Large aortic root hematoma mimicking left atrial mass in a cardiac postoperative patient

The Editor,

Transesophageal echocardiography (TEE) is the primary imaging modality for intraoperative assessment of cardiac anatomy and valvular and ventricular function during cardiac surgery.

We discuss a case of 25-year-old female having rheumatic heart disease with severe mitral regurgitation and moderate aortic regurgitation posted for double valve replacement under cardiopulmonary bypass (CPB). Postreplacement when the patient was being weaned off CPB, review TEE was done to check for adequate functioning of prosthetic valves, detect any paravalvular leak and to see for residual or new deficit if any and to detect any other complication.

Review TEE demonstrated left atrial (LA) chamber deformation that was initially considered an intra-atrial lesion [Figure 1]. On careful examination, the lesion was found to be surrounding the aortic root that was encroaching upon the LA dorsally. The lesion measured 4.0 cm × 1.5 cm and was of homogenous echogenicity [Figure 2]. On color Doppler evaluation, no vascularity was detected in the lesion, thus ruling out aortic root dissection [Figure 3]. The lesion was not causing obstruction of pulmonary venous and transmitral flows on Doppler evaluation. This finding was communicated to the operating surgeon. After direct inspection and palpation, the lesion was found to be a hematoma at the posterior aortic wall [Figure 4] which was encroaching the LA dorsally leading to an impression of the intra-atrial lesion in various views of TEE. Another suture was taken at the hematoma site, and external compression was applied thus aiding in preventing the expansion of hematoma that could have caused hemodynamic instability in the postoperative period, requiring re-exploration.

Postoperatively, during the initial 24 h, the patient had atrial fibrillation with fast ventricular rate of 140–170/min without any hypotension. Review transthoracic echocardiography revealed a reduction in the size of hematoma to 3.2 cm × 1.5 cm [Figure 5]. Heart rate slowed down to 114–120/min, 2 days after surgery. Rest of the postoperative stay was uneventful, and the patient was discharged 7 days after surgery without any cardiovascular symptoms.

The left atrium is an inferoposteriorly located cardiac chamber with low intraluminal...
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pressure. It has a relatively thin wall, making it particularly more vulnerable to impression from the assorted structures. D’Cruz et al. proposed the subdivision of LA impression based on the severity of anatomical deformation and its hemodynamic consequences into three different classes: (i) Proximity (a contiguous or adjacent structure without chamber deformation), (ii) encroachment (distortion of normal cardiovascular architecture without hemodynamic effect), and (iii) compression (where impression leads to severe inflow obstruction causing hemodynamic instability and symptoms). According to this, proximity and encroachment does not lead to symptoms and are, therefore, mostly accidental findings.[1]

Compression of the left atrium reduces its volume causing low cardiac output, leading to dyspnea, reduced exercise tolerance, or even hemodynamic instability. In addition, LA pressure rises with the subsequently elevated pulmonary venous pressure which may eventually lead to pulmonary edema.[2] A combination of these symptoms is often suggestive of heart failure or can mimic a cardiac tamponade.

Even a slight impression of the left atrium can be visualized using standard and color Doppler echocardiographic views. The round shape of the atrial wall becomes distorted. These characteristics make TEE useful in diagnosing LA impression specially during

Figure 2: (a and b) Mid-esophageal long axis view and mid-esophageal aortic valve short axis view on transesophageal echocardiography showing lesion of homogenous echogenicity surrounding the aortic root

Figure 3: Mid-esophageal long axis view on transesophageal echocardiography with color Doppler showing the absence of blood flow through the lesion

Figure 4: Hematoma seen at the posterior aspect of aortic root on direct palpation

Figure 5: Postoperative day 1 review transthoracic echocardiographic five chamber view showing reduction in the size of hematoma compared to immediate postoperative size
the intraoperative period of cardiac surgeries and helps to avoid any postoperative catastrophe.

This report emphasizes the importance of TEE during the intraoperative period of cardiac surgeries. Recognizing development of hematoma like in the case presented is of great concern during prosthetic valve replacement because of the requirement of anticoagulation in the postoperative period; failure of which may lead to hemodynamic instability.

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