

Case Report

Lung cancer with multiple lung abscesses: an unusual presentation

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Received: 26 November 2017

Accepted: 21 December 2017

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ABSTRACT

Lung abscess is caused due to localized suppuration in the lung usually caused by microbial infection of the lung. Here we are describing an interesting case of multiple lung abscess associated with non-small cell lung cancer. The diagnosis was suspected on CT scan thorax and was confirmed by fiberoptic bronchoscopy and endobronchial biopsy. Hence, lung cancer should be suspected in any case of lung abscess when it is showing no signs of resolution even after aggressive conservative management with broad spectrum antibiotics.

Keywords: Fiberoptic bronchoscopy, Lung abscess, Lung cancer

INTRODUCTION

Lung abscess is a localized suppuration in the lung due to the liquefactive necrosis of the lung parenchyma. It is usually caused due to a microbial infection of the lung tissue. Lung cancer has been seen in about 10 to 29 percent of the lung abscesses.¹ Here, we are describing an interesting case of a 52-year-old male who presented to us with multiple lung abscesses radiographically and was diagnosed with bronchogenic carcinoma on further evaluation.

CASE REPORT

A 52-year-old male presented to us with the chief complaints of cough with scanty expectoration and right sided chest pain for three months along with breathlessness and low grade fever for two months. Patient was a current smoker (pack year of 30) with diabetes mellitus. The patient had no previous history of antitubercular treatment although he had received broad spectrum antibiotic in the form of cefoperazone-sulbactam intravenously for about ten days before

coming to us. The conservative treatment with broad spectrum antibiotic although decreased his fever but his dyspnea increased significantly in the last one month. General examination revealed pallor and a body temperature of 100.8°F (oral temperature) with no other abnormal finding. On respiratory system examination, the patient had diminished breath sounds on the right side of the chest along with fine crepts. The systemic examination was normal.

Investigations

On investigating, the patient had a Hb%-8.5gm/dl, TLC- $13 \times 10^5/\text{mm}^3$ and platelet count-2.5lakh/ mm^3 . The blood sugar was raised with a fasting blood sugar-142mg/dl and a postprandial blood sugar-276mg/dl. HbA1c was 8.6% in the patient.

Liver function test and kidney function test were normal in the patient and viral markers for HIV, HBsAg and HCV were negative in the patient. Chest X-ray revealed non-homogenous opacity initially involving only the upper and middle zones of the right lung (Figure 1) which

progressed over one month to involve almost whole of the right lung with presence of multiple air fluid levels (Figure 2).



Figure 1: Chest x-ray showing non-homogenous opacity with air fluid level in right upper and middle lung zone.



Figure 2: Chest X-ray showing non-homogenous opacity involving almost whole of the right lung with multiple air fluid levels even after one month of the x-ray chest shown in Figure 1.

Patient's sputum was negative for AFB (acid fast bacilli) smear. A CT scan thorax was done in the patient which showed multiple lung abscesses in the upper lobe, middle lobe and the superior segment of the lower lobe of the right lung (Figure 3 and 4).

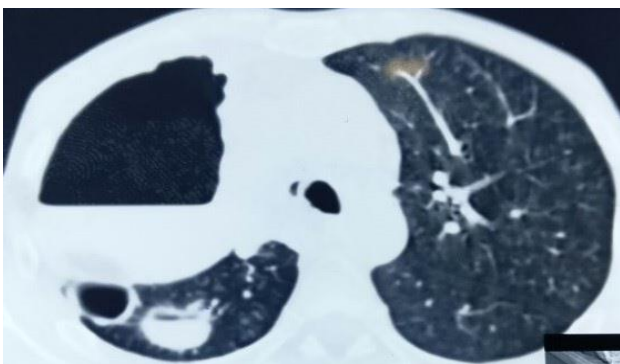


Figure 3: CT Thorax showing multiple lung abscesses in right upper lobe and superior segment of right lower lobe.

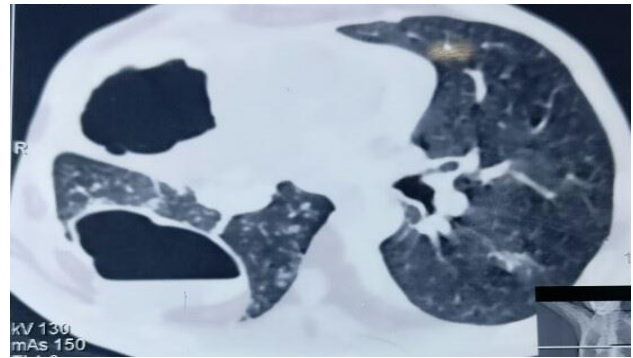


Figure 4: CT Thorax showing multiple lung abscesses in right middle lobe and superior segment of right lower lobe.

CT scan thorax also revealed a soft tissue attenuation opacity occluding the right main bronchus (Figure 5).

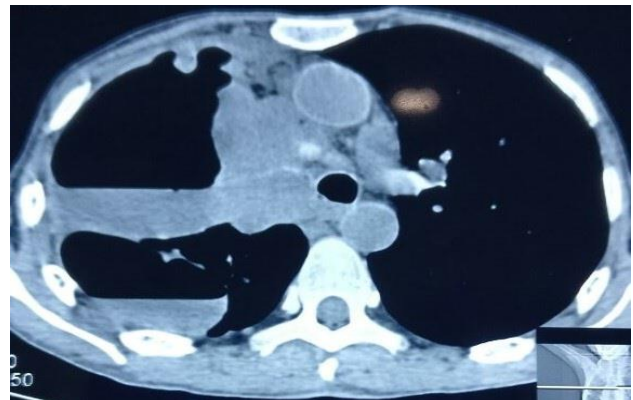


Figure 5: CT Thorax showing multiple lung abscesses in right upper lobe and superior segment of right lower lobe with soft tissue attenuation lesion in right main bronchus.

Patient was then taken up for fiberoptic bronchoscopy which revealed an endobronchial mass in the right main bronchus just at the level of the main carina which was almost fully occluding the right main bronchus opening (Figure 6).

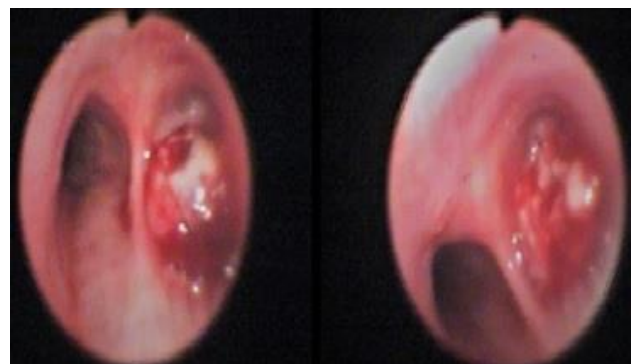


Figure 6: Fiberoptic bronchoscopy view showing soft tissue mass in the right main bronchus extending upto the carina.

Biopsy was taken from the mass lesion and sent for histopathological examination. Bronchoalveolar lavage (BAL) was also taken from the right bronchial tree. BAL was negative for AFB smear and malignant cells. However, pyogenic culture and sensitivity revealed growth of a gram negative bacilli, *Klebsiella pneumoniae*. BAL for fungal culture was negative. Histopathological examination of the biopsy specimen revealed squamous cell carcinoma, non-keratinizing type (Figure 7).

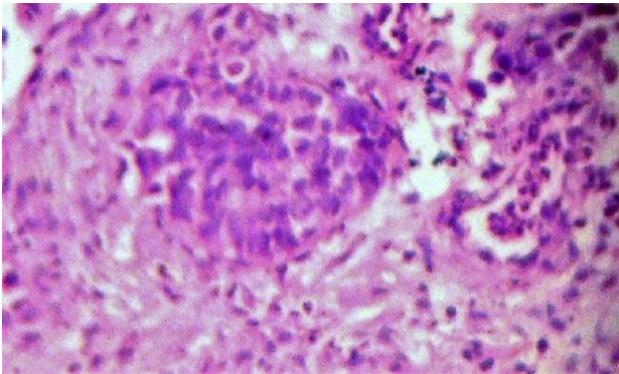


Figure 7: Microscopy image showing dysplastic squamous cells in the biopsy specimen from the soft tissue mass lesion in the right main bronchus.

Due to the poor financial status of the patient, a contrast enhanced CT scan thorax could not be done for an accurate staging of the non-small cell lung cancer. USG whole abdomen was normal.

Treatment and follow up

The patient was treated with piperacillin-tazobactam 4.5gm iv TDS and clindamycin 600mg iv TDS for 10 days as per the pyogenic culture and sensitivity report and to cover the anaerobic bacteria. The patient was also given a combination of oral hypoglycemic drugs (i.e. Glimpiride 2mg plus metformin 1000mg sustained release in once daily dosage) for the control of diabetes mellitus. For the non-small cell lung cancer (squamous cell carcinoma), the patient only consented to receiving the chemotherapy and denied any further evaluation for surgery or radiotherapy. Hence, the patient was given two units of blood transfusion with packed RBCs followed by the first cycle of combination chemotherapy containing cisplatin plus gemcitabine.

Differential diagnosis

- Necrotising pneumonia
- Bronchiectasis
- Bronchogenic carcinoma (cavitating type)
- Septic emboli
- Lung sequestration
- Pulmonary infarction
- Inhaled foreign body causing bronchial obstruction

- Wegener's granulomatosis (i.e. Granulomatosis with polyangiitis).
- Infected bulla.

DISCUSSION

Lung abscess can have multifactorial etiology ranging from infective to endobronchial obstruction by a foreign body or a malignant lesion. Lung abscess can be classified as acute (upto 6 weeks) and chronic (>6 weeks) according to their duration. The lung abscesses associated with lung cancer are usually solitary but in our case multiple lung abscesses were seen in association with the lung cancer.^{2,3} The lung abscess associated with lung cancer can be due to necrosis within the lung mass or due to post-obstructive pneumonia leading to abscess formation.

In our case the walls of the lung abscesses were irregular and up to 10mm thick. Irregular and thick wall (>15mm) of the abscess is suggestive of cavitating lung cancer.⁴ Lung abscess with lung cancer is most commonly seen to occur in right upper lobe followed by right lower lobe and in our case lung abscesses were seen in all the three lobes of the right lung.⁵ In majority of cases a CT scan thorax is sufficient to diagnose and treat the lung abscess but in cases where lung cancer is suspected to be present concurrently, a fiberoptic bronchoscopy may be required to clinch the diagnosis.⁵ In our case, the histological type of lung cancer associated with lung abscess was squamous cell carcinoma and it is the most common histological type of lung cancer associated with the lung abscess.^{5,6}

Although the diagnosis was made by biopsy of the endobronchial mass lesion in our case but sometimes a surgical intervention like lobectomy is required to differentiate between a lung abscess due to infection or due to the lung cancer.⁷

CONCLUSION

Lung abscess has a multifactorial etiology. Lung abscess may have an associated lung cancer and hence it should be considered in the differential diagnosis especially in patients greater than 45 years of age and having a history of smoking.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Agarwal A, Batra S, Verma A, Vaish AK. Lung cancer with multiple lung abscesses: an unusual presentation. *Int J Res Med Sci* 2018;6:719-22.