Interesting Image

Pulmonary Artery Sheath Hematoma

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ABSTRACT

Dissection of the ascending aorta (AA) represents a life-threatening condition typically treated by emergent surgical repair. A rare, potential complication of AA dissection is pulmonary artery (PA) sheath hematoma. Due to the presence of a common adventitial layer between the proximal AA and the PA, dissection can propagate between both vessels, potentially compromising the PA lumen. The resultant acute narrowing of the PA lumen may abruptly increase right ventricular (RV) afterload. Recognition of PA sheath hematoma is important; when seen on echocardiography it is suggestive of AA dissection and has the potential to result in RV hypertension and dysfunction if significant PA compression occurs.

Keywords: Aortic dissection, echocardiography, emergency cardiac surgery

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Dissection of the ascending aorta (AA) represents a life-threatening condition typically treated by emergent surgical repair. Potential sequelae of AA dissection include pericardial effusion and tamponade, aortic regurgitation, and occlusion of the coronary ostia with resultant myocardial ischemia. These possible evolving complications underscore the importance of performing a comprehensive intraoperative transesophageal echocardiography (TEE) examination in such patients.

Another, albeit rare, potential complication of AA dissection is pulmonary artery (PA) sheath hematoma.[1,2] Due to the presence of a common adventitial layer between the proximal AA and the PA, dissection can propagate between both vessels, potentially compromising the PA lumen [Figure 1, Supplemental Content 1 - Figure]. The resultant acute narrowing of the PA lumen [Figure 1, Supplemental Content 2 - Video] may abruptly increase right ventricular (RV) afterload simulating the effect of pulmonary hypertension and possibly even mimicking the clinical presentation of pulmonary embolism.[3]

Due to the continuity of the subadventitial space, surgical treatment of the AA dissection leads to the decompression of PA sheath hematoma [Figure 2]. Specific intervention on the pulmonary artery is not required. Recognition of PA sheath hematoma is important; when seen on echocardiography it is suggestive of AA dissection and has

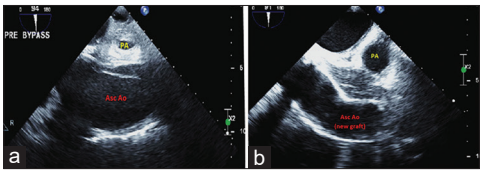

Figure 1: 2D Transesophageal echo mid-esophageal long-axis view of the ascending aorta (Asc Ao). (a) Pre-cardiopulmonary bypass (CPB) a dissection flap is demonstrated on the posterior wall of the Asc Ao with an associated subadventitial hematoma and resultant compression of the right pulmonary artery (PA). (b) On post-CPB imaging, the Asc Ao is reconstructed with a resolution of the PA hematoma

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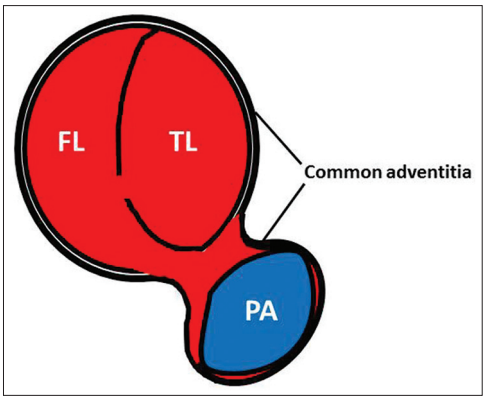

Figure 2: True lumen (TL) and false lumen (FL) of ascending aortic dissection. The pulmonary artery lumen is compromised by propagation of dissection due to the presence of a common adventitial layer between the proximal ascending aorta and the pulmonary artery (PA)

the potential to result in RV hypertension and dysfunction if significant PA compression occurs [Figure 2].

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initial s will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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