



CASE STUDY ON RHEUMATIC HEART DISEASE WITH SEVERE MITRAL REGURGITATION

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Abstract

Rheumatic heart disease is one of the most common disease in children as it results in the group-A streptococcal infection. We present a case of a 17 years old male patient admitted in the general medicine department with the complaints of difficulty in breathing-2 months insidious onset that was progressing NYHA-2, orthopnea that is present occasionally and palpitations for 2 month, cold and cough for 15 days on and off associated with sputum production with throat pain and chest pain. The patient had a past medical history of recurrent cold and cough – recurrent re-episodes of infection for past 1 year. The ECHO cardiogram of this patient demonstrated that the patient having ejection fraction of 60%, and left atrium is dilated and both the leaflets of mitral valve are thickened. There is RHD with severe mitral regurgitation. His symptoms revealed the diagnosis of rheumatic heart disease with severe mitral regurgitation. The patient was treated with phenoxy methyl penicillin. He was advised to go to another institution within 2 days for valve replacement surgery.

INTRODUCTION

Rheumatic heart disease is the most common cardiovascular disease among children and young adults worldwide. More than 40million people were living with RHD and about 3,00,000 individuals died from RHD in the year 2017 [1]. It is related to post-infectious autoimmune mechanisms driven to group-A streptococcus (GAS) antigens. Jones criteria are the main diagnosis guidelines, by combining major and minor signs at presentation [2]. RHD causes inflammation of the cardiac valves, initially leading to clinically silent valvular disease and ultimately severe permanent damage. Individuals with RHD are at increased risk of complications such as CHF, arrhythmias including atrial fibrillation, stroke, infective endocarditis, poor maternal and fetal outcomes, and premature death [3, 4]. Echocardiography is the most cost-effective tool for population screening and estimating the prevalence of RHD [5]. There is no clear outcome predictor and the adherence to long-term penicillin prophylaxis is still challenging for these patient's care. Penicillin is prescribed for the initial attack and

for prophylaxis of new attacks and close follow-up surveillance is currently recommended by expert consensus. Long-acting benzathine penicillin is the recommended treatment, with the first dose prescribed at diagnosis, followed by 3-week interval age-appropriated dosing, according to WHO experts guidelines [6-8].

This study aimed to examine the presentation profile, over-lap of clinical features and outcomes in a case series from a specialised clinic. Knowledge of common presentations of this once ubiquitous disease thus remains clinically useful.

CASE PRESENTATION

A 17 years old male patient admitted in the general medicine department with the complaints of difficulty in breathing-2 months insidious onset that was progressing NYHA-2, orthopnea that is present occasionally and palpitations for 2 month, cold and cough for 15 days on and off associated with sputum production with throat pain and chest pain. The patient had a past medical history of recurrent cold and cough – recurrent re-episodes of infection for past 1 year.

The patient was afebrile, and on investigations on the vital signs showed abnormal pulse rate i.e. 150beats/min. Lung auscultation revealed bilateral diffused crepts. Cardiovascular examination demonstrated on **inspection** apical impulses seen in 6th and 7th intercoastal space (ICS) in midclavicular line and presentation of intercoastal refractions, on **palpation** apical impulses confirmed to be 6th and 7th ICS in midclavicular line, and shows hyperdynamic apical impulse, and the presentation of thrill and palpable P₂ and on **auscultation** pansystolic murmur present in the mitral area that was radiating to the axilla and pulmonary area demonstrated that loud P₂.

Laboratory data was significant for Anti-streptolysin O (ASO) of 125mg/dl and C-reactive protein (CRP) of 5.6%. The patient had microcytic hypochromic anemia with haemoglobin (Hb) of 8.1g/dl. The patient had elevated WBC i.e. 15,700 WBCs/microliter this shows patient had infection. The patient had the potassium levels of 3.1mEq/l this low level of potassium causes palpitation. ECG of this patient showed that sinus tachycardia, Larged P-wave terminal force in V₁, right atrial enlargement and slight ST elevation and T wave abnormality.

The ECHO cardiogram of this patient demonstrated that the patient having ejection fraction of 60%, and left atrium is dilated and both the leaflets of mitral valve are thickened. There is RHD with severe mitral regurgitation.

The patient had long arms, fingers and feets, that shows this patient having marfonoid syndrome.

DISCUSSION

Rheumatic fever is a delayed consequences of pharyngeal infection with GAS. The GAS cell wall contains M proteins that are antigenically similar to proteins found in the human body. When an immune response is mounted to the initial GAS infection, anti-bodies are formed against the protein, which then circulate throughout the body and bind to normal protein epitopes found in human tissue. The complexes formed then induce a T-cell mediated attack on normal tissues, causing long-term sequelae of the disease.

From all the above findings the patient was assessed to have **RHD with severe MR/Marfonoid habitus/Microcytic Hypochromic anemia/ B\L bronchiectasis** and evaluation of infective endocarditis.

RESULTS

The patient was treated with phenoxy methyl penicillin, it is a penicillin derivative, penicillin which is a first-line choice for RHD. The patient's heart rate was controlled with verapamil and metoprolol. His anemia was treated with iron sucrose and infection was controlled with antibiotics. The patient had bronchiectasis which was controlled with foracort (formoterol+budesonide) inhaler. He was advised to go to another institution within 2 days for valve replacement surgery.

After starting iron sucrose therapy the patient's Hb level was increased upto 1g/dl on the first day of treatment.

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