Case Report

A successful diagnosis of acute pulmonary embolism

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ABSTRACT

Diagnosis of pulmonary embolism (PE) remains a major clinical problem. If there is no obviously reason to define enlargement of right atrium and ventricle, PE should be suspected. In this report, we describe a successful diagnosis of acute pulmonary embolism in an elderly patient.

KEY WORDS: Pulmonary embolism (PE), Diagnosis, Dyspnea.

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INTRODUCTION

Pulmonary embolism (PE) is an uncommon but important cause of sudden onset breathlessness that needs to be diagnosed early to prevent a subsequent fatal embolus. Diagnosis of PE remains a major clinical problem.¹ An accurate diagnosis is warranted to prevent unnecessary mortality and morbidity. In this report, we describe a successful diagnosis of acute pulmonary embolism in an elderly patient.

CASE REPORT

An 82 year-old woman was admitted to our hospital because of sudden-onset dyspnea. Physical examination revealed that she was dyspneic and tachypneic (respiratory rate was 25/min). Her body temperature was 36°C, blood pressure was 100/64mmHg, and her heart rate was regular at 102 beats/min. On auscultation, she had coarse and prolonged breath sounds bilaterally. There was 2/6 systolic murmur on the tricuspid area.

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Chest X-ray showed pulmonary emphysema. Doppler echocardiography revealed enlargement of right atrium and ventricle, tricuspid regurgitation. Electrocardiogram showed sinus rhythm, inversion of T waves in leads V3.Artreial blood gas analysis revealed PH 7.48, PCO₂ 31mmHg, PO₂ 52mmHg, O₂SAT 89.0% (room air). The laboratory data on admission are shown in Table-I.

DIAGNOSIS

The patient was an old woman with chief complaints of shortness of breath, had no heart disease and pulmonary disease before. Compages of thorax is normal. She was diagnosed acute cor pulmonale because of doppler echocardiography. Ischemic heart disease, valvular disease,



Fig.1: a) Spiral computed tomography (CT) at level of the right main pulmonary artery, a large clot is seen as a filling defect (open arrow).

b) Another example of pulmonary emboli seen with Spiral CT. Emboli are seen as filling defects (arrows).

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Table-I: Laboratory data on admission.					
1.Peripheral blood					
WBC 7.7×109 / L	HGB 99g/L	HCT 34.4%	PLT 236×109 / L		
2.Blood Chemistry					
AST 31.6U/L	ALT 35.2U/L	GGT 38.0U/L	Urea 7.62 mmol/L		
Crea 39.5umol/L	GLU 5.77mmol/L	TG 2.09mmol/L	TC 3.68mmol/L		
HDLC 0.89mmol/L	VLDC 1.71mmol/L	LDLC 1.08mmol/L	K 3.26mmol/L		
NA 143.0 mmol/L	CL 106.3mmol/L	nCa 1.07mmol/L			
3.serum myocardial enzymogram and BNP					
CK-MB mass 2.20ng/ml	Myogiobin 81.40ng/ml	Tnl_ADV 0.032 ng/ml	BNP 2503.44pg/ml		
4. serum thyroid function					
Free-T3 2.26pmol/L	Free-T4 17.91pmol/L	hTSHII 1.821mIU/L			

and cardiomyopathy were excluded by echocardiography. Thyroid heart disease was excluded by serum thyroid function. Therefore she was suspected PE induced enlargement of right atrium and ventricle. The patient was immediately started on spiral computed tomography (CT) and plasma D-dimer measurement. Spiral computed tomography (CT) showed a large clot is seen as a filling defect at level of the right main pulmonary artery, (Fig.1). D-dimer was 4,000Ug/ml She was diagnosed pulmonary embolism (PE).

DISCUSSION

According to the literatures, the most frequent symptoms of PE are: dyspnea (80%), tachypnea (70%), pleuritic chest pain (52%), tachycardia (26%), cough (20%), syncope (19%), objective evidence of deep-vein thrombosis (15%), chest pain (12%), cyanosis (11%), hemoptysis (11%) and fever (7%).^{2,3}

Although the signs and symptoms of PE are nonspecific, there are some "classical" clinical signs, which raise the suspicion of PE. In 90% of cases, suspicion of PE is raised by clinical symptoms such as dyspnea, chest pain and hemoptysis, either singly or in combination. The patient who has isolated signs and symptoms should also be applied to suspect PE. In this report, the patient only had sudden-onset dyspnea without simultaneous symptoms such as chest pain, the doctor maybe considers other cardiac or lung disorders and neglects pulmonary embolism.

A meta-analysis found more than a two-fold increased risk of PE-related mortality in patients with echo cardio graphic signs of right ventricular dysfunction.⁴ Doppler echocardiography is useful to distinguish the reason of dyspnea. If doppler echocardiography showed enlargement of right atrium and ventricle with no obviously reason, we should suspect PE possible.

Circulatory collapse caused by massive PE presents as shock or syncope. It is sometimes

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accompanied by severe dyspnoea and chest pain and there may be signs of acute right heart failure. Acute breathlessness, often with tachycardia, may be the result of a submassive embolus. There may be chest pain, tachypnoea and cyanosis. Smaller emboli may cause pleuretic chest pain, with or without breathlessness and haemoptysis.

PE can now be detected with spiral CT. Spiral CT allowed accurate diagnosis of acute PE in patients with non-diagnostic V/Q lung scan and without DVT at ultrasound. Two systematic overviews on the performance of single detector spiral CT in suspected PE reported wide variations regarding both the sensitivity (53–100%) and specificity (73–100%) of CT.^{5,6}

CONCLUSIONS

Even though PE remains a difficult diagnostic challenge, more work needs to be done to confirm PE in distinct patients. If a patient had sudden-onset dyspnea with enlargement of right atrium and ventricle, PE should be suspected.

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