



A Clinical Case Report on Mitral Stenosis with Mental Retardation with Anemia with Sepsis

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i44A32597

Editor(s):

(1) Dr. Mohamed Fawzy Ramadan Hassani, Zagazig University, Egypt.

Reviewers:

(1) Biswajit Majumder, West Bengal University of Health Sciences, India.

(2) Ankan Kumar Paul, Bangabandhu Sheikh Mujib Medical University, Bangladesh.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/72915>

Case Study

Received 17 June 2021
Accepted 28 August 2021
Published 17 September 2021

ABSTRACT

Introduction: Mitral stenosis (MS) may be a variety of valvular heart disease. Mitral stenosis is characterized by a narrowing of the mitral valve's orifice. Rheumatic fever is the most common cause of mitral stenosis today, yet the stenosis may appear clinically important just once in a lifetime [1]. Intellectual disability, with a prevalence of approximately 1 chronicle, may be a lifelong

neurodevelopment disorder that impacts international cognitive talents and function perform or daily living skills [2].

Clinical Findings: Breathlessness, weakness, high blood pressure, pulmonary thrombus, anemia, disability to talk, face discoloration, not proper communication, weight loss.

Diagnostic Evaluation: Blood investigation Hb -9.1gm, mch-82.3fl, mch-29.6piegon, mchc-36%, Total RBC count-5.31million/cu.mm RDW- 12.7% ,hct 35%, Total WBC count- 13,300cu.mm ,monocytes -4%, Granulocytes- 85%, Lymphocytes -10%, Esonophils-1%,Basophilis -0% , Total platelets conut-11.3, cu. mm. Urea 32mg/dl, creatinine-0.9mg/dl,sodium-131mmol/dl , potassium 5.1 mmol/L. Despite the fact that the patient was not diabetic, the random blood sugar test revealed a level of 160 mg/dL. RBC increase, 2D echo impression thrombus present in heart, Intellectual disabilities present, high blood pressure, urine albumin present,

Therapeutic Intervention: Blood transfusion, and medical treatment.

Conclusion: 48 years old female was admitted to medicine ICU diagnosed with the case of mitral stenosis with mental retardation with anemia with sepsis and she had complained of Breathlessness, weakness, high blood pressure, pulmonary embolism, anemia, disability to talk, face discoloration, not proper communication, weight loss. patient show great improvement after getting the treatment and the treatment was still going on still my last date of care. The patient and her family underwent psychological stress, which was resolved to an extent by being an active listener and providing proper counseling.

Keywords: *Mitral stenosis; mental retardation; sepsis; heart murmurs; arrhythmias; pulmonary thrombus; intellectual disabilities.*

1. INTRODUCTION

Mitral valve stenosis — sometimes called mitral stenosis — is a narrowing of the heart's mitral valve. This abnormal valve doesn't open properly, blocking blood flow into the main pumping chamber of your heart (left ventricle). Mitral valve stenosis can make you tired and short of breath, among other problems [1]. During diastole, In most cases, the mitral valve is about 5 cm² in size. Mitral stenosis is caused by a decrease in area of less than 2 cm. Increased cardiac output demand, such as during exercise or pregnancy, is too much for the heart to handle. [2]

Mental retardation (MR) is a widespread neurodevelopmental condition characterized by severely impaired cognitive and adaptive abilities. It is described as having an IQ of less than 70, as well as deficiencies in two or more adaptive behaviors that affect day-to-day living. DSM-V defines reasoning, problem-solving, planning, abstract thinking, and judgment as intellectual functioning.[3]

Anemia is a condition in which the overall number of red blood cells (RBCs) or hemoglobin in the blood is reduced, [4] or the blood's ability to carry oxygen is reduced. The symptoms of anemia that develops slowly are frequently unclear and include fatigue, weakness, shortness of breath, and a reduced ability to exercise.

Confusion, lightheadedness, loss of consciousness, and increased thirst are common signs of anemia that develops quickly. Confusion, lightheadedness, loss of consciousness, and increased thirst are common signs of anemia that develops quickly[5].

2. PATIENT IDENTIFICATION

A female 48 years admitted to medicine ICU on 08 Jun 2021 diagnosed as the case of mitral stenosis with mental retardation with anemia with sepsis, her weighs 36 Kgs with a height of 140 cms.

2.1 Present Medical History

Her complaints of Breathlessness, weakness, high blood pressure, pulmonary thrombus, anemia, disability to talk, face discoloration, not proper communication, and weight loss.

2.2 Past Medical History

Patient has a history of weight loss last 15 days before the admission, which the patient's relatives reported (document not available for the diagnosis) and treated it at home. Anemia with mitral stenosis, board discussion was done on 1/6/21 and later her blood investigation and computerized tomography, report confirmed to have mitral stenosis with anemia with mental retardation, sepsis on 09/06/2021. Till that

duration, she was admitted to the hospital from time to time for the blood transfusion.

2.3 Past Interventions and Outcome

Breathlessness, being the chief complaint of the patient, was suspected to have left pulmonary thrombus from 2D echo and computerize tomography report, which was later diagnosed as mitral stenosis with anemia with mental retardation with sepsis, through the blood investigation and computerize tomography, report on 09/06/2021. Also, the patient had a 9.1gm% hemoglobin level at the time of admission, for blood was transfused in corresponding days, which was found effective as the HB% was noted as 11.2 gm% on 10/6/2020 from 9.7 gm% on 8/6/2021.

2.4 Clinical Findings

Breathlessness, weakness, High blood pressure, pulmonary thrombus, anemia, disability to talk, face discoloration, not proper communication, weight loss.

2.5 Physical Examination

It was found that the patient had left pulmonary thrombus and anemia from CT scan and blood investigation, on thorough examination from head to foot, a chest abnormal sound is present, was noted the breathlessness, on further palpation it was found, high blood pressure, pulmonary thrombus, anemia, disability to talk, face discoloration, not proper communication, weight loss.

2.8 Nursing Diagnosis

Table 1. Acute pain related to decrease myocardial blood flow

Nursing Interventions	Rationale
Assess the level of pain then record and report it to doctor.	To know the level of pain and frame further interventions.
Consult and co-ordinate with health care team members of various department included in the case.	2. To confirm the final diagnosis with staging and prepare nursing diagnosis to provide effective care.
Administer the analgesics as per doctor order.	3. To provide symptomatic pain relief.

Table 2. Imbalance nutritional pattern less than body requirement related to loss of appetite

Nursing Intervention	Rationale
1. Monitor the weight of the patient daily.	To collect the baseline data about weight loss with the pain perception.
2. Check the physician's order and administer antiemetic and supplementary medicines.	2. To avoid regurgitation and enhance the health of the patient.

2.6 Diagnostic Assessment

2.6.1 Blood test

Hb – 9.1gm%, TLC= 10300/cu mm, PLT= 5,49 lakhs/cu mm.

2.6.2 Peripheral Smear

RBCs - Normocytic mildly hypochromic RBCs decreased, Platelets - Increased. No hemiparasite seen. CT. pulmonary angiography study-**pulmonary thrombus and right mild plural effusion, with basal lung Atelectasis, features of congestive Hepatomegaly.**

2.7 Management

2.7.1 Medical management

Blood transfusion, Tab Vitamin-C 500mg and tab. Zincovit OD x 9 days, Syrup Polybion 2tsp BD x 9 days.

2.7.2 Injection

Frusemide 40mg, Tab. Diltiazem Hydrochloride 90sr, Tab. Aspirin 75mg, Tab. Atorvastatin 40mg, Tab. Digoxin 0.25mg, Injection multivitamin 10ml with Iv fluid normal saline.

2.7.3 Nursing management

This case belonged to medicine department, therefore nursing care played a vital role in every aspect.

Nursing Intervention	Rationale
3. Consult the dietician and provide a diet pattern to the patient's family to follow.	3. To provide the patient with a healthy diet in order to cope up with daily activities.

Table 3. Fear and anxiety related to hospitalization secondary related to the regimen treatment

Nursing Intervention	Rationale
1. Maintain rapport with the patient and her family.	1. To induce comfort so that they can share about the queries and problems.
2. Provide information regarding disease condition and treatment modalities.	2. To increase knowledge regarding disease condition and treatment modalities of the patient and family.
3. Counsel the patient regarding the mentioned fears and anxiety.	3. To prepare the patient for the surgery.

3. DISCUSSION

Over a 9-year period, this therapy has kept the patient's hemoglobin levels at 9.1 to 11.6 g/dL. Until the time of writing in 2020, she had received a maximum of six blood transfusions in a year. Despite the fact that there has been a consistent and modest increase since 2019. Throughout, my quality of life has been excellent, with plenty of activities, a regular lifestyle, and no pain.

This example reveals that LS endocarditis can cause not only mitral regurgitation but also mitral stenosis due to prolonged inflammation resulting in mitral valve leaflet thickening and fusion. Comprehensive echocardiogram, including stress echocardiography, is crucial in this regard.[6].

Prior to in-hospital intravenous fluid delivery, there was no significant change in Hb levels between sepsis patients and controls in this trial. Anemia was common, although there was no difference in occurrence between groups (26 percent in sepsis versus 24 percent in controls). Females, on the other hand, had a larger percentage of patients with anemia in sepsis patients than in controls (23 percent versus 12 percent). A limited fraction of patients (5%) had absolute hemoconcentration, [7] with no difference between groups. The decline in Hb levels in both groups was significant and rapid within a few hours of arrival. It's worth noting that in sepsis patients, the fall in Hb concentration in response to intravenous fluid delivery was greater than in controls (1[0.5-1.7] versus 0.5[0.1-1.1] mmol/l). This decrease was linked to the volume of intravenous fluid administered, renal failure, and sepsis itself in a multivariate analysis. Three possible mechanisms can explain the decline in Hb concentration after intravenous fluid injection, which may occur

individually or simultaneously. To begin with, the sepsis group may have had considerably more severe hemoconcentration at baseline than the non-sepsis group. Fluid injection in this situation 'corrects' a seemingly normal Hb concentration at baseline, showing an absolute red blood cell volume deficiency. Second, the much increased creatinine in the sepsis group could be due to renal failure and the body's inability to compensate for hypervolemia by increasing urine output. [8] Finally, sepsis can lead to an increase in intravascular volume. The reduction of vasomotor tone may be to blame for the rise in intravascular space. Intravenous fluid administration is required in this situation to compensate for a decrease in cardiac output, which contributes to the normal hyperkinetic state and, as a result, a decrease in Hb concentration. Additionally, during sepsis, the glycocalyx sheds.[9]

4. CONCLUSION

A female patient aged 48 years old was admitted in medicine ICU patient first visit in yavtmal hospital and yavtmal hospital refer in AVBRH hospital. The patient complaint is Breathlessness, Weakness, weight loss, high blood pressure, Intellectual disabilities, and risk factor is acute rheumatic fever, Infection, Beta hemolytic streptococcal infection, high blood pressure, low hemoglobin levels, symptoms include weakness, chest pains, body pain. Treatment with blood transfusion, primary treatment for patient, Choice of reconstruction method depends on various factors. It is also very important to take preventive measure like avoid going to dusty area. Patient show great improvement after getting the treatment and the treatment was still going on still my last date of care. The patient and her family underwent psychological stress, which was resolved to an extent by being an

active listener and providing proper counseling. After the medical treatment patient condition was improved. And after administration of blood her hemoglobin was increased to 12.1 gm%.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline patients consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle4.com/review-history/72915>