

CORRESPONDENCE

ANESTHESIA & CONCURRENT DISEASE

Aneurysm of interventricular septum: what an anesthesiologist must know

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Aneurysm of interventricular septum (IVSA) is a rare congenital anomaly. It has been documented in isolation but is seen in association with congenital heart disease in 0.3% of cases and in association with ventricular septal defect in 19% of cases. Etiologies are considered to be idiopathic formation, trauma, infection or spontaneous closure of pre-existing ventricular septal defect. Clinical manifestations are variable, some patients are asymptomatic whereas others can present with hemodynamic compromise.¹

A 58 year old obese female patient (BMI 32 kg/m²) was scheduled for total hip replacement. She had history of diabetes and hypertension which were controlled with 20 units regular insulin three times a day and amlodipine 5 mg two times a day. Relevant investigations were normal except for chest X-ray and ECG. X-ray chest revealed cardiomegaly and T-wave inversion were present in all the chest leads. Echocardiography was advised on the basis of chest X-ray and ECG findings. Echocardiography revealed IVSA, dilated left atrium, left ventricle, systolic wall motion abnormality with left ventricular diastolic dysfunction grade 2 and mild MR. However ejection fraction was 56%.

High risk consent was taken. Morning investigations were got done for fasting blood sugar and serum electrolytes which were normal. Morning dose of insulin was omitted. Patient was premedicated with tablet alprazolam 0.25 mg at night. In operating room, standard monitors were attached including five lead ECG. Neutralizing drip was started along with normal saline. Arterial cannulation was done in left radial artery after modified Allen test which was negative. Combined spinal epidural anesthesia was administered at the level of L-2, L-3 with 2.5 ml of hyperbaric bupivacaine with 25 µg fentanyl. Fall of blood pressure was observed once which was managed with 3 mg ephedrine. Surgery lasted for 2 hours and was uneventful. Patient was monitored postoperatively for 24 hours in intensive care unit.

Postoperative pain was managed with the help of epidural catheter. Patient was discharged home after 7 days.

Membranous septum represents the mid-septal portion of the interventricular septum. This is a compact fibrous segment and absence of myocardium in this region can predispose patients to deformation into an interventricular membranous septum aneurysm.²

Patients with IVSA are often asymptomatic, if symptoms develop they are usually related to the associated complication. The aneurysm like behavior of IVS predisposes patients to arrhythmogenic and thrombogenic events and can be the common cardiac source of cerebral embolism. In addition, aneurysm of IVS may bulge into the right ventricle outflow tract leading to subpulmonic stenosis. Arrhythmias may occur in these patients due to stretching of conduction system at the base of the aneurysm. The most frequent arrhythmias in these patients are ventricular tachycardia, bundle branch block and AV block.³ These patients should be carefully evaluated and vigilant monitoring should be done. Our patient had T wave inversion in ECG preoperatively and didn't develop arrhythmia in intraoperative or postoperative period.

The finding of a mass in the aneurysm is suggestive of thrombus and so anticoagulation treatment should be started. In outpatient, there was no evidence of thrombus on echocardiography and hence anticoagulation treatment was not started. Bacterial endocarditis is a special concern in these patients. If IVSA is associated with cyanotic congenital heart disease, then prophylaxis for bacterial endocarditis prophylaxis should be given. In outpatient, this prophylaxis was not given as patient didn't have associated congenital heart disease.⁴

Surgical correction of IVSA may be required prior to elective surgery when hemodynamic abnormalities and other aneurysm related complications are evident.⁵ Our patient was asymptomatic, so surgery was not advised by cardiac surgeons.

To conclude incidentally diagnosed membranous IVSA should prompt investigations for relevant cardiac abnormalities and further diagnostic evaluation and should be managed accordingly. In majority of, it is not hemodynamically cases significant, however it can cause numerous complications such as arrhythmias, thrombus formation and endocarditis. A vigilant pre-anesthetic check-up with careful and strict intraoperative monitoring of the patient is a must for successful outcome of the patient.

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