-ray a contrast enhanced CT imaging was done (Fig. 4) which showed an irregular circumferential wall thickening involving mid thoracic esophagus with obliteration of the peri-esophageal fat plane. The same lesion was seen to be abutting the pericardium over the left atrium, the carina, the right and left main bronchus, with luminal irregularity, causing narrowing of the airway. So the diagnosis of carcinoma esophagus infiltrating the right and left main bronchus was made, which had presented with the symptoms of obstructive airway disease and significant loss of appetite and weight due to the growth in the oesophagus.

His upper gastrointestinal endoscopy was planned however in view of his poor oxygenation and ventilation status and unfavorable outcome the procedure was withheld and only supportive therapy was continued in the intensive care medicine after which he expired after 3 days on non-invasive ventilation with broad spectrum antibiotics for the secondary bacterial infection.

Table 1. Investigations

Hb	8 gm %
TC	31000
Platelets	2,40,000
HIV /HBsAg/ Anti HCV Ab	Negative
Cardiac enzymes Troponin T	Negative
Sputum C/S- SGOT/SGPT	Light growth of <i>K. pneumoniae</i> 50/54

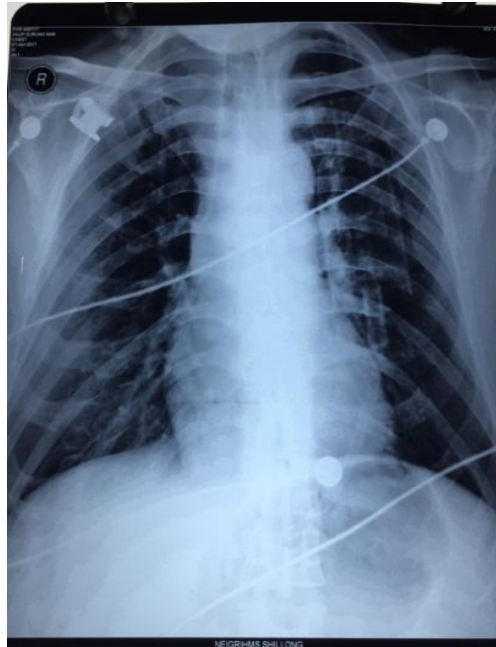
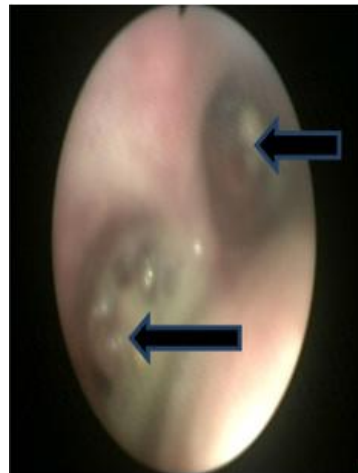


Fig. 1. Chest x-ray



(a)



(b)

**Fig. 2. (a) Upper airway which is clear;
(b) The airway showing the endobronchial growth**

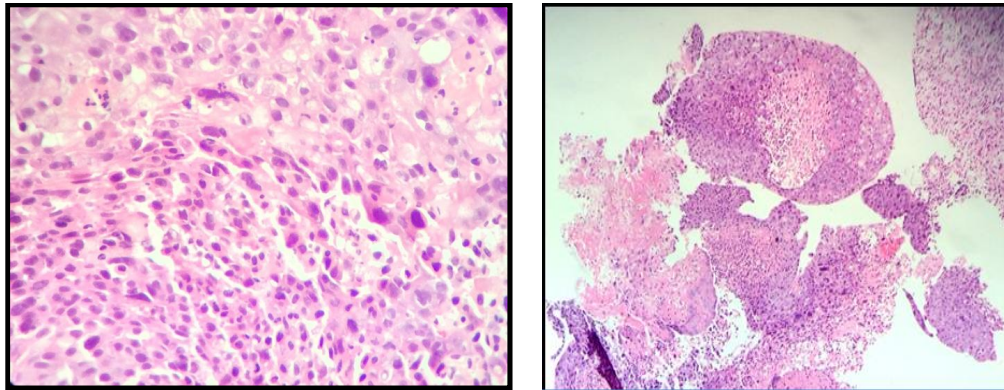


Fig. 3. (a) Atypical squamous cells with hyperchromatic nuclei prominent nucleoli along with presence of mitosis. H&E 40X (b) Viable areas with necrotic foci. H&E 10X

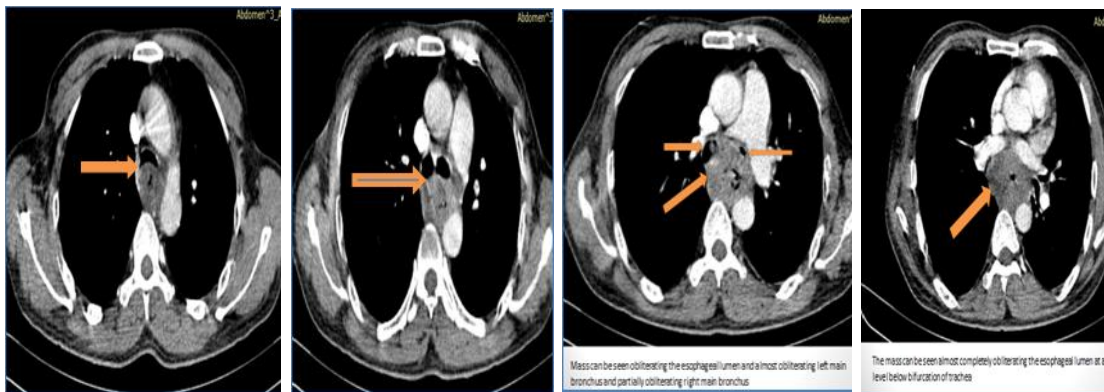


Fig. 4. (a) Mass can be seen almost obliterating esophageal lumen and abutting the trachea. (b) Mass can be seen obliterating the esophageal lumen at the level of bifurcation of trachea however both bronchi appear free (c) Mass can be seen obliterating the esophageal lumen and almost obliterating left main bronchus and partially obliterating right main bronchus (d) The mass can be seen almost completely obliterating the esophageal lumen at a level below bifurcation of trachea

3. DISCUSSION

Esophageal cancer has a high potential of spreading into the surrounding structures as the esophagus has no serosa barrier and the tumor can grow rapidly around before it produces any primary or secondary symptoms. From the studies conducted internationally in such group of patients, the percentage of airway involvement found by bronchoscopy is up to 30 percent in those with suprabifurcal carcinoma of the esophagus [3-6,7,8]. Our patient had loss of appetite and weight, with breathlessness and cough due to growth in the esophagus infiltration into the bronchial airways. The obstructive airway symptoms seemed to be the pre-dominant complaints. The surgical intervention that could have been carried out for his airway were dilatation, laser resection, electro cautery or

argon plasma coagulation as per the guidelines of management [5].

The involvement of the airways especially in suprabifurcal carcinoma of the esophagus determines the staging of the disease and treatment, as patients with airway involvement are no longer candidates for radical curative surgery but have to go for external beam radiation therapy (RT) with concurrent chemotherapy instead. Extensive airway involvement contributes to the morbidity of the disease with tracheoesophageal fistula causing recurrent respiratory tract infection and bronchospasm.

4. CONCLUSION

Thus in this case report it tells us that airway obstruction does not indicate that the pathology

can lie only in the airway but can arise from other adjoining area around the respiratory structures. So a patient presenting with chronic airway obstruction and a normal chest x-ray should not only be considered as reactive airway disease but should be thoroughly work up for other important diseases which includes malignancies especially in the present era where they are considered as one of the differential diagnosis.

CONSENT

All procedures were carried out on the patient by the consent from the relatives for diagnostic and therapeutic procedures.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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