Massive hemoptysis in a pregnant woman: the first rare presentation of mitral valve stenosis

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Abstract

Massive hemoptysis is one of the rare manifestations of mitral valve stenosis. Massive hemoptysis is considered as a potentially life threatening that frequently needs emergency procedures. A 43-year-old pregnant woman presented with coughing and massive hemoptysis. She was diagnosed severe rheumatic mitral stenosis. The patient underwent percutaneous transluminal mitral valvuloplasty (PTMC). Before ICU admission and hospitalization, she was healthy, without any past medical history and complaints.

Introduction

Hemoptysis is a frequent manifestation in medicine and requires urgent approaches. The causes of hemoptysis are multiple and diverse. Massive hemoptysis is one of the medical emergencies with different etiology [1]. Bronchiectasis, tuberculosis and bronchogenic carcinoma are still demonstrated to be the most common causes of massive hemoptysis [2]. Massive lethal hemoptysis is a rare initial presentation of mitral valve stenosis. The most common cause of mitral valve stenosis is rheumatic disease [3,4].

Case Report

A 43-year-old gravida 3 para 2 pregnant woman with 25-week gestational age was referred to our hospital due to coughing and hemoptysis for 5 days. The patient was completely healthy before hemoptysis with no disease and past medical history. She did not have fever, chills, purulent sputum, lower extremity swelling, shortness of breath, chest pain and skin rash. She was no smoker and denied every illicit drug, opium and alcohol consumption. She was admitted to ICU because of massive pulmonary hemorrhage. Up on presentation she was no acute distress and was normal mental status. Vital signs on admission revealed a temperature of 98.4°F, heart rate of 88 per min, blood pressure of 144/80 mmHg, respiratory rate of 16/min while saturating 89% breathing ambient air. There was a sinus tachycardia, a prominent S1, split S2 with prominent P2, and a decrescendo-crescendo diastolic murmur loudest at the apex. Pulmonary exam revealed bibasilar crackles. Her abdomen was soft and non-tender without lymphadenopathy, hepatomegaly and splenomegaly. There was no cyanosis or clubbing of the extremities. Complete blood count revealed: WBC of 7.200, Hb of 12, Hct of 38.1, PLT of 318000. PT was 27, PT was 11.9 seconds, INR was 1.1. Hepatic panel was normal with an AST of 27 U/L, ALT of 23 U/L, Alkaline phosphatase of 60 U/L and total bilirubin of 0.9 mg/dL.; urea: 12 and creatinin: 0.8. Urine analysis was normal. ECG revealed sinus tachycardia. Portable A-P plain chest x-ray represented slightly right para cardiac prominent opacity (Figure 1). So, with deterioration of the patient’s condition, increased airway bleeding and loss of oxygen saturation, immediately double lumen intubation inserted and attached to the mechanical ventilator. Emergent transthoracic echocardiography showed very severe rheumatic mitral stenosis, with mitral valve area (MVA): 0.7 cm² and trans mitral mean pressure gradient (MPG) of 33 mmHg at HR: 120/min. There was mild to moderate mitral insufficiency. Left ventricle had normal size with ejection fraction: 55%. Severe pulmonary hypertension was noted, with systolic pulmonary artery pressure, estimated as 105 mmHg, using tricuspid regurgitation Doppler signal (Figure 2 A-D). The patient underwent percutaneous transluminal mitral valvuloplasty (PTMC) instantly. Echo study was repeated after PTMC. Anterolateral commissure was open; MVA was increased to (1.2 cm²) with significant decrease in MPG (#11mmHg, at HR: 74/min) and systolic pulmonary artery pressure (#45 mmHg) (Figure 3 A-D).
Hemoptysis was dramatically stopped then the patient’s life was saved from this terrible situation.

Discussion

Two directions of correct and prompt exposure to hemoptysis are very important. First, its differential diagnosis of hemoptysis is very widespread, the second, massive hemoptysis is associated with immediate death, hence, urgent diagnosis and treatment must be considered [2]. Although the rheumatic mitral valve stenosis is low in Europe and advanced countries, the prevalence of rheumatic diseases in the rest of the world and with a new wave of immigration is expected [3,4].

Cardiac diseases occur in 2-4% of pregnancies and rheumatic mitral disease is the most common acquired heart disease in pregnancy. Pregnant women with mitral stenosis are the high-risk group [4,5]. Mitral valve disease in pregnancy tends to worsen due to increased heart rate and cardiac output. Hemodynamic changes in mitral stenosis during pregnancy are challenging issue [5].

Mitral valve stenosis is associated with high mother’s and fetus’s mortality. One of the rare presentations of mitral stenosis is a frank

Figure 1. A-P portable chest x-ray.

Figure 2. Transthoracic echocardiography before intervention, two dimensional (A-B) and Doppler signals (C-D) showing very severe rheumatic mitral stenosis with mean pressure gradient of 33 mmHg and severe pulmonary hypertension.
hemoptysis. Mitral stenosis can lead to pulmonary hypertension with increased vascular hydrostatic pressure [3,5]. In addition, an increase in pulmonary venous pressure during mitral stenosis leads to a reverse blood flow from the pulmonary veins to the bronchial venous network; hence, this makes it possible as congested bronchial vasculature. Increased pressure causes vascular rupture and hemoptysis with the origin of pulmonary and bronchial arteries [5,6]. Massive aspiration of blood was probably an important factor, which caused asphyxiatioand suddenly death [1]. In addition to medication, interventional procedures and or cardiac surgery are defined. Severe mitral stenosis could be candidates for percutaneous transluminal mitral commissurotomy (PTMC) when there is a suitable valvular anatomy [6]. The high rate of maternal and fetal mortality during surgery (1.8-33%) led to the acceptance of PTMC in pregnant women as a lower risk and an alternative modality [5,6].

Conclusions

We suggest that every physician in exposure to hemoptysis should consider heart disease and mitral valve stenosis. So, diagnosis of exact etiology in massive hemoptysis and pregnancy is worthwhile.

References

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