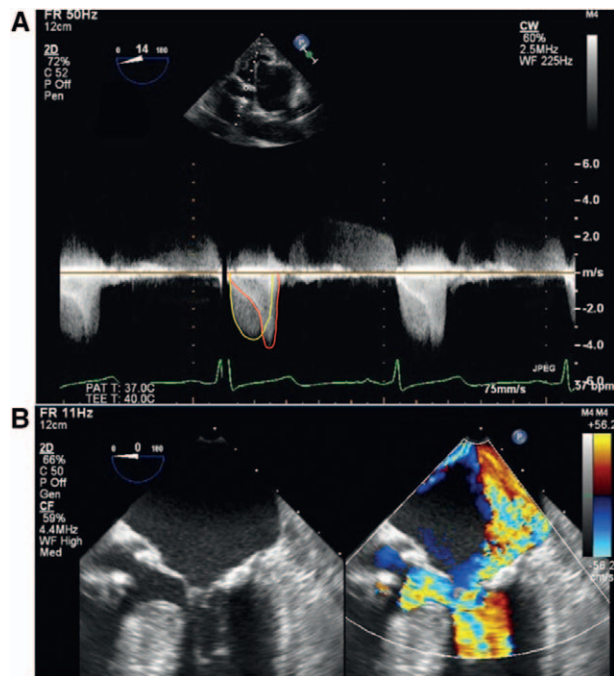


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Images in Anesthesiology: Coexisting Aortic Stenosis and Left Ventricular Outflow Tract Obstruction

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THE distinctive physiologies of aortic stenosis and dynamic left ventricular outflow tract obstruction (DLVOTO) manifest as characteristic Doppler tracings. Either condition may be occult, presenting first as unexpected profound hypotension.¹

The orifice area of aortic stenosis changes little during systole leading to a parabolic continuous-wave Doppler tracing that peaks in mid-systole² (fig. A, which is a transesophageal deep transgastric long-axis view, yellow outline). The diminishing orifice in DLVOTO leads to a late-peaking “dagger”-shaped envelope (fig. A, red outline). This obstruction is exacerbated by conditions causing a small left ventricular cavity: decreased preload, increased contractility, and tachycardia. Figure B is a mid-esophageal five-chamber view showing the pathologies responsible for the continuous-wave tracings. The dynamic nature of the obstruction is demonstrated in Supplemental Digital Content 1, <http://links.lww.com/ALN/B82>, which is the video from which the figure was taken.

Because of differences in the underlying physiology of these conditions, their managements are similar but not identical. Both require maintenance of preload and afterload while avoiding tachycardia and arrhythmias. Both phenylephrine and norepinephrine will increase blood pressure, but norepinephrine

may be preferable in aortic stenosis where support of contractility is helpful rather than detrimental as it is in DLVOTO.³ β -Blockade may control tachycardia and arrhythmias but decrease contractility, beneficial in dynamic obstruction but not in fixed obstruction. Because the degree of DLVOTO depends on preload and contractility, it may go unrecognized during the preoperative evaluation. The first indication of DLVOTO may be an exaggerated hypotensive response that is unresponsive to inotropes and exacerbated by tachycardia.¹

Competing Interests

The author declares no competing interests.

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