

Diffuse Alveolar Hemorrhage Due to Severe Aortic Valve Stenosis

Ciddi Aort Darlığına Bağlı Yaygın Alveolar Kanama

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ABSTRACT

Diffuse pulmonary hemorrhage is a rare condition of hemorrhage in the alveolar space as an end result of damage to the alveolar microcirculation. In the literature, although there are many cardiac and non-cardiac causes in the etiology, diffuse pulmonary hemorrhage due to aortic stenosis is absent. We describe a 37-year old male patient who another etiologic reason explaining diffuse alveolar hemorrhage was not found based on anamnesis, physical examination, imaging and laboratory tests other than severe aortic valve stenosis.

Key Words: Diffuse alveolar hemorrhage, severe aortic valve stenosis, pulmonary hemorrhage

Ö Z E T

Diffüz pulmoner kanama, alveolar mikrosirkülasyonda hasarın bir sonucu olarak alveoler alanda nadir görülen bir kanama halidir. Literatürde bu duruma neden olan bir çok kardiyak ve nonkardiyak sebepler mevcutken aort kapak darlığına bağlı yaygın alveolar hemoraji bulunmamaktadır. Difüz alveolar hemorajinin ciddi aort darlığı dışında anamnez, fizik muayene, görüntüleme ve laboratuvar testleri kullanılarak başka herhangi bir etyolojik neden ile açıklanamadığı 37 yaşında erkek hastaya ait bir vaka sunulmuştur.

Anahtar Kelimeler: Yaygın alveolar kanama, ciddi aort darlığı, pulmoner kanama

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INTRODUCTION

Diffuse pulmonary hemorrhage is a rare condition of hemorrhage in the alveolar space as an end result of damage to the alveolar microcirculation. Collection of red blood cells in the alveoli occurs as a consequence of alveolar-capillary basement membrane injury [1]. In the literature, although there are many cardiac and non-cardiac causes in the etiology, diffuse pulmonary hemorrhage due to aortic stenosis is absent.

Case 1

A 37-year-old male patient who had been followed for a while at another center because

of hemoptysis, was referred in our institution due to cardiac murmur for transthoracic echocardiography (TTE). The echocardiography revealed severe aortic valve stenosis, mild aortic, mitral and tricuspid valve regurgitation. Normal systolic pulmonary artery pressure was measured. To the patient who had normal size left-right ventricles and left-right atriums coronary angiography imaging was planned before aortic valve replacement (Figure 1). On coronary angiographic evaluation of the patient, the coronary arteries were normal. Thus, proposed to consult cardiovascular surgery for aortic valve replacement the patient was discharged. During or after coronary angiography procedure any antiaggregant or anticoagulant drugs were not administered.

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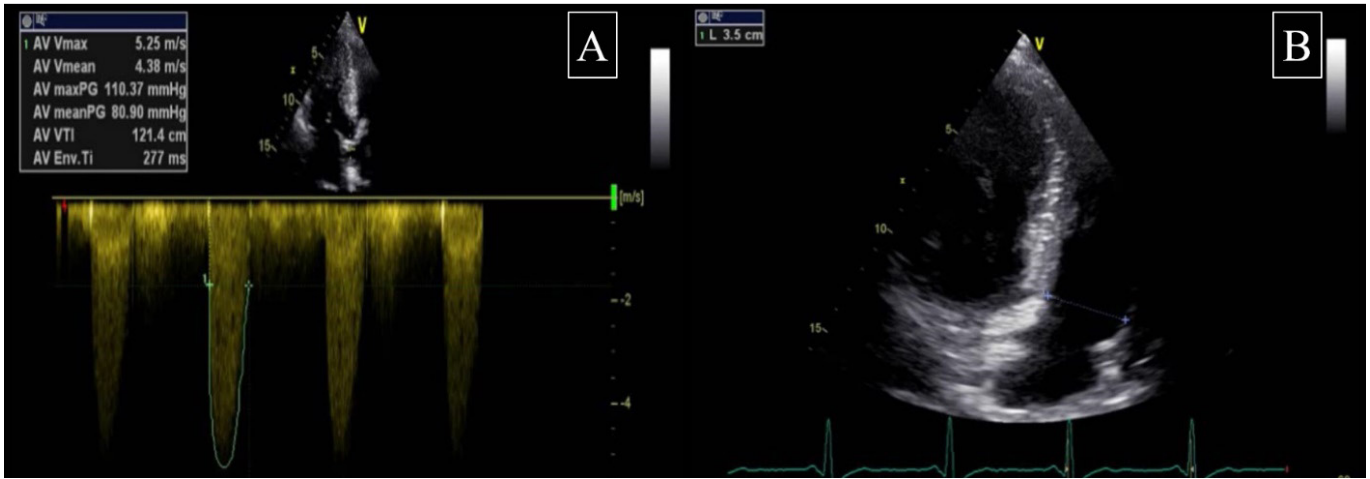


Figure 1. A. Aortic valve gradient on the echocardiography B. Right ventricular size on the echocardiography

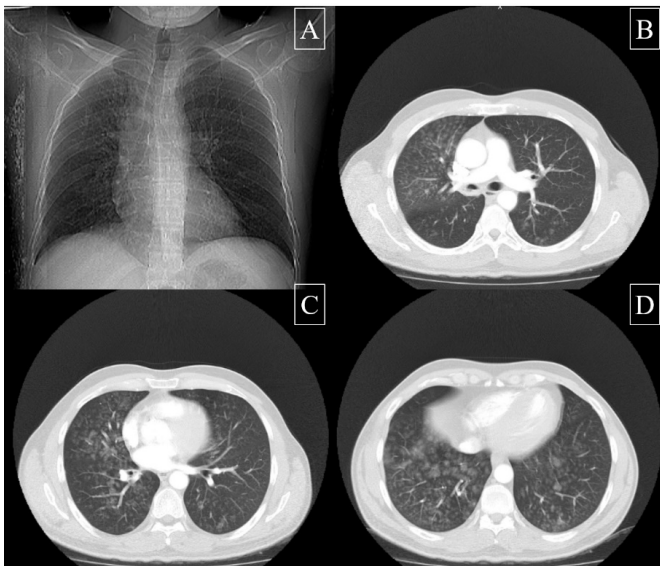


Figure 2. Direct radiograph and computed tomography images of the patient's lung

The patient came to emergency clinic in our hospital again with complaint of hemoptysis about 5 water glass beginning two hour later from discharge. He did not have chest pain but had dyspnea in as much as cough and hemoptysis. On physical examination, skin color was pale, there were inspiratory rales in the lungs and loud-S2 and 4/6 systolic ejection murmur on the aortic valve region. White blood cell count was 13000 and hemoglobin, platelet counts and another biochemical-coagulation parameter were normal. The patient who had diffuse alveolar hemorrhage imaging in all lung segments on computerized tomography (Figure 2) was consulted by chest disease specialist and was admitted to intensive care unit.

During intensive care unit follow-up pulse steroid, tranexamic acid, omeprazole and hydration therapy were administered to the patient. Another etiologic reason explaining diffuse alveolar hemorrhage was not found based on anamnesis, physical

examination, imaging and laboratory tests. On the third day following the patient whose hemoptysis stopped was transferred to cardiovascular surgery for aortic valve replacement. Successful aortic valve replacement was performed and patient was discharged in the second week after operation.

DISCUSSION

In cardiology, alveolar hemorrhage may be seen in mitral stenosis, antithrombotic drug use and in complications of invasive cardiac procedures [2-4]. Mitral stenosis often occurs as a result of mitral valve leaflet thickening and loss of its mobility. This limits the flow of blood from the left atrium to the left ventricle, and leads to increased pressure in the left atrium and pulmonary veins. A shunt forms between the pulmonary vein and bronchial vein and their rupture results in hemoptysis [5, 6]. Consequently, alveolar hemorrhage may occur as a result of pathologies which increase left ventricular end-diastolic pressure [7].

The case which we present has severe aortic valve stenosis with normal pulmonary artery pressure, and no etiological factors other than aortic valve stenosis to explain diffuse alveolar hemorrhage was identified in patient's history or with physical examination or laboratory investigations. In the literature there is not severe aortic stenosis with diffuse alveolar hemorrhage and additionally our case represents a rare type of diffuse alveolar hemorrhage since it demonstrated no system involvement other than pulmonary involvement. Diffuse alveolar hemorrhage, regardless of the etiology, is a clinical condition with high mortality and requires early diagnosis and treatment.

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