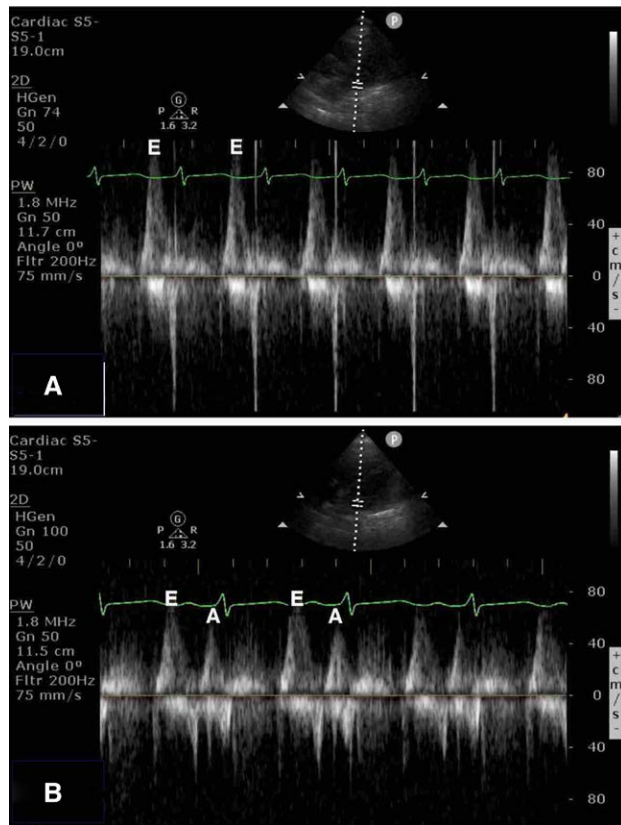


Echo in Atrial Flutter

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Point-of-care cardiac ultrasound is increasingly finding use in the diagnosis and management of critically ill patients. Evaluation of cardiac function and the diagnosis of shock states have been thoroughly documented over the years, but one oft-overlooked benefit of cardiac ultrasound may be its ability to simplify the differentiation of certain arrhythmias when electrocardiography is indefinite.¹

A 66-yr-old male developed tachycardia that appeared to be sinus in nature after a lung transplant for chronic obstructive pulmonary disease. High clinical suspicion for an atrial arrhythmia led to further investigation, as 2:1 atrial flutter can frequently masquerade as sinus tachycardia.² Administration of adenosine has been employed frequently to help uncover atrial flutter waves; however, point-of-care cardiac ultrasound and examination of

diastolic flow into the left ventricle can also be utilized.^{2,3} In normal sinus rhythm, pulsed-wave Doppler tracing of the mitral valve leaflets illustrates two peaks in diastole; these correspond to early filling (E wave) and atrial filling (A wave). Patients with atrial flutter frequently lose their atrial “kick” and the corresponding A wave (panel A). This can also be seen in states such as constrictive cardiomyopathy and amyloidosis. After cardioversion, both E and A waves become visible once again (panel B). Another novel benefit of point-of-care cardiac ultrasound is the real-time visualization of flutter waves if adenosine is administered. Rapid atrial contraction results in fluttering of the mitral valve, which can be easily appreciated *via* point-of-care cardiac ultrasound when atrioventricular nodal blockade is achieved with adenosine (Supplemental Digital Content, <http://links.lww.com/ALN/C618>). Return to normal sinus rhythm can then also be monitored following cardioversion.

Competing Interests

The authors declare no competing interests.

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References

1. Salinas P, Domínguez FJ, Moreno-Yanguela M: Echocardiographic demonstration of atrioventricular mechanical contraction in atrial flutter. *Rev Esp Cardiol* 2011; 64:163
2. Buttà C, Tuttolomondo A, Giarrusso L, Pinto A: Electrocardiographic diagnosis of atrial tachycardia: Classification, P-wave morphology, and differential diagnosis with other supraventricular tachycardias. *Ann Noninvasive Electrocardiol* 2015; 20:314–27
3. Vazquez JL, Marquez CI, Garrido-Lestache E, Coca A, Sanchez I: Point-of-care echocardiography: A useful tool for assessing complex arrhythmias in the pediatric intensive care unit. *J Cardiothorac Vasc Anesth* 2021; 35:1371–80

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