Atrial Septal Aneurysm Presenting as Clubbing without Clinically Apparent Cyanosis

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Abstract

Atrial septal aneurysm (ASA) is a localised “saccular” deformity which protrudes to the right or the left atrium or on both sides. It is a rare, but well recognised cardiac abnormality. It is usually an incidental finding or may present as atrial arrhythmias or arterial embolism. Though it is an acyanotic congenital heart disease but it may result in significant right to left shunt and cyanosis. We describe a patient of ASA with atrial septal defect who presented with clubbing and right to left shunt without clinically apparent cyanosis.

Introduction

Atrial septal aneurysm (ASA) is a well recognized acyanotic cardiac abnormality.1,2 It may be isolated or more commonly associated with other anomalies i.e. patent foramen ovale (70%).2 Usually it is found as incidental finding or may cause atrial arrhythmias or arterial embolism. Diagnosis is established by echocardiography.

Case Report

A 22 year old female presented in outdoor with complaints of pain in abdomen without fever or vomiting. There was history of 2-3 episodes of syncope in last 4 months. Her vitals were stable with pulse rate of 86/minute in right radial artery with normal rhythm, volume, character, all peripheral pulses were palpable, blood pressure was 120/80 mm of Hg in right arm in supine position, respiratory rate was 12/minute with thoraco-abdominal respiration and temperature was 98.2°F.

On examination icterus and clubbing of grade III and hepatosplenomegaly were found. Clinically evident cyanosis was absent. Rest of the systemic examination was normal.

Blood investigation revealed total bilirubin of 2.75 mg/dl (direct 0.87 mg/dl). Arterial blood gas (ABG) analysis showed low O2 saturation (pH of 7.40, PO2 = 37 mm Hg, SO2 = 71%, PCO2 = 37 mm Hg, HCO3 = 22.3 mEq/L). Her renal function and other liver function tests were in normal range. On ECG P-pulmonale was present and chest skiagram showed enlarged cardiac shadow. In 2D echocardiography atrial septal aneurysm with interatrial communication with right to left shunt was found along with enlarged right atrium, hypoplastic right ventricle and normal systolic function (Figure 1). She received aspirin and referred to cardiology department for further management.

Discussion

Atrial septal aneurysm is a localised “saccular” deformity, generally at the level of the fossa ovalis, which protrudes to the right or the left atrium or on both sides. It is a rare, but well recognised cardiac abnormality with uncertain clinical significance. The congenital malformation of the atrial septum probably contributes to development of septal aneurysm.1,2

This may be an isolated anomaly or more commonly associated with other anomalies i.e. patent foramen ovale (70%), atrial septal defect, mitral valve prolapse / tricuspid valve prolapse, Marfan’s syndrome, sinus of Valsalva aneurysm or aortic dissection.3 The atrial septal defect may lead to right to left shunt.

ASA is usually an incidental finding or may cause atrial arrhythmias or arterial embolism. A non-ejection systolic click may occasionally be heard possibly as the AS aneurysm bulges and tenses within left/right atrial cavity.4

Diagnosis is established by echocardiography.1,3 Transesophageal echo is more sensitive than transthoracic echo in picking up ASA. If echocardiography is inconclusive for the diagnosis, then MRI is the imaging study of choice.3 There are two criteria for echocardiography diagnosis of ASA, Hanley classification and Olivares-Reyes criteria.1,3 Aneurysmal dilatation of the atrial septum protruding at least 1.5 cm beyond the plane of the atrial septum or phasic excursion of the interatrial septum during the cardiac cycle of at least 1.5 cm in total amplitude with a diameter at the base of the aneurysm of at least 1.5 cm gives a diagnosis of ASA in Hanley criteria. Olivares-Reyes classification gives five possible types of ASA movements, type 1R: ASA protrudes from the midline of the atrial septum to the right atrium throughout the cardiorespiratory cycle, type 2L: ASA protrudes from the midline of the atrial septum to the left atrium throughout the cardiorespiratory cycle, type 3RL: the maximal excursion of the ASA is toward the right atrium with a lesser excursion toward the left atrium, type 4LR: the maximal excursion of the ASA is toward the left atrium with a lesser excursion toward the right atrium, type 5: the ASA movement is bidirectional and equidistant to the right as well as to the left atrium during the cardiorespiratory cycle.

An uncomplicated and isolated ASA requires no specific treatment. For stroke prevention in ASA with atrial septal abnormality, antiplatelets or anticoagulants are given. The surgical or percutaneous closure of defect is the definitive treatment.5 For atrial arrhythmia, specific antiarrhythmic treatment is needed and for embolic episode, antiplatelets and anticoagulants required for secondary prevention of cardioembolic episode.6

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