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# RARE COMPLICATION UNVEILED INTERVENTRICULAR SEPTAL INTERMEMBRANOUS ANEURYSM OF PREGNANCY – A CASE REPORT

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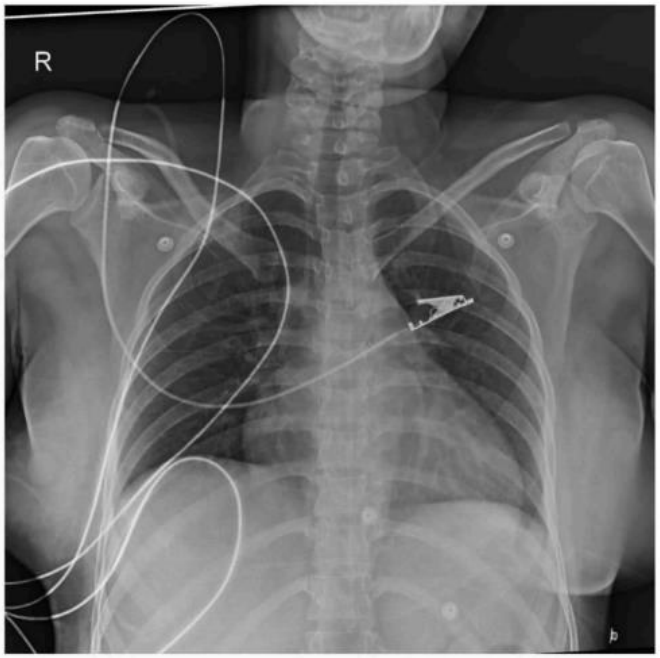
**Abstract**
Membranous ventricular septal aneurysm (MVSA) is a rare cardiac anomaly that can occur as an isolated entity or being associated with other cardiac malformations. Complications of MVSA include thromboembolism, arrhythmia, rupture, bacterial endocarditis, right ventricular outflow tract obstruction, and atrioventricular valve diseases. The success rate of pregnancy and delivery in patients with MVSA has not been reported in the literature. This case report illustrates the importance of diagnosis, followup, management with multidisciplinary approach for a safe and optimal antenatal and postnatal periods
Keyword: Membranous Ventricular Septal Aneurysm (MVSA), Cardiac Anomaly, Pregnancy, Delivery in Patients

## INTRODUCTION

Membranous ventricular septal aneurysm (MVSA) is a rare cardiac anomaly affecting the membranous portion of the ventricular septum, characterized by a protrusion in a weakened or incomplete septum. This leads to an inability to balance pressure between the left and right ventricles, potentially causing thromboembolism, arrhythmias, rupture, infective endocarditis, or right ventricular outflow tract obstruction. Most MVSA cases are asymptomatic and detected incidentally during echocardiography. However, undiagnosed cases pose risks, especially during high cardiovascular stress like pregnancy, where outcomes are poorly understood due to limited research.
The literature lacks comprehensive data on pregnancy outcomes in MVSA patients, necessitating further research and clinical vigilance for managing cardiac anomalies during pregnancy. Understanding the impact of MVSA on pregnancy is crucial for optimizing care and addressing potential complications in this population.

## CASE REPORT

This case involves a 31-year-old gravida two para one live one (G2P1L1) woman who presented at 36 weeks and 5 days of gestation with an incidental finding of a perimembranous ventricular septal defect (VSD) measuring 0.6 cm on routine antenatal echocardiography. She was referred for further management. The patient had no symptoms of fatigue, dyspnoea, chest pain, palpitations, syncope, or other significant complaints. Upon examination, her general condition was fair with no pallor or pedal edema, and systemic examination was normal. A cardiology evaluation confirmed the diagnosis of membranous VSD without significant hemodynamic compromise, as evidenced by uninterrupted sinus of Valsalva and normal left ventricular systolic function (ejection fraction 62%). Continuing the pregnancy with infective endocarditis (IE) prophylaxis at delivery was advised.




The patient received regular multidisciplinary antenatal care and was admitted for elective lower segment caesarean section (LSCS) at 39 weeks and 2 days due to cardiac considerations. Preoperative cardiology clearance was obtained for the high cardiac risk procedure. The LSCS was uneventful, and the baby was born with immediate cry and normal vital signs. Postoperatively, the patient received antibiotic prophylaxis for IE.

The baby was diagnosed with a patent ductus arteriosus (PDA) and was under paediatric care. The patient remained asymptomatic and stable during the postoperative period. Follow-up was planned after 2 weeks to monitor for any cardiac issues.

## CONCLUSION

The presence of Membranous Ventricular Septal Aneurysm (MVSA) during pregnancy poses heightened cardiac risks for both mother and newborn. Risk levels are influenced by heart function, pulmonary hypertension, and cardiac arrhythmia history. Accurate diagnosis and comprehensive multidisciplinary care are vital for optimizing outcomes. This approach ensures thorough cardiac evaluation, timely interventions if needed, and coordinated pregnancy and delivery care to minimize MVSA-related complications. Integrated care supports maternal and foetal well-being during this critical period.

## DISCUSSION

The membranous ventricular septal aneurysm was first recognized as a congenital anomaly in 1826 by Laennec. During foetal development, it is hypothesized that the septum membrane is delicate and forms an aneurysm, which protrudes towards the right as a result of the pressure exerted by the left ventricle. Furthermore, it has been proposed that MVSA may arise due to the postponed natural closure of a ventricular septal defect following birth [1]. Indeed, MVSA is primarily associated with a previous event when a small membranous ventricular septal defect closed spontaneously throughout development. Patients with MVSA may encounter various cardiac complications, such as aortic valve prolapse, restricted blood flow from the right ventricle, inadequate tricuspid valve function, irregular heart rhythm, rupture, formation and movement of blood clots, and bacterial infection of the heart's inner lining [2].

Our participant is asymptomatic before conception. Patients who are asymptomatic for MVSA should be closely followed for any cardiac issues. This is especially important for situations that happen during pregnancy [3]. Pregnancy places extra burden on the cardiovascular system and can affect the functioning of the heart, leading to increased rates of illness and death for both the mother and the baby [4]. Pregnant women with MVSA were postulated to be vulnerable to maternal and neonatal complications, even if there have been no reported instances in current literature. The occurrence of obstetric events associated to prematurity, premature rupture of membranes (PROM), preeclampsia, breech presentation, gestational diabetes mellitus (GDM), and postpartum haemorrhage was quite high, exceeding 80%. Mothers with congenital heart disease (CHD) also face a considerable number of prenatal complications, such as miscarriage, premature births, low birth weights, respiratory distress syndrome, and cardiac anomalies [5].

This study focused on pregnancies in which the newborn had a congenital heart condition called patent ductus arteriosus. In this study, patients underwent caesarean section delivery under general anaesthesia. Nevertheless, the patient did not develop thromboembolism. By implementing comprehensive interdisciplinary management that includes the cardiologist, obstetrician, anaesthetist, and developing exact delivery plans.

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