

## Case Report

# Case of acute pulmonary embolism in post pneumonectomy-a rare clinical presentation and management

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### ABSTRACT

With a history of right pneumonectomy, pulmonary embolism affecting bilateral pulmonary artery is rare and needs to be meticulously managed to prevent pulmonary infarction of the normal lung with a clinical decision regarding thrombolysis. A 64 years male diabetic and hypertensive with a history of right pneumonectomy 10 years back, presented to ER with dyspnea and 2 episodes of syncope with right leg pain and swelling for 3 days. BP was 140/90mmHg and pulse rate of 100/min. SPO<sub>2</sub> in room air was 95%. ECG suggested S1Q3T3 with sinus tachycardia. Echocardiogram revealed features of pulmonary embolism. Venous doppler of right leg showed DVT and CT Pulmonary angiogram was suggestive of pulmonary embolism. High-sensitive troponin I and NT-pro BNP were negative. Diagnosis of submassive pulmonary embolism was made. Protecting the normal lung from infarction was of paramount importance. There was no indication for thrombolysis. Treatment with LMWH was initiated and overlapped with the novel oral anticoagulant (NOAC) dabigatran. Symptomatically patient improved along with a reduction in pulmonary arterial hypertension and improved RV function. Post pneumonectomy of one lung, protecting the normal lung from infarction is utmost important in a setting of pulmonary embolism. It is a rare case scenario. Clinical decision regarding thrombolysis should be taken carefully. In this case thrombolysis was not indicated as per guidelines. LMWH, oral anticoagulation and broad-spectrum antibiotic to prevent secondary lung infection are the mainstay in the treatment of submassive pulmonary embolism where thrombolysis is not indicated.

**Keywords:** Clinical decision, Oral anticoagulation, Pneumonectomy, Pulmonary Embolism, Pulmonary infarction, Thrombolysis

### INTRODUCTION

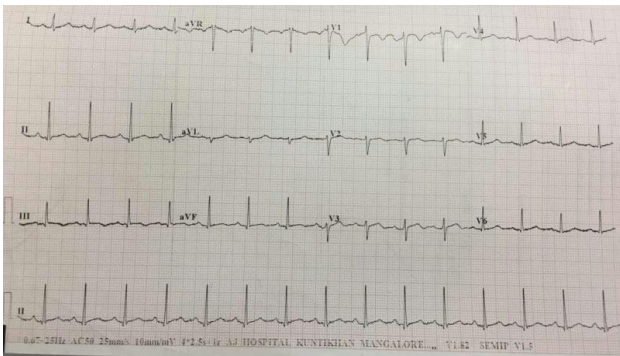
Pulmonary embolism (PE) post pneumonectomy within few hours to days is not uncommon but PE presentation in a post pneumonectomy patient of 10 years is rare. We present this rare case scenario trying to emphasize on the clinical decision regarding thrombolysis in a submassive PE.<sup>1,2</sup> In this case thrombolysis was not indicated as per guidelines.<sup>3</sup> The other most important thing regarding the management is initiating LMWH and dabigatran (NOAC) to prevent pulmonary infarction of the normal lung

considering our patient has undergone right pneumonectomy in the past.<sup>4-6</sup> The duration of anticoagulation forms an integral part in tackling pulmonary embolism.<sup>7</sup>

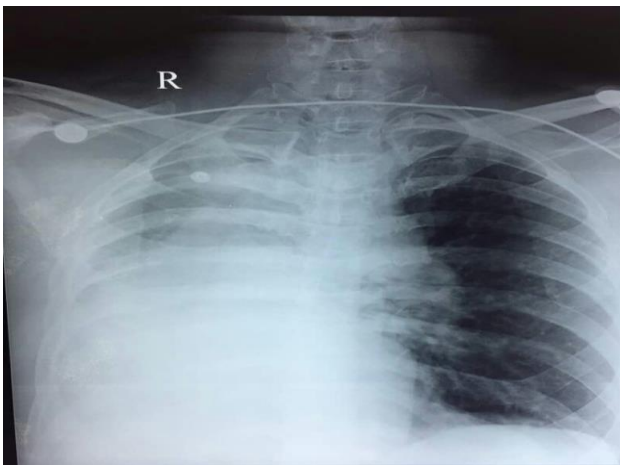
### CASE REPORT

64 years old male patient with a history of right pneumonectomy presented to the emergency room with complaints of dyspnea and 2 episodes of syncope. He also gave history of right lower limb pain and swelling

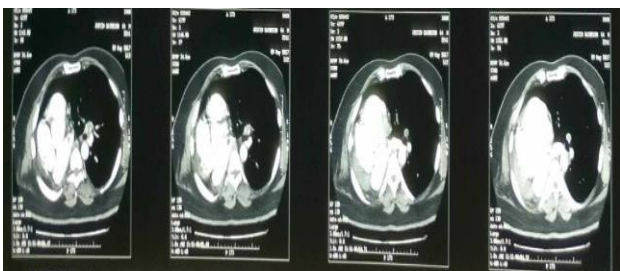
for 3-4 days. On examination, his BP was 140/90 and heart rate of 100/min. SPO<sub>2</sub> was 97% in room air and respiratory rate was 20/min. ECG suggested S1Q3T3 with sinus tachycardia (Figure 1). Chest X-ray showed right pneumonectomy with compensated hyperinflation of the left lung (Figure 2). Transthoracic echocardiogram revealed right atrium and right ventricle dilated, right ventricle dysfunction with moderate PH with good left ventricular function and no regional wall motion abnormality. Right lower limb venous doppler scan suggested deep vein thrombosis of the popliteal vein. CT pulmonary angiogram revealed thrombus in the right main pulmonary artery and partial thrombosis of left main pulmonary artery and segmental branches (Figure 3).



**Figure 1: ECG S<sub>1</sub>Q<sub>3</sub>T<sub>3</sub> with sinus tachycardia.**



**Figure 2: C-X-ray of right pneumonectomy.**



**Figure 3: CTPA of right and left pulmonary artery filling defect.**

A diagnosis of submassive pulmonary embolism was made. High - sensitive Troponin I and NT-pro BNP were negative. The important clinical decision was whether to thrombolysed or not? Patient was not thrombolysed as he was hemodynamically stable and there was no evidence of myocardial necrosis. This was an important clinical decision considering patient had undergone right pneumonectomy and we did not want to leave any stone unturned in safeguarding and protecting the normal left lung from pulmonary infarction. Immediate action was initiated with lower molecular weight heparin (LMWH) and dabigatran. Antibiotics were administered to prevent secondary lung infection. During hospital stay his clinical condition improved along with reduction in pulmonary hypertension and improved right ventricular function. Patient was discharged in a stable condition on dabigatran and vasodilators. He has been advised to continue dabigatran for minimum 6 months with regular OPD follow up.

## DISCUSSION

Patients undergoing surgical lung resection or with a history of lung resection are at a risk for morbidity or mortality from venous thromboembolism.<sup>8-11</sup> Typically they are smokers with some component of chronic obstructive pulmonary disease. Pulmonary embolism has been found to be a worthy cause of acute fatality after lung resection with 1.85% of patients in one study dying of acute cardiorespiratory failure, the majority because of pulmonary embolus.<sup>12</sup> Surgical resection reduces respiratory reserve and the ability to tolerate venous thromboembolism. Patients with pneumonectomy represent the highest risk category because their respiratory reserve is most compromised and their increased pulmonary artery pressures and decreased pulmonary vascular bed leave little margin to tolerate venous thromboembolism.<sup>13-15</sup> In this particular case, preventing a pulmonary infarction of the normal left lung, decreasing pulmonary artery pressures and improving right ventricle function was our main goal and was achieved with scientific clinical decision and meticulous management.

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