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Dr. Vrushali Dadas
Department of Obstetrics and
Gynaecology, Government Medical
College, Nagpur, Maharashtra,
India

Dr. Sangeeta Ramteke
Department of Obstetrics and
Gynaecology, Government Medical
College, Nagpur, Maharashtra,
India

Dr. Mansi Shrigiriwar
Department of Obstetrics and
Gynaecology, Government Medical
College, Nagpur, Maharashtra,
India

Outcome of pregnancy in a case of severe aortic stenosis and coarctation of aorta

Dr. Vrushali Dadas, Dr. Sangeeta Ramteke and Dr. Mansi Shrigiriwar

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Abstract

We are presenting a rare case of 23-year-old G2P1L1 with 14 weeks of gestation age with chronic hypertension with recently diagnosed severe aortic stenosis with coarctation of aorta who had undergone aortic valve replacement and coarctoplasty at her 28th weeks of gestation under close observation throughout her ANC period. Elective cesarian section was done at 36 weeks of gestation with good maternal and neonatal outcome.

Keywords: Severe aortic stenosis, coarctation of the aorta, aortic valve replacement, coarctoplasty, antenatal care

Introduction

Survival of patients with congenital heart disease has dramatically improved due to the advances in cardiovascular surgery. Experience of pregnancy in these patients is scant and there is a continuous need to update our knowledge ^[1]. Coarctation of the aorta accounts for 6-8% of the patients with congenital heart disease ^[2]. Most females born with aortic coarctation are expected to reach childbearing age. This disorder is important to recognize because life threatening complications of the pregnancy thereby can be minimized. Herein, we report the case of a symptomatic pregnant woman in whom significant aortic coarctation with severe aortic stenosis was successfully managed. This patient was managed with cesarean section delivery at 36 weeks of gestation with good maternal and neonatal outcome.

Case Presentation

23 years old female got admitted at GMCH, Nagpur with referral from MGIMS Sevagram, Wardha as G2P1L1 with 14 weeks of gestation with chronic hypertension with severe aortic stenosis, moderate aortic regurgitation, and concentric left ventricular hypertrophy for MTP due to high risk in continuation of pregnancy. Patient came with complaint of breathlessness with history of raised BP readings.

Cardiology opinion was taken in view of evaluation of the cardiac disease. Transthoracic echocardiography of this patient suggestive of-Concentric LVH, CHD, SDS, Bicuspid aortic valve at 5° clock and 1° clock position, severe AS, mild AR, coarctation of aorta with pressure gradient 70 mm hg. Patient advised aortic valve replacement + coarctoplasty and MTP with high cardiac risk.

Patient and relatives counselled regarding risk in MTP and also risk and benefits in continuation of pregnancy after aortic valve replacement + coarctoplasty. Patient and relatives had taken decision of continuation of pregnancy.

Computed tomography suggestive of-Very short segment shelf like narrowing suggestive of coarctation of aorta seen just after the origin of left subclavian artery. Luminal diameter at the site of maximum narrowing measures 2-3 mm only. The descending aorta appears relatively small in diameter and show normal enhancement, measures 17 mm. multiple collaterals seen in the chest wall from left subclavian artery and intercostals artery branches. Short segment focal stenosis of approx. 80% seen at the origin of celiac trunk. Post stenotic mild dilatation noted. Aortic root, ascending aorta and rest of abdominal aortic branches including SMA, both renal arteries and IMA are normal.

Patient had undergone coarctoplasty under general anaesthesia followed by aortic valve replacement after 15 days of coarctoplasty at 28 weeks of gestation.

Corresponding Author:
Dr Vrushali Dadas
Department of Obstetrics and
Gynaecology, Government Medical
College, Nagpur, Maharashtra,
India

Patient was under close observation of cardiologist and obstetrician since her 14 weeks of gestation till 36 weeks of gestation. With appropriate INR correction planned lower segment caesarean section was done and delivered a male baby with birth weight 2.4 kilograms.

Post-operative transthoracic cardiography suggestive of aortic valve replacement + coarctoplasty with well-functioning prosthetic aortic valve, LVEF 60%, coarctation of aorta with 20 mm hg pressure gradient.

Histopathological report of aortic valve suggestive of degenerating changes.

Post-operative period was uneventful and patient and baby were discharged on post LSCS day 15 in healthy condition.

Discussion

Typically, coarctation of aorta is located in the area where the ductus arteriosus inserted and only in rare cases occurs ectopically (ascending, descending, or abdominal aorta) [1]. In this case coarctation of aorta is located at descending aorta and at abdominal aorta at the level of origin of celiac trunk which is rare. [1]

Classically, coarctation of aorta is poorly tolerated during pregnancy due to associate with a risk of acute aortopathy. In contrast to common misconception the majority of women with coarctation of aorta do well during pregnancy [2]. However, coarctation of aorta may cause some problems during pregnancy even after surgical or stent repair because of hypertensive disorders [3]. Vriend *et al.* have reported on 126 pregnancies in 54 women after repair of coarctation of aorta, which renders it the largest reported series thus far [3]. The present study showed that pregnancy is well tolerated in coarctoplasty patient [3].

However, an excess of miscarriages and frequent occurrence of hypertensive disorders of pregnancy were observed [4]. These patients should be evaluated for early detection and prevention of obstetrical and/or cardiovascular complications such as sustained hypertension, aortic root dilatation, or recoarctation. Saidi and co-workers reported that the risk of aneurysm formation and the development of systemic hypertension are uncertain in patients with aortic coarctation. They added that in women with an arm-to-leg blood pressure gradient of <20mmHg after repair of coarctation of aorta, pregnancy is successful [5]. In this case we are able to manage gradient across coarctation of aorta from 70 mm hg to 20 mm hg.

Hypertension worsens in some patients and the spontaneous abortion rate is increased [2]. From the third to the seventh month of pregnancy circulation is successively accelerated, and blood volume and cardiac output increase by 30 to 50%. The blood pressure balance shows sudden changes in the seventh month of pregnancy, despite the average blood pressure regular. Thus, this period is the first critical period for the coarctation of aorta patient. The second critical period is labour itself, because blood pressure and cardiac work increase by about 20% at the peak of each uterine contraction.

Conclusion

We reported a pregnant woman complicated with aortic coarctation who had undergone aortic valve replacement and coarctoplasty at 28 weeks of gestation, resulted in good maternal and neonatal outcome without cardiovascular complications.

Hence we recommend that early diagnosis of coarctation of aorta should be made. For such patients prompt management is required hence patient must be referred to the institute where all the facilities are available.

Conflict of Interest

Not available

Financial Support

Not available

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