LETTERS TO THE EDITOR

Pathologic Examination of Lambl’s Excrescence

To the Editor:

We read with interest the article titled “Endovascular transcatheter aortic valve implantation: An evolving standard” published by Sfeir PM et al.1 In view of the greying of the population and the higher age of patients, severe aortic stenosis patients who undergo transcatheter aortic valve implantation are more likely to have Lambl’s excrescences than 10 years ago.

Lambl’s excrescences are small, mobile valvular strands made up of connective tissue. They are thin (<1 mm), long (>10 mm) filiform projections from heart valves that show undulating independent motion.2 They are more commonly seen on the mitral valve than on the aortic valve, typically near the closure line of the mitral valve. Although it was first reported that they were composed of fibrin, morphologic analysis revealed the presence of collagen.3 Several previous case reports have shown no common morphologic and histologic structures for Lambl’s excrescences.4,5 Here, we wish to share our experience of a patient with Lambl’s excrescence. We have included histologic images of the excrescence.

While providing anesthesia for a patient undergoing mitral valve replacement surgery, we performed transesophageal echocardiography and found the Lambl’s excrescence on the aortic valve in the form of a 12-mm fibrous tissue (Fig 1). We presumed it was a flapping piece torn from the commissure between the right and left coronary cusps along the edge of the left coronary cusp. Pathologic examination of the tissue with hematoxylin eosin staining revealed that the structure consisted of connective tissue covered by a single layer of endothelial cells (Fig 2). Examination with Elastica Van Gieson’s stain showed that it had a collagenous structure with elastic fibers inside and was surrounded by loose connective tissue (Fig 3). Hence, it was diagnosed as a typical Lambl’s excrescence. Since these excrescences are similar in composition to cardiac valves, the strand was assumed to have come off the surface of the valve to which the strand was attached due to the flow of blood.

Junko Nakahira, MD, PhD
Toshiyuki Sawai, MD, PhD
Toshiaki Minami, MD, PhD
Department of Anesthesiology
Osaka Medical College Takatsuki, Osaka, Japan

Fig 1. Gross anatomic specimen of the Lambl’s excrescence. The ruler is graduated in millimeters.

Fig 2. Longitudinal section of the resected strand stained with hematoxylin and eosin. The structure consisted of connective tissue covered by a single layer of endothelial cells.

Fig 3. Longitudinal section of the resected strand stained with Elastica Van Gieson’s stain. The resected structure consisted of collagenous fibers with elastic fibers inside, these being surrounded by loose connective tissue.
The Use of Real-Time Three-Dimensional Transesophageal Echocardiography for Percutaneous Closure of a Ruptured Sinus of Valsalva Aneurysm

To the Editor:

We read with great interest the article by Mukherjee et al entitled “Is real-time 3D transesophageal echocardiography a feasible approach to detect coronary ostium during transapical aortic valve implantation?4” As argued, real-time, 3D echocardiography can provide both diagnostic and procedural advantages in interventional cases taking place in the cardiac catheterization laboratory, and we therefore report a case in which real-time 3D transesophageal echocardiography (3D TEE) helped guide the percutaneous closure of a ruptured sinus of Valsalva aneurysm.

Sinus of Valsalva aneurysms are rare cardiac disorders that can lead to significant morbidity if ruptured. Although definitive treatment traditionally has mandated operative repair, percutaneous interventions are being explored as a viable alternative.5,6 Two-dimensional TEE (2D TEE) has been used as a primary diagnostic modality for these lesions, but has limitations for use in guidance of interventional procedures. We therefore present a patient in whom real-time 3D TEE helped guide the percutaneous closure of a sinus of Valsalva aneurysm.

A 44-year-old Asian man presented to an outside hospital with new onset of dyspnea on exertion and fatigue. A diagnostic electrocardiogram revealed atrial flutter, and trans-thoracic echocardiography (TTE) demonstrated a sinus of Valsalva aneurysm that had ruptured from the aorta into the right atrium, leading to right atrial enlargement. Surgical intervention was offered at that time, which the patient refused, seeking a second opinion at our institution. A preoperative 2D TEE performed by a cardiologist in the echocardiography laboratory localized the rupture to the right coronary sinus of Valsalva, adjacent to the septal attachment of the tricuspid valve. Given the patient’s reluctance to undergo surgical repair, he was offered the option of percutaneous closure of the defect with the understanding that surgical repair would be indicated should the percutaneous intervention fail.

In the cardiac catheterization laboratory, general anesthesia was induced via intravenous administration of lidocaine, fentanyl, propofol, and rocuronium and maintained with inhaled sevoflurane (1.7-2.3% end-tidal concentration). General anesthesia was chosen for this procedure given the need for TEE for procedural guidance and for the potential for hemodynamic instability during the intervention. 3D TEE (Philips iE33 machine in live 3D mode, Philips Healthcare, Andover, MA) performed by the cardiac anesthesiologist localized the rupture to the non-coronary sinus of Valsalva with communication into the right atrium and an orifice diameter of 8 millimeters in contrast to the preoperative TTE findings (Fig 1A). Cardiac catheterization- and angiography-based diagnoses were consistent with the 3D TEE findings in terms of location and size; 3D TEE, therefore, allowed precise delineation of the size and shape of the defect. The cardiologist opted for a 10-mm VSD Amplatzer device (AGA Medical, Plymouth, Minnesota) based on these findings. Under fluoroscopic, 2D, and 3D TEE guidance, the Amplatzer device was deployed against the sinus of Valsalva aneurysm (Fig 1B-1D)(Video 1). TEE examination immediately following device occlusion ruled out residual shunting around the device, thus confirming effective closure (Figs 2 and 3A) (Video 2). TEE also ruled out new aortic or tricuspid valve dysfunction, which are theoretical complications of device placement in the aortic root and right atrium (Fig 3B) (Video 3). Postoperative TTE on day 1 confirmed no residual shunting around the device. The patient has been followed regularly in the cardiology clinic; on his most recent visit one year after the procedure he denied any further episodes of arrhythmia or dyspnea on exertion. Follow-up echocardiography at 1 year revealed no residual shunt between the aortic root and right atrium with intact valvular, systolic, and diastolic function.

Sinus of Valsalva aneurysms are rare congenital defects due to weakness of the aortic wall at the junction of the aortic media and annulus fibrosa. Aneurysms most commonly occur in the right coronary sinus (65-85%) or noncoronary sinus (10-30%); aneurysms of the left coronary sinus are rare (<5%).5 Total incidence ranges from 0.1 to 3.5%, although the exact prevalence is unknown as most are diagnosed only after rupture.5 These aneurysms occur more commonly in men, as well as in Asian populations.6 Consequences of rupture may be severe, including arrhythmias, conduction disturbances, myocardial ischemia, tamponade, and even sudden death.7 Although definitive treatment traditionally has mandated operative repair, percutaneous interventions are being explored as a viable alternative.8,9 Further lending credence to exploring alternative treatment methods is the fact that surgical mortality may be high; a series of 129 patients was found to have a perioperative mortality of 3.9%.10 Cullen et al described the first percutaneous closure of a sinus of Valsalva aneurysm in 1994, and since then, percutaneous intracardiac defect repairs steadily have been gaining favor.11 Recent advances in 3D TEE technology allow real-time imaging at high temporal and spatial resolution required for

REFERENCES


http://dx.doi.org/10.1053/j.jvca.2013.06.019