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IMAGES IN EMERGENCY MEDICINE

Cardiovascular

A woman with back pain

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KEYWORDS
aortic dissection, back pain, echocardiogram, transthoracic echo

1 | PATIENT DESCRIPTION

A 69-year-old female with a history of hypertension, cocaine use, and human immunodeficiency virus (HIV) presented to the emergency department with chest pain. She reported chest pain radiating to the back for 1 day. Initial blood pressure was 221/107 mmHg with a heart rate of 57 beats/min. On examination, the patient was profusely vomiting in an emesis basin and had a normal pulse exam. Bedside ultrasound demonstrated a flap extending from the aortic arch down to the abdomen (Figures 1 and 2). Computed tomography of the torso was performed (Figure 3).

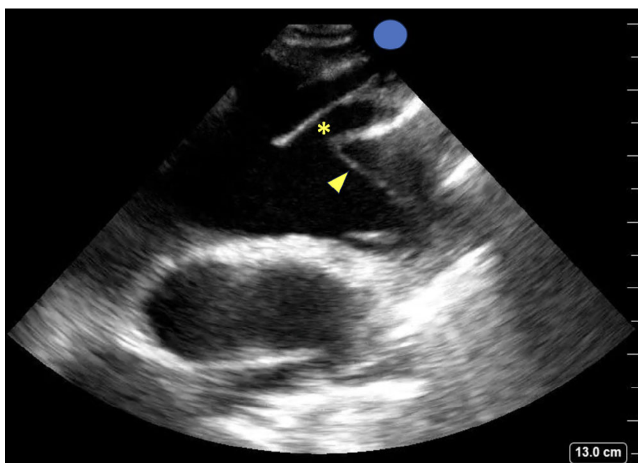

FIGURE 1 Suprasternal view of the aortic arch showing free flap origination (arrowhead) distal to the left subclavian artery (asterisk).

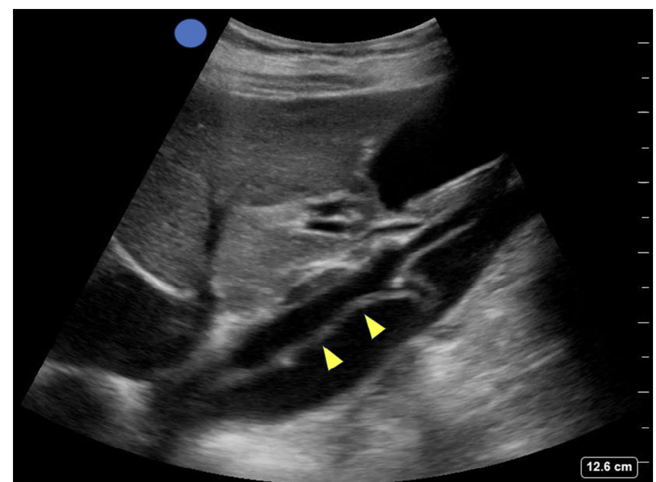

FIGURE 2 Long-axis view of abdomen demonstrating dissection flap (arrowheads) spanning the descending aorta.

2 | DIAGNOSIS

Type B aortic dissection

Ultrasound imaging (Video 1 and 2) and computed tomography angiography revealed a dissection flap emanating distally from the left

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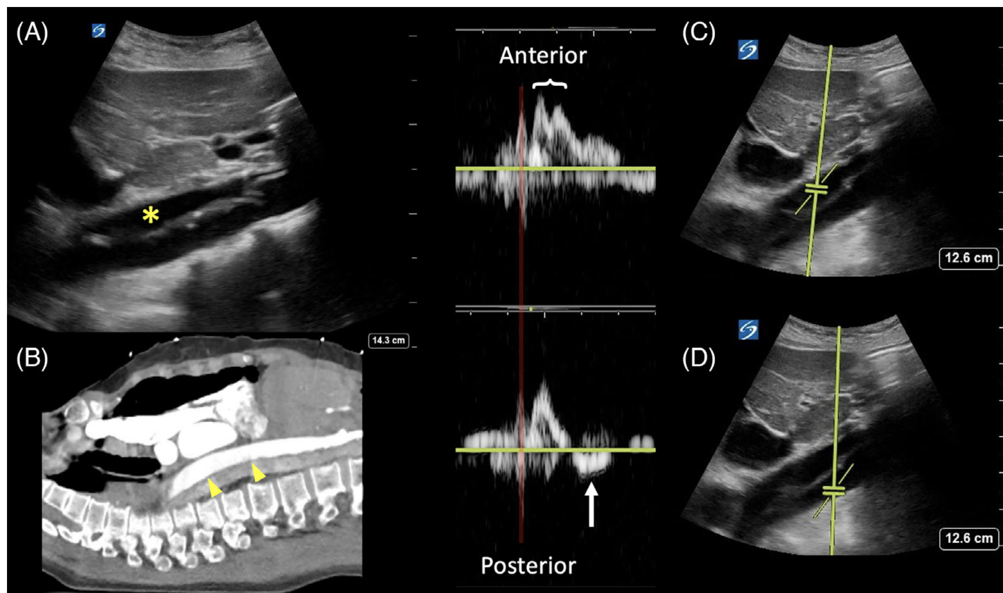
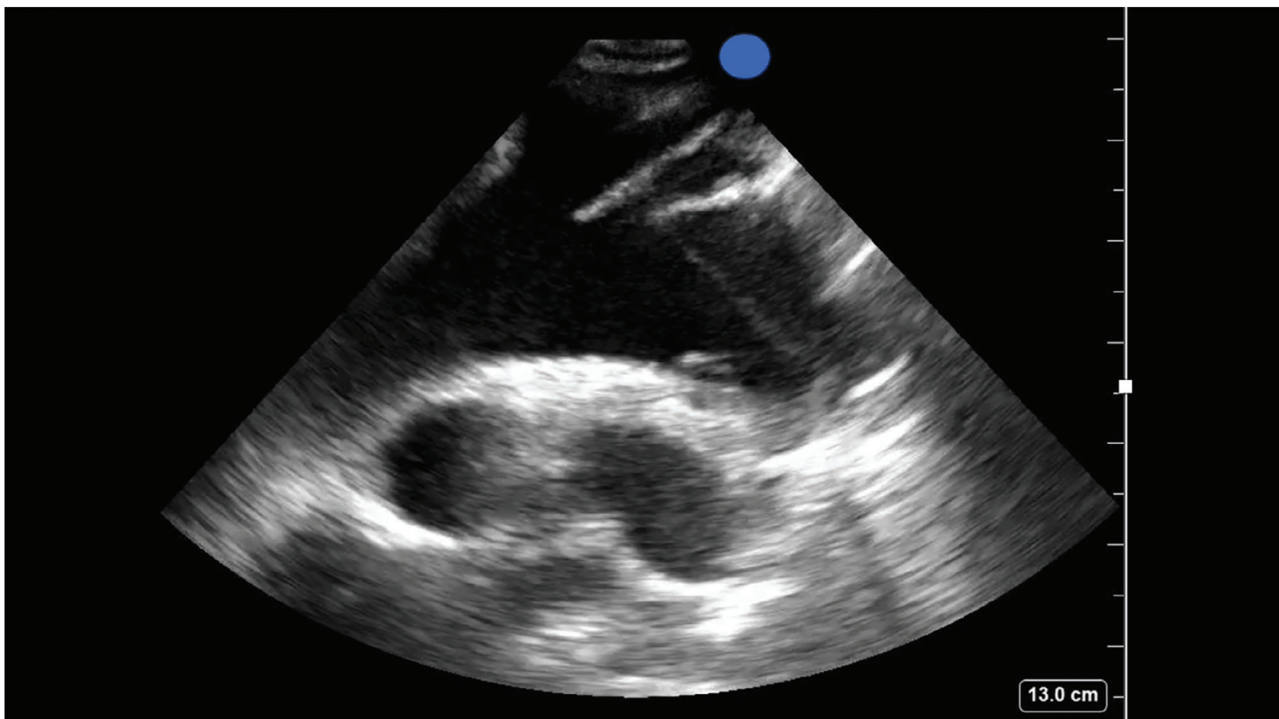


FIGURE 3 (A) Long axis abdominal ultrasound and (B) Computed tomography torso demonstrates contrast uptake (arrowheads) in the true/anterior lumen (asterisk). Pulse-wave Doppler flow over the anterior/true (C) true lumen exhibits spectral broadening depicting mild flow disturbance (bracket), whereas the posterior/false (D) lumen demonstrates greater reverse flow (arrow).



VIDEO 1 Suprasternal view of aortic arch with type B dissection flap originating distal to the left subclavian artery.

subclavian artery. The patient received esmolol and nicardipine for impulse and blood pressure control. Vascular surgery was consulted and recommended non-operative management. Repeat imaging during admission revealed stable dissection. The patient was discharged home after a 14-day admission.

Aortic dissections are differentiated from the point of origin in the aortic arch that defines the start of the ascending and descending aorta. Type A dissections are defined as a dissection proximal to the brachiocephalic artery. Type B dissections originate distal to the left subclavian artery and involve only the descending aorta.[1] Up to 6.3%

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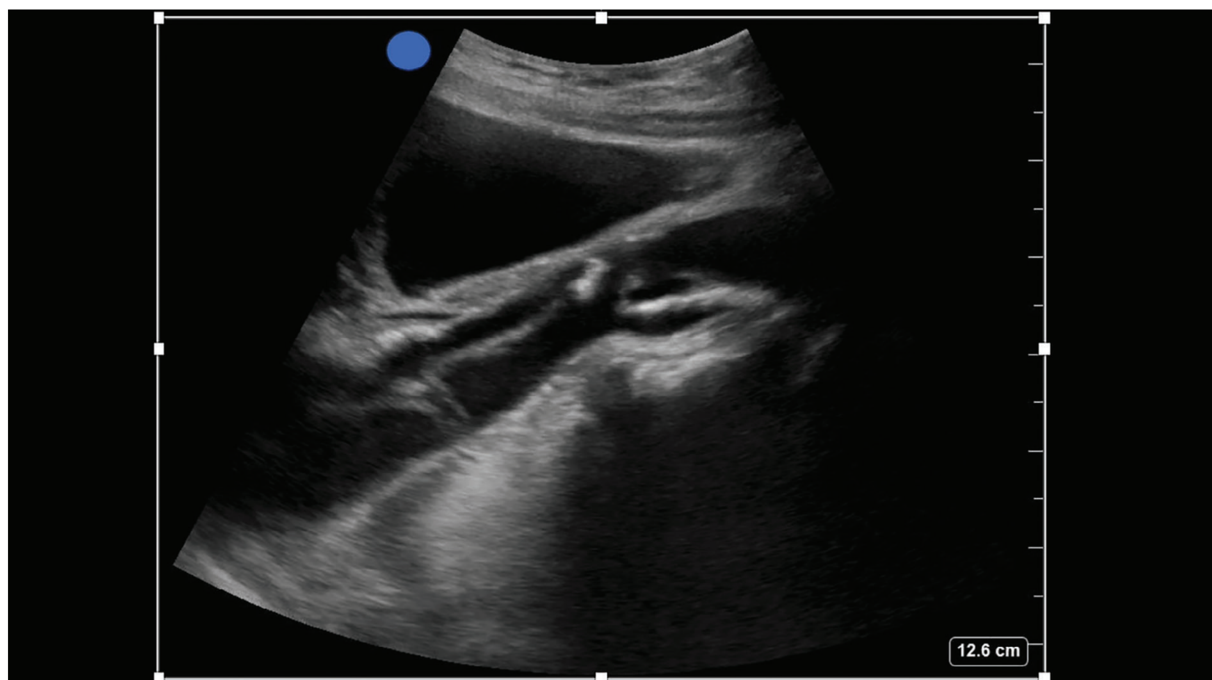

VIDEO 2 Sagittal view of the aorta, demonstrating descending dissection flap.

of aortic dissection presentations are painless and can have atypical presentations.[2] Imaging is critical in classification of dissections. Immediate operative repair is recommended for type A dissections, whereas medical management is recommended for type B dissections.[3]

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