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IMAGES IN EMERGENCY MEDICINE

Cardiovascular

A 70 year old with back pain

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The patient provided written informed consent for the publication of this clinical image.

1 | PATIENT PRESENTATION

A 70year-old male with a history of an abdominal aortic aneurysm (AAA) presented to the emergency department for back pain and worsening lethargy since yesterday. On arrival, he was hypotensive at 88/52 mmHg. Labs were remarkable for creatinine of 1.8 mg/dL. Point-of-care ultrasound (POCUS) revealed an AAA with a dissection flap (Figure 1). Computed tomography with angiography confirmed the ultrasound findings (Figures 2 and 3). Esmolol was initiated and the patient was taken for emergent endovascular intervention. He was ultimately discharged without complication.

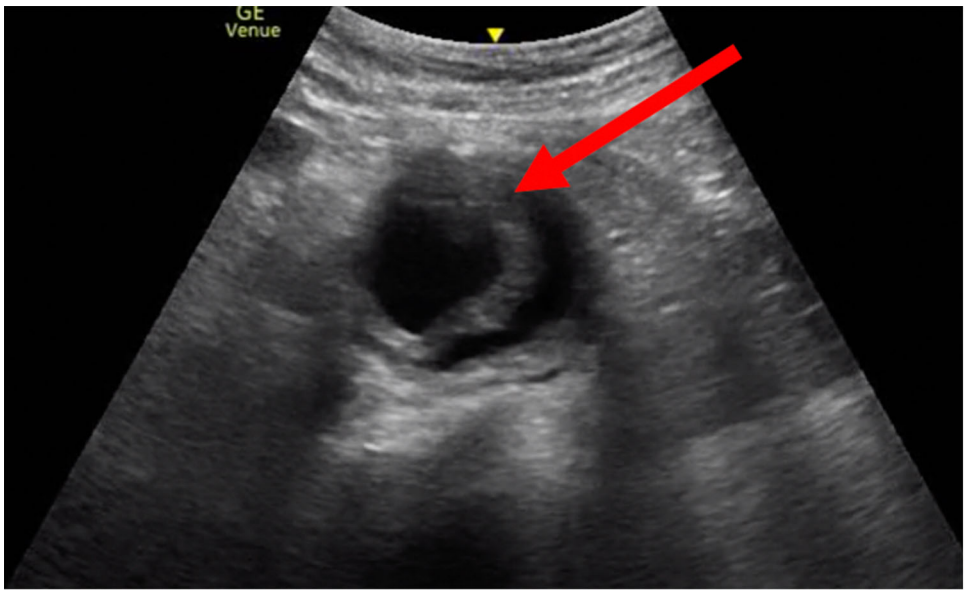

FIGURE 1 Bedside point-of-care ultrasound image with a low-frequency curvilinear probe showing a 5.2 cm infrarenal abdominal aortic aneurysm with a dissection flap (red arrow)

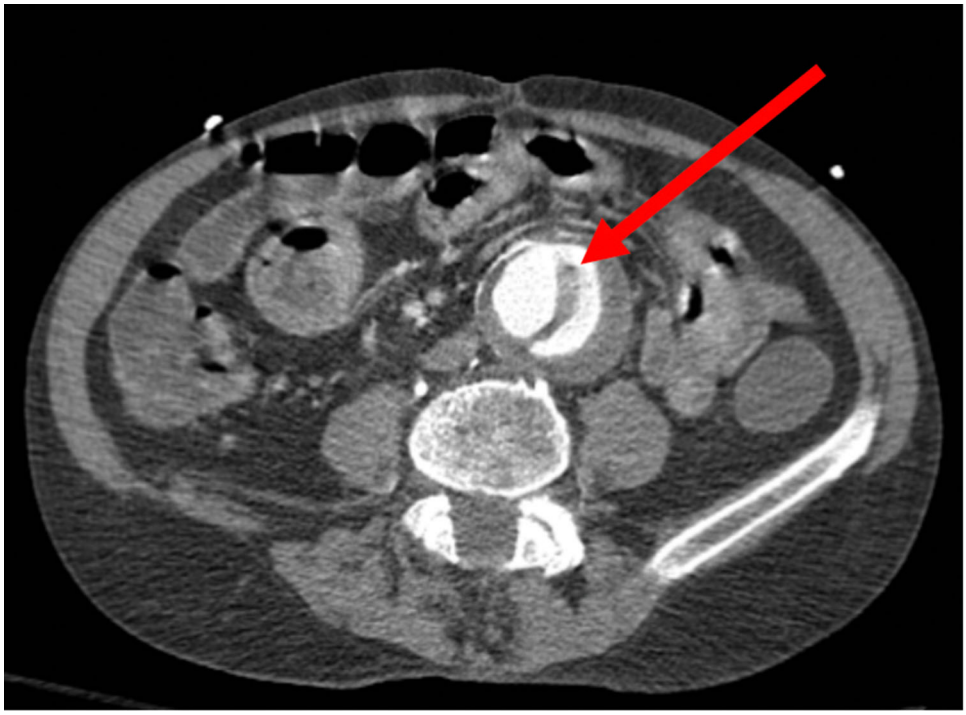

FIGURE 2 Computed tomography with angiography with an axial image showing a 5.2 cm infrarenal abdominal aortic aneurysm with an eccentric dissection flap (red arrow) and mural wall thrombus. Contrast is seen on both sides of the dissection flap

FIGURE 3 Computed tomography scan with angiography with a coronal image showing a 5.2 cm infrarenal abdominal aortic aneurysm with a dissection flap (red arrow) extending into the left common iliac artery

2 | DIAGNOSIS: HYPOTENSIVE ABDOMINAL AORTIC ANEURYSM WITH AORTIC DISSECTION

Atraumatic acute aortic dissection is a life-threatening pathology caused most often by atherosclerotic disease.[1] In a descending dissection, the aortic wall layers are split distal to the ascending aorta via blood entering through an entrance tear, resulting in true and false lumens that may predispose malperfusion of the celiac, mesenteric, renal arteries, spinal, and iliac arteries.[1,2] This may result in visceral ischemia, renal failure, back and thoracoabdominal pain, and neurologic deficits related to spinal and extremity ischemia, in addition to classic features of hypertension and pulse deficits.[3] Although less lethal than an ascending dissection, type B dissection carries a substantial mortality rate when complicated by malperfusion.[2,4]

Our case was complicated by hypotension and a preexisting aortic aneurysm that is associated with a high risk of aortic dissection.[5] Hypotension complicating type B dissections is rare and usually implies aortic rupture and widens the differential.[3,4] This prompted the use of POCUS, which facilitated diagnosis and assessment for complications that may have required different interventions, as well as faster mobilization of surgical and imaging resources for definitive imaging and time-sensitive intervention.[6] POCUS can assess for aortic dissection with a sensitivity and specificity of 67%–79% and 99%–100%, respectively, while also assessing for abdominal aneurysms and other causes of hypotension.[7] Outside of rupture, hypotension can result from malperfusion resulting in mesenteric ischemia leading to multiorgan failure and spinal ischemia leading to neurologic hypotension.[8] Type B dissections are managed with anti-impulse therapy and—when

complicated by malperfusion—may require intervention with endovascular aortic repair.[6]

CONFLICT OF INTEREST

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