

Case Report

Severe aortic and mitral stenosis in a pregnant patient with contracted pelvis: a case report

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Introduction

Pregnancy with valvular heart disease is a high risk pregnancy that poses a significant challenge to the attending 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 function¹. Pregnancy complicated by severe aortic stenosis and mitral stenosis is associated with marked increase in maternal morbidity and unfavorable effect on fetal outcome². We report a case of severe aortic and mitral stenosis in which favorable fetomaternal outcome was obtained in spite of several complications.

Case report

A 25 year old primigravida presented on 17th December, 2004 with history of 8 months amenorrhea and complaint of breathlessness on exertion. Her menstrual periods

were regular in the past; her last menstrual period was on 9th April 2004 and due date was 16th January, 2005. She was previously admitted in our department on 11th August, 2004 for cough and fever with 4 months pregnancy when she was diagnosed as a case of valvular rheumatic heart disease for the first time. She was being treated with half a tablet of 0.25mg digitalis once daily and tablet frusemide (40mg) twice daily. She was also taking benzathine penicillin intramuscularly prophylactically every 21 days. She was staying far away in a village and hence did not come for regular antenatal check ups.

On examination, her vitals were stable. On auscultation of the cardiovascular system an ejection systolic murmur and a diastolic murmur were detected along with a loud P2. On abdominal examination uterus was 34 weeks size with cephalic presentation. Fetal heart sounds were regular and uterus was relaxed. On sonography biparietal diameter was 84 mm, femur length 64mm, liquor was adequate and placenta was anterior with grade 3 maturity. Fetal cardiac activity was normal and no gross congenital malformation was detected. She was admitted.

She underwent 2D-echo on 18th December, 2004. It was suggestive of severe mitral stenosis (MVA 0.7 cm²), severe aortic stenosis (pressure gradient 95 mm of Hg), mild aortic regurgitation, mild tricuspid regurgitation, and moderate pulmonary hypertension with ejection

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fraction 60%. Cardiologists were of the opinion that she needed double valve replacement, but it was not possible at that time due to advanced pregnancy. She was advised complete bed rest and tablet spironolactone (25mg) was added in twice a day dosage. Infective endocarditis prophylaxis was recommended. All routine antenatal investigations were normal.

On clinical assessment the pelvis was found to be grossly contracted and an elective cesarean section was performed on 30th December, 2004. Infective endocarditis prophylaxis (inj. ampicillin 2g, cefotaxime 1g and gentamycin 80mg were given intramuscularly $1/2$ an hour before surgery and 6 hours thereafter) was administered, central venous pressure (CVP) line inserted and emergency cardiac drugs were kept ready. General anesthesia (intubation under sodium pentothal and noraran, and maintenance with O₂, N₂O and sevoflurane) was administered. Cesarean section went on smoothly. Postoperatively she developed tachycardia (pulse 150 to 160 beats per minute) and failed to maintain oxygen saturation. As per physician's advice, injection esmolol (ultra-short acting β_1 blocker) was administered in a dose of 250 μ g intravenously and was repeated 15 minutes later in view of persistent tachycardia. She had to be reintubated. She continued to have persistent tachycardia and hence injection amiodarone (antiarrhythmic agent class 3) was administered. Tachycardia subsided but she developed signs of cardiac failure with bilateral crepitations. Frusemide, was administered intravenously, 40mg during surgery, 40mg soon thereafter and 20mg 30 minutes thereafter. She was extubated after 45 minutes as the vital parameters had stabilized. Ten minutes after extubation there was a sudden drop in the systolic blood pressure to 80 mm of Hg. Injection dopamine was started by intravenous drip and amiodarone drip was discontinued. She was shifted to postoperative ward after the blood pressure stabilized at 100/70 mm of Hg.

Intravenous antibiotics were given (cefotaxime 1g 8 hourly for 3 days followed by 500mg orally 6 hourly for 4 days, gentamycin 80mg 8 hourly for 5 days, and metrogyl 500mg 8 hourly for 3 days followed by the same dosage orally for 4 days). Intravenous fluids were administered according to CVP measurement. Dopamine was later tapered and omitted on the 2nd postoperative day. The patient recovered well and was subsequently stable. Stitches were removed on the 8th day. The mother and baby were healthy on discharge. She was explained

the importance of continuing her cardiac drugs, of undergoing double valve replacement, and of using condom for contraception regularly. On follow up examination after 6 weeks and 10 weeks of surgery, she was asymptomatic and was using condoms. The baby was healthy and taking breast feeds well. She has not yet undergone double valve replacement.

Discussion

The incidence of heart disease in pregnancy is estimated to be 1% with the involvement of the mitral valve being the commonest³. Aortic stenosis is rare during pregnancy and occurs in conjunction with mitral valve disease in approximately 5% of pregnant women with rheumatic valvular disease³. A combination of severe mitral and aortic stenosis is lethal.

In the case of pregnant women with cardiac disease vaginal delivery is the preferred option and operative vaginal delivery can be resorted to when indicated. Cesarean section in these women poses significant risk due to inherent complications of surgery and anesthesia and hence should be resorted to only for obstetric indications.

There is a dilemma in the management of pregnant women with the combination of severe aortic and mitral stenosis, more so when cesarean section has to be performed for an absolute indication like contracted pelvis. In patients with mitral stenosis, epidural anesthesia is ideal and intravenous fluid overload is to be avoided, while in patients of aortic stenosis, epidural anesthesia is contraindicated and fluid therapy should not be restricted. A delicate balance is required to prevent any untoward complication.

The performance of cardiac valvular surgery is a difficult and complex undertaking in a pregnant patient⁴. Even under ideal conditions, there is a high incidence of fetal distress, growth retardation and fetal wastage. It is preferable to delay surgery until the fetus is viable and delivered.

Newer developments like intensive cardiac monitoring, and better drugs for anesthesia and cardiac disease have proved valuable for proper management of these high risk patients. Although complications are frequently encountered, an optimal outcome can be

achieved by a dedicated team comprising of an obstetrician, a cardiologist, an anesthetist and a cardiothoracic surgeon.

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