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## Case report

# Ruptured non-coronary sinus of Valsalva aneurysm into the right atrium in 44-year-old patient: Case report

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## ABSTRACT

We hereby present a case report of ruptured sinus of Valsalva aneurysm into the right atrium in 44-year-old patient with 8-month progressive exertional dyspnoea, occasional palpitations and oedema of lower extremities. A massive left-to-right shunt between the outflow tract of the left ventricle and right atrium was discovered from the echocardiogram examination. The patient was indicated for surgery, during which it was discovered a defect in the area of the non-coronary sinus extending into the right atrium, calcifications in the annulus of the congenitally bicuspid aortic valve, without signs of endocarditis present, abundant tissue was excised from the right atrium which had originally been an aneurysm of the non-coronary sinus of the aortic root. Sinus of Valsalva aneurysm is a very rare pathology which is generally asymptomatic. In this case it manifested through a rupture into the right atrium and symptomatology of right-sided heart failure. Surgery was the only possible treatment.

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## Introduction

Sinus of Valsalva aneurysm is an aneurysm of the aortic root in the area between the annulus of the aortic valve and sinotubular junction. It is present in 0.14–4.9% of patients undergoing cardiac surgery, more frequently amongst the Asian population [1–3]. It appears most frequently in the third and fourth decade of life, and most often is manifested by a rupture

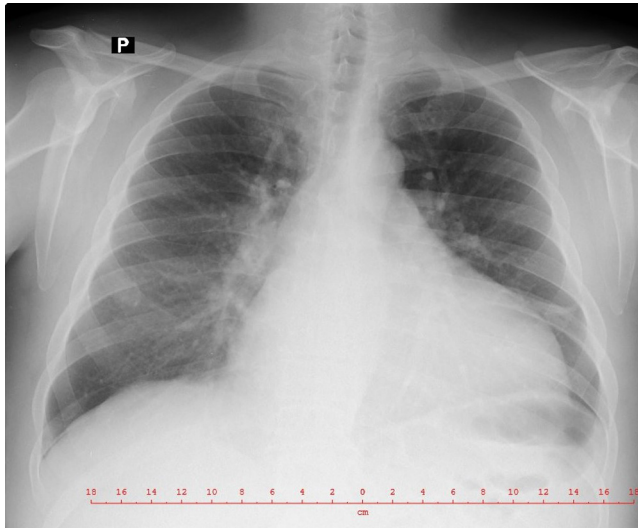
[4,5]. Men are afflicted by the illness 2–4 times more often than women [2–5]. Most studies state that most often there occurs an aneurysm of the right coronary sinus, followed by aneurysm of non-coronary sinus and rarely of left coronary sinus [3,5,6]. After rupture of the aneurysm there occurs a shunt most often between the aortic root and the right ventricle. Less often there is a rupture into the right atrium [3,5,6]. Rarely into the left ventricle [7], pulmonary artery [8], interventricular septum [9,10] or pericardium [11]. We hereby present a case report of sinus of Valsalva aneurysm rupture into the right atrium.

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Picture 1 – Chest X-Ray.

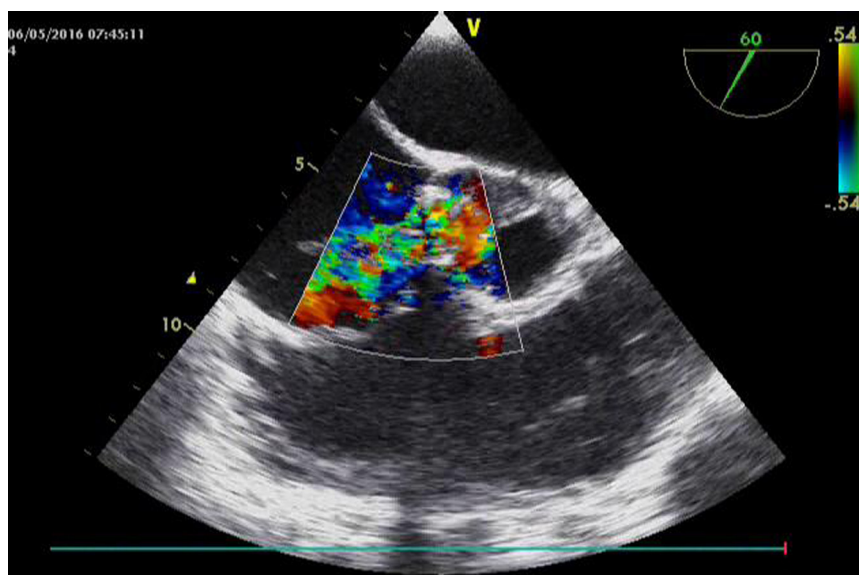
## Case report

The forty-four-year-old patient was admitted to our hospital after eight months of progressing exertional dyspnoea, occasional palpitations and swelling of the legs. The symptoms appeared after greater physical exertion, before this he had not been treated for anything. He had neither a raised temperature nor chills. On a chest X-ray he had a significantly expanded heart shadow (Picture 1). During transoesophageal echocardiography a significant left-to-right shunt was discovered via a defect approximately 15 mm wide between the aortic bulb (at the level of the base of the aortic cusps, area of transition of the non-coronary to the right sinus) and the right atrium (Picture 2); with calcification of border, many fine flail fibres approximately 25 mm long starting on the atrial side of

the defect (Pictures 3 and 4). Bicuspid aortic valve with billowing of slightly thickened cusps and calcification in right commissura with medium significant regurgitation was presented, dilation of right-side chambers with preserved systolic function of right ventricle, small tricuspid regurgitation during tenting of cusps and dilation of annulus (48–49 mm), insignificant mitral regurgitation. Ascending aorta without dilation, aortic root 36 mm. On a coronarography there was a normal finding on the coronary arteries, high flow in aorta and coronary bed, second degree aortic regurgitation. Surgery was indicated for the patient, during which a defect was discovered in the area of the non-coronary sinus going into the right atrium (Picture 5), with calcification in the annulus of the congenitally bicuspid aortic valve, without signs of endocarditis present. Abundant tissue was excised from the right atrium (Picture 6) which had originally been an aneurysm of the non-coronary sinus of the aortic root. The aortic valve was replaced with a biological prosthetic, the communication to the right atrium was closed using backing sutures by drawing both edges of the defect to the prosthetic and tricuspid annuloplasty with a ring. The operative period passed without complications, and the patient was discharged on the 6th day after the operation. During check-up transoesophageal echocardiography no intracardiac shunt was evident. Normal function of the left ventricle was recorded (EF 57%), slight increase in right cardiac chambers, reduction in the systolic function of the right ventricle trace regurgitation on the tricuspid valve, normal finding on aortic bioprosthesis (AVAi 1.2 cm<sup>2</sup>/m<sup>2</sup>), mitral regurgitation 1+. The patient was clinically compensated, and subjectively he did not state any difficulties or limitations on physical activity.

## Discussion

The morphology of sinus of Valsalva aneurysm was first described by Edwards, who pointed to a deficiency of normal elastic tissue in the media of the aortic sinus. On the basis of



Picture 2 – Transesophageal Echocardiography (TEE), defect between the aortic bulb and the right atrium.

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