



Adenocarcinoma Lung Presenting as Pericardial Effusion

Dr. B Anirudh Kumar MD^{1*}, Dr Pruthvi Ghattu, DM², Dr Ashok Kumar Deshpande, MD³.

1. Interventional Pulmonologist Sleep Medicine Specialist, Ozone Hospitals, Kothapet, Hyderabad, Telangana, India.
2. Interventional Cardiologist, Ozone Hospitals, Kothapet, Hyderabad, Telangana, India
3. Pathology, Ozone Hospitals, Kothapet, Hyderabad, Telangana, India

Corresponding Author: Dr. B Anirudh Kumar MD, Interventional Pulmonologist Sleep Medicine Specialist, Ozone Hospitals, Kothapet, Hyderabad, Telangana, India.

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Abstract

Primary lung carcinoma is the third most common type of carcinoma following prostate and breast and the most common cancer associated with cancer deaths. Despite the general reduction in the lung cancer rates with declining smoking rates, the rate of lung cancer in non-smokers has been noted to be increasing. Lung cancers are the most common primary tumors that involve the pericardium with a prevalence of up to 50%.

Key words: Lung Carcinoma, Breast, Smoking, Tumours, Pericardium, Cancer.

Abbreviations:

ER: Emergency Room

ECG: Electro Cardio Gram

RVOT: Right ventricular outflow tract

AFB: Acid-fast bacilli

CXR: Chest X-ray

HRCT: High-resolution computed tomography

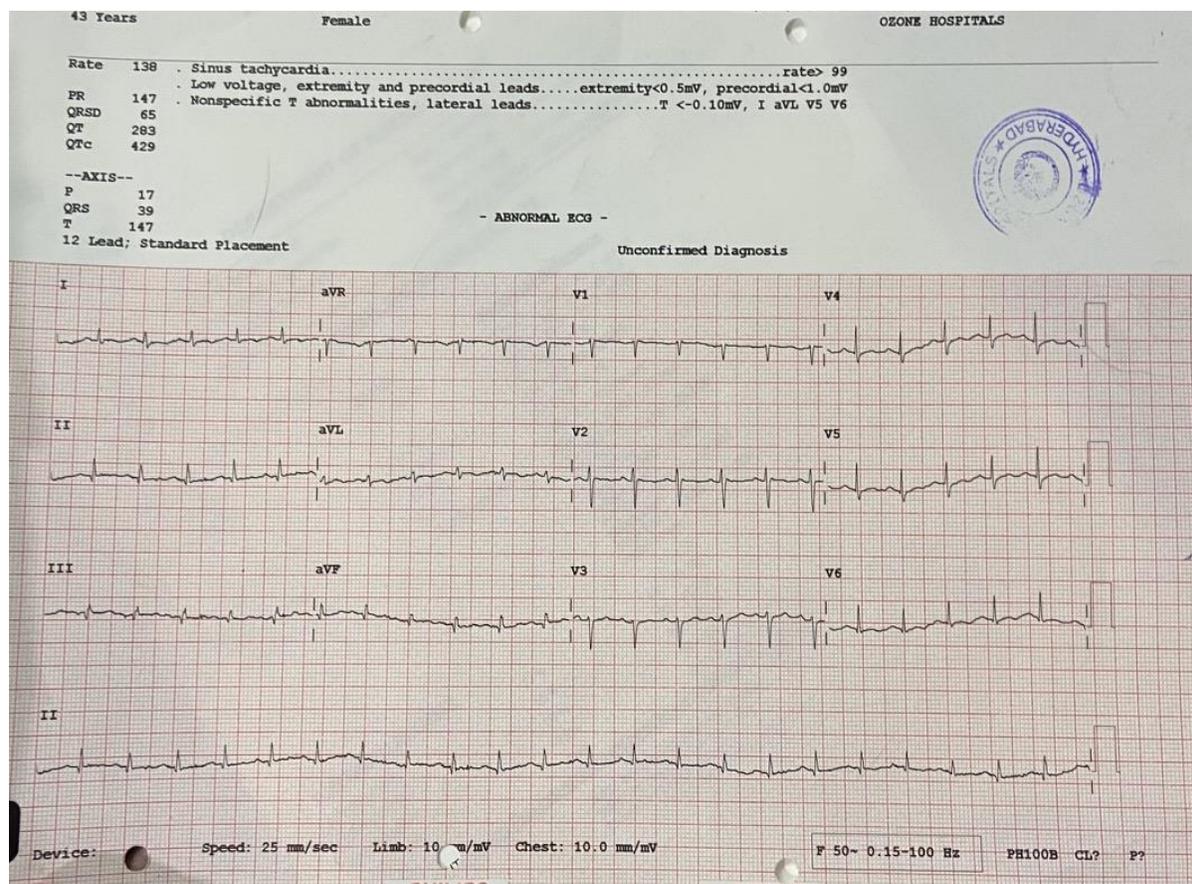
BAL: Bronchoalveolar lavage

Introduction

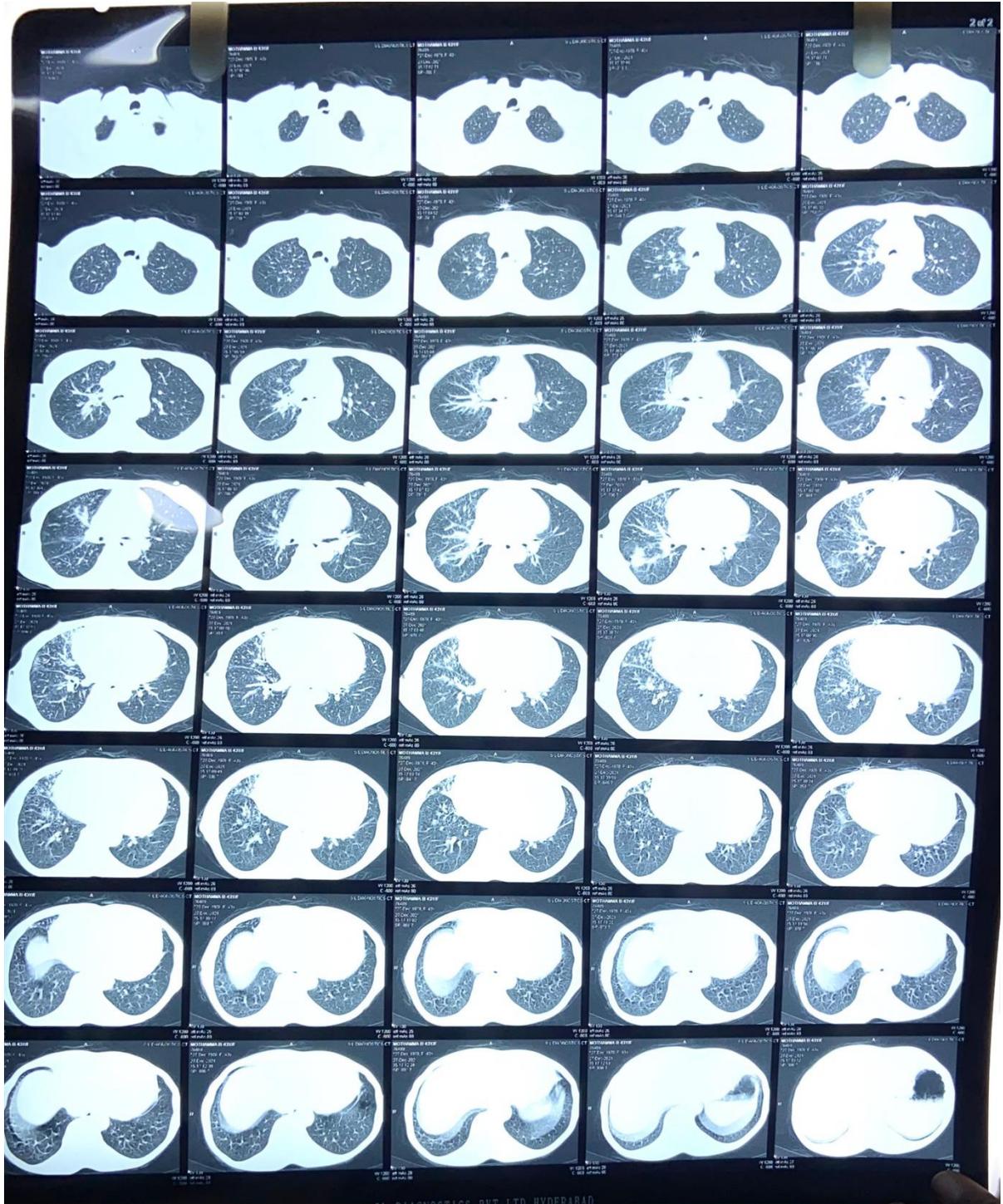
Pericardial effusion is the accumulation of fluid between the two layers of the heart that can result from inflammation of the pericardium after an illness or injury. Pericardial tamponade occurs when enough pericardial fluid accumulates so that the intrapericardial pressure exceeds filling pressures of the heart, generally the right ventricle. Malignancy is a common cause of large symptomatic pericardial effusions. Although rare, in some cases, pericardial effusion may be the first manifestation of the disease. Here we report one such case of primary lung carcinoma with its first clinical presentation being pericardial effusion and tamponade.

Case Report

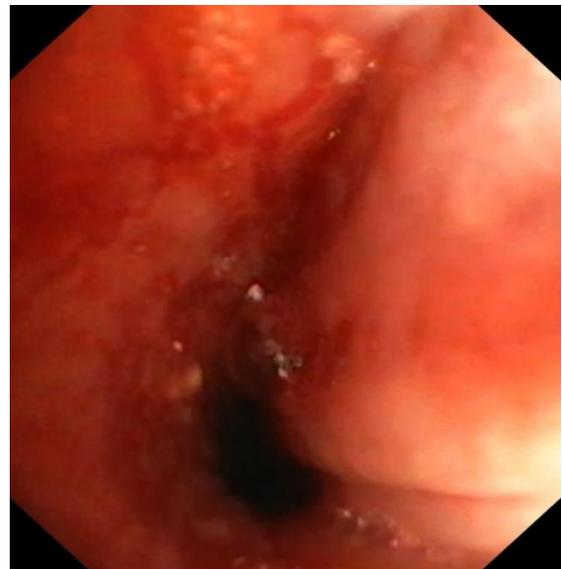
A 43-year-old female, non-smoker with no known comorbidities presented to the ER with a history of intermittent high-grade fever, dry cough that later progressed to being productive, shortness of breath aggravating in supine position and on exertion. These symptoms had been progressively worsening for one month. The patient had no previous history of any cardiorespiratory diseases. Bedside ECG revealed sinus tachycardia, low voltage QRS complexes and mild electrical alternans.



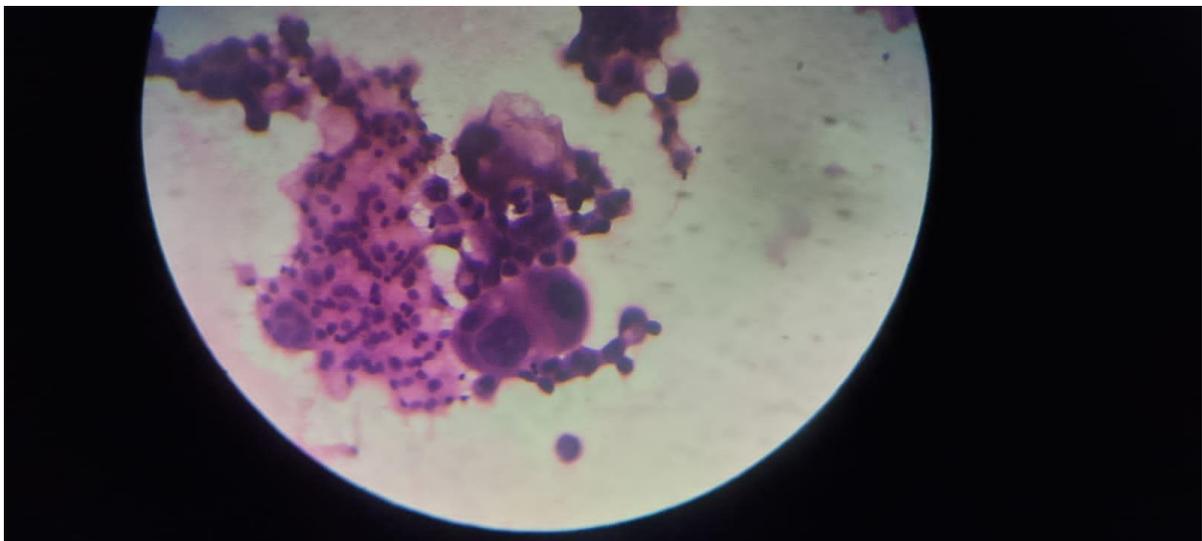
Massive Pericardial effusions were suspected based on the ECG. Patient was admitted in the cardiac intensive care unit for further evaluation and management. 2D Echo Doppler showed RVOT collapse during diastole, IVC 1.8cm Non collapsing. Pericardium - Moderate PE+ anteriorly:1.4cm, posteriorly:2.4cm, laterally:1.8cm, apically: 2.6cm. An emergent pericardiocentesis was pursued with the evidence of tamponade. 500 ml serous pericardial fluid was aspirated and samples were sent for cytology, culture & sensitivity, AFB and GeneXpert. CXR post pericardiocentesis revealed opacities in the right lung. HRCT showed well defined soft tissue dense solid mass lesion in the lateral segment of middle lobe with spiculated margins.



Bronchoscopy was recommended for further analysis.

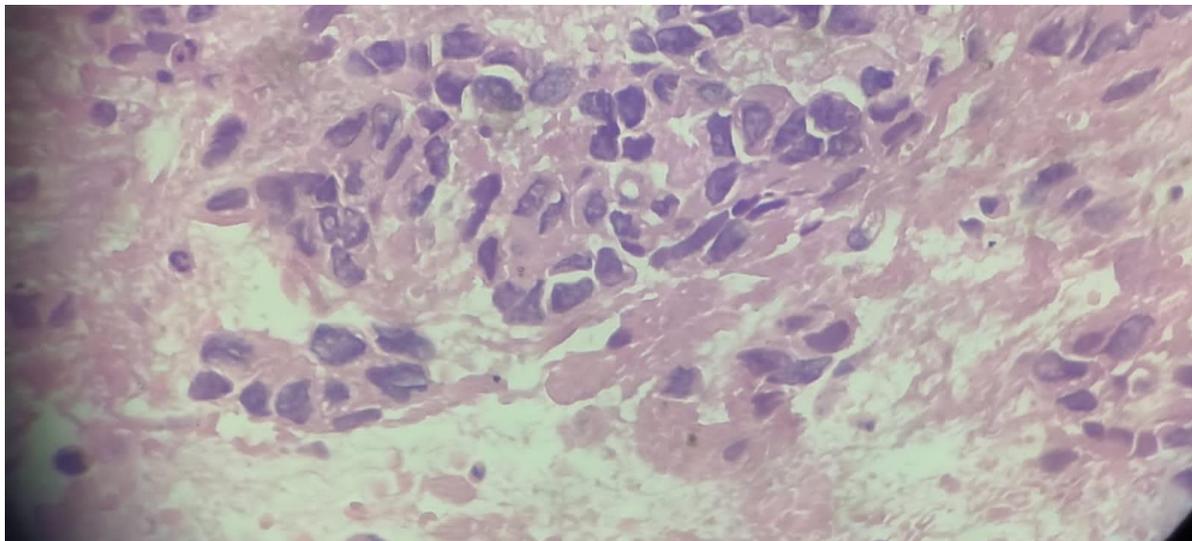


Bronchoscopy showed multiple nodules deposited on the lower end of trachea spreading into the right main bronchus and right intermediate bronchus. BAL and Biopsy were taken. While awaiting the results, an incessant or recurrent course of now serosanguineous pericardial fluid was aspirated on a daily basis for 4 days draining 100-150 ml each day. Cultures, AFB and GeneXpert from both pericardial fluid and BAL were negative for growth of microorganisms. Smears from pericardial fluid for cytology showed clusters and papillaroid fragments of epithelial cells with pleomorphism, hyperchromasia, prominent nucleoli and vacuolated cytoplasm – Malignant pericardial effusion.



H&E 40 x 10

Microscopic findings of the histopathological section acquired from the biopsy of the nodules in bronchus showed tumor tissue arranged in sheets, irregular glandular arrangement and discrete cells separated by fibro collagenous tissue. Individual cells show moderate pleomorphism, hyperchromasia, prominent nucleoli, cytoplasm is pale pink to vacuolated - Diagnosis- adenocarcinoma.



H&E 40 x 10

The patient was referred to oncology center for further treatment.

Discussion

Pericardial effusion may occur in any type of malignancy but the most common include lung malignancies, breast malignancies and Lymphomas¹. In rare instances, patients present with symptoms such as shortness of breath, chest pain, cough, or palpitations.¹ In extreme cases, arrhythmias may be the initial complaint/presentation which should warrant consideration of myo-epicardial/pericardial disease involving the conduction system. (1)

Physical examination findings like hypotension, distant heart sounds, and pulsus paradoxus can be present and are suggestive of cardiac tamponade, but may be absent in smaller effusions. Other nonspecific findings include cardiomegaly on chest radiograph, and electrical alternans or low amplitude complexes on an ECG. Echocardiography remains the initial imaging for diagnosis, showing the effusion with or without tamponade. Malignant pericardial effusion has a very poor prognosis especially in patients with a known history of cancer prior to presentation this is likely related to the extent of the disease. (2)

Conclusion

Pericardial effusion, evidenced by ECG, chest radiography, cardiac computed tomography, and echocardiography could be the pathognomonic sign of the malignancies, particularly lung carcinoma accompanying the progressively clinical deterioration.

References

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