

RUPTURED SINUS OF VALSALVA ANEURYSM (SOVA): A CASE REPORT

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ABSTRACT

Sinus of Valsalva Aneurysm is a rare anomaly of the cardiovascular system. It may be acquired or congenital and may also be associated with another cardiac lesion. Acute onset of dyspnea is experienced when the aneurysm ruptures. Diagnosis is reached by echocardiography and Cardiac MRI. The treatment is surgical repair. This paper presents the case of a 24-year old male with acute onset of symptoms caused by a ruptured sinus of Valsalva Aneurysm.

Keywords: Non coronary sinus, Ruptured sinus of valsalva aneurysm, Right atrium.

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BACKGROUND

The Sinus of Valsalva Aneurysm (SOVA) is a rare congenital anomaly of the cardiovascular system with one percent prevalence rate¹. Moreover, another study shows that Sinus of Valsalva Aneurysm is responsible for 0.78% of congenital open-heart operations². The right Sinus of Valsalva is affected by aneurysmal dilation in 70 percent of cases, 25 percent involves the non-coronary sinus, while 5% affects the Left Coronary Sinus³.

In most cases, it is attributed to a congenital deficiency of musculo-elastic tissue in the aortic tunica media and annulus fibrosus of the aortic valve. The fatal complication of SOVA is rupture which results in intracardiac shunting, Cardiac Tamponade. If it involves the pericardial space or Acute Myocardial Infarction⁴. Diagnosis is made on Transthoracic Echocardiography. However, if it is inconclusive or surgery is planned then Transesophageal Echocardiography is a must⁵. Aortic Angiography & CT Angiography can be considered⁶. Another option may be cardiac MRI⁷. We describe the case of ruptured SOVA with communication between the non-coronary sinus and the right atrium.

CASE REPORT

A case presented with 7 days history of dyspnea and acute chest pain in a peripheral hospital. Treatment started on the lines of chest infection. Afterwards, he developed progressive worsening of breathlessness associated with abdominal distention, generalized edema and jaundice. On arrival in a tertiary care hospital he was conscious, oriented but feeling very lethargic. Cross-examination showed that he was hemodynamically stable, with sacral and pedal edema, and a raised jugular venous pulse. The cardiovascular system examination showed a bounding pulse, while a continuous machinery murmur was heard at the center of the chest. There was abdominal distention, with positive fluid thrill and a palpable liver, 4cm below the costal margins. Chest percussion showed a dull note bilaterally with reduction of air entry up to mid zones.

Investigation

On Echocardiography he was diagnosed with ruptured SOVA with communication between the non-coronary sinus and the right atrium. The right ventricle was volume 3 overloaded and grossly distended.

The non-coronary sinus was dilated with a windsock-like structure protruding into the right atrium with an opening at the end (figure-1). The color flow doppler confirmed significant flow

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into the right atrium just above the tricuspid valve (figure).

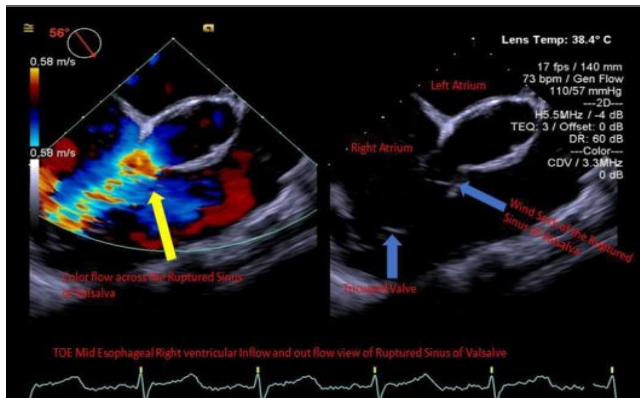


Figure: TOE Image showing dilation of the non-coronary sinus with protrusion of a windsock-like structure from the non-coronary sinus area into the right atrium. A case presented with 7 days history of dyspnea and acute chest pain in a peripheral hospital.

Treatment and Outcome

By employing “The Double Exposure Technique” the defect was repaired with PTFE patch and he was discharged home on 7 th post-op day.

DISCUSSION

Ruptured Sinus of Valsalva Aneurysm (SOVA) is more common in males than it is in females. Studies have shown that the average age of rupture in males is 34 years⁸. Most cases of ruptured sinus of Valsalva aneurysm are congenital rather than acquired. Factors that cause acquired SOVA include Syphilis, Infective Endocarditis, Trauma, Atherosclerosis, Marfans Syndrome, Medial Cystic Necrosis and Connective Tissue Disorders. Acute rupture of SOVA is signaled by rapid onset of severe retrosternal chest pain or symptoms of heart failure.

The uniqueness of this case is explained thus: the Aneurysm of the sinus of Valsalva is a rare disease. In most cases of sinus of Valsalva Aneurysm, the right coronary sinus ruptures into the right ventricle, while a few originate from

non-coronary sinus and rupture into the right atrium⁶. The left coronary sinus aneurysm is rare⁹. Our case is focused on SOVA originating from the non-coronary sinus. Studies show that⁴. Only 25% of aneurysms originate from the non-coronary sinus with wide prevalence in Asian males³. Presently, surgical repair of a ruptured SOVA has a ten-year survival rate with possibility of aortic regurgitation post-operatively¹⁰.

CONCLUSION

Acute onset dyspnea may be as a result of a ruptured SOVA. The best choice of treatment is surgery.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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