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Case Report Open Access

A Case of PE Mimicking Community Acquired Pneumonia and Pulmonary Neoplasm

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Abstract

There are many mimickers to community acquired pneumonia and pulmonary embolism is one of them. It's important to acknowledge patients complaints and when facing non-resolving pneumonia an alternative diagnosis should be considered. Early diagnosis leads to early treatment which reduces the mortality of PE.

Keywords Community acquired pneumonia; Pulmonary embolism; Non-resolving pneumonia; Alternative diagnosis; Early diagnosis; Reduces the mortality of PE

Introduction

Community-acquired pneumonia (CAP) is one of the most common infectious diseases and is an important cause of mortality and morbidity worldwide. Typical bacterial pathogens that cause CAP include *Streptococcus pneumoniae, Haemophilus influenzae*, and *Moraxella catarrhalis*. The initial treatment of CAP is empiric, and macrolides or doxycycline (Vibramycin) should be used in most patients. The major conclusions of the study are that most patients will return to their pre-pneumonia baseline, with 97% of symptoms resolving within 10 days (mean 9.8 days, 95% CI 7.3–12.2 days). The CAP-sym measures 18 symptoms including coughing, chest pains, shortness of breath and fatigue. Most people with community-acquired pneumonia recover. However, pneumonia can be fatal, most often in infants and in older people. The death rate is higher in Legionella infections, possibly because people who develop the disease are less healthy even before they become sick. Early diagnosis leads to early treatment which reduces the mortality of PE. Here, we represent a case of non-resolving pneumonia for further investigations.

Case Report

Our patient is a 47-year-old Saudi female. She was referred to our tertiary care center as a case of non-resolving pneumonia for further investigations. The patient was in her usual state of health until four months prior to arrival to our hospital, when she started to have pleuritic chest pain; moderate-to-severe right lower chest pain which radiates to the back, progressive, pleuritic in nature, and associated with shortness of breath and cough. The cough was persistent and dry which became productive in the last month, with whitish sputum and she also noticed a brownish tinge in the last two weeks indicating hemoptysis. The patient denied any history of fever, weight loss, and contact with ill patients, or recent travel. No history of URTI symptoms. She has history of palpitations and was found to have two episodes of SVT documented by ECG. No history of rashes, joint pain, oral or genital ulcers. No history of recent travel, immobilization, or DVT. No history of trauma or surgery. The patient sought medical advice multiple times in which she was told she has a chest infection and was given multiple courses of antibiotics with no improvement. Report from the referring hospital mentioned that CT chest showed reduced right lung volume with ipsilateral mediastinal shift and patches of consolidation.

The patient is a known case of well controlled type 2 diabetes mellitus on oral hypoglycemic agents, iron deficiency anemia secondary to menorrhagia and hypothyroidism on levothyroxine. No history of surgeries.

Upon obtaining gynecological and obstetric history, it was found that the patient had three consecutive abortions, all were in the first trimesters which wasn't investigated. She used oral contraceptive pills for a few months and she stopped them around 4 years ago. The patient is a non-smoker and not an alcohol-consumer. She has no family history of hematological and connective tissue diseases. And no family history of malignancies.

On examination, patient was fully conscious, alert, and oriented to time, place, and person. She was not in pain or respiratory distress. Her vital signs showed temperature of 36.1, blood pressure of 153/73 mmHg, heart rate 117 bpm, respiratory rate 18 bpm, and SpO_2: 97% on room air. BMI was 25. Patient was slightly pale but not jaundiced or cyanosed. There were no oral ulcers. JVP was not raised. Trachea was centralized. Chest examination showed symmetrical chest expansion with a resonant percussion note all over. There was decreased breath sounds in right lower zone with decreased vocal fremitus. Breasts were symmetrical, with no nipple changes, and no palpable masses. Cardiovascular and abdominal examination were unremarkable. Lower limbs showed no swelling or erythema. There were no palpable lymph nodes, and no joints swelling or tenderness and no skin rash.

Her initial labs showed a normal white cell count 10.75×10^9/L, with a hemoglobin of 9.2 gm/dL owing to her IDA secondary to menorrhagia and a platelet count of 598×10^9/L, C-reactive protein level of 62 mg/l, a high sensitivity troponin level of 13.4 pg/ml, and BNP of 12.4.

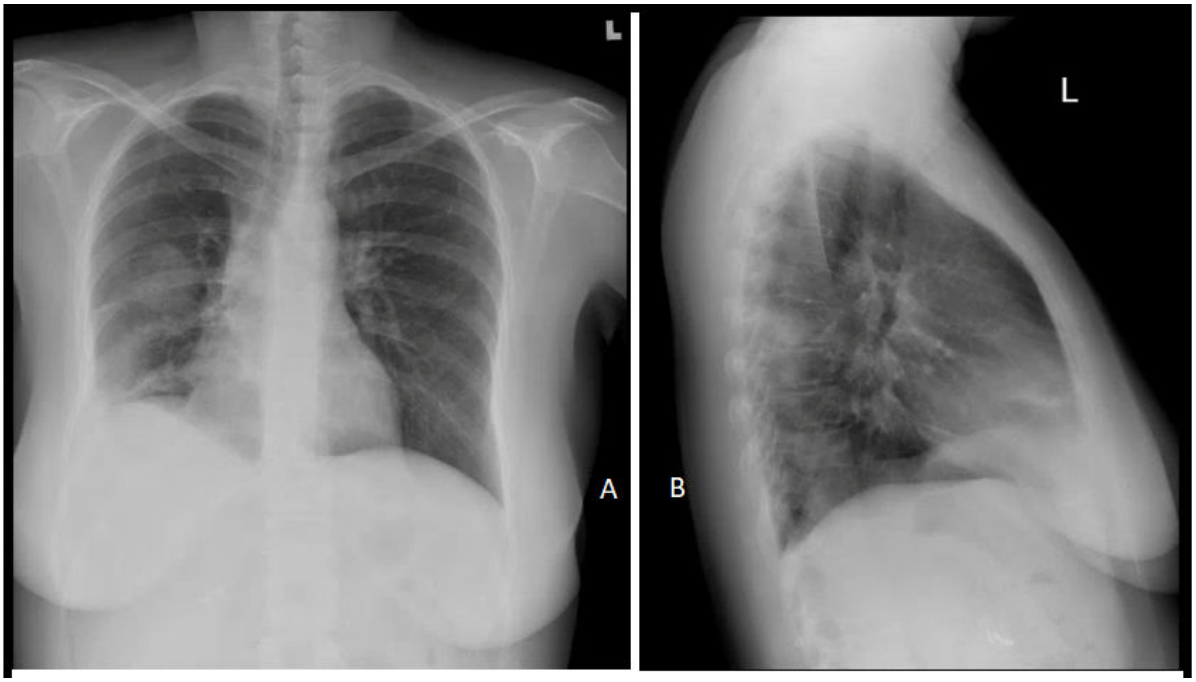

Figure 1: Chest x-ray, (A) Showed a rounded low density opacity projected over the right mid lung zone, (B) Identified posteriorly on the lateral view representing a right lower lobe apical segment consolidation/atelectasis.

Chest x-ray (Figure 1) showed a rounded low density opacity projected over the right mid lung zone (A), Identified posteriorly on the lateral view representing a right lower lobe apical segment consolidation/atelectasis (B). Additionally, a small ipsilateral pleural effusion with basal atelectasis.

Her well's pretest probability of PE is 2.5. 1 for hemoptysis which she developed in the last 2 weeks and 1.5 for heart rate > 100/m which gives her an "unlikely" probability of developing PE.

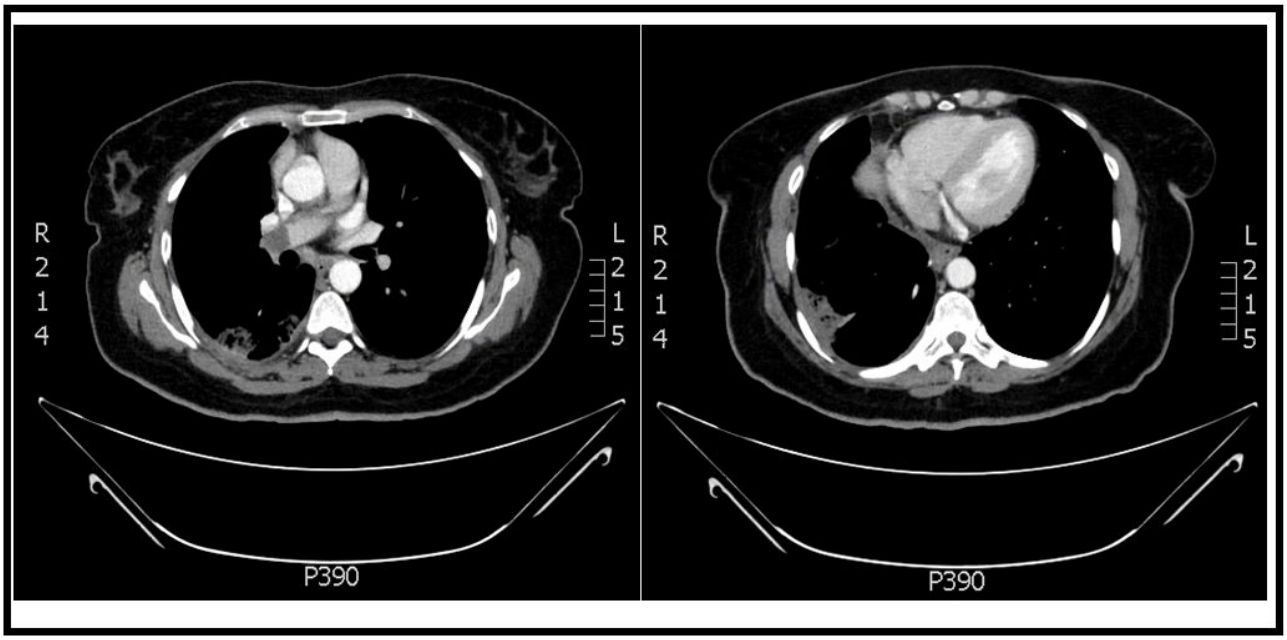

Figure 2: A large occlusive right pulmonary artery defect associated with RV/LV ratio of >1 indicative of right ventricular strain.

CT scan with contrast was done (Figure 2) which showed a large occlusive right pulmonary artery defect associated with RV/LV ratio of >1 indicative of right ventricular strain. Also, there was diffuse reduced right lung volume, mosaic attenuation and peripheral wedge shaped consolidation demonstrated, which suggests lung infarction.

Lower limbs Doppler US was negative for deep venous thrombosis. ECHO was normal. Other work up for possible risk factors of PE was unremarkable including the autoimmune profile (ANA, anti-cardiolipin and lupus anticoagulant) and proteins C and S. Pelvis US showed a uterine fibroid and a biopsy was taken which showed no evidence of malignancy. Patient was started on a therapeutic dose of enoxaparin and she was responding well with improvement of her symptoms with no complications. She was seen in the outpatient clinic two weeks after discharge with marked improvement of her symptoms.

Discussion

Pulmonary embolism is a condition that is faced commonly in clinical practice [1]. What makes the diagnosis challenging is that patients may present with non-specific symptoms or symptoms mimicking pneumonia, especially when there are no clear risk factors for a venous thromboembolism. Non resolving pneumonia is defined as "the presence of focal infiltrates associated with symptoms of acute pulmonary infection and lack of clinical improvement or lack of resolution of infiltrates within 12 weeks despite a minimum of 10 days of antibiotic therapy" [2] and in such situations other diagnoses mimicking community acquired pneumonia should be considered, one of which is pulmonary embolism [3,4]. The prevalence of confirmed PE in patients having diagnostic work-up due to suspicion of disease has been rather low. The diagnosis maybe be difficult to establish when the patient has a low well's score such as our patient. Patient with PE may have features overlapping with CAP such as fever, elevated C - reactive protein and lung infiltrates. And D-dimer maybe positive in both community acquired pneumonia and pulmonary embolism. Such conditions may hinder the diagnosis of PE which delays the management. Keeping in mind that early diagnosis of PE is fundamental to reduce mortality. Our patient is a middle-aged lady with no clear risk factor for venous thromboembolism, on further history taking she had previous history of 3 consecutive first trimester abortions which raises the possibility of anti-phospholipid syndrome as a provoking factor. She presented with respiratory symptoms and was seeking medical advice in multiple centers all of which diagnosed her with a chest infection and treated her with antibiotics which she didn't respond to. As she met the definition of non-resolving pneumonia we started searching for other causes. The chest computed tomography with contrast done at our center showed the pulmonary embolism. Her PE was chronic as evident by the chronicity of her symptoms and the presence of an area of infarction. So even though PE may mimic CAP full history taking and work up is necessary to avoid missing the diagnoses, delaying the treatment and avoiding serious complications. As it could be deadly in the acute phase or lead to chronic disease and disability [5,6].

Conclusion

There are many mimickers to community acquired pneumonia and pulmonary embolism is one of them. It's important to acknowledge patients complaints and when facing non-resolving pneumonia an alternative diagnosis should be considered. Early diagnosis leads to early treatment which reduces the mortality of PE.

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