



SEVERE MITRAL STENOSIS COMPLICATING PREGNANCY-A CASE SERIES

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Introduction:

Pregnancy with valvular heart disease is a high risk pregnancy that poses a significant challenge to the attending obstetricians and clinicians. Although rheumatic heart disease has decreased dramatically in the developed world, it remains an important cause of maternal mortality in the developing countries like India. The likelihood of an adverse outcome is related to the type and severity of maternal valvular disease and the resulting abnormalities of cardiac function. Physiological changes during pregnancy and the impact of pathological mitral stenosis on pregnancy and labor are important to know. A multidisciplinary approach to the diagnosis and treatment reduces mortality and morbidity. We present two cases with severe MS who were presented to us and in whom, favourable fetomaternal outcome was obtained.

Case 1:

A 23-year-old woman with twin pregnancy gravida II para I live I at 31+5 weeks gestation referred from outside hospital to cardiology department, was complaining of shortness of breath NYHA Grade III. Previously, she had a normal vaginal delivery with no complication. The echocardiogram revealed CRHD, dilated left atrium, severe Mitral stenosis(valve area is 0.9cm^2), moderate Aortic regurgitation, mild Tricuspid regurgitation and moderate Pulmonary Arterial Hypertension. Then she was diagnosed as a case of valvular rheumatic heart disease for the first time. The patient was admitted for close monitoring and a decision on further management. Cardiologists were of the opinion that she needed mitral valve replacement, but it was not possible at that time due to advanced pregnancy.

On Examination: She was thin built and nourished. Height - 155 cms. Weight - 51 kgs. No pallor, no icterus, no cyanosis, no clubbing, pedal edema+.

Ultrasound scan suggestive of **Monochorionic diamniotic twins** with fetus A-AFI=7.3 ,estimated fetal weight-1.8kg, fetus B-AFI=10.7 ,estimated fetal weight 2kgs.

Heart rate: 114 bpm. Pulse - Regular, Normal in volume and character. Blood Pressure was 100/60mmHg. Cardiovascular system examination showed loud S1, and a Grade 3/5 mid-diastolic murmur heard in the mitral area. Respiratory system examination was normal. P/A: uterus was 32 weeks size and Fetal heart rate was good.

She was stabilized with tab.Torsemide 10mg(diuretic) in the morning and 5mg in the evening, tab. Metoprolol 25mg once daily(beta blocker), tab. Digoxin 0.25mg once daily dosage. Infective endocarditis prophylaxis (inj.pencillin G benzathine 1.2million units) was recommended. All routine antenatal investigations were normal except for serum potassium levels, which was 3 mmol/l,inj.Kcl 20meq in 100ml of 0.9%Nacl given slow iv for 4 hours. Hypokalemia corrected. Inspite of above all efforts , her dyspnea was not optimised completely and patient started complaining of palpitations intermittently. Elective caesarean section is therefore appropriate in conditions where pulmonary pressures are increased. Severe mitral stenosis with significant symptoms is associated with increased maternal and neonatal mortality (3.5% and 7.5%, respectively, in one large series). In order to reduce the cardiac overload, elective caesarean section was planned under general anaesthesia. Inj. Betamethasone 12mg intramuscular injection given 12th hourly.The Caesarean section went on smoothly. The twin babies were delivered successfully and were sent to neonatal care unit. Intravenous fluids were administered according to CVP measurement. Extubated on OT table. There were no complications. She was shifted to postoperative ward after the blood pressure stabilized at 100/60 mm of Hg. Intravenous antibiotics were given. The patient recovered well and was subsequently stable i.e. dyspnea reduced. Hemodynamically stable . The mother and babies were healthy on discharge.

She was explained regarding the importance of continuing her cardiac drugs, of undergoing mitral valve replacement and contraception. The babies were healthy and taking breast feeds well.

Case 2:

A 21 years primi gravida at 32 weeks gestation with Rheumatic Heart Disease, severe MS+MR+PAH+Moderate TR with history of hypothyroidism, was admitted with shortness of breath. Cardiologist was consulted and his advice was followed.On examination, her BP was 90/60mm Hg, HR-84/min,cvs-loud s1 with MDM, spo2 was 93%. Along with diuretics and beta blockers ,oxygen therapy was added. She was given a single dose of Betamethasone 12mg

was given. Infective endocarditis prophylaxis was given. Aminoacid+ multivitamin capsules given. Elective caesarean section was planned in order to reduce her workload on heart. LSCS was done after written and informed consent under general anaesthesia. Delivered live female baby weighing 1.7 kg with APGAR 8/10 to 9/10. Intra and post operative period was uneventful. She was shifted to ward on POD1. Cardiac medications continued. Her vitals were stable and so discharged with advice for undergoing valve replacement or BMV.

DISCUSSION:

Rheumatic mitral stenosis is the most common clinically significant cardiac abnormality seen in pregnant women worldwide. Stenosis of the mitral valve obstructs left ventricular filling resulting in increased left atrial pressure and reduced cardiac output. In severe mitral stenosis, pulmonary hypertension, pulmonary oedema, and right ventricular failure may develop. During pregnancy several haemodynamic changes exacerbate the cardiovascular aberrations associated with mitral stenosis. Intravascular volumes increase by up to 50% in the last trimester resulting in increased left atrial pressure and increased pulmonary venous filling and increased heart rate during pregnancy reduces left ventricular diastolic filling time. During natural labour cardiac output and blood pressure increase with uterine contractions, and pulmonary artery catheter measurements during labour record significant increases in left atrial pressure. Immediately after delivery cardiac filling pressures increase dramatically due to vena caval decompression and return of uterine blood. Pulmonary hypertension is associated with greatly increased maternal risk and moderately increased neonatal risk, with peripartum mortalities of 30–56% and 10–13%, respectively. Elective caesarean section is therefore appropriate in conditions where pulmonary pressures are increased.

CONCLUSION:

Although complications are frequently encountered in such cases, an optimal outcome can be achieved by a dedicated multidisciplinary team comprising of an obstetrician, a cardiologist, an anesthesiologist and a cardiothoracic surgeon.