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Case Report

Unilateral cardiogenic pulmonary edema

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ABSTRACT

A 45-year-old man presented with fatigue for the previous two days. Because of severe hypoxemia and chest radiograph showing severe consolidation only in the right lung field, he was admitted to a near-by district hospital under the diagnosis of acute pneumonia. Since his respiratory condition rapidly deteriorated, he was transferred to our hospital. The diagnosis of unilateral cardiogenic pulmonary edema was made based upon the echocardiographic examination which showed severe mitral regurgitation secondary to chordal rupture of the posterior mitral valve leaflet (P_2). After successful intensive medical treatment with diuretics and extracorporeal membrane oxygenation, mitral valve repair was performed with quadrangular resection of the posterior mitral leaflet (P_2) and insertion of 28 mm Cosgrove ring.

It is important to recognize acute and severe mitral regurgitation as a main cause of unilateral cardiogenic pulmonary edema. Prompt differentiation from acute pneumonia is critical to save lives of the patients.

<**Learning objective:** Unilateral cardiogenic pulmonary edema is an unusual condition and may often be misdiagnosed as acute pneumonia, resulting in an increased risk of mortality. A correct differentiation from pneumonia is critical to save lives of the patients. It is important to recognize acute and severe mitral regurgitation as a main cause of this unusual condition.>

Introduction

Unilateral cardiogenic pulmonary edema is an unusual condition [1] and therefore may often be misdiagnosed initially as respiratory diseases such as pneumonia. Initiation of appropriate treatment may be delayed [2], resulting in an increased risk of mortality. Acute mitral regurgitation due to chordal rupture of the posterior mitral valve leaflet has been thought as a main cause of unilateral cardiogenic pulmonary edema [1]. Prompt differentiation from pneumonia is critical to save lives of the patients.

Case report

A 45-year-old man presented with fatigue and mild fever for two days. Because of severe hypoxemia and chest radiograph showing diffuse consolidation only in the right lung field, he was admitted to a near-by district hospital under the diagnosis of acute pneumonia (Fig. 1A). An electrocardiogram showed sinus tachycardia (130 beats/min) without any abnormal Q waves or ST-T changes. The blood test showed elevated white blood cells (16,730/μL), elevated C-reactive protein (17.5 mg/dL) but negative procalcitonin. He was intubated on the next day because of rapid deterioration in his condition with severe hypoxemia despite treatment with antibiotics and steroids. Since his respiratory condition further deteriorated, he was transferred to our hospital six days later. Upon arrival, he was in severe respiratory failure (pO_2 55 mmHg, pCO_2 50 mmHg, FiO_2 1.0). Repeat physical examination revealed apical 3/6 pansystolic murmur. The blood test again showed insignificant procalcitonin level (0.24 ng/mL). Plasma levels of B-type natriuretic peptide (330 pg/mL) and A-type natriuretic peptide (192 pg/mL) were both elevated. Blood cultures were all negative and sputum cultures also revealed no pathologic organisms. Chest radiograph showed severe consolidation in the entire right lung field and left upper lung field (Fig. 1B). Transthoracic echocardiogram showed frail posterior mitral leaflet with severe mitral regurgitation secondary to chordal rupture of the posterior mitral valve leaflet (P_2) (Fig. 2). The left atrium (LA)

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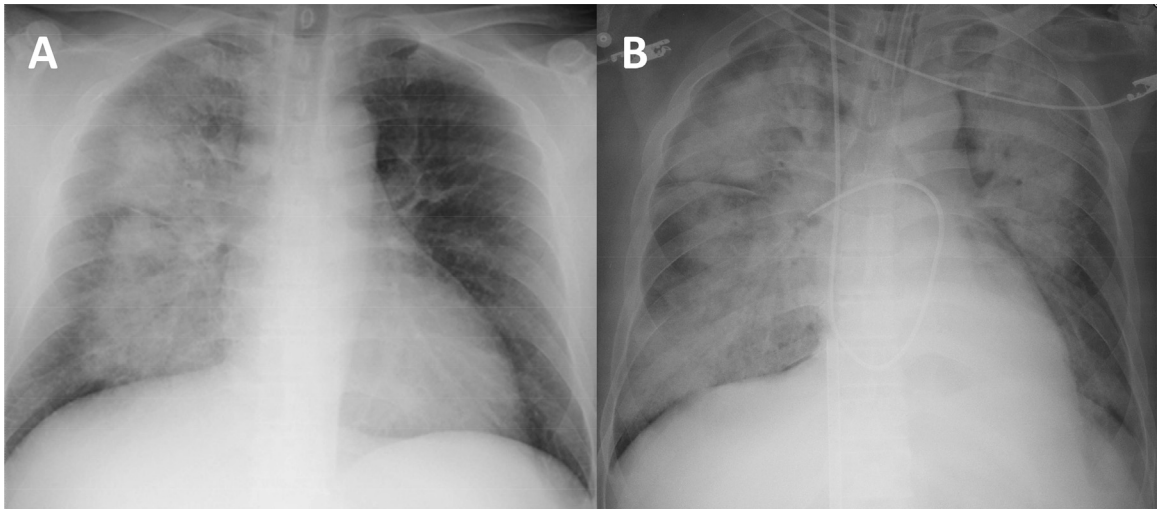

Fig. 1. (A) Chest radiograph on admission at the district hospital showing unilateral consolidation of the right lung field. (B) Chest radiograph at transfer six days later showing bilateral severe consolidation resembling "butterfly shadow".

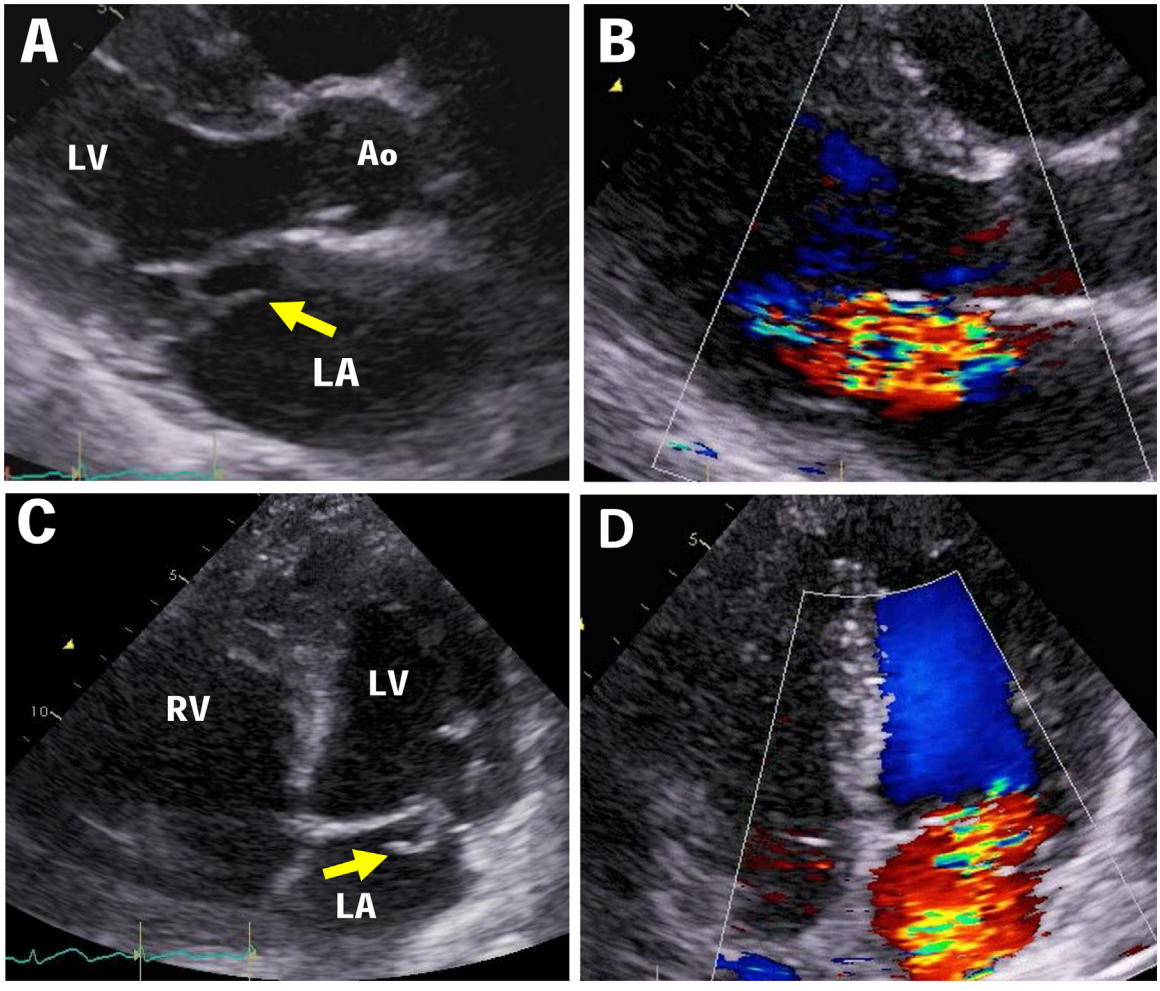

Fig. 2. Transthoracic echocardiograms in the long-axis view (upper panel) and apical four-chamber view (lower panel). Chordal rupture of the posterior mitral valve P_2 leaflet is shown (A,C: arrow). Severe mitral regurgitation was first directed anterolaterally and then to the right side of the LA (B,D).
Ao, aorta; LA, left atrium; LV, left ventricle; RV, right ventricle.

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