

# Tumor Appearance of the Lung in Heart Failure Patients

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## Abstract

Localized interlobular effusion, vanishing lung tumor or phantom tumor is a rare but well-known entity in heart failure patients. The loop diuretic which results in the reduction of the fluid burden, is completely disappear. Considering the diagnosis of phantom tumor prevents unnecessary, expensive and possibly harmful diagnostic and treatment errors.

**Keywords:** Phantom tumor; Vanishing lung tumor

## Introduction

Phantom or vanishing tumor is localized interlobular transudative fluid accumulation between the pleural laminas. This name was given because of the appearance of a pulmonary tumor-like mass on the X-ray and the complete disappearance after the diuretic treatment. It is a rare but well known entity [1-8]. It is difficult to determine the incidence due to low number of reported cases. It was first reported by Stewart in 1928 as "interlobar hydrothorax" [9].

Phantom tumors are often seen in the elderly men's right hemithorax with right transverse fissure in three-quarters of the reported cases and less frequent oblique fissure. Both fissures were observed in about one-fifth of cases [10,11].

More frequent occurrence of the phantom tumor on the right side of the lung can be explained by the greater hydrostatic pressure on the right side compared to the left side in congestive heart failure [12].

Phantom tumors appear when the pulmonary vascular hydrostatic pressure exceeds pleural lymphatic pressure. It results in impaired venous and lymphatic drainage and fluid localization [12-14].

Heart failure patients who have a history of pulmonary infection are more likely to develop phantom tumors during acute heart failure episodes [15,16]. Adhesive pleuritis was frequently detected in postmortem examinations in patients [17,18]. In the pathogenesis, adhesions and obliteration play a key role in the pleural space due to the pleuritis. During heart failure episodes, phantom tumors may recur in the same area of the lung.

## Diagnosis

In anteroposterior chest X-ray, lesions often appear sharp-edged, oval or biconvex lens-like opacity with edges that link with the interlobar fissure [19-21]. The radiological appearance may vary depending on the volume of the fluid that accumulates and where it is present.

Lateral chest X-ray helps to localize the lesion better and the phantom tumor is seen to extend along the fissure.

Computed tomography images are similar to chest X-ray. Computed tomography is not usually necessary as long as the diagnosis is not suspected and the lesion can be removed with diuretic therapy. These opacities are extended throughout the the fissure and have tapering ends.

Pulmonary ultrasound may help diagnosis, but rarely used.

Rapid disappearance of the pseudo tumor after diuretic therapy supports the diagnosis.

## Etiology

The content of the liquid is useful in differential diagnosis. Phantom tumor contains the transudative fluid. Transudative pleural fluid is detected in heart failure, renal failure, hypoalbuminemia.

Epidemiologically; the demographics reflect those of patients who are prone to pleural effusions. A typical group is congestive cardiac failure patients.

Exudative pleural fluid is detected pneumonia, malignancy, asbestosis, connective tissue diseases, tuberculosis, hemotorax, chylothorax and fibrous tumors originating from visceral pleura [11].

Despite being from different disease groups; emphysema, cyst and arteriovenous aneurysm may be confused with similar radiological appearance.

## Treatment

After intravenous diuretic therapy, resolution is observed in radiological findings less than 24 h [22].

## Conclusion

Phantom tumors should be considered in all patients presenting with congestive heart failure findings and having a lung mass appearance on chest X-ray. Considering the diagnosis of phantom tumor prevents unnecessary, expensive, and possibly harmful diagnostic and treatment errors [16,23].

It should be remembered that, not only treatment of phantom tumors but also ischemic or nonischemic heart diseases that may cause phantom tumors should be investigated. For example, phantom tumors may develop from heart failure due to a previous heart attack [24].

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