Idiopathic Right Atrial Aneurysm

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Abstract
We are describing a rare report of right atrial (RA) aneurysm without any structural heart disease. We are also describing the MRI features of this anomaly. This is first kind of case report in world literature where only isolated RA aneurysm was found without any other structural heart disease.

INTRODUCTION
Right atrial aneurysm is a rare abnormality. It can be detected at any time between fetal and adult life. Due to its rare occurrence, right atrial aneurysm may easily be confused with other, more common anomalies that lead right atrial enlargement, such as Ebstein’s anomaly. Right atrial aneurysms may be asymptomatic; however, some patients present with optimal therapeutic approach for right atrial aneurysm is controversial. We report the case of a symptomatic child who was diagnosed with giant right atrial aneurysm.

CASE REPORT
Sixteen years old boy presented with complaints of breathlessness on exertion NYHA Class II for last 4 years, which increased, to Class III since last 2 months. There was no history of pedal swelling, syncope, convulsions or evidence of thromboembolism. Examination revealed precordial bulge with palpable left parasternal heave. A chest radiograph showed marked cardiomegaly with normal pulmonary of 74/min (Fig. 2) with a QRS axis of 90° and poor R wave progression in lead V6. An echocardiogram revealed a giant right atrium; the right atrial diameters were 16.5 x 10.5 cm compared with 2 cm for the left atrium, and the calculated right atrial volume was 438 ml compared with 10 ml for the left atrium (which was somewhat compressed by the right atrium) The right atrial wall was thinned out and without intracavitary thrombus. There was no atrial septal defect.

The tricuspid valve was not displaced. There was mild normotensive tricuspid regurgitation. The left atrium and ventricle were normal (Fig. 3). Cardiac MRI showed aneurysmal dilatation of right atrium with thinned out walls(Figs. 4, 5). Patient was referred for RA reduction surgery. The patient is awaiting surgery.

DISCUSSION
Giant right atrial aneurysm is a rare condition of unknown origin; whether it is congenital or acquired is controversial. Some prefer to call it idiopathic dilatation of right atrium, while others label it as congenital enlargement of right atrium or right atrial diverticulum. In utero1 and familial2 cases have been reported. Bailey3

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1st reported the condition in 1955 and several case reports followed. Recently, a review was published of all congenital malformations of the right atrium and coronary sinus reported in the literature from 1955 through 1998. Of the 105 cases in this series, 60 were cases of congenital enlargement of the right atrium. The patients ranged in age from 32 weeks gestation to 75 years at the time of diagnosis. Many (48%), were asymptomatic. Others presented with arrhythmia, palpitations, chest pain, shortness of breath, and fatigue. Sinus rhythm was observed in 53% of the patients. The major rhythm abnormality was atrial fibrillation or atrial flutter, which occurred in 28% of cases. Other conduction disturbances included pre-excitation, junctional rhythm, atrioventricular block, and incessant supraventricular tachycardia. Patients were at risk for thrombus formation in the right atrial cavity, which predisposed them to thromboembolic complications such as stroke (paradoxical embolism) and pulmonary embolism. In patients experiencing atrial fibrillation or flutter, thromboemboli may also arise from the left atrium. In asymptomatic individuals, this cardiac anomaly usually becomes apparent as cardiomegaly on a routine chest radiograph. Various conditions can mimic this entity on a radiograph, including Ebstein’s

![Fig. 2: ECG showing atrial fibrillation.](image)

![Fig. 3: Echocardiographic image depicting large RA aneurysm with normal tricuspid valve.](image)

![Fig. 4: MRI cross section image showing large RA aneurysm filling almost whole of mediastinum.](image)

![Fig. 5: MRI image in sagittal plane showing dilated anterior chamber (RA).](image)
anomaly, pericardial effusion, pericardial cysts, and tumors. Accurate diagnosis is necessary for proper medical and surgical management. Herein lies the importance of recognizing the wide anatomic spectrum of Ebstein’s anomaly and differentiating it from other causes of right atrial enlargement. In cases of right atrial aneurysm, massive dilatation of the right atrium is usually associated with tricuspid annular dilatation and tricuspid regurgitation. In our patient, there was normotensive mild tricuspid regurgitation. Patients with arrhythmias have been treated successfully with excision of the right atrial aneurysm, but the arrhythmias may recur after surgical/cryoablation. The best approach to asymptomatic patients has been controversial, with some patients managed surgically and others nonsurgically. Because of the risk of future thromboembolic complications and arrhythmias, a right reduction atriotomy and repair of any associated lesions is recommended.

**References**


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