

Endobronchial Squamous Cell Carcinoma Presenting as Long Continuous Bronchial Thickening on 18Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography

Abstract

A 67-year-old man is presented with complaints of chest pain and productive cough for 1½ years. Chest X-ray was suggestive of right upper lobe Koch's lesion. Sputum was positive for *mycobacterium tuberculosis*. His symptoms got relieved partially by antitubercular treatment but the patient had an aggravation of symptoms for which he was evaluated. Computed tomography (CT) thorax revealed an endobronchial lesion in the right upper lobe bronchus. Bronchoscopy showed a mass in the right main bronchus and biopsy was suggestive of moderately differentiated squamous cell carcinoma (SCC). 18Fluoro-deoxy-glucose positron emission tomography/CT was performed for staging. There would have been chances of coexisting tuberculosis with SCC.

Keywords: Endobronchial carcinoma, lung carcinoma, positron emission tomography/computed tomography, squamous cell carcinoma, tuberculosis

Introduction

The primary tracheobronchial tumors are relatively rare. These tumors may be benign because of chronic inflammatory diseases such as sarcoidosis or infective etiology such as tuberculosis, primary, or metastatic. The patients usually present with radiological feature of atelectasis, bronchitis, or pneumonia leading to symptoms. On computed tomography (CT), these endobronchial lesions present as outgrowth in the bronchus with resultant narrowing of airway lumen or localized peribronchial thickening. The localized long bronchial wall thickening on CT is usually caused by inflammatory/infective diseases which create confusion in diagnosis. If there is the coexistence of benign and malignant conditions, it may cause delay in diagnosis and initiation of optimal management of the patient. Positron emission tomography/CT (PET/CT) provides information about the staging and prognostication of such patients.

Case Report

We present a case of a 67-year-old man with complaints of chest pain and productive cough for 1½ years. Chest X-ray posteroanterior view was suggestive of

right upper lobe Koch's lesion. Sputum was positive for *Mycobacterium tuberculosis*. The patient underwent antitubercular treatment for 9 months after which sputum culture turned negative. His symptoms got relieved partially but for 4 months, the patient had an aggravation of symptoms for which he was evaluated and underwent CT thorax. It showed endobronchial lesion in the right upper lobe bronchus with marked narrowing of lumen and complete atelectasis of upper lobe of the right lung. Bronchoscopy showed mass in the right main bronchus occluding 70% lumen and scope could not be negotiated beyond mass. Bronchoscopic biopsy was suggestive of moderately differentiated squamous cell carcinoma (SCC). There was high probability of coexisting tuberculosis with SCC. 18F-FDG PET/CT was performed which revealed fluorodeoxyglucose (FDG)-avid continuous long segment bronchial wall thickening in the right main bronchus, right upper lobe (with obstructive mass), and up to bronchus intermedius [Figure 1a-c] suggestive of primary with resultant atelectasis of upper lobe. There were FDG-avid mediastinal lymph nodes with another FDG-avid nodular lesion in upper lobe of the left lung suggestive of metastatic disease. On follow-up, the patient is taking treatment under oncology department.

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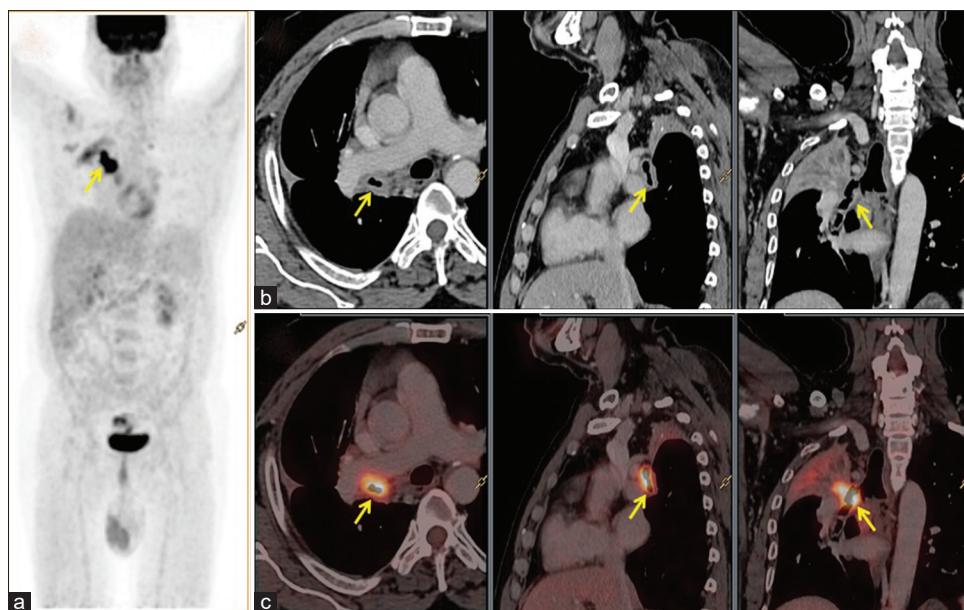


Figure 1: (a) MIP image of 18F-FDG PET shows focal area of FDG uptake in right hemithorax, (yellow arrow) (b) CT images showing continuous thickening in right bronchus (yellow arrow) in axial, sagittal, and coronal projections, respectively, (c) PET/CT fused images showing hypermetabolism along the right bronchus (yellow arrow) in axial, sagittal, and coronal projections, respectively. 18F-FDG PET: 18Fluorodeoxyglucose positron emission tomography, CT: Computed tomography, MIP: Maximum intensity projection

Discussion

Primary tracheobronchial neoplasms are rare.^[1] The endobronchial neoplasm may be a primary disease or metastatic.^[2,3] Benign endobronchial tumors are rare entities as compared to malignant forms.^[4] In our case, the patient had coexisting infective etiology, i.e. *M. tuberculosis*, which was diagnosed first and treated for the same. As histopathology was suggestive of SCC, PET/CT was performed for staging. Preoperative assessment is crucial for precise and accurate location of primary lesion for tailoring of operation. Bronchoscopy is prerequisite to get histopathology and it defines the range of involvement by the primary tumor. CT often fails to demonstrate endobronchial carcinomas which are limited to the bronchial wall.^[5] At present, PET/CT can add more information for finding occult lymph node metastasis as well as to find distant metastatic sites. Usually, significant FDG uptake is confined to the focal bulbous bronchial thickening or a peribronchial nodule but no FDG uptake is seen in smooth bronchial thickening with tumor involvement.^[6] We can say that FDG uptake is noted in endobronchial growth and appears as “hot gloved finger sign” on PET/CT.^[7,8] In our case, we found endobronchial hypermetabolism in the upper lobar bronchus giving the appearance of “hot gloved finger sign.” Hypermetabolism was also noted along the long continuous bronchial thickening in the right main bronchus, upper lobar bronchus, and bronchus intermedius.

Conclusion

PET/CT findings help to define the precise disease-involved segment of the bronchus, i.e., staging the patient and help in decision-making for optimal treatment planning. In our

case, we defined the range of tumor involvement, i.e. stage of the patient for optimal treatment planning as well as prognostication.

Declaration of patient consent

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

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Nil.

Conflicts of interest

There are no conflicts of interest.

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