

## Case Report

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# A case of diffuse endobronchial metastasis of rectum carcinoma presenting with symptoms of diffuse airway obstruction and respiratory failure

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### Abstract:

Endobronchial metastases of extra pulmonary tumors are rare. This report presents a case with diffuse endobronchial metastases with rectum carcinoma. A 63-year-old non-smoker female was admitted to our outpatient clinic with dyspnea and dry cough for two months. She had a history of rectum carcinoma and resection surgery eight months ago. On physical examination, wheezing was remarkable. There was patchy consolidation in both lung fields on chest x-ray. PET-CT revealed widespread nodules in pulmonary parenchyma which were consistent with rectal cancer metastasis. Bronchoscopy was performed and revealed extensive mucosal infiltration and multiple various sizes of polypoid lesions in the distal trachea and both main lobar bronchus. The histopathological evaluation reported as metastasis of rectum carcinoma. The oncological medical treatment regimen and radiotherapy was also planned. She admitted to emergency department with chest pain and progressive dyspnea 2 months after the diagnosis. Thorax CT demonstrated that increased metastatic peribronchial infiltrates, septal thickening and endobronchial polypoid lesions which was consisted with lymphangitic carcinomatosis and endobronchial metastasis. There was hypercapnic respiratory failure according to arterial blood gases analysis. She was intubated and admitted to the intensive care unit (ICU) and died in ICU on 7th day of admission. This case indicates that the possibility of endobronchial metastasis should be considered in a patient with underlying malignancy. If available bronchoscopic intervention should be planned not to let misdiagnosis.

### Keywords:

Endobronchial metastasis, rectum carcinoma, respiratory failure

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## Introduction

Although lung parenchyma metastasis is common, endobronchial metastasis (EBM) of extrapulmonary malignancies is extremely rare. The most commonly reported malignancies

that have caused EBM are breast, colon, and kidney cancers.<sup>[1,2]</sup> This report presents a case with diffuse EBMs presenting with symptoms of diffuse airway obstruction and respiratory failure.

## Case Report

A 63-year-old nonsmoker female was

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admitted to our outpatient clinic with dyspnea and dry cough for 2 months. She had a history of rectum carcinoma and resection surgery 8 months ago. She was being given adjuvant chemotherapy (fluorouracil, leucovorin, oxaliplatin) for 6 months. On physical examination, wheezing was remarkable. There were inspiratory and expiratory rhonchi in both lung fields on auscultation. There was patchy consolidation in both lung fields on chest X-ray [Figure 1]. Positron emission tomography-computed tomography (PET-CT) revealed widespread nodules in the pulmonary parenchyma, which were consistent with rectal cancer metastasis and without liver metastasis.

Bronchoscopy was performed and revealed extensive mucosal infiltration and multiple various sizes of polypoid lesions in the distal trachea and both main lobar bronchus [Figure 2]. The histopathological and immunohistochemical evaluation reported as metastasis of rectum carcinoma. After EBM was confirmed, new chemotherapy regimen (irinotecan and leucovorin) was arranged and also radiotherapy was planned. This oncological medical treatment and radiotherapy could be performed for only 1 month. It was interrupted because eastern cooperative oncology

group (ECOG) performance status was 3. Since having multiple and various sizes of EBM in both lung fields, endobronchial treatments were not planned for this case. She was admitted to the emergency department with chest pain and progressive dyspnea 2 months after the diagnosis. Thorax CT was performed for excluding pulmonary embolism due to high clinical probability. Thorax CT demonstrated that increased metastatic peribronchial infiltrates, septal thickening, and endobronchial polypoid lesions, which was consisted with lymphangitic carcinomatosis and EBM [Figure 3a,b]. There was hypercapnic respiratory failure according to the arterial blood gases analysis (pH: 7.30 and  $\text{paCO}_2$ : 56 mmHg). She was intubated and admitted to the intensive care unit (ICU). Unfortunately, the patient died in the ICU on the 7<sup>th</sup> day of admission.

## Discussion

EBMs of the extrapulmonary tumors are rare. Only 1.1% of endobronchial tumors are metastatic.<sup>[3,4]</sup> This case presented to increase awareness of physicians about EBM of extrapulmonary malignancies and to reduce



Figure 1: Patchy consolidation in both lung fields on chest X-ray

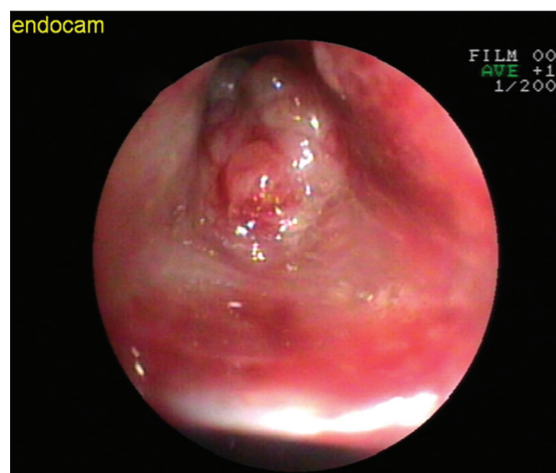


Figure 2: Extensive mucosal infiltration and multiple various sizes of polypoid lesions on bronchoscopic evaluation



Figure 3a: Metastatic peribronchial infiltrates, septal thickening which is consisted with lymphangitic carcinomatosis

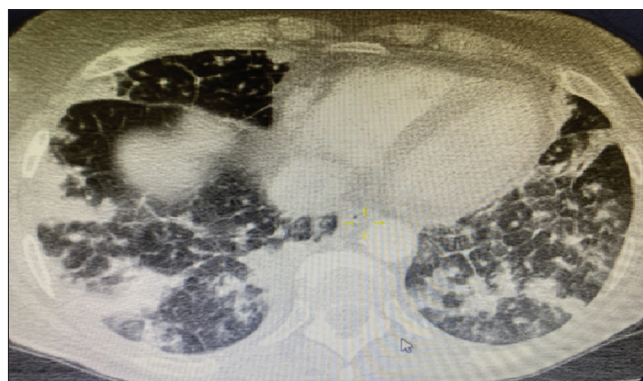


Figure 3b: Metastatic peribronchial infiltrates

misdiagnosed disease ratio. This case indicates that the possibility of EBM should be considered in a patient with underlying malignancy. The most frequent causes of the EBM are colon, breast, and renal cancer.<sup>[5]</sup> In the literature, the median interval time between diagnosis of EBM of colorectal cancer and diagnosis of primary tumor is 53 months.<sup>[6]</sup> This interval time was 8 months in our case which was quite short compared to the literature.

Endobronchial lesions are frequently presented with cough, dyspnea, and hemoptysis although there are cases without any respiratory symptom.<sup>[7]</sup> Kiryu *et al.* reported that 62.5% of their patients with EBM were not symptomatic.<sup>[2]</sup> Diffuse EBM can cause partial or total mechanical obstructions of the bronchus and mimic asthma, but bronchodilators usually are not effective in these patients. Further, malignancy history and presentation of symptoms should be kept in mind before diagnosed these patients as asthma.

Although the chest CT is useful to reveal mediastinal lymphadenopathy and pulmonary metastasis, EBM may not be determined by chest CT.<sup>[8]</sup> Bronchoscopic evaluation is recommended to make diagnosis of EBM.<sup>[4]</sup> Ozturk *et al.* reported a case having multiple conglomerate mediastinal lymphadenopathies on the chest CT. Bronchoscopic evaluation revealed a polypoid endobronchial lesion. They extracted that lesion by cryoprobe and performed endobronchial ultrasound-guided transbronchial needle aspirate for subcarinal lymphadenopathy. Histopathological findings were hamartoma and Hodgkin's lymphoma, respectively.<sup>[9]</sup> This case points out that the bronchoscopic approaches are necessary to determine whether the lesion is metastatic or primary malignancy.

Radiological findings of EBM on the chest X-ray are various. The most determined findings of EBM are atelectasis, hilar enlargement, and multiple and solitary nodules.<sup>[10-12]</sup> Contrary to other authors in the literature, Akoglu *et al.* reported that pleural effusion was assigned commonly (40%) in their study group as co-existing finding.<sup>[1]</sup> In our case, on chest X-ray, there was patchy consolidation in both lung fields, and thorax CT revealed increased metastatic peribronchial infiltrates, septal thickening, and endobronchial polypoid lesions, which was consisted with lymphangitic carcinomatosis and EBM.

The clinical findings of this case can be confused with obstructive lung diseases. The patients who were previously regarded as asthma or chronic obstructive pulmonary disease (COPD) but did not respond asthma or COPD treatment should be re-evaluated for alternative diagnoses and existence of malignancy should be kept in mind.

In conclusion, patients with airflow limitation symptoms such as dyspnea and wheezing frequently misdiagnosed as asthma or COPD. Further investigation can be necessary

to rule out differential diagnoses. The patient who does not have any response to asthma or COPD treatment should be re-evaluated. Physical examination, pulmonary function test, and CT should be performed. This case demonstrated the fact that bronchoscopic evaluation should be kept in mind in these patients, especially if they have underlying malignancy with a potential of EBM.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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