A Case Report Ruptured Sinus of Valsalva Aneurysm With Vegetation in Right Atrium

Department of Cardiovascular and thoracic Surgery, Apollo Hospitals, Dhaka, Bangladesh

Abstract

Background
Ruptured sinus of Valsalva aneurysm with moderate aortic regurgitation with vegetation in right atrium is a rare disorder. Prompt diagnosis and surgical intervention gives good result.

Methods
33 years old gentleman came to our hospital with ruptured non-coronary sinus of valsalva into right atrium. Operation was done on 15.11.12. Non coronary sinus was hugely dilated with a perforation at apex. Double ended pledgeted horizontal mattress suture was applied to aneurismal area around the perforation in normal healthy tissue. Right atrium was opened, about 4cm long vegetation was found, it was excised. Double ended pledgeted horizontal mattress suture was applied around the perforation site in Right atrium. PTFE patch closure of aneurismal part of Non coronary sinus of aorta was done, sutures were passed through normal healthy sinus tissue. Now aortic cusp coaptation was checked by saline test—found good coaptation. Cross clamp was removed. Weaning from CPB was done uneventfully. TEE was done after weaning from CPB—no leakage was found through the patch are and no aortic regurgitation was present.

Results
No growth was found in Culture Sensitivity test and histopathological examination revealed ruptured aneurysm of sinus of valsalva. Minimum ionotropes were needed in ICU. Postoperative echo on 5th postoperative day revealed—no leakage through patch area, no AR, good LV and RV function. The patient was discharged from hospital on 6th postoperative day in good general condition and doing well till now.

Conclusions
A sinus of Valsalva aneurysm rupture is a rare entity, vegetation is further rare association. Early surgery gives good result.

INTRODUCTION
Sinus of valsalva aneurysm occurs infrequently, with an incidence of 0.14% to 3.5% in patients undergoing open heart surgical procedures. Males are 3- to 4-times more often affected than females, and the incidence of ruptured sinus of valsalva aneurysm is higher in Asian (1.2%-4.94%) than in Western populations (0.5%-1.5%). Early diagnosis and treatment achieves good outcome.
A Case Report Ruptured Sinus of Valsalva Aneurysm With Vegetation in Right Atrium

**METHODS**

33 years old gentleman came to our hospital from abroad with severe respiratory distress on mild exersion, palpitation and chest pain. Blood Pressure was 120/50 mm Hg. Physical examination revealed an engorged jugular vein and mild leg edema. A continuous heart murmur was heard over the right sternal border. Chest x-ray revealed huge cardiomegally. Echocardiogram showed ruptured non-coronary sinus of valsalva into right atrium. Operation was done on 15.11.12. After heparinization CPB was established by aortic and bicalval venous cannulation. Heart was made to fibrillate by fibrilator and aortotomy was done. Heart was then arrested at diastole by cardioplegic solution delivered through coronary ostea. A large vegetation was attached with the edge of the ruptured sinus which was protruded into right atrium and right ventricle during diastole. After sternotomy right atrium was found hugely dilated. Non coronary sinus was hugely dilated with a perforation at apex. Double ended pledged horizontal mattress suture was applied to aneurysmal area around the perforation in normal healthy tissue. Right atrium was opened, about 4 cm long vegetation was found, was attached to the connecting site of Non coronary aneurysmal sinus, it was excised and was sent for culture sensitivity test and histopathological examination. Double ended pledged horizontal mattress suture was applied around the perforation site in Right atrium. PTFE patch closure of aneurismal part of Non coronary sinus of aorta was done, sutures were passed through normal healthy sinus tissue. Now aortic cusp coaptation was checked by saline test—found good coaptation. Cross clamp was removed. Weaning from CPB was done uneventfully. TEE was done after weaning from CPB—no leakage was found through the patch area and no aortic regurgitation was present.

No growth was found in culture sensitivity test and histopathological examination revealed ruptured aneurysm of sinus of valsalva. Minimum ionotropes were needed in ICU. Postoperative echo on 5th postoperative day revealed—no leakage through patch area, no aortic regurgitation was present with good LV and RV function. The patient was discharged from hospital on 6th postoperative day in good general condition.

![x-ray chest- huge cardiomegally](image)

**Fig 1.** x-ray chest- huge cardiomegally
A Case Report Ruptured Sinus of Valsalva Aneurysm With Vegetation in Right Atrium

Fig 2. Huge right atrial and right ventricular enlargement

Fig 3. Non coronary sinus is hugely dilated with a perforation in apex
A Case Report Ruptured Sinus of Valsalva Aneurysm With Vegetation in Right Atrium

Fig 5. Right atrium was opened, about 4 cm long vegetation was found, was attached to the connecting site of Non coronary aneurysmal sinus

Fig 4. Double ended pledgeted horizontal mattress suture was applied to aneurysmal area around the perforation
Fig 7. Double ended pledgeted horizontal mattress suture was applied around the perforation site in Right Atrium.
Fig 8. PTFE patch closure of aneurismal part of Non coronary sinus

Fig 9. PTFE patch closure of aneurismal part of Non coronary sinus
A Case Report Ruptured Sinus of Valsalva Aneurysm With Vegetation in Right Atrium

**DISCUSSION**

Sinus of Valsalva aneurysm is a rare disorder. It is usually congenital, but other origins have been described. It may be asymptomatic, or it may present as angina or with symptoms of valvular insufficiency. Once ruptured, it often produces hemodynamic instability. Diagnosis should be pursued with echocardiography. Ruptured sinus of Valsalva aneurysm demands prompt diagnosis and treatment. Patients are often men, in the 3rd or 4th decade of life when rupture occurs. Most cases originate from the right coronary sinus (65~85%), followed by the non-coronary sinus (10~30%), rarely originating from the left coronary sinus (<5%).

The presentation may range from asymptomatic to acute, and rupture necessitates surgical repair. The diagnosis is generally made by transthoracic echocardiography with confirmation by transesophageal echocardiography (TEE). Sutures should always be placed in normal tissue. Sutures in thin and degenerative sinus or aneurysmal wall should be avoided. The patch should be large enough to reinforce the entire involved coronary sinus wall. The hinge line of an involved aortic valve cusp should always be kept at its proper functional location on the patch. Aortic valve distortion should be avoided.

Patients receive surgical repair for sinus of Valsalva aneurysm usually have low operative risk and high long-term survival rates. Therefore, an early surgical intervention should be encouraged.

**CONCLUSIONS**

Sinus of Valsalva aneurysm rupture repair can achieve good early result with an expert surgical team. Early diagnosis and treatment can promote better outcome.

**REFERENCE**


**Copyright © NM Zahangir, S T Ahmed, F Ahmed, M M Kabir, N Hossain, A Khan, N Ahmed, M N Janardhan, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited."