

COMBINED MITRAL AND TRICUSPID STENOSIS IN 47-YEAR OLD RHEUMATIC VALVULAR HEART DISEASE PATIENT: A CASE REPORT

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ABSTRACT

Background: Rheumatic valvular heart disease is a common complication of rheumatic fever; however combined mitral and tricuspid stenosis is an extremely rare form of multi-valve disease presentation. **Case Presentation:** We report a case of combined mitral and tricuspid stenosis from rheumatic heart disease (RHD) in a 47-year-old woman who was being managed for hypertensive heart disease (HHDx) on anti-hypertensives for 2yrs prior to presentation. However, on further review with transthoracic echocardiography (TTE), she was found to have thickened mitral valve and hockey stick appearance with dilated left atrium (dimension of 60mm) and reduced left ventricular ejection fraction (LVEF) of 45%. A repeat TTE done 8 years after the first one showed a severely dilated left atrium (LAD 71mm) with estimated area of 55.4cm²; moderate mitral stenosis and severe tricuspid stenosis with moderate TR. The LVEF was 29% with a severe right ventricular (RV) systolic dysfunction (TAPSE of 9mm). Patient is being managed conservatively due to economic constraints and the likelihood of very poor surgical outcome due to severe biventricular dysfunction. **Conclusion:** The case is reported for its rarity as well as the importance of interval evaluation of unaffected valves in a setting of single valve disease for early detection and possible prompt treatment and intervention.

Keywords: Mitral Stenosis, Multi-valve disease, Rheumatic heart Disease, Tricuspid Stenosis

INTRODUCTION

Rheumatic heart disease is a global cause of morbidity and mortality especially in developing countries.¹ It affects people who had rheumatic fever that was not properly treated and/or did not receive penicillin prophylaxis. The mitral valve is most commonly affected in single-valve disease whereas in multi-valve disease the mitral and aortic valves are most commonly affected.² Combined

stenosis of the mitral and tricuspid valves is a very rare complication of rheumatic heart disease.^{3,4}

CASE PRESENTATION

A 47yr woman who presented to the cardiology clinic of our facility, Federal Teaching Hospital via the GOPD 8yrs ago on self-referral from a tertiary facility where she has been on follow up for hypertensive heart disease on anti-hypertensives for 2yrs. She presented with symptoms of worsening dyspnoea, cough with haemoptysis and palpitations. She was diagnosed hypertensive 2yrs prior and not diabetic. Family history is significant for hypertension in both paternal grandparents. She is Para 6⁺¹2 alive, had two

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 <p>Quick Access Code</p>	WEBSITE: www.kjmsmedicaljournal.com
	DOI: 10.36020/kjms.2020.1402.008



caesarean section on account of antepartum haemorrhage and four children died from febrile illnesses. Her childhood history was not remarkable.

On physical examination positive findings were irregularly irregular pulse with a rate of 96b/min, blood pressure (BP) of 120/80mmHg, normal jugular venous pressure, displaced apex at 7th left intercostal space anterior axillary line heaving with grade 4/6 apical pan-systolic murmur and a diastolic murmur at the left sternal border. The patient also has a loud P2 and tenderness in right upper abdominal quadrant. A diagnosis of rheumatic mixed mitral valve disease predominantly regurgitation and HHDx was made.

Transthoracic echocardiography (TTE) done 8yrs ago revealed rheumatic mixed mitral valve disease with thickened, hockey stick-like mitral valve with dilated left atrium (60mm) and reduced EF (45%). A repeat TTE 8 years later showed the following features : severely dilated LAD (76mm) with estimated area of 55.4cm² (figure 1); moderate mitral stenosis with restricted posterior leaflet (Mitral valve area (MVA) by planimetry of 2.6cm² and mean gradient of 9.3mmHg; thickened left ventricular posterior wall diameter in diastole of 1.4cm; LVEDD of 5.5cm; global hypokinesia with LVEF of 29% and posteriorly directed jet of moderate regurgitation; severely dilated right atrium - 10.2cm; severe tricuspid stenosis and moderate TR with a Vmax of 2.88m/s and PPG of 33.23mmHg (Figure 2);

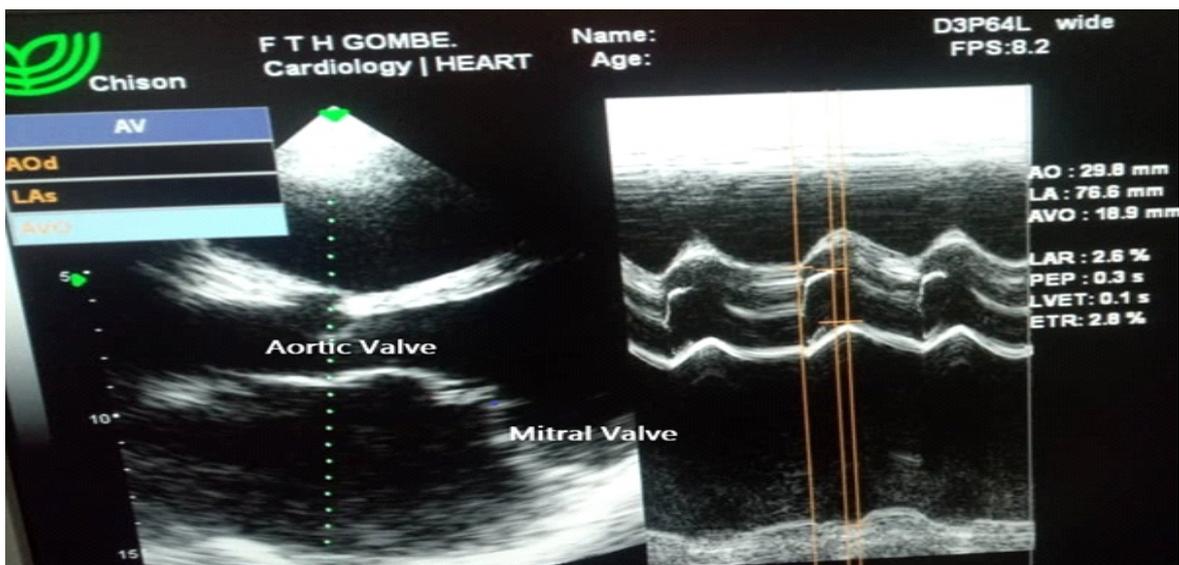


Figure 1: Severely dilated left atrium and thickened mitral valve



Figure 2: Thickened tricuspid valve and dilated right atrium.

PASP of 53.23mmHg using estimated RAP of 20mmHg; dilated RV with diameter of 5.4cm and severe RV systolic dysfunction with TAPSE of 9mm. Pulmonary valve is thin and pliable with mild regurgitation but no evidence of stenosis. Electrocardiography (ECG) done serially showed atrial fibrillation (AF) with slow ventricular response and multifocal VPCs. Serial E/U/Cr, fasting lipid profiles and urinalysis were not remarkable.

She could not be referred for surgical treatment due to economic constraints and was managed conservatively on anti-heart failure regimen. Over the 8yr period she had one hospital admission about 8years prior to our review and was fairly stable until 3yrs ago when she started having symptoms of abdominal swelling and worsening dyspnoea with productive cough. She was referred for surgical review and possible valve replacement/repair where after evaluation the cardiothoracic surgeon requested for a second opinion in a facility with ventricular assist devices in view of likely very poor surgical outcome due to severe biventricular dysfunction.

DISCUSSION

Rheumatic valvular heart disease is a common complication of acute rheumatic fever (ARF) and is associated with high morbidity and mortality.⁵ Although the incidence of ARF has drastically reduced in high income countries, chronic rheumatic heart disease still represents 22% of valvular heart disease in Europe.⁶ RHD still remains a major disease burden in developing nations including sub-Saharan Africa (SSA),^{1,7} commoner in females although Akpa et.al reported higher prevalence in males in Port Harcourt southern Nigeria.⁸ In Nigeria the prevalence of RHD has dropped significantly over the years in southern part of the country but remain relatively higher in the northern part.^{9,10} Studies from different parts of the country have reported mitral valve as the most commonly affected in single valve disease whereas mitral and aortic valves are mostly involved in combined valve disease.^{5,8,11}

Isolated tricuspid valve involvement in RHD is extremely rare and in some Nigerian series none

was documented.¹² Sultan et al in an evidence-based systematic overview of 2,497 RHD patients, found 7.7% (193) of them to have tricuspid valve involvement with 93.3% of them associated mitral RHD. This suggest that involvement of the tricuspid valve, though rare, may not be uncommon.¹²

In a study in the USA, combined mitral stenosis and aortic stenosis (15%) is the commonest followed by combined mitral stenosis and aortic regurgitation (6%). Others are combined pure mitral regurgitation and pure aortic regurgitation (4%), combined aortic stenosis and pure mitral regurgitation (2%), combined tricuspid, mitral and aortic valve stenosis (2%) and combined tricuspid valve stenosis and mitral valve stenosis (0.40%).¹³

Combined mitral and tricuspid stenosis is very rare^{3,4} and we did not come across any reported case emanating from Nigeria, thus to the best of our knowledge this might be the first reported case of combined rheumatic mitral and tricuspid stenosis in Nigeria.

The condition could be treated with good outcome with balloon valvuloplasty and/or surgical replacement/repair.⁴ However, our index patient could not get surgical intervention due to financial constraint as she could not afford treatment which is mainly out-of-pocket funding.

CONCLUSION

Rheumatic heart disease is still a major cause of morbidity and mortality especially in developing countries and efforts at controlling acute rheumatic fever and preventing complications would go a long way in reversing the unfavourable indices. This can be achieved if African nations would adopt the Drakensberg Declaration¹⁴ on the control of rheumatic fever and rheumatic heart disease in Africa.

ETHICAL CONSIDERATION

Verbal consent was taken from the patient after adequate explanation was made.



ACKNOWLEDGMENTS

None

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

AUTHORS' CONTRIBUTION

All the authors have made substantial

contributions to the patient's management and conception of the work. Drafting the manuscript was made by EOO, AYA and DSS with inputs from other authors. It was revised critically for important intellectual content and all authors read and approved the final manuscript.

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Cite this article as: Ejeagba OO, Ayoola YA, Ejeh AB, Adamu A, Okolie HI, Danbauchi SS.

Combined Mitral and Tricuspid Stenosis in 47-Year Old Rheumatic Valvular Heart Disease Patient: A Case Report. *KJMS* 2020; 14(2): 153 - 156.

