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Phantom Tumor of the Lung: A Forgotten Masquerader of Malignant Lung Mass

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ABSTRACT

Phantom tumor, an interlobar accumulation of transudative pleural fluid in patients with right heart failure presents as a dense mass like opacity on chest radiograph. Resembling a lung mass an unnecessary diagnostic work up is at times performed for suspected malignant pathology. we present a case of phantom tumor in an elderly female with heart failure who was subjected to contrast tomography in view of slight irregular margins of lung opacity ultimately turning out to be a phantom tumor. Adequate diuretic therapy should be instituted before any diagnostic or therapeutic workup is planned and follow-up radiograph taken within 24-48 hours for documenting resolution of effusion.

INTRODUCTION

Phantom tumour represents an interlobar accumulation of transudative pleural fluid usually seen in patients with right heart failure [1]. Resembling closely a lung mass some-times an unnecessary diagnostic workup is performed for suspected malignant pathology. The condition shows rapid radiological resolution once the patient receives adequate diuresis [1,2]. Phantom tumour should be considered and ruled out in any patient with volume overload state especially right heart failure who presents with interlobar dense opacity on chest radiograph [3,4]. Since the condition is rapidly responsive to diuretic treatment unnecessary workup for alternative diagnosis especially lung carcinoma can be easily avoided [4-7].

CASE PRESENTATION

A 75-year-old female presented to our emergency department with complaints of shortness of breath and swelling of feet of one-week duration. She had hypertension, chronic obstructive pulmonary disease and 20 pack year smoking history as her co morbidities. Her medication history included Ramipril 5mg once a day, dapagliflozin 10 mg, long acting bronchodilators. Her past medical history was significant for having hospital admission for acute heart failure 1 year back. 2D echocardiography that time revealed heart failure with preserved ejection fracture with grade II diastolic dysfunction. Currently clinical examination was remarkable for jugular venous distension, bilateral symmetric pedal edema and markedly reduced breath sounds in infra scapular and infraxillary areas on right side of chest. Radiograph of chest revealed a dense opacity with slightly ill circumscribed borders in right lower zone of lung with absence of air bronchogram sign consistent with a lung mass (Figure 1). Laboratory parameters revealed mild normocytic normochromic anaemia with normal liver and kidney functions. Urine examination was unremarkable for any proteinuria. Having significant smoking history and slightly ill defined opacity on radiograph she was subjected to contrast tomography which revealed hypodense area of 6 cm X 6.4 cm in relation to right oblique fissure with no contrast enhancement on delayed images suggestive of a loculated interlobar fluid called phantom tumor (Figure 2). She received diuretics as a part of her heart failure treatment and follow up radiographs after 24 & 48 hour respectively revealed marked resolution of effusion (Figure 3) consistent with vanishing or phantom tumor of lung.

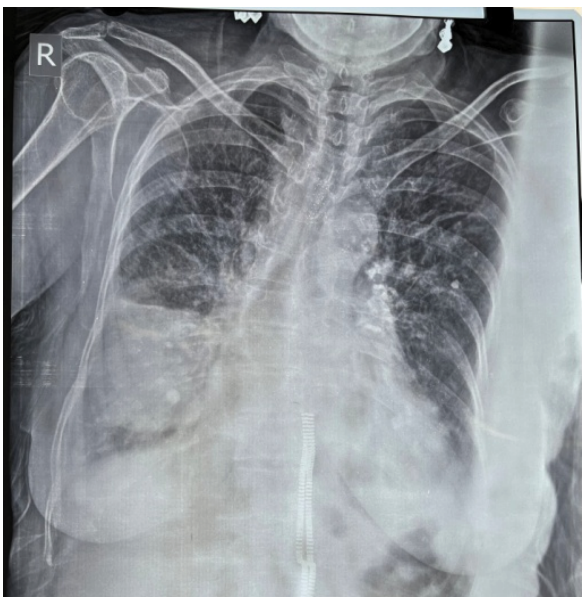

Figure 1: Chest radiograph showing dense opacity in right lower zone.

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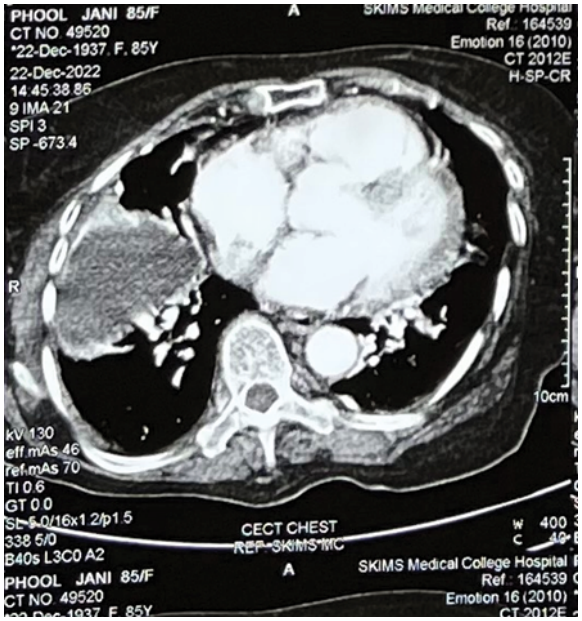

Figure 2: CT image depicting phantom tumour of right lung.

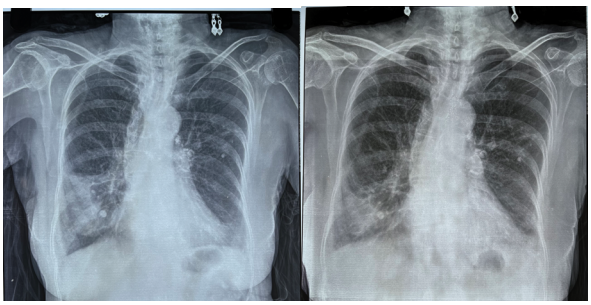

Figure 3: Radiographs taken at 24 & 48 hours respectively showing marked resolution of effusion.

DISCUSSION

Phantom tumor represents an interlobar collection of transudative pleural fluid usually seen in patients with right heart failure [1]. The exact incidence of this vanishing tumor is difficult to estimate because of few case reports published in literature [2]. The first case was reported by Stewart in year 1928 and he named this entity as "Interlober Hydrothorax" [8]. It is usually seen on right side of the chest with male preponderance [3,4]. In majority of the cases it is present within the transverse fissure followed by oblique fissure and less frequently in both fissures. Very rarely it can be seen near to mediastinum [4]. It is basically a spectated pleural effusion with few proposed pathogenetic mechanisms. The first proposed mechanism is increased lung elastic recoil with underlying atelectasis leading to production of retraction force causing accumulation of fluid within the interlobar fissure (suction cup effect) [3-5]. Another proposed mechanism is that due to repeated pleural inflammation adhesions and obliteration of pleural space occurs around the fissure edges [4,7,8]. Both these mechanisms lead to the accumulation of fluid within the fissures in patients with volume overload state especially right heart failure. The entity presents as a well defined opacity on the chest radiograph mimicking a lung tumor leading to unnecessary diagnostic workup for malignant pathology especially in high risk patients when borders are slightly ill defined like in our reference case [9,10] In reality it is a benign and reassuring condition which has been named as phantom tumor, pseudo tumour or vanishing tumour of the lung. Treatment relies on adequate diuresis and the condition shows marked radiographic resolution within 24-48 hours [6,9,10].

CONCLUSION

In conclusion patients admitted with volume overload states especially right heart failure having a dense opacity on chest radiograph should remind the physician of a phantom tumour because early diagnosis of this condition is crucial to avoid unnecessary diagnostic and invasive workup for a malignant pathology. Adequate diuretic therapy should be instituted before any diagnostic or therapeutic workup is planned and follow-up radiograph taken within 24-48 hours to ensure resolution of effusion.

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Conflicts of interest:

There are no conflicts of interest.

Ethical Consideration:

Nill

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