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ISCHAEMIC STROKE IN A 45 YEAR OLD PATIENT WITH MITRAL VALVE STENOSIS IN SINUS RHYTHM: CASE REPORT

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KEV concieved idea, did literature review and final drafting. JDE reviewed case report. DN helped in acquiring photographs. All authors contributed significantly to the submitted manuscript.

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ABSTRACT

Rheumatic fever is still the most common cause of mitral stenosis with its symptoms appearing clinically years after acute infection. Mitral valve stenosis is thrombogenic even if the patient is in sinus rhythm.[1] Here we present a case of mitral stenosis presented to us with signs and symptoms of acute cerebrovascular events. It is a common finding in valvular heart disease with atrial fibrillation , but in this case it happened in sinus rhythm.

INTRODUCTION

Rheumatic fever is still the most common cause of mitral stenosis with its symptoms appearing clinically years after acute infection. Mitral valve stenosis is thrombogenic even if the patient is in sinus rhythm.[1] Ultimate destination of this embolism is mostly the brain or sometimes the myocardium.[2] We present a case of acute ischemic stroke in a patient with background mitral valve disease in sinus rhythm.

CASE REPORT

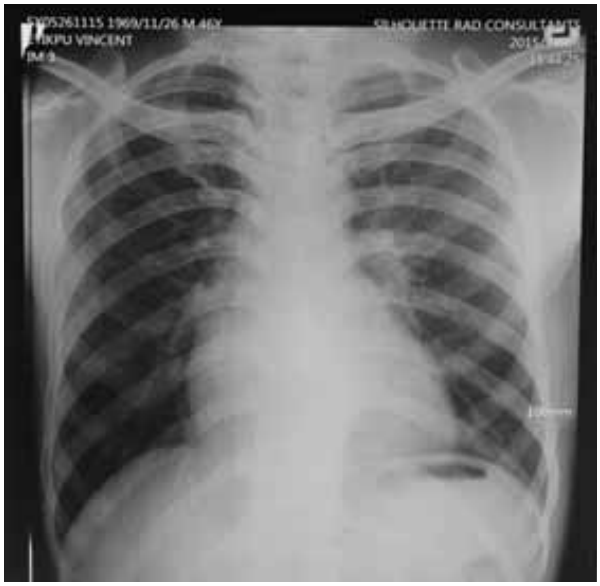
Mr PJ is a 45 year old business man who presented with inability to move his right upper and lower limbs, and loss of speech of 24 hour duration.

These symptoms were sudden in onset. He was not diabetic or hypertensive, with no history of head trauma and fainting spells. There was also no history of transient ischemic attack, photophobia or blurring of vision. Patient however at presentation had slurred speech and has been treated for fever several times in the past but never been admitted in the hospital.

Physical examination showed patient had a regular pulse but a loud first heart sound, a mid-diastolic murmur, and an absent carotid bruit. Blood pressure was normal. Neurological examination showed reduced power in the right upper and lower limbs. Fasting blood sugar and other blood test were unremarkable. A clinical diagnosis of left sided ischemic stroke was made.

Cranio-cerebral CT scan revealed an infarct in the region of the basal ganglia on the left (Figure 5). Frontal chest x-ray showed marginal cardiomegaly with no evidence of left atrial enlargement (Figure1). However the lateral view showed bulging of the posterior margin of the heart indicating enlargement of the left

Figure 1: PA Chest Radiograph Showing Marginal Cardiomegaly



atrium (Figure 2).

Echocardiographic parasternal long axis view of the heart shows markedly thickened mitral valve cusps with elbowing of the anterior mitral cusp (figure 3). The apical 4 chamber view (figure 4) shows thickened mitral valve with marked dilatation of the left atrium. There was increase in mitral valve peak velocity. No regurgitation was seen. Systolic function was normal. No atrial fibrillation was noted on evaluation of the static resting ECG. A 24 hour ambulatory Holter monitoring was not done due to unavailability of the equipment. Trans-oesophageal echocardiography is was

Figure 2: Lateral Chest X Ray Showing Bulging of the Posterior Aspect of the Heart Due to Enlargement of the Left Atrium

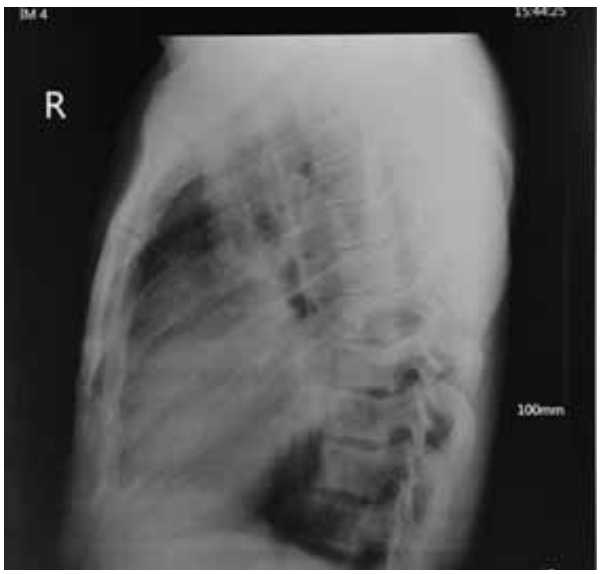
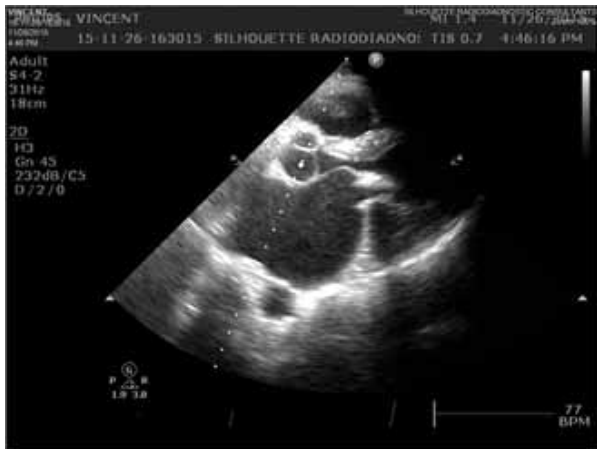


Figure 3: Left Parasternal Long Axis View Showing Grossly Thickened Mitral Valve.



not available.

DISCUSSION

Worldwide there are about 15.6 million cases of RF/RHD, with 282,000 new cases and about 233,000 deaths yearly mostly in children and young adults in developing countries.[3] Rheumatic mitral stenosis, especially in young population, is now considered to be rare in developed countries with an incidence of less than 1 per 100,000 population and relates to the general decline of infectious diseases.[4] It is therefore referred as a disease of the past by some authors.[5] However, in the underdeveloped world, the disease still remains endemic.[6] In Nigeria, the incidence of the disease is not known because most patients do not report to the hospital however the prevalence (based on echocardiography-based registries) ranges from 3.1% to 38.5% depending on the region as well as mode of selection of patients referred for echocardiography.[6-9]

Figure 4: Apical Four Chamber View Grossly Dilated Left Atrium.

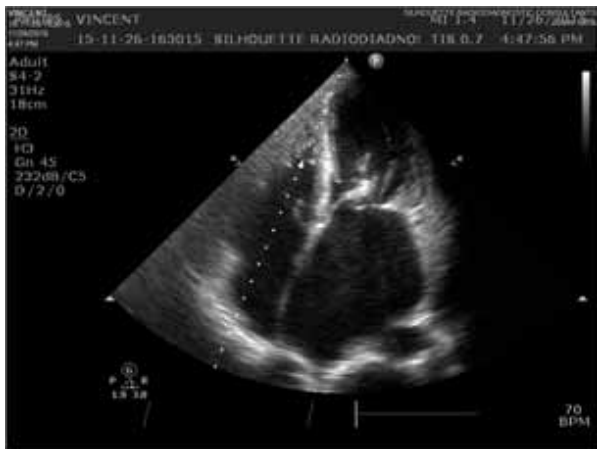
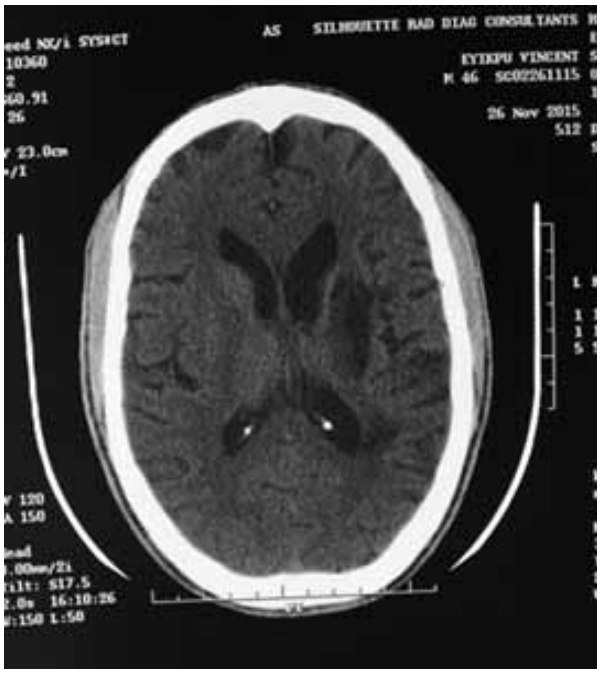


Figure 5: Left Sided Basal Ganglia Infarct



Acute rheumatic fever follows pharyngeal infection with group A ß-hemolytic streptococcus or streptococcus pyogenes. Of all the clinical sequelae of this disease, only the cardiac complications progress to chronic complications resulting in heart failure, endocarditis, stroke and death. Although rheumatic fever (RF) and rheumatic heart disease (RHD) are now uncommon in industrialized nations, they are still major cause of morbidity and mortality in developing and resource-poor countries of the world.[10]

The interval between the initial episode of rheumatic fever and clinical evidence of mitral valve obstruction is variable, ranging from a few years to more than 20 years.[11] The most common complication of mitral stenosis (MS) is atrial fibrillation (AF).[12] Beginning of AF, which is often caused by atrial inflammation and remodelling, is a fundamental moment in MS. AF occurs in 40-75% of patients who are symptomatic for MS, precipitates such symptoms, greatly increases the risk of systemic embolism, and reduces cardiac output and exercise capacity.[12] Although systemic embolism mostly occurs in patients with AF, 20 percent of patients with MS and a systemic embolic event are in sinus rhythm.[13] The protection of the sinus rhythm in patients with MS is very important to reduce the risk of cerebral embolism, conservation of cardiac output and exercise capacity, and reduction of symptoms such as palpitations and shortness of breath.[14] Maintenance of sinus rhythm is changeable across patients, with most but not all studies showing substantial difficulty[15]. Treatment of an acute episode of rapid AF consists of anticoagulation with heparin and control of the heart rate response by intravenous digoxin, heart rate–regulating calcium channel blockers, or beta blockers, or amiodarone. If there is hemodynamic instability, electrical cardioversion should be undertaken urgently. In selected patients, chemical cardioversion may also be attempted.[16] Early intervention with percutaneous balloon valvuloplasty (PBV) may prevent development of AF.[17] Also PBV could allow conversion to normal sinus rhythm in suitable patients (left-atrial diameter <45 mm, duration of atrial fibrillation <1 year) but does not seem to affect persistence of AF.[18] Frequency of embolism can be reduced by PBV.

CONCLUSION

A significant number of patients with rheumatic mitral stenosis in sinus rhythm still present with systemic embolism as exemplified by this case report. Maintenance of sinus rhythm in these patients is very important for both the protection of left ventricular ejection fraction, and prevention of left atrial thrombus formation and the reduction of the development of systemic embolism related to it. However early definitive treatment of mitral stenosis (surgery) significantly improves outcomes in patients and reduces the incidence of systemic embolism.

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