Large sinus of Valsalva aneurysm discovered by chance.

MedStar Union Memorial Hospital Cardiac Surgeon Ricardo Quarrie, MD

A 63-year-old gentleman underwent a routine echocardiogram as part of his preoperative clearance prior to a planned shoulder surgery. His cardiologist, Rahul Anand, MD, discovered a large aortic root aneurysm measuring 5.9 cm (figure 1). He was immediately sent to the emergency department at MedStar Franklin Square Medical Center for further evaluation. A CT scan confirmed the finding. The next day, he was seen in clinic by Ricardo Quarrie, MD, Cardiac Surgeon and Co-Director of the Complex Aortic Center in the Baltimore region. Dr. Quarrie determined that the patient had an isolated right sinus of Valsalva aneurysm and recommended a repair as soon as possible. The patient underwent a preoperative left heart catheterization and was scheduled for surgery the following week at MedStar Union Memorial Hospital.

Valve-sparing approach to resection and repair

In the operating room, Dr. Quarrie confirmed that the patient had an isolated right sinus of Valsalva aneurysm that protruded into the right ventricular outflow tract (RVOT) causing partial obstruction of the RVOT (figure 2). One method for repairing this type of abnormality is to do a full aortic root replacement which involves replacing the native aortic valve with a prosthetic valve and replacing all the aortic sinuses. However, Dr. Quarrie noted that the patient's aortic valve was functioning normally, and the other sinuses were also normal (figure 2A). The decision was therefore made to perform a valve-sparing operation to preserve the patient's healthy native aortic valve.

Dr. Quarrie detached the right coronary artery from the aneurysm and carefully resected the aneurysm off the aorta and the RVOT. Using a Dacron graft, he reconstructed the right coronary sinus. The right coronary artery was then reimplanted into the graft material and the graft was sewn onto the native aorta. The surgery was a success and at the end of the procedure the patient's native aortic valve was still functioning normally (figures 2B and 3B).

His hospital course was uncomplicated and he was discharged home on postoperative day seven. He was seen in the clinic one month after surgery and was recovering well without complications.

Background

Sinus of Valsalva aneurysms are relatively rare, but when they occur, they are most often located in the right sinus of Valsalva. Rupture of a right sinus of Valsalva aneurysm leads to left-to-right shunting into the right atrium or ventricle causing acute right heart failure and death if left untreated. Surgery is the treatment of choice and techniques range from plication to full aortic root replacement with a prosthetic valve.

Preservation of the native aortic valve avoids certain morbidities associated with prosthetic valves, including the need for anticoagulation with mechanical valves and the eventual structural valve degeneration seen with tissue valves.

Native-valve-sparing operations are one of the advanced techniques offered by the physicians at the MedStar Health's Complex Aortic Center. Our physicians offer a full array of techniques to treat aortic disease including endovascular and complex open surgical techniques. We also participate in numerous clinical trials, providing further treatment options for patients with the most complicated or high-risk conditions, including those who cannot tolerate traditional surgical interventions.
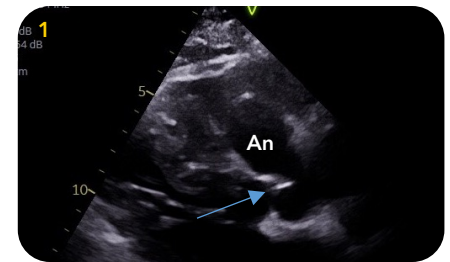

Figure 1. Still image from transthoracic echocardiogram (TEE) showing the aortic valve and a large aortic root aneurysm. Arrow indicates aortic valve. An: aortic root aneurysm.
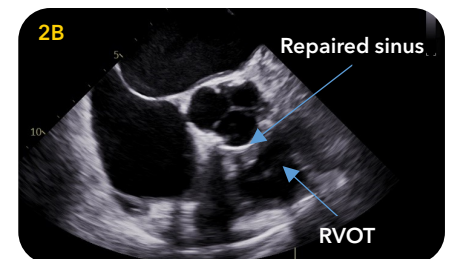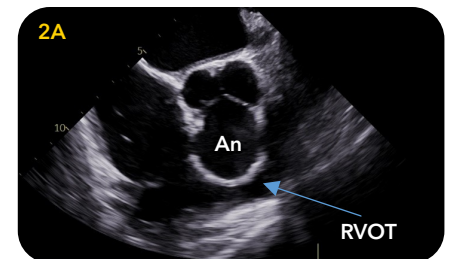

Figure 2A. Intra-operative TEE showing the aneurysm is isolated to the right coronary sinus; the other sinuses are normal. Note the compression of the right ventricular outflow tract (RVOT) caused by the aneurysm. An: aneurysm.

Figure 2B: Intra-operative TEE showing the aortic root after repair. The aortic valve closes normally in the center with no aortic regurgitation.

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