

CASE PRESENTATION ON RHEUMATIC HEART DISEASE WITH MITRAL VALVE PROLAPSE

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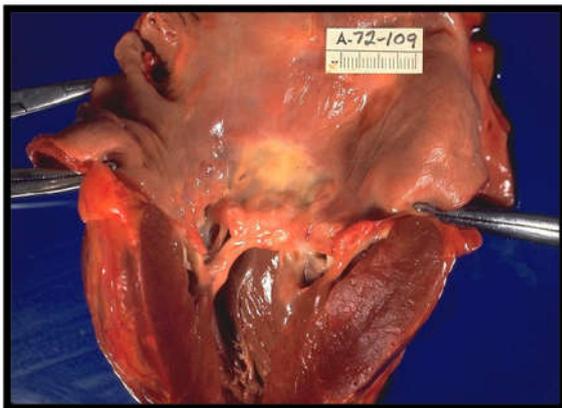
ABSTRACT

Rheumatic fever is an inflammatory disease of the heart potentially involving all layers (endocardium, pericardium and myocardium). The resulting damage to the heart from rheumatic fever is termed as rheumatic heart disease, a chronic condition characterized by scarring and deformity of heart valves. Acute rheumatic fever is a complication of up to 3 % of sporadic upper respiratory infection caused by group A B hemolytic streptococci. A complication results from acute rheumatic fever is chronic rheumatic carditis. It results from changes in valvular structure. It results in fibrous tissue growth in valve leaflets and chordae tendineae with scarring and contractures. Mitral valve is most frequently involved. Needs medical as well as surgical management.

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INTRODUCTION

Mr. X was admitted in the hospital with the complaints of dyspnea on exertion for 1 month. Palpitation, giddiness for 2 months. Had profuse sweating and chest pain for a week and Mr. X came with the complaints of breathlessness and the chest pain on exertion, palpitation and profuse sweating and got admitted in hospital for 1 month. Echo, ECG and other routine investigations done and diagnosed as Rheumatic heart disease and Mitral Valve prolapsed.



Rheumatic fever is an inflammatory disease of the heart potentially involving all layers (endocardium, pericardium and myocardium).

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characterized by scarring and deformity of heart valves. Along with medical management he underwent balloon valvoplasty. Now **Mr. X** symptoms were reduced..

Definition

Rheumatic fever is an inflammatory disease of the heart potentially involving all layers (endocardium, pericardium and myocardium). The resulting damage to the heart from rheumatic fever is termed as rheumatic heart disease, a chronic condition characterized by scarring and deformity of heart valves.

Incidence

Acute rheumatic fever is a complication of upto 3 % of sporadic upper respiratory infection caused by group A B hemolytic streptococci. Common among 5-15 years of age group. About 1 million RHD cases in INDIA. The frequency of recurrence of rheumatic fever after streptococcal infection is greater.

Etiology

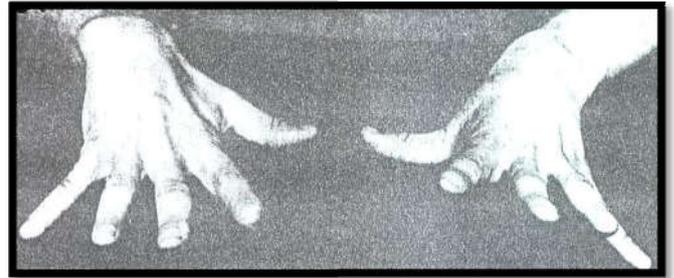
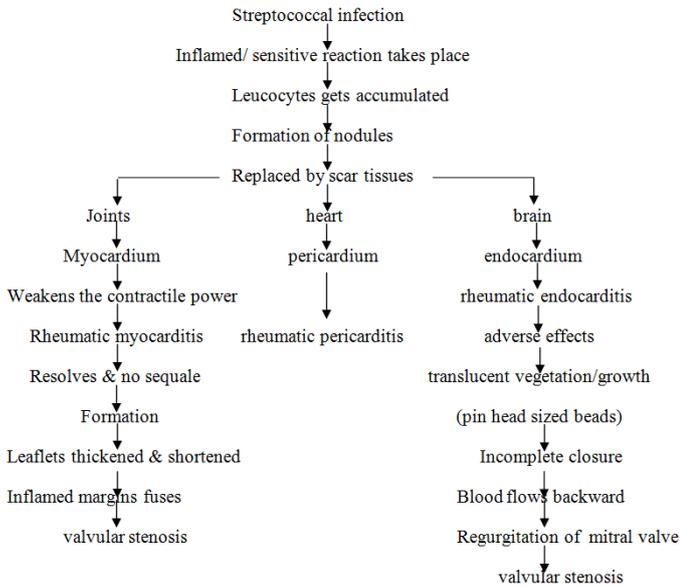
Rheumatic fever occurs as a delayed sequale of a group A B hemolytic streptococcal infection of upper respiratory tract usually a pharyngeal infection.

In order to infection, socio economic factor s, familial factors and presence of an altered immune response have a pre disposing factor in the development of rheumatic fever.

It probably affects heart, joints, skin, central nervous system, because of the abnormal humoral and cell mediated immune response to group A B hemolytic streptococci cell membrane antigens.

Pathophysiology

Rheumatic endocarditis is not the infectious in the sense that tissues are not invaded and directly damaged by streptococcal infection.



Clinical Manifestations

Major criteria

- Carditis
- Polyarthritides
- Chorea
- Erythema marginatum
- Sub cutaneous nodules

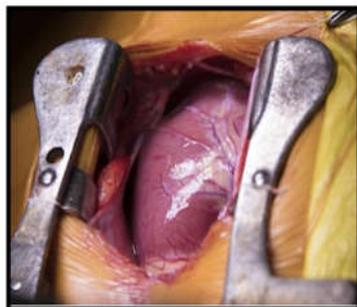
Carditis

Carditis is the most important manifestation of acute rheumatic fever with three signs

- Organic heart murmur , mitral stenosis
- Cardiac enlargement and congestive heart failure
- Pericarditis



Normal heart



Pericarditis

Polyarthritides

Inflammatory process affects synovial membrane of joints causing swelling, Heat, Redness, Tenderness and limitation of motion of larger joints like knees, Ankles and elbows

Chorea (Sydenham's chorea)

It is the major CNS manifestation characterized by weakness, Ataxia, Spontaneous rapid and purpose less choreic movements

Erythema marginatum

Very less common feature. Bright pink map like macular lesions on inner aspect of arm and thigh but never on face.

Subcutaneous nodules

Subcutaneous nodules are firm small hard painless swelling found over bony prominences (knees, Elbows, Spine and Scapula).

Minor Criteria

- Fever
- Arthralgia
- Prolonged PR interval
- Lab findings
- Previous occurrences of rheumatic fever, Non specific to make definite diagnosis but can supplement to confirm diagnosis

S.No	Book Picture	Patient Picture
1	Carditis	Carditis
2	Polyarthritides	Knee pain
3	Chorea	-----
4	Nodules	-----
5	Fever	Fever
6	Arthralgia	Joint pain
7	Lab findings	Echo report

Diagnostic Evaluation

A sore throat or history of I with in 5 weeks is the first symptom of possible rheumatic fever. Other history should

asked like fever, headache, chest pain, abdominal pain, vomiting, malaise, diaphoresis may also occur Throat culture are necessary to diagnose the infection, routine blood investigation should be noted to diagnose fever and infection ECG shows sinus tachycardia/bradycardia/dysrhythmias. ESR and CRP may be elevated. ASO titer may also done to conform the test. Chest XRAY shows enlarged heart.

S.No	Book picture	Patient picture
1	History collection Fever weight loss, Fatigue, diaphoresis, Chest pain, Vomiting	Fever malaise Chest pain vomiting
2	Physical examination X Ray	Cardiomegaly and lung, Parenchyma clear
3	ECG	Sinus tachycardia
4	Blood Total count ESR HP CRP ASO SUGAR Platelet	6600 cells/m 15mm/hr 11.5mg/tl 76 -Ve 80mg/dl 2.06 laks
5	Echo	Chronic RHD with MS.No MR normal LV function

Prevention

Rheumatic fever and rheumatic endocarditis may be prevented through early and adequate treatment of streptococcal infection like,

- High fever
- Chills
- Sore throat
- Redness of the throat with exudate
- Enlarged lymph nodes
- Acute Rhinitis

Complication

- Heart failure or stroke
- Atrial fibrillation
- Pulmonary hypertension
- Kidney failure
- Ventricular dysrhythmias
- Cardiac conduction defects
- Pulmonary or cerebral embolism
- Valvular dysfunction

Mitral Valve Stenosis

Definition

Mitral valve stenosis in the narrowing of the opening in the mitral valve that impedes blood flow from the left atrium in to the left ventricle the mitral valve becomed thickened and fibrotic.

Incidence

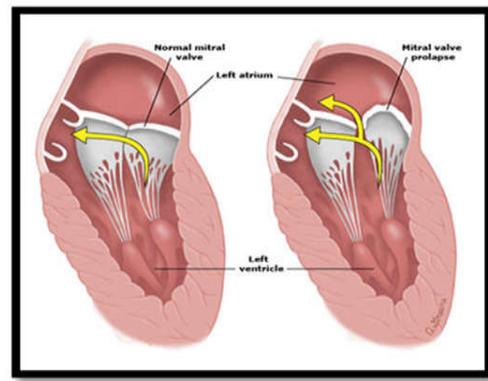
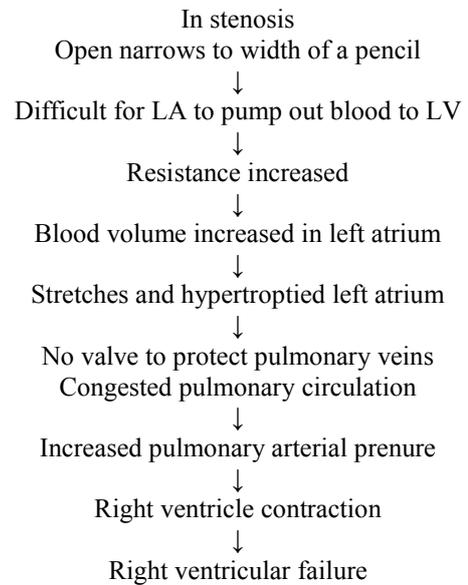
Young woman 20-40 years of age are more common comparing to men

Risk Factor

Rheumatic heart disease confeital malformation of the mitral valve, calcium accumulation as valve leaflets and aliria tumours and myocardial ischemia.

Pathophysiology

Normal mitral valve opening is as wide as diameter of three fingers.



Clinical Manifestation

The first symptom of mitral stenosis is often the breathing difficulty (dyspnea) on exertion as a result of pulmonary venous hypertension.

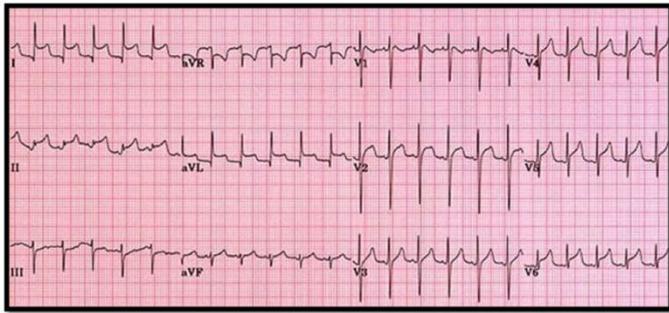
Patient have progressive fatigue as a result of low cardiac output. They may expectorate blood (hemoptysis), cough, wheeze and experience palpitation, orthopnea, paroxysomal nocturnal dyspnea and repeated respiratory infection.

S.No	Book picture	Patient picture
1.	Breathing difficulty	Dyspnea on excition
2.	Progressive fatigue	Fatigue
3.	Hemoptysis	-
4.	Palitation	Palpitation
5.	Orthopnea	-
6.	PND	-

Diagnostic Finding

- Pulse weak and often irregular because of atrial fibrillation
- Low pitched diastolic murmur heard at apex.
- Echo to diagnose mitral stenosis.
- ECG and cardiac catheterization with angiography may be used to help determine the severity of stenosis.

S.no	Book Picture	Patient Picture
1.	Physical examination Pulse Respiration Auscultation	Regular but weak Dyspnea No murmurs heard
2.	ECG	
3.	ECHO	
4.	Cardiac catheterisation	Mitral stenosis



XRAY of MR. X

Management

Patient with mitral stenosis are advised to avoid strenuous activities and competitive sports both of which increase the heart rate.

Medical management

- Antibiotic therapy doconot modify the disease of carditis.
- Pancillin can be advised
- Salicylater and corficosteroidsare the two antinflamatory for the management.
- Drug therapy also include digoxin, diureties blockers and anti dysrhythmias if patient has atrial fibrillation.
- Anticoagulants can also be prescribed.

For Acute RHD

- Steroids – Prednisolone
- NSAIDS-Aspirin
- Diuretics –Lasix
- Antibiotics – Pencillin
- Oxygen therapy
- Back rest

For chronic RHD

Surgical replacement of the valve.

Surgical Management

There are two surgical procedures

1. Valvuloplasty
2. Valve replacement

Valvuloplasty

The repair rather than a replacement of a heart valve is called valvuloplasty.

Most valvuloplasty requires general anaesthesia and often rquire cardiopulmonary bypass. However some procedure can be performed in cardiac catheterization and not require bypass. There are various types

Commissurotomy

The most common procedure. It performs to separate the fused leaflets. Where leaflets are adhere to one another and close the commissure ie, stenosis (junction of leaflet)

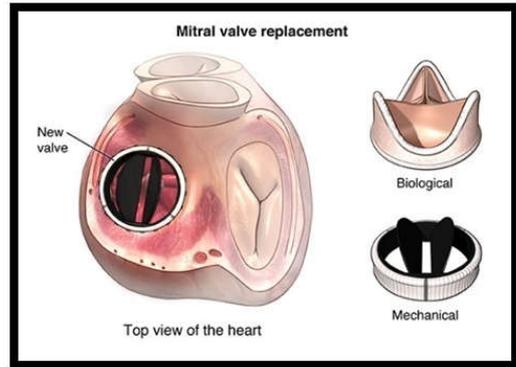
Closed commissurotomy

They donot require cardiopulmonary bypass. The valve is not directly visualized, done as percutaneous balloon valvuloplasty.

Balloon valvuloplasty

It is beneficial for mitral stenosis in younger patients, done in cath lab. Patient receives mild sedation. One or two catheters inserted into mild sedation. One or two catheters inserted into,

- Right atrium
- Atrial septum
- Left atrium
- Mitral valve
- Left ventricle
- Aorta



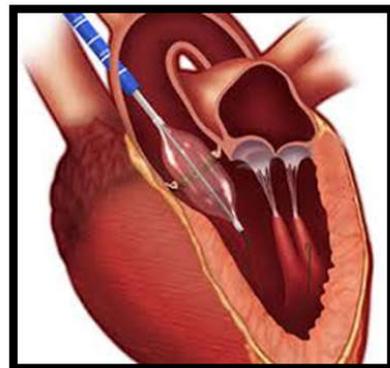
A wire is placed and catheter is removed. A large balloon catheter is placed over the wire and positioned with balloon on mitral valve.

Closed surgical valvuloplasty

It has been performed for mitral, aortic, tricuspid and pulmonary valve stenosis. A small hole is cut into the heart and the surgeon's finger or a dilator is used to open the commissure.

Open commissurotomy

It can be done under direct visualization of heart by cardio pulmonary bypass is exposed and done easily.



Valve replacement

When Valvuloplasty or valve repair is not a viable alternative than valve replacement is performed. General anesthesia and cardio pulmonary bypass are used for valve replacement.

Median sternotomy done and mitral valve approached through a right thorocotomy incision. The leaflet is removed and valve will be left in place.

Types of valves

- Mechanical valve
- Tissue valve
- Homografts

Management for Mr. X

Mr. X underwent balloon Valvoplasty.

Medical Management for Mr. X

S. No	Name of the medication	Dosage	Route	Frequency
1.	Inj. Tazact 4.5gm	4.5gm	IV	OD
2.	Inj. Milrinone 0.375mcg	0.375mcg	IV	OD
3.	Tab. Tachyra 100mg	100mg	Oral	BD
4.	Tab. Pan 40mg	40mg	Oral	BD
5.	Tab Frusilac 40mg	40mg	Oral	OD
6.	Tab Ultracet 10mg	10mg	Oral	BD
7.	Inj. H.Mixtard 8 units	8 units	Subcutaneous	BD

Summary

Mr. X was co-operative with health personnel. Although his symptoms were well responding to treatment, it was recurring, he did not develop further complications during hospital stay.

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