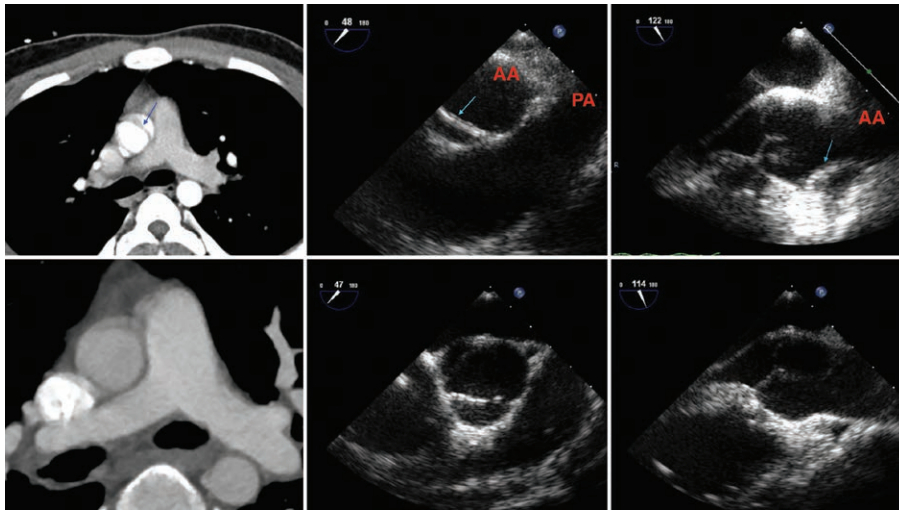


False-positive Transesophageal Echocardiography after False-positive Computed Tomography Angiography in Suspected Type A Aortic Dissection

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ACCURATE and timely diagnosis is paramount in surgical decision-making in type A aortic dissection. Two independent imaging modalities are recommended; computed tomography angiography is the preferred first imaging modality (73% of cases), and intraoperative, preincisional transesophageal echocardiography is typically the second.¹ Although highly sensitive and specific, both modalities contain spectra of false-negative and false-positive misinterpretations.^{2,3} The presented images were obtained from a patient with strong risk factors

for aortic dissection: chest pain after an episode of cocaine abuse. Axial computed tomography angiography suggested an intimal flap in the ascending aorta (AA) adjacent to the pulmonary artery (PA; upper left panel, arrow). Initial intraoperative, preincisional transesophageal echocardiography seemed to collaborate the computed tomography angiography (upper middle and right panels, mid-esophageal short-axis and mid-esophageal long-axis views, arrows). However, slight adjustments to the imaging planes revealed the false-positive nature of these findings (lower panels). In the mid-esophageal short-axis view, the right coronary cusp was mistaken for a flap because, orthogonal to the ultrasound beam, it caused a stronger reflection than the slanted noncoronary and left cusps. The beam-width artifact in the far field of the mid-esophageal long-axis view resulted from the deterioration of lateral and elevational resolutions of the ultrasound beam as it widened distal to the focus, so that objects physically outside the imaging plane but within the widened beam's height and breadth (pulmonary artery) appeared within the ascending aorta. Repeat computed tomography angiography (right lower panel) was unremarkable, suggesting motion artifact in the initial examination due to phasic circular and pendular motions of the ascending aorta with cardiac contractions. This vignette emphasizes the importance of accurate image interpretation in high-stakes surgery and illustrates the role of imaging in multiple planes with optimized settings in recognition of artifacts of beam formation and reflection.

Competing Interests

The authors declare no competing interests.

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