

*Prikaz slučaja/
Case Report*

FANTOM TUMOR PREKRIVEN VELIKIM
PLEURALNIM IZLIVOM – *Prikaz slučaja*

PLEURAL EFFUSION MIMICKING
VANISHING PHANTOM TUMOR OF THE
LUNG – *Case report*

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Abstract

The term phantom tumor describes a well-demarcated opacity resulted from pleural effusion. Phantom tumors are commonly associated with congestive heart failure causing transudative pleural effusion within pulmonary fissures.

We report a heavy smoker patient with pleural effusion in the right lung resolved with pleural puncture and medical management.

This case report emphasise that radiological appearance of the phantom tumor is variable, depending on the volume of septated liquid and its location.

INTRODUCTION:

Phantom or vanishing tumor stands for a localized transudative interlobar pleural fluid collection in congestive heart failure. Pseudotumors commonly manifest as incidental radiographic findings in patients with disorders associated with pleural effusions, especially with congestive heart failure. The name originates from its frequent resemblance to a tumor on the chest X-ray and from its tendency to vanish after appropriate management of heart failure [1].

A pseudotumor may serve as a marker of left heart failure, or another disorder associated with transudative pleural effusions. A correctly diagnosed pseudotumor is typically an incidental finding that has minimal impact on patient management; however, pseudotumors may be erroneously diagnosed as parenchymal lung nodules or masses [2]. Also, the term pulmonary pseudotumour will be used to signify focal collections of pleural fluid, although the term is clearly not a very useful one, and care should be taken when using it.

Other entities which have been described with the term pseudotumours include: round atelectasis, pulmonary inflammatory pseudotumour, epicardial fat pad, fat within pleural fissures, mucoid impaction (e.g. finger in glove sign) or calcifying fibrous pseudotumour (CFPT) of lung [3].

We report a case of a massive pleural effusion mimicking congestive heart failure on a frontal chest radiograph.

Case report: A 65-year-old man was admitted to the Emergency Department complaining dyspnea, orthopnea and paroxysmal nocturnal dyspnea. He had shortness of breath which increased in the last two weeks. On review of symptoms, he denied cough and chest pain, but in last two days he had high temperature up to 38°C. His medical history was significant for left ventricular failure with an ejection fraction of 30%-35% measured by echocardiography. He underwent a bypass surgery 7 years ago, using acetylsalicylic acid, ASA, ramipril, furosemide, spironolactone. He was a lifelong smoker, using tiotropium bromide, fixed com-

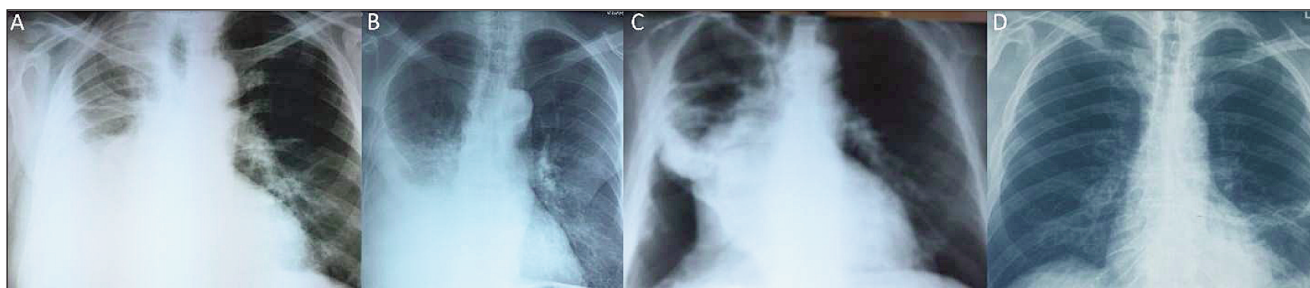


Figure 1. PA chest X-rays show at admission showing a massive pleural effusion, enlarged cardiac silhouette and inflammatory changes in upper parts of right lung (A); reduction of pleural effusion (B); round SHARP shadows in incisura (C); complete radiological resolution after six days of treatment for congestive heart failure (D)

bination of inhaler corticosteroid/beta agonist and short acting beta agonist on demands.

On physical examination, his temperature was 37,5°C degree and he appeared well. The chest examination was remarkable for dull auscultatory sound at the right side. The remainder of the physical examination was unremarkable. The blood pressure was 110/70mmHg and heart rate was 85 beats/min. The peripheral blood leukocyte count was 23000 x 10⁹/L, with neutrophils 89%. C reactive protein was 276ng/l, while other biochemical and hemathological parameters were in normal range. The posteroanterior chest radiogram showed pleural effusion on right side and inflammatory changes on rest right lung apically [Figure 1A]. He was admitted to the hospital and receive two antibiotics (ciprofloxacin and ceftriaxone) and his chronic cardiac therapy. We performed pleural puncture and its analysis showed that pleural effusion is transudative etiology. We got 2 liters of serous fluid. After 3 days, we made control chest radiogram and laboratory findings [Figure 2B]. Chest radiogram showed significant improvement in lung parenchyma as well as reduction of pleural effusion. Laboratory finding were: leucocytes 12,7x10⁹/L, neutrophils 80% and C reactive protein was 123ng/l. The patient was feeling better. We have done echocardiography which showed enlargement in left heart chamber, systolic dysfunction, ejection fraction 25%, moderate mitral and aortic regurgitation, pulmonary artery pressure (42mmHg). The patient introduced intensive IV loop diuretic therapy. Forty-eight hours later, a significant decrease in the pleural effusion was observed [Figure 3C]. We continued with intensive IV loop diuretics. The effusion was observed to have disappeared completely after 6 days diuretics therapy [Figure 4D].

Discussion: Our patient's initial radiograph showed pleural effusion that had collected in right side of hemithorax due to episodes of pneumonia, as we hypothesis at first. Effusions into the pleural cavity are frequent in pneumonia but they may appear on radiographs during recurrent episodes of heart failure [4]. Transudative fluid accumulation in the renal failure and hypoalbuminemia can also be monitored as pleural effusion by transudation from the pulmonary vasculature. Exudative fluid accumulation is seen in pneumonia, tuberculosis, malignancies and asbestosis [5]. To decide whether something is transudate or exudate, pleural needle puncture is necessary and analysis of its effusion. In our case we showed transudative form, so we performed echocardiography to estimate heart failure.

Phantom tumors are commonly found within the transverse fissure, less frequently within the oblique fissure, and occasionally within both [6]. Usual finding of a sharply demarcated density (usually in the right middle lung field, due to interlobar effusion) may be a malignant tumor of the lung [4, 5]. Awareness of this form of pleural effusion is important in the differential diagnosis of a pulmonary mass on radiography. Adhesions caused by previous pleuritis in the pleural space may take a role in the pathogenesis [7].

A key role in their pathogenesis, as assumed, is related to adhesions and obliteration of the pleural space around the edge of the fissure due to pleuritis. In such setting, phantom tumors arise whenever the transudation from the pulmonary vascular space exceeds restorative ability of the pleural lymphatics. However, this atypical intrafissural distribution of pleural effusions can also be explained by local increase in elastic recoil by adjacent, partially atelectatic lung that yields a "suction cup" effect and favors loculation of liquid even in the absence of pleural adhesions [7, 8].

Phantom tumor can be frequently observed on right side of the chest in males, with three-quarters of the reported cases within the right transverse fissure and less frequently within the oblique fissure. Simultaneous occurrences in both fissures were reported in about one-fifth of cases while in the left hemithorax were described only sporadically [9]. The right-sided predilection of phantom tumor is best explained by the greater hydrostatic pressure existing on this side in comparison with left in congestive heart failure which results in impaired venous and lymphatic drainage causing loculation of fluid [1, 10]. However, in the presented case, atypical intrafissural distribution of pleural effusions can also be explained by local increase in elastic recoil by adjacent, partially atelectatic lung that yields a "suction cup" effect and favors loculation of liquid. The differential diagnosis of (loculated) pleural effusions within the fissure includes the following: transudates due to the left ventricular failure or renal failure, exudates (parapneumonic pleural effusions, malignant pleural effusions, and benign asbestos-related pleural effusions), and hemothorax, chylothorax, and fibrous tumors originating from the visceral pleura of the interlobar fissure [9].

The presented case experienced an acute exacerbation of congestive heart failure mimicking vanishing phantom tumor of the lung. Characteristic posteroanterior radiographic phantom lung tumor finding was discovered after pleural puncture. The diagnosis was confirmed by echocardiogra-

phy. The patient showed satisfactory improvement with the use of loop and potassium-sparing diuretics, angiotensin converting enzyme inhibitors, and beta-blockers, compensating the heart failure picture.

The diagnosis of phantom tumor was confirmed with the disappearance of the radiological image located at the right horizontal fissure after six days of treatment (Figure 1D); the patient was clinically compensated when discharged, with resolved pneumonia and was referred to outpatient follow-up.

This unusual case with massive pleural effusion emphasizes that having a right sided pleural effusion may be a sign of many diagnoses. It is not obligatory that phantom tumor

must be locular with sharp edges. The radiological appearance of the phantom tumor is variable, depending on the volume of septated liquid and its location. It is important that the early identification of this radiological finding could prevent unnecessary diagnostic procedures and therapeutic errors, as the main differential diagnosis is pulmonary nodule and/or mass.

Sažetak

Termin fantom tumor može se koristiti za opisivanje dobro markiranog opaciteta koji može biti rezultat pleuralnog izliva. Fantom tumori su najčešće povezani za kongestivnom srčanom slabošću koja uzrokuje transudativni pleuralni izliv u incizuri pluća.

Ovaj rad prikazuje pacijenta sa pleuralnim izlivom u desnom plućnom krilu desno stranim, strastvenog pušača, obolelog od hroničnog obstruktivnog bronhitisa kod koga je brzo postavljena dijagnoza fantom tumora i nestanak pleuralnog izliva nakon 6 dana intenzivirane diuretske terapije.

Ovim radom naglašavamo da je radiološki prikaz fantom tumora varijabilan, i zavisi od zapremine tečnosti u višku, kao i njegove lokacije.

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