

Embolic Stroke in Young Adults with Rheumatic Mitral Stenosis: A Case Report

By Rizaldy Taslim Pinzon

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Rizaldy Taslim Pinzon, Kenzie Ongko Wijaya

Neurology Department

Duta Wacana Christian University School of Medicine

Yogyakarta

Email: drpinzon17@gmail.com

Abstract

Stroke in young adults is challenging. In developing nations, rheumatic heart disease (RHD) is an uncommon but important risk factor for early onset ischemic stroke. We report a case of young onset stroke from mitral stenosis and AF. Mitral stenosis from rheumatic heart disease should be carefully considered as prominent risk factor of stroke in young onset stroke patient. We found AF in mitral stenosis was very predominant risk factor in this young adult female.

Key words: stroke-mitral stenosis-warfarin-rheumatic heart disease

Introduction

A serious side effect of rheumatic heart disease (RHD) is ischemic stroke, which may result in permanent disability and death. (1) In developing nations, rheumatic heart disease (RHD) is an uncommon but important risk factor for early onset ischemic stroke. Previous studies showed that 3% to 7.5% of all strokes have been estimated related with RHD. (1,2) According to a previous review, 7-9% of patients with ischemic stroke have RHD. (2)

Many RHD patients had inadequate anticoagulant use and a delayed diagnosis prior to the onset of stroke. (3,4) The previous population based study found 6 of 15 cases were underdiagnosed. (3,5) The underuse of anticoagulants may be related with its severe symptoms and the difficulty in monitoring and adjusting international normalized ratio. (4,5)

⁹ Atrial fibrillation (AF) is the most prevalent MS complication. AF is present in 40–75% of MS patients, causes these symptoms, and significantly raises the risk of stroke and systemic embolism. (2,3) We report an uncommon stroke in young adult female with mitral stenosis from rheumatic heart disease.

Case

A 39 year-old female that previously healthy admitted to our ⁷ emergency department with sudden onset right side weakness, speech difficulty, and facial asymmetry. She was previously healthy without any history of hypertension, diabetes, and cardiac abnormality. The onset of stroke was 6 hours. ³ The patient did not have any cardiac examination carefully before. She had no history of smoking, migraine, oral contraceptive use, and alcohol.

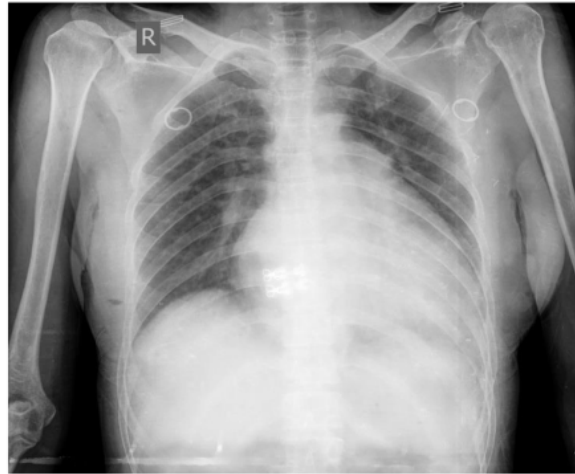
During ³ cardiac examination, a diastolic rumbling was heard over the apex. Rapid ventricular response and atrial fibrillation were detected by electrocardiography (ECG). The pulse was irregular ³ the blood pressure was 110/70 mmHg, and the rate was 110/min. The patient was fully alert and the NIHSS score in hospital admission was 10.

The laboratory result was unremarkable. Cardiomegaly was seen on the chest x-ray. (Figure 1) Further echocardiography showed in mitral valve : Hockey stick appearance (+), Wilkins Score 8, MS Sever, MR Severe. The conclusion of the echo showed left atrium and left ventricle dilatation, global systolic function was decline with EF 43 %, MS Severe, MR Severe, TR Moderate, Moderate Probability of PH. (Figure 2) The conclusion form cardiology department consolation revealed ⁵ the diagnosis of severe mitral stenosis from rheumatic heart disease.

The patient was treated with parenteral anticoagulant, statin, rhythm control strategy, and physical therapy. She was discharged from the hospital after 10 days with minimum disability

(modified Rankin Score : 2). She continued the treatment with warfarin, digoxin, and furosemide.

The INR (International Normal Ratio) was between 2.7-3.5.



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Figure 1. Cardiomegaly in chest x ray

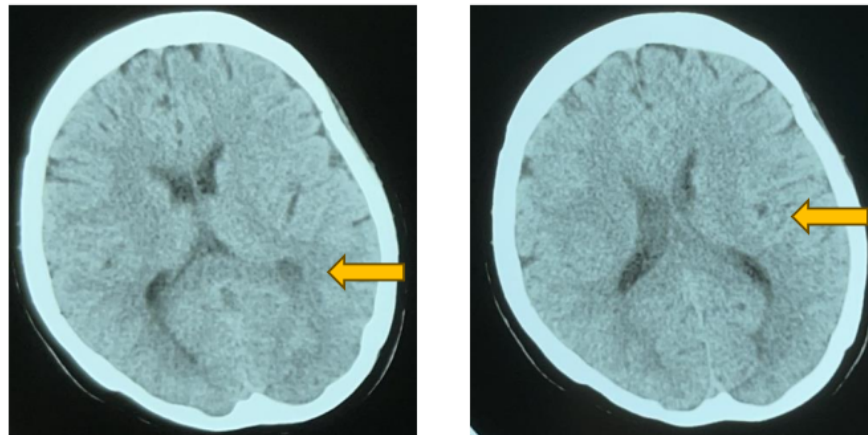


Figure 2. Left parietal and occipital infarction from brain CT

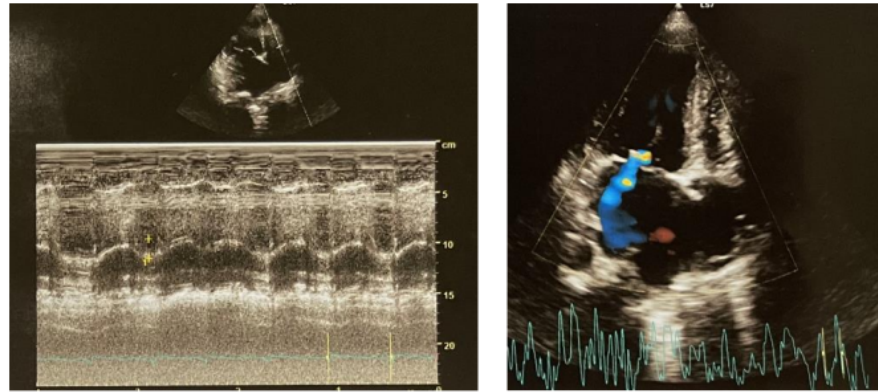


Figure 3. Echocardiography: MS Severe, MR Severe, TR Moderate, Moderate Probability of PH.

Discussion

We report an interesting case of stroke in young onset. After careful examination we found that mitral stenosis from rheumatic heart disease to be the most prominent risk factor. In developing countries, ⁶ rheumatic heart disease (RHD) is a leading cause of premature mortality. (1,2)

We found AF in mitral stenosis was very predominant risk factor in this young adult female. It was believed ¹ that patients with hemodynamically obvious MS and AF had an extremely high risk of stroke. The risk of thromboembolism is highest in MS patients. ¹⁰ Patients with RHD and AF had a stroke rate that was almost eighteen times higher than that of a population without AF that was matched in terms of age, sex, and hypertension.(5,6)

Stroke is frequently caused by rheumatic heart disease (RHD) in countries with low or middle incomes. Approximately 80% of strokes in RHD patients are related to atrial fibrillation (AF) and mitral stenosis (MS). The best anticoagulation strategy for preventing stroke is very low, despite the well-known ¹ pathophysiology and risk factors of stroke in patients with MS and AF.

(6,7,8). In our patient optimal treatment with anticoagulant and rhythm control strategy was performed.

¹ Effective anticoagulation is critical to lowering stroke risk in MS and AF patients due to mechanism considerations. (6) Less than 50% of patients in developing countries receive a prescription for a vitamin K antagonist (VKAs), ¹ and only between 30% and 50% of patients maintain a therapeutic international normalized ratio, indicating poor quality anticoagulation with VKAs. (7,8) Furthermore, there may be variations in ¹ the risk-benefit trade-off associated with anticoagulation using VKAs. (6,7)

Every patient with AF and cerebral emboli needs to get its rheumatic heart disease evaluated. After an in-depth cardiac examination, we determine that the main risk factor was mitral stenosis from RHD. In MS patients, anticoagulation and sinus rhythm maintenance are critical for protecting left ventricular ejection fraction, preventing left atrial thrombus, and lowering the risk of developing new systemic embolism. (7, 8)

A few details regarding stroke recurrence in patients with RHD are available. According to a previous study, ² stroke patients with RHD had a 13.6% recurrence rate, which is significantly higher than the rate of 6.0% observed in stroke patients without RHD. (2,3) In our patient, the INR was achieved in the range between 2.5-4 with warfarin.

Conclusion

We report a case of young onset stroke from mitral stenosis and AF. Mitral stenosis from rheumatic heart disease should be carefully considered as prominent risk factor of stroke in young onset stroke patient.

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Ethic: verbal informed consent was obtained from the patient and family. No identification of the patient can be revealed from this manuscript.