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Rheumatic Heart Disease : A Case Report

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ABSTRACT

Rheumatic Heart Disease (RHD) is a chronic condition resulting from untreated or inadequately treated streptococcal throat infections, leading to rheumatic fever and subsequent damage to the heart valves. It is a major public health concern, particularly in low- and middle-income countries, where limited access to healthcare contributes to its prevalence. RHD primarily affects children and young adults, increasing the risk of heart failure, stroke, and premature death. A 15 yrs old admitted at government Hospital, Shimla during the month of Feb' 2025 with the chief complaint of Shortness of breath. After the general physical examination, routine blood profile and other Lab investigation, underwent echocardiography in which he was diagnosed with RHD with Severe MR(mitral Regurgitation), severe MS (mitral stenosis), Left and right atrium, right ventricle were enlarged under evaluation. Patient underwent surgical intervention (Mitral valve repair with Key,s repair of tricuspid valve with commisusotomy with aortic valve repair under cardio pulmonary bypass machine.). Prognosis is good and patient discharged post operatively after a short stay at hospital.

Keywords: Rheumatic Heart Disease (RHD), MR(mitral Regurgitation), severe MS (mitral stenosis)

1. INTRODUCTION

Rheumatic heart disease (RHD) is a serious cardiovascular condition that develops as a long-term complication of rheumatic fever, an inflammatory response to an untreated or poorly treated streptococcal throat infection. It primarily affects the heart valves, leading to scarring, thickening, stenosis (narrowing), or regurgitation (leakage), which can result in heart failure, atrial fibrillation, stroke, and other complications. RHD is most common in low-income and developing regions where access to healthcare and antibiotics is limited. Symptoms may include breathlessness, chest pain, fatigue, and swelling in the legs. Prevention involves early detection and complete antibiotic treatment of streptococcal infections, while management includes medications to control symptoms, anticoagulants to prevent clotting, and surgical interventions such as valve repair or replacement in severe cases. Public health efforts, including improved sanitation, access to medical care, and vaccination strategies, play a crucial role in reducing the global burden of RHD.

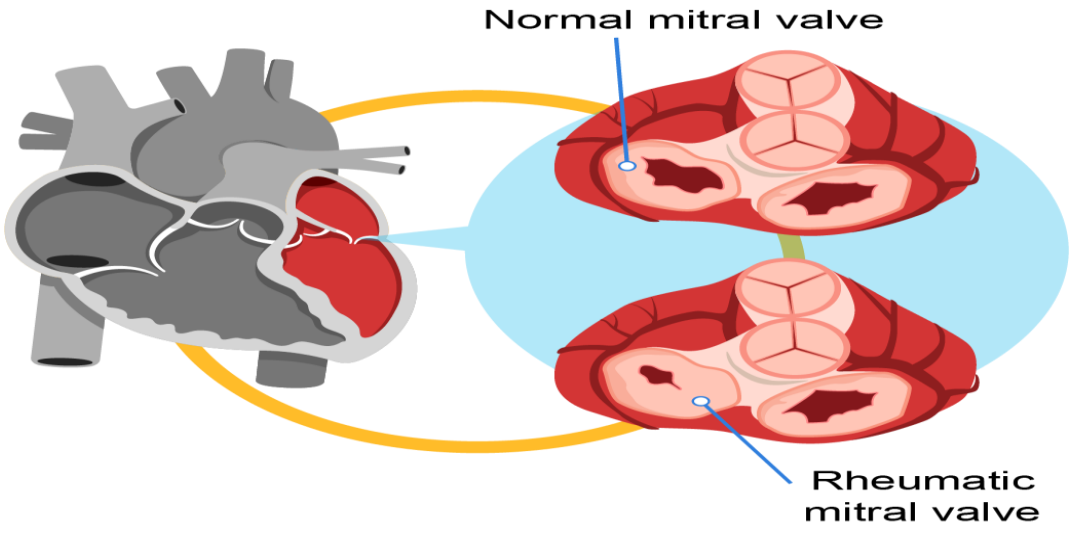


Fig-1: shows the normal mitral valve and rheumatic mitral valve

2. CASEPRESENTATION

A 15 yrs old admitted at governement Hospital, Shimla during the month of Feb' 2025 with the chief complaint of Shortness of breath. After the general physical examination, routine blood profile and other Lab investigation, underwent echocardiography in which he was diagnosed with RHD with Severe MR(mitral Regurgitation), severe MS (mitral stenosis), Left and right atrium, right ventricle were enlarged under evaluation. Patient underwent surgical intervention (Mitral valve repair with Key,s repair of tricuspid valve with commisusotomy with aortic valve repair under cardio pulmonary bypass machine.). Prognosis is good and patient discharged post operatively after a short stay at hospital.

PRESENT MEDICAL HISTORY

A 15 year's old male patient was admitted in IGMC hospital, Shimla on 29-2-25.Shortness of breath. At present the condition of patient was stable and he wasin CTVS ICU after surgery. He was taking treatment under the guidance and supervision of Prof. s. Mehta.

PRESENT SURGICAL HISTORY

Patient underwent Mitral valve repair with Key,s repair of tricuspid valve with commisusotomy with aortic valve repair under cardio pulmonary bypass machine.

HISTORY OF PAST ILLNESS.

PAST MEDICAL AND SURGICAL HISTORY-

Patient does not have any significant data of past medical and surgical history.

FAMILY HISTORY & FAMILY TREE

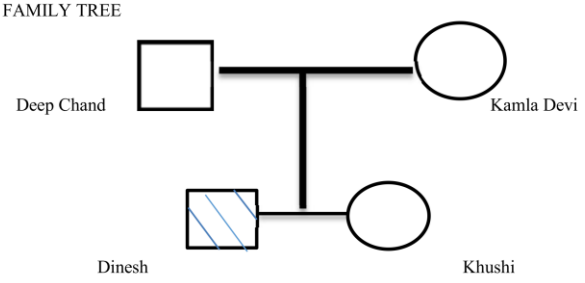
MEDICAL HISTORY-

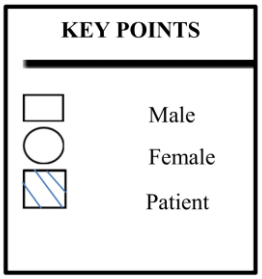
All the family members of patient are healthy and medically fit. There is no history of genetic disorder and hereditary problems like Diabetes mellitus, hypertension etc.

3. SURGICAL HISTORY-

Patient's family members had no any specific and significant past or present surgical history as of appendectomy, hysterectomy, cholecystectomy or no history of genetic disorders etc. All the family members are healthy.

❖ FAMILY TREE





S. no.	*Name of family members*	*Age/sex*	*Marital status*	*Education*	*Occupation*	*Relation with patient*	*Health*
1	*Deep Chan*	*42/MA*	*Married*	*12th*	*Farmer*	*Father*	*Healthy*
2	*Kamla Devi*	*38/FA*	*Married*	*10th*	*House maker*	*Mother*	*Healthy*
3	*Dinesh*	*15/MCH*	*Unmarried*	*9th*	*Student*	*Patient*	*Unhealthy*
4	*Khushi*	*10/FCH*	*Unmarried*	*5th*	*Student*	*Sister*	*Healthy*

PERSONAL HISTORY

- Sleeping Pattern: Patient's sleeping pattern is disturbed due to recent surgical procedure. He takes 3-4 hour sleep/day.
- Economic Status: Patient belongs to a middle-class family. His sources of family income is farming. Annual income is approximately Rs.80,000.

- Dietary Pattern: Dietary pattern of the patient is inadequate due to difficulty in breathing. Hardly he has taken meal once a day and he is on semi-solid diet.
- Addiction: Patient is not addicted to any form of addiction of drugs, alcohol and smoking/tobacco chewing.
- Elimination Pattern: Patient's elimination pattern is slightly impaired due to inadequate intake and hospitalization.

General examination

- Weight: 32 Kg
- GCS: 15/15
- Respiratory Rate: 22 breaths/ minute
- SpO_2: 99%
- Afebrile

Special Investigation:

Routine blood profile, Liver Function Test, Blood Urea Nitrogen, ECG, ECHO, Prothrombin time studies, CT Coronary angiography, CT Scan of thorax (plain and contrast), TEE(Transesophageal Echocardiogram).

Surgical Intervention: Mitral valve repair with Key,s repair of tricuspid valve with commisusotomy with aortic valve repair under cardio pulmonary bypass machine.

Pre-operative Orders:

Patient was kept NPO and surgical site preparation done with betadine. Inj. Xylocaine sensitivity tested for anaesthesia.

After Written consent preoperative medications such as Inj.Cefuroxine 1.5 gm IV

Surgical Notes:

A 15-year-old male patient underwent mitral valve repair with Key's repair of the tricuspid valve, along with commissurotomy and aortic valve repair under cardiopulmonary bypass. The procedure was performed to address valvular dysfunction and improve cardiac function. Cardiopulmonary bypass was utilized to maintain circulation while allowing precise surgical intervention. Postoperatively, the patient was closely monitored for hemodynamic stability and potential complications, ensuring optimal recovery.

Post operative Orders:

Post operatively the patient is in sedation. Patient has prescribed with Inj. Supacef 1.5 g I/V BD, Inj. Pantop 40mg OD, Inj. PCM 1gm I/V TDS, Inj. Emeset 1amp I/V SOS,Inj.Deriphyllin 1amp I/V TDS.

Care plans:

Nursing Problems such as Impaired gas exchange, acute pain, risk for infection, impaired skin integrity, and deficient fluid volume related to hospitalization are identified and addressed by appropriate nursing interventions.

DISCUSSION:

Definition:

Rheumatic heart disease (RHD) is a chronic heart condition caused by permanent damage to the heart valves due to rheumatic fever, an inflammatory reaction to untreated streptococcal throat infections.

Causes:

- Group A Streptococcus (GAS) infection leading to rheumatic fever.
- Autoimmune response causing inflammation and scarring of heart valves.

Affected Valves:

- **Mitral valve (most common)** – stenosis or regurgitation.
- **Aortic valve** – thickening and dysfunction.
- **Tricuspid & pulmonary valves** – less commonly affected.

Symptoms:

- Shortness of breath, chest pain, fatigue.
- Palpitations, swelling in legs, joint pain.
- Severe cases may lead to heart failure or stroke.

Diagnosis:

- **Echocardiography** (gold standard).
- ECG, chest X-ray, blood tests (ASO titer, ESR, CRP).

Treatment:

- **Medical:** Long-term antibiotics (penicillin prophylaxis), anti-inflammatory drugs, diuretics, and anticoagulants.
- **Surgical:** Valve repair or replacement in severe cases.

Prevention:

- Early diagnosis and complete treatment of streptococcal throat infections.
- Secondary prophylaxis with antibiotics to prevent recurrence.
- Public health measures: improved hygiene, access to healthcare, and awareness programs.

CONCLUSION

A 15 years old male presents with the chief complaints of shortness of breath from 3 months at government Hospital, Shimladuring the month of Feb, 2025.After physical examination, routineblood profile and other Lab investigation, underwent echocardiographyin which hewas diagnosed with RHD. Additionally, he underwent medicaland surgical management (Mitral valve repair with Key,s repair of tricuspid valve with commisusotomy with aortic valve repair under cardio pulmonary bypass machine). Prognosis was good and patient discharged postoperatively after a short stay at hospital.

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