

**A CASE OF FUNGAL MASS (ASPERGILLOMA) MIMICKING AS LUNG
CARCINOMA– RARE CASE REPORT****Dilbag Singh¹, Amritpal Kaur¹, Naveen Pandhi², N. C. Kajal³, Mukul Sharma⁴, Srijna¹**¹Junior Resident, Department of Pulmonary Medicine, Government Medical College, Amritsar Punjab, India.²Professor and Head, Department of Pulmonary Medicine, Government Medical College, Amritsar.³Professor, Department of pulmonary Medicine, Government Medical College, Amritsar Punjab, India.⁴General Physician, Gurdaspur, Punjab, India.***Corresponding Author: Dr. Dilbag Singh**

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Article Received on 12/11/2019

Article Revised on 03/12/2019

Article Accepted on 24/12/2019

ABSTRACT

There are varieties of pulmonary infections which can produce radiologic findings that mimic lung cancers. To differentiate these infectious lesions from lung cancer remains challenging for clinicians and radiologists. In such cases, clinical manifestations and radiographic features can be highly suggestive of lung cancer, and misdiagnosis can be made leading to significantly delay in the initiation of appropriate treatment and causing increasing in the morbidity and mortality. To diagnose the infectious nature of the lesions, a biopsy is usually required. A detailed history, clinical examination, radiological examination, and histological tests helped in the diagnosis of the patient. We highlight the importance of suspicion, careful general examination, radiological assessment and histological tests to confirm the diagnosis of fungal mass (aspergilloma) mimicking as lung carcinoma.

KEYWORDS: Fungal mass, aspergilloma, lung cancer, biopsy, computed tomography.**INTRODUCTION**

Aspergilloma is the most common pulmonary manifestation of aspergillosis that mimics neoplasia. The fungus colonises an existing pulmonary cavity, bulla or ectatic bronchus, forming a mass of intertwined fungal hyphae admixed with mucus and cellular debris. The main tool used for the diagnosis and staging of lung cancer is the radiology. In this context, the important thing is the knowledge of the main radiologic mimickers of the cancer.^[1] The main radiologic features suggestive of lung cancer include a parenchymal nodule or mass with irregular margins, lobulations, a thick-walled cavity and chest wall invasion. However, several pulmonary infectious diseases occasionally cause inflammatory lung lesions resembling pulmonary carcinoma.^[2] Despite improvements in imaging studies, serologic/microbiologic testing and interventional bronchoscopic/radiologic procedures, accurate diagnosis remains challenging.^[3] The clinical manifestations and radiographic findings are indistinguishable from those produced by pulmonary neoplasm. In this case, we review the clinical, histologic and radiologic features of the fungal mass (Aspergilloma) mimicking as lung carcinoma.

CASE REPORT

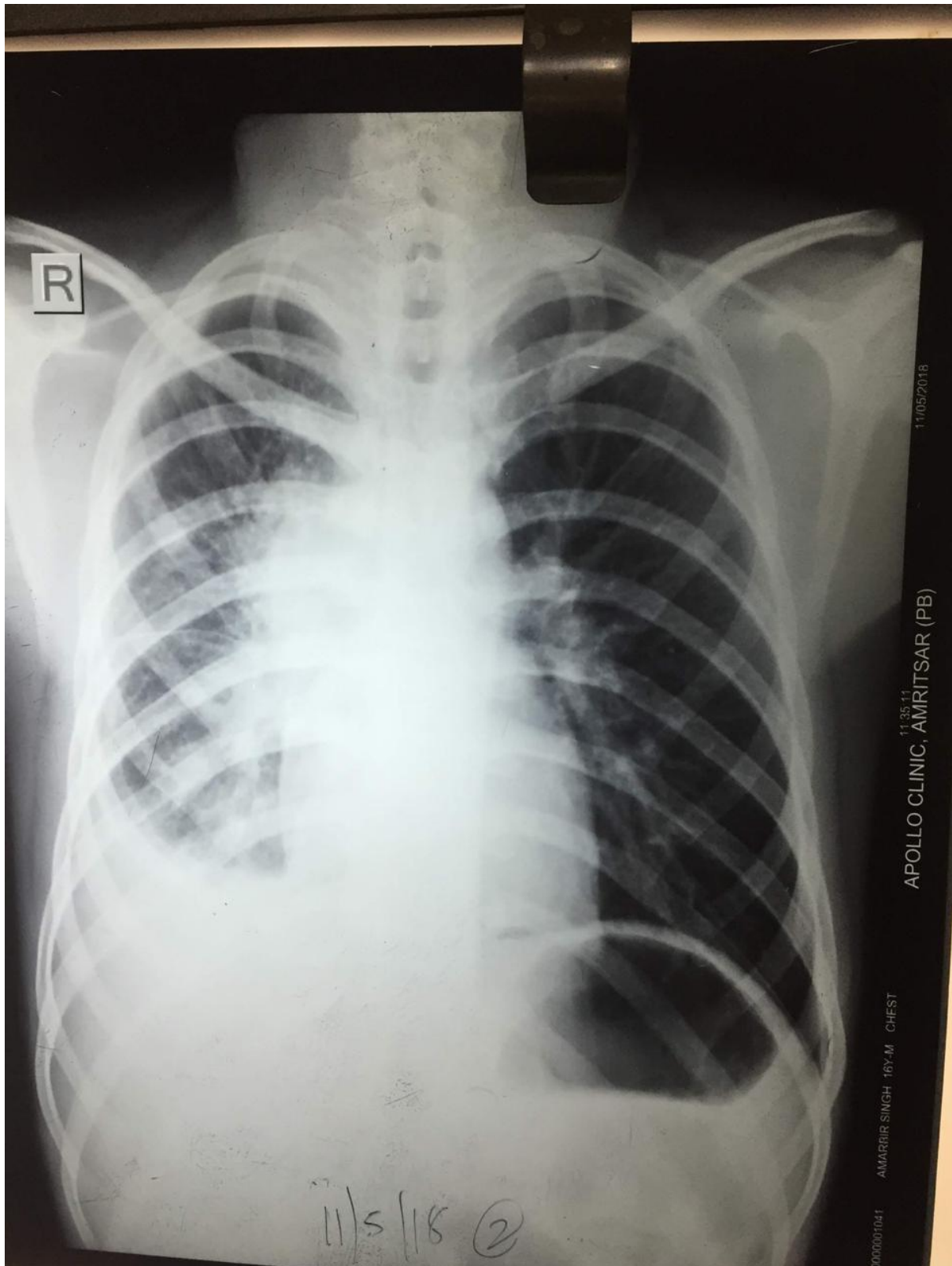
A 17 year old boy presented to Chest and Tb hospital Amritsar with complaints of cough with expectoration,

fever, loss of appetite, weight loss and puffiness of face for one month. The patient was non smoker and had no other significant medical history and his HIV status was negative. Additionally, patient's travel history as well as pet, home, and occupational exposures were non-contributory. He had no family history of malignancy, not immunosuppressive. His chest x-ray shows lobulated right para tracheal and parahilar radio opaque shadows with heterogeneous opacity in right middle and lower zone with right sided pleural effusion. His CT revealed a large ill defined, mass lesion of size 8*5*8.1 cms in right hilar –parahilar region extending into right side of mediastinum with compression of superior vena cava (superior vena cava syndrome grade 4), abrupt cut off of the right main pulmonary artery and moderate right pleural effusion. Impression was made of that of malignant etiology likely bronchogenic malignancy. The CT guided biopsy of the right hilar mass revealed septate fungal hyphae which appear as uniform, narrow and regularly septate with no evidence of lung cancer on histopathology. The pathological examination of the bronchial biopsy was also negative for malignant cells and the final pathological examination showed the presence of an aspergilloma.

Flow cytometric immunophenotyping for lymphocyte subset was done and it shows T lymphocytes, B lymphocytes and NK cells are within normal range of

age. Dihydrorhodamine 123 assay shows neutrophils in adequate and compatible with control. The diagnosis of aspergilloma was made ruling out the other possible

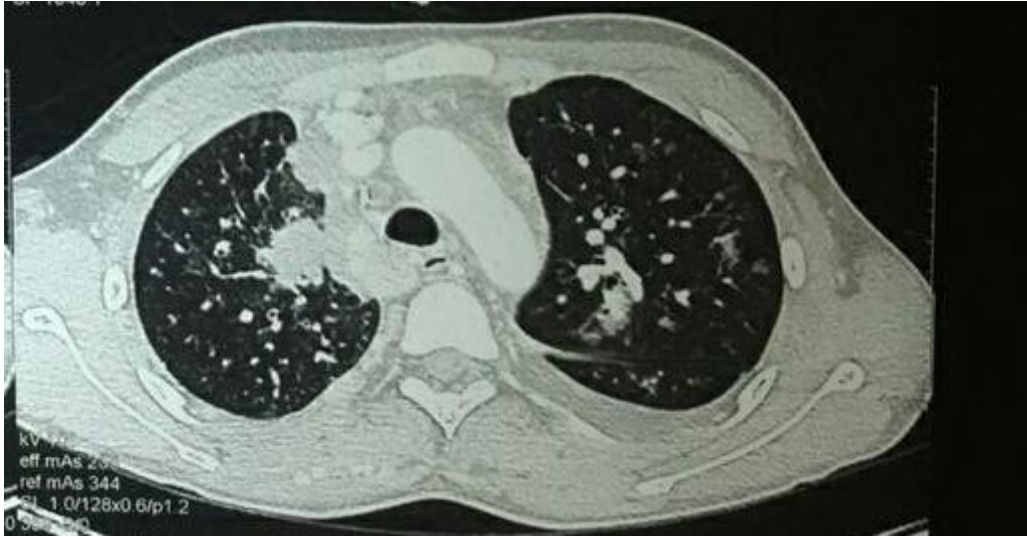
causes of mass in a young boy of 17 years old and patient was started on voriconazole.



CHEST X –RAY (Figure 1) shows lobulated right paratracheal and parahilar radio opaque shadows with

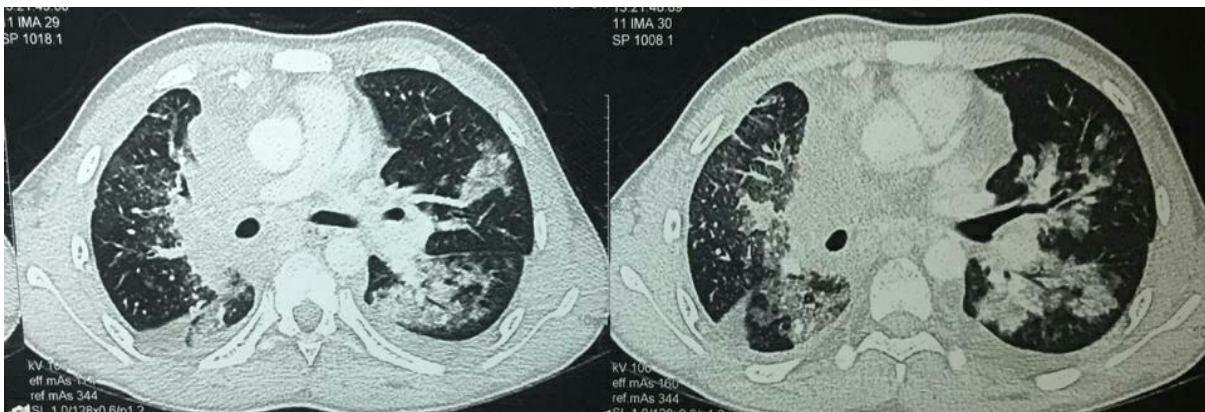
heterogeneous opacity in right middle and lower zone with right sided pleural effusion.

CECT CHEST(Figure 2) shows large ill defined mildly enhancing mass lesion involving right hilar and parahilar location.

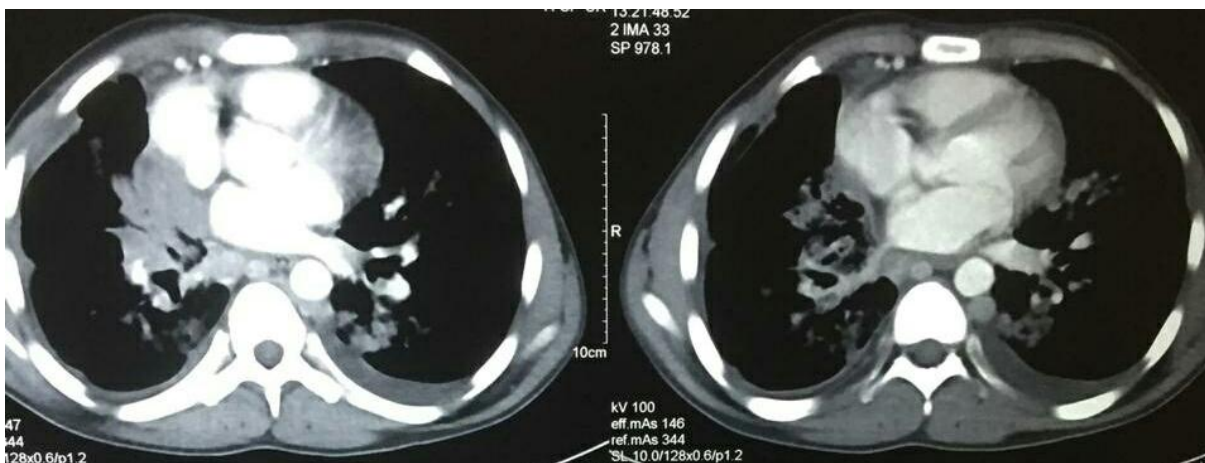


CECT (Figure 3) The mass causing abrupt cutt off of right pulmonary artery and non visualization of SVC with multiple collaterals in mediastinum. It completely encircles the right main bronchus and its branches, there

is mild right sided pleural effusion with smooth thickening of pleura. Interstitial thickening seen in right lung. Few random nodules are seen in bilateral lung with patchy area of consolidation is seen in right middle lobe.



CECT(Figure 4)Mass extending into the mediastinum and reaching up to carina.



DISCUSSION

A variety of fungal pulmonary infections can produce radiologic findings that mimic lung cancers. Distinguishing these infectious lesions from lung cancer remains challenging for radiologists and clinicians. Pulmonary aspergillosis refers to a clinical spectrum of lung diseases caused by species of the *Aspergillus* genus (usually *A. fumigatus*), a ubiquitous genus of soil fungi. The manifestations of pulmonary aspergillosis are determined by the number and virulence of organisms and the patient's immune response. The spectrum can be subdivided into five categories: saprophytic aspergillosis (aspergilloma), hypersensitivity reaction (allergic bronchopulmonary aspergillosis), semiinvasive (chronic necrotising) aspergillosis, airway-invasive aspergillosis and angioinvasive aspergillosis.^[4,5] Aspergilloma is the most common pulmonary manifestation of aspergillosis that mimics neoplasia. It is characterised by *Aspergillus* colonisation without tissue invasion. The fungus colonises an existing pulmonary cavity, bulla or ectatic bronchus, forming a mass of intertwined fungal hyphae admixed with mucus and cellular debris. The most common underlying causes of the infection are tuberculosis and sarcoidosis.^[6,7]

The present case presented as a large ill defined mass at hilar and parahilar region with compression of superior vena cava leading to puffiness of face. This advanced phase of the fungal disease might have been resulted by mismanagement of proper diagnosis non awareness of aspergilloma masquerading as lung cancer. Chest CT in our case revealed an ill defined mass causing abrupt cut off of right pulmonary artery and non visualization of SVC with multiple collaterals in mediastinum, A typical radiological finding of an aspergilloma is a solid, round or oval mass with soft-tissue opacity within a lung cavity, manifesting an "air crescent sign" without significant enhancement.^[8,9] In our case, it was difficult to distinguish the mass because there was no air crescent sign as usually seen in most of the aspergillomas. It was difficult to make an accurate diagnosis of aspergilloma by imaging findings alone. After ruling out other common differentials, the final diagnosis was made only by getting CT guided biopsy which revealed septate fungal hyphae confirming the diagnosis of aspergilloma.

So, an ill defined mass in the hilar and parahilar region with compression on mediastinal structures, may not always be malignant. A rare pathology of fungal infection, as seen in the present case, should be kept in mind in the differential diagnosis.

CONCLUSION

Fungal infections, particularly in endemic areas, should be considered in the patient with a suspicious lesion negative for malignancy or failure to respond to treatment for a typical lung infection. This case is reported to highlight the importance to differentiate between fungal diseases and lung malignancies. With detailed physical examination and high clinical suspicion

and also to create the awareness regarding recognition of **fungal mass** without air crescent masquerading as lung cancer, a rare presentation, can be diagnosed at the early stage for proper management.

REFERENCES

1. Aberle DR, Adams AM, Berg CD et al. Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med.*, 2011; 365: 395–409.
2. Madhusudhan KS, Gamanagatti S, Seith A, Hari S. Pulmonary infections mimicking cancer: report of four cases. *Singapore Med J.*, 2007; 48: e327–31.
3. Rolston KV, Rodriguez S, Dholakia N, Whimbey E, Raad I. Pulmonary infections mimicking cancer: a retrospective, three-year review. *Support Care Cancer*, 1997; 5: 90–93.
4. Franquet T, Muller NL, Gimenez A, Guembe P, de la Torre J, Bague S. Spectrum of pulmonary aspergillosis: histologic, clinical, and radiologic findings. *RadioGraphics*, 2001; 21: 825–37.
5. Kenney HH, Agrons GA, Shin JS; Armed Forces Institute of Pathology. Best cases from the AFIP. Invasive pulmonary aspergillosis: radiologic and pathologic findings. *Radiographics*, 2002; 22: 1507–105.
6. McAdams HP, Rosado-de-Christenson ML, Templeton PA, Lesar M, Moran CA. Thoracic mycoses from opportunistic fungi: radiologic/pathologic correlation. *Radiographics*, 1995; 15: 271–86.
7. Gefter WB. The spectrum of pulmonary aspergillosis. *J Thorac Imaging*, 1992; 7: 56–74. W.B. Gefter
8. The spectrum of pulmonary aspergillosis *Journal of Thoracic Imaging*, 1992; 7: 56-74 CrossRefView Record in ScopusGoogle Scholar.
9. S.L. Aquino, S.T. Lee, M.L. Warnock, G. Gamsu Pulmonary aspergillosis: imaging findings with pathologic correlation *American Journal of Roentgenology*, 1994; 163: 811-815 CrossRefView Record in ScopusGoogle Scholar.