CASE REPORT

Successful Outcome of a Rare Case of Ruptured Sinus of Valsalva Aneurysm in Pregnancy

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Introduction

Ruptured sinus of Valsalva aneurysm is a rare cardiac anomaly. The aneurysm is usually congenital and makes up less than 1 % of all congenital cardiac anomalies [1]. There are few reported cases of this condition, those with pregnancy being even less, and hence the definitive management remains uncertain.

Case Report

A 26-year-old unbooked Gravida 3 P 1 A1 reported to the antenatal O.P.D. of the Department of Obstetrics & Gynecology, Goa Medical College on June 15, 2007, with a history of amenorrhea for 8 months, breathlessness on exertion for the past 2 years, and cough with mucoid expectoration for 4 days. There was no history of chest pain, oliguria, palpitations, hemoptysis, or fever. The patient appreciated good fetal movements.

The patient mentioned being told of having some heart disease in her childhood, but could not reveal any details. There was no past history of rheumatic fever or surgeries performed.

The period of gestation was 34 weeks at admission. The obstetric history was G3 P1A1, and she was married for 6 years. The first pregnancy was a terminated, while the 2nd was an uneventful full-term vaginal delivery.

On examination, she was an averagely built young female with no pallor, icterus, cyanosis, clubbing, or pedal edema. Her details were as follows: pulse—regular 90 beats per min, bounding character; B.P-116/60 mmHg Respiratory System—air entry equal bilaterally, vesicular breath sounds with no added sounds; and cardiovascular system—1st and 2nd heart sounds muffled. A continuous murmur was best heard in the Erb's area with harsh character, radiating all over the precordium, of grade 5/6. There was a systolic and diastolic parasternal thrill. The JVP was normal. The obstetric examination was also normal.

All blood investigations were normal including hemoglobin of 11.6 g% and normal sugars. Chest X-ray showed pulmonary congestion.

On admission ultrasonography showed an appropriately grown single live fetus in cephalic presentation. Electrocardiogram showed regular sinus rhythm of 90 bpm HR.

Echocardiography (trans-thoracic) showed a small 3.2-mm width perforation at the commissural end of the right coronary cusp with continuous flow left to right shunt into the right ventricular outflow tract, just below the pulmonary valve. Ventricular chambers were normal in

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size and function. Atrio-ventricular valves were normal. Inter-atrial and inter-ventricular septums were intact. She has normal pulmonary arterial pressure. The diagnosis was G3 P1A1 at 34 weeks of singleton pregnancy with ruptured sinus of Valsalva aneurysm (NYHA grade II heart disease).

The patient was managed conservatively in the hospital. A salt-restricted diet was given. The patient was given bed rest and hematinics. The patient was given on Furasemide 20 mg once daily along with Digoxin 0.25 mg once daily for 5 days per week. The patient was monitored on a regular basis for input/output, any worsening of signs and symptoms, electrolyte levels, and weight gain. The patient's general condition remained stable and she remained largely asymptomatic. The decision was taken to terminate the pregnancy after 38 completed weeks of gestation. Definitive management of the heart condition was deferred till after delivery. The pregnancy was to be terminated by cesarean section to prevent the possibility of a full blown extension of the tear/rupture of the aneurysm of sinus of Valsalva, which could lead to heart failure due to the strain on the heart during a vaginal delivery. The patient underwent an elective lower segment cesarean section at 38 weeks after endocarditis prophylaxis and delivered a baby girl of 2.8 kg birth weight with Apgar scores 8/10. The patient was observed in the ICU for 24 h post-op for better hemodynamic monitoring. Antibiotics, diuretic, and digoxin were continued. She was discharged on the 10th post-op day and referred for surgical repair of her cardiac condition.

Discussion

A ruptured sinus of Valsalva aneurysm is a rare cardiac anomaly. The aneurysm is usually congenital and makes up less than 1 % of all congenital cardiac anomalies [1].

The sinuses of Valsalva are three dilatations in the wall of the aorta, located just above the three aortic valve cusps. Aneurysms occur where there is a defect in the fusion between the aortic media and annulus fibrosus of the aortic valve [2] and are usually congenital in origin. There may be aneurysms secondary to atherosclerosis, inherited connective tissue abnormalities; infective endocarditis; Behcet's disease; etc. The aneurysms appear to occur more

commonly in Asian populations and are four times more common in males than females [3]. Unruptured aneurysms are usually asymptomatic and are incidentally detected on ECHO. However, they may produce dizziness or syncope as a result of compression of the interventricular septum causing heart block, chest pain due to myocardial ischemia, or signs and symptoms of aortic regurgitation. A small perforation may also remain asymptomatic over years due to hemodynamic stabilization, as in our case. Eventually, as the degree of shunting increases, symptoms related to volume overload set in like exercise intolerance and dyspnoea. Medical management involves stabilization of heart failure and correction of complications. Urgent surgical care is recommended in all patients with ruptured sinus of Valsalva aneurysm, especially with intra-cardiac shunting. Aggressive surgical correction of unruptured sinus of Valsalva aneurysm (aortic root diameter >5 cm) is also often recommended because of its association with increased morbidity and mortality [3]. Prognosis is poor with progressive aneurysmal dilatation or rupture, unless surgical repair is performed. Successful pregnancies have been reported in world literature in women with ruptured sinus of Valsalva aneurysms with appropriate, careful management of labor and delivery. The optimal management is clear when the patients are close to term and so the delivery can be done without undue risk to the child. However, earlier in pregnancy, the decision of whether to allow the pregnancy to continue depends on the balance between the risk to the child of an early delivery and the hemodynamic consequences to the mother of continuing to a later stage of pregnancy.

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