



Giant Right Atrium

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ABSTRACT

Severe enlargement of the atrium usually happens within the left atrium and is rarely seen in the right atrium. Giant right atrium is a rare condition that can be seen in tricuspid valve pathologies. Pulmonary hypertension, which could develop after tricuspid valve stenosis or insufficiency, may lead to giant right atrium in adults. A 45-year-old female patient was operated for tricuspid valve insufficiency related to a giant right atrium.

Key Words: Pulmonary hypertension, right atrial dilatation

Dev Sağ Atrium

ÖZET

Atriumun ileri derecede genişlemesi genelde sol atriumda görülür. Nadiren sağ atriumda da gelişebilir. Dev sağ atrium triküspit kapak patolojilerinde nadir görülen bir durumdur. Erişkinlerde triküspit kapak stenozu ve yetmezliği sonucunda oluşabilen pulmoner hipertansiyona sekonder gelişebilir. Kırk beş yaşında kadın hasta triküspit yetmezliğine bağlı gelişen dev sağ atrium sebebiyle opere edildi.

Anahtar Kelimeler: Pulmuner hipertansiyon, sağ atriyal dilatasyon

INTRODUCTION

Even though right atrial dilatation with congenital abnormalities is often seen in children, it may develop in adults secondary to pulmonary hypertension or valvular heart disease⁽¹⁾. Dilated right atrium may remain asymptomatic and eventually may lead to giant right atrium (GRA).

CASE REPORT

A 45-year-old female patient was referred to our clinic with dyspnoea and distal extremity swelling and oedema. The patient had a history of mitral valve replacement 11 years ago and was followed up routinely in the outpatient clinic. These complaints were present for the last 1 year.

On physical examination, the patient, who had atrial fibrillation (98 beats/min), had diffuse abdominal ascites with hepatosplenomegaly and 3+ pretibial oedema. Cardiothoracic ratio was found to be increased on telecardiography (Figure 1). Preoperative computed tomography (CT) showed 12 x 14-cm-sized right atrium (Figure 2). Echocardiography revealed the presence of GRA (12 x 13 cm) along with organic severe tricuspid regurgitation and stenosis (gradients of 17/8 mmHg), and right ventricle systolic function was moderate (fractional area change (FAC): 30%, systolic velocity (Tri S): 9.5 cm/s, Tricuspid Annular Plane Systolic Excursion (TAPSE): 12 mm, pulmonary artery pressure (PAP): 38 mmHg). Left ventricular ejection fraction, left atrium diameter and mitral prosthetic valve area were 65%, 7.3 cm and 2.6 cm², respectively. The upper limit of normal for the long axis dimension of the right atrium is 45 mm (RA length: 46-49 mm mild, 50-54 mm moderate, ≥ 55 mm severe).

Abdominal ultrasonography displayed hepatosplenomegaly (spleen: 142 x 58 mm, liver: 280 x 220 mm) with normal portal venous system. Tricuspid valve replacement and a reduction right atrioplasty were subsequently performed.

Surgery

Resternotomy was performed through the old incision. Surgical exploration showed right atrium filling the whole right thoracic cavity. Cardiopulmonary bypass is established by cannulating the ascending aorta and selective cannulation of superior vena cava and

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inferior vena cava. Inferior vena cava was excessively dilated. Because venous return from the inferior cava and pulmonary vein was quite high, total circulatory arrest was decided. Total circulatory arrest was established by cooling down the patient. Severe tricuspid regurgitation related to isolated tricuspid annular dilatation with old annuloplasty suture material was detected predominantly. A 33-mm bioprosthesis was implanted

for tricuspid valve. Then, the right atrial volume was reduced by internal plication of right atrium from the superior vena cava into the inferior vena cava. The patient was weaned from cardiopulmonary bypass with a low-dose inotropic support and extubated on the postoperative second day. Postoperative CT showed a right atrium reduction of 6.5 x 6.5 cm (Figure 3).

The transthoracic echocardiogram on postoperative second day showed normo-functional prosthetic tricuspid valve and 7.0 x 7.5 cm sized right atrium. Cardiothoracic ratio was found to be decreased on telecardiography (Figure 4). The patient is still in the intensive care unit.

DISCUSSION

GRA is a rare condition and often seen in childhood due to congenital anomalies. The most important explicable factors for adults are valvular pathologies. Both tricuspid valve stenosis and insufficiency can lead to right atrial dilatation. The underlying pathology in our patient was tricuspid valve insufficiency that continued to progress after mitral valve replacement⁽²⁾.

The first case report in literature was published in 1955; since then, more than 100 reports have been published. These cases reported over a wide range of ages starting in utero to old age (32 weeks-75 years). Symptoms are generally related to the underlying pathology. Fifty three percent of these patients presented with sinus rhythm; however, atrial fibrillation and atrial flutter were the common arrhythmias. Although the relationship between atrial dilatation and atrial tachycardia has not been fully understood, it is still thought to have morphologic changes in atrial tissue. GRA remained asymptomatic in 48% of the patients, but arrhythmia with right ventricular dysfunction, palpitation, dyspnoea and chest pain were symptoms of our patient⁽³⁾.



Figure 1. Preoperative TELE.

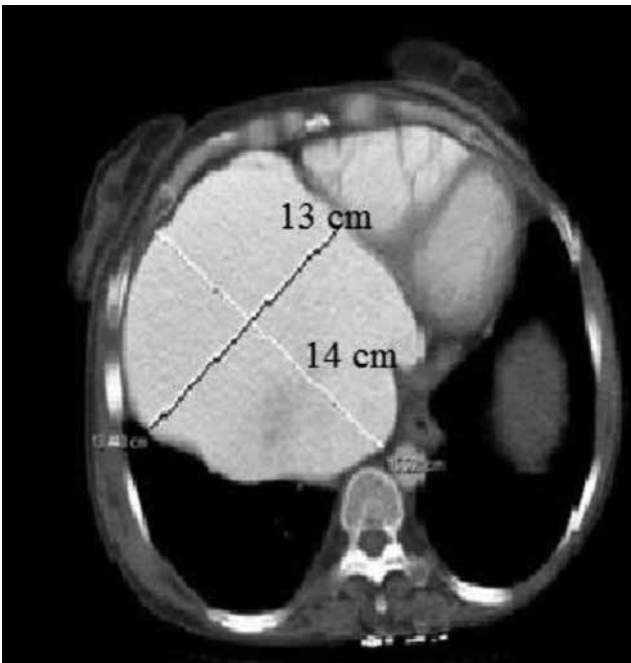


Figure 2. Preoperative CT.

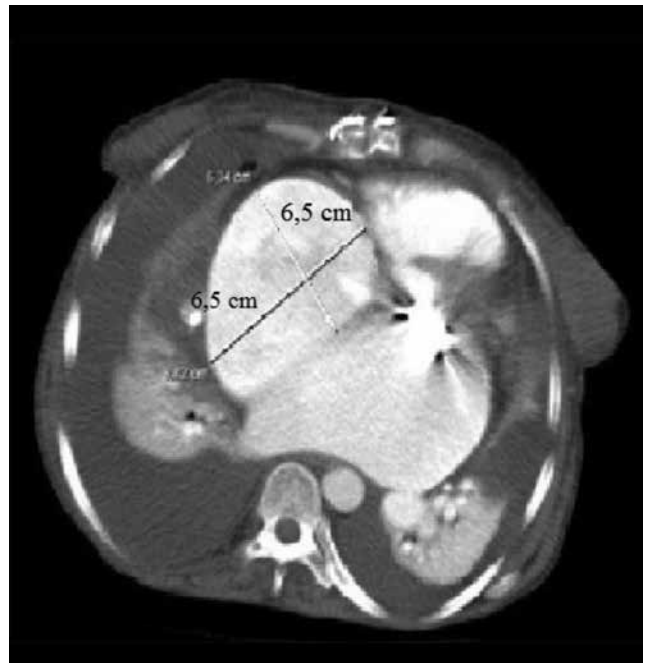


Figure 3. Postoperative CT.



Figure 4. Postoperative TELE.

Telecardiography and echocardiography were used for diagnosis of atrial enlargement and cardiac functions. Echocardiography can show underlying pathologies in addition to right atrial dilatation and can guide our treatment, but CT or cardiac magnetic resonance imaging (MRI) is more sensitive and specific by helping to describe cardiac structure and function⁽⁴⁾.

Although right atrial aneurysm resection was firstly performed by Marrow and Behrendt in 1968, it is still controversial to perform this treatment. Size-reducing atrioplasty is required in most cases. On the other hand, it has been reported that arrhythmias can recur with size-reducing atrioplasty and surgical ablation⁽⁵⁾. The patients with atrial dilatation should receive anticoagulant treatment for the risk of thrombus formation and embolism. If there is a thrombus formation in the aneurismal sac, the pulmonary artery should be occluded during surgery in order to prevent pulmonary embolisation and the underlying tricuspid valve pathology should be fixed⁽⁶⁾.

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