

Hocus-POCUS! – Emergency Ultrasound Unveils “The Great Masquerader”

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Case Summary

Chief Complaint

Right lower extremity pain and paralysis

History of Present Illness

A 67-year-old female with past medical history of anxiety and hormone replacement therapy presented to the emergency department by ambulance for evaluation of atraumatic, severe right lower extremity pain and paralysis. The patient reported that while driving her vehicle, she developed abrupt right lower extremity pain described as a severe burning sensation, with rapid progression to monoplegia. She denied any chest pain, dyspnea, nausea or vomiting, abdominal pain, back pain, or other focal neurologic deficits.

Physical Exam

Vitals: T 36.2 °C, HR 75, BP 153/68, RR 22, S_pO₂ 98% on room air.

General: **In significant distress, moaning and writhing in pain.**

HEENT: Atraumatic, normocephalic. Pupils equal, round, reactive to light bilaterally.

Neck: Supple, no midline C-spine tenderness.

CV: Regular rate and rhythm, no appreciable murmur.

Resp: Clear to auscultation bilaterally, no crackles.

Abdomen: Soft, nontender, nondistended.

Back: Normal inspection, no midline L-spine tenderness.

Extremities: **Right lower extremity atraumatic, cold to touch, pale, insensate, monoplegic. Absent right femoral, dorsalis pedis, and posterior tibial pulses.**

Neuro: Awake, alert, oriented x4. Mentating appropriately.

Monoplegic and insensate right lower extremity, otherwise nonfocal exam.

Diagnostic Imaging

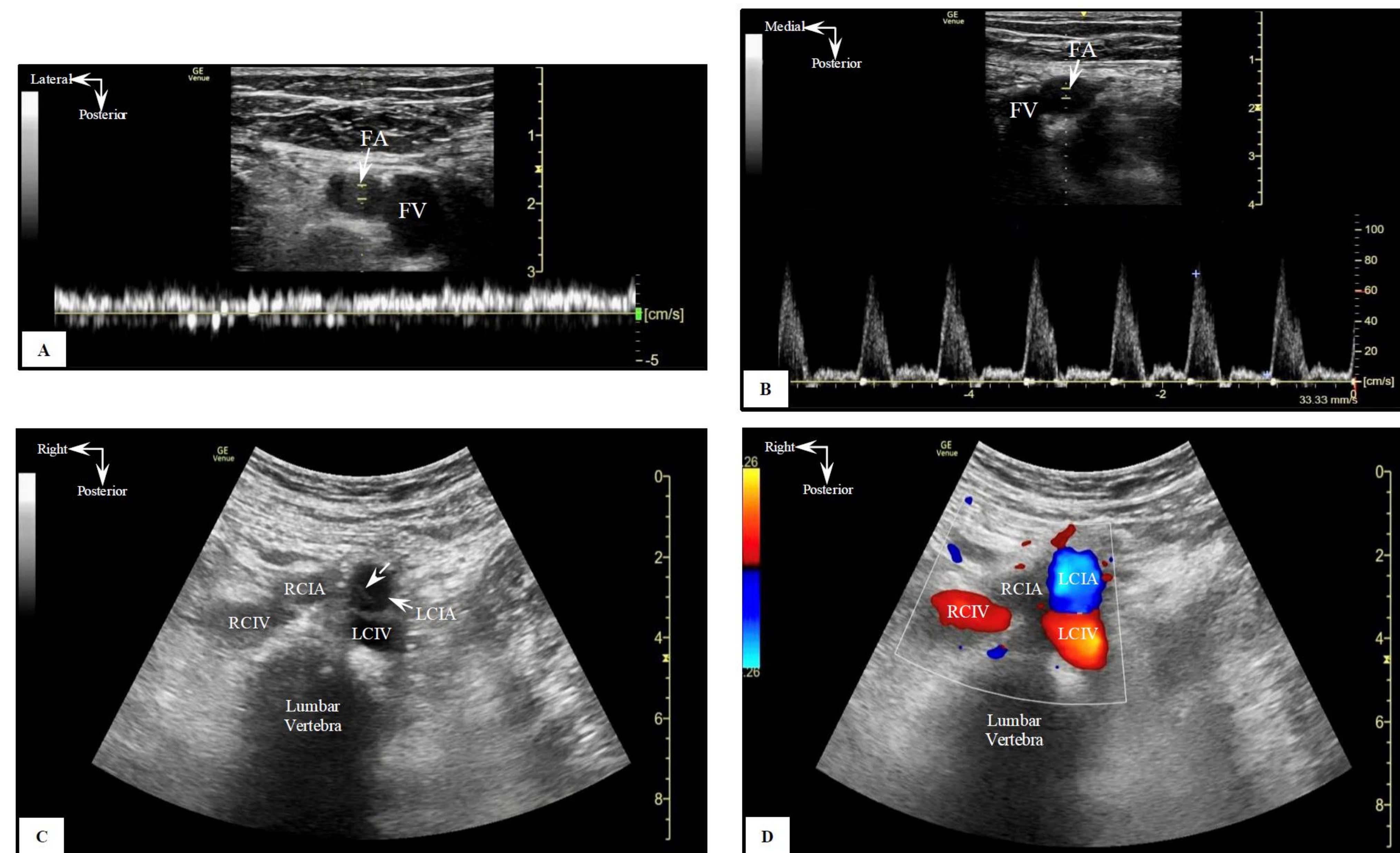


Image 1. A. Vascular sonogram of the right femoral artery with pulse wave doppler demonstrated a no-flow waveform. B. Left femoral artery pulse wave doppler, in comparison, demonstrated normal triphasic flow. C. Vascular sonogram of aortic bifurcation illustrated a dissection flap in the left common iliac artery (dashed arrow). D. Color flow demonstrated absent flow in the right common iliac artery secondary to malperfusion. FA, femoral artery; FV, femoral vein; LCIA, left common iliac artery; LCIV, left common iliac vein; RCIA, right common iliac artery; RCIV, right common iliac vein.

Case Discussion

In this case, the patient presented with severe right lower extremity pain and monoplegia secondary to type A aortic dissection (AoD) with malperfusion. On initial evaluation, a diagnosis of acute limb ischemia was considered given the “5P’s” of pain, pulselessness, pallor, paresthesia, and paralysis on presentation. Vascular ultrasound with pulse wave doppler revealed no flow in the right femoral artery (**Image 1A**), but no definitive thrombus was visualized. More proximal vascular evaluation showed an intimal flap in the left common iliac artery (**Image 1C**) with no color flow in the right common iliac artery (**Image 1D**), consistent with a diagnosis of AoD complicated by extremity malperfusion. Subsequent echocardiography and computed tomography studies (**Images 2A-D**) confirmed a diagnosis of type A AoD extending from the aortic root to bifurcation. Emergency ultrasound performed at the bedside was responsible for rapid diagnostic closure, and expeditious activation of cardiothoracic and vascular surgery teams for definitive operative repair. As a result, the patient went for emergent surgical intervention, and ultimately survived to hospital discharge with meaningful neurologic outcome.

Due to its vast clinical presentations and devastating consequences of delayed diagnosis, AoD demands a heightened clinical suspicion and rapid identification for time-sensitive intervention. POCUS performance by emergency physicians has been shown to be highly sensitive for dissection recognition, and drastically decreases time to diagnosis. This case highlights how bedside POCUS can result in rapid diagnosis and expedited surgical intervention in cases of aortic dissection, resulting in a favorable patient outcome.

Questions

1. What are the pertinent findings on point-of-care ultrasound and CTA imaging?
2. What percent of patients present with the “classic” presentation of this disease entity?
3. What is the definitive management of this condition?

Answers

1. Type A aortic dissection extending from the aortic root to the aortic bifurcation, complicated by malperfusion of the right lower extremity at the level of the right common iliac artery.
2. <50% of aortic dissections present with abrupt onset of severe tearing or ripping chest pain.
3. Surgical intervention.

Clinical Pearls

- AoD is called “The Great Masquerader” due to its myriad of clinical presentations, making diagnosis especially challenging. It demands a heightened clinical suspicion to expedite identification and ensure prompt intervention.
- Point-of-care ultrasonography by emergency physicians has been shown to be highly sensitive for dissection recognition, and drastically decreases time to diagnosis.

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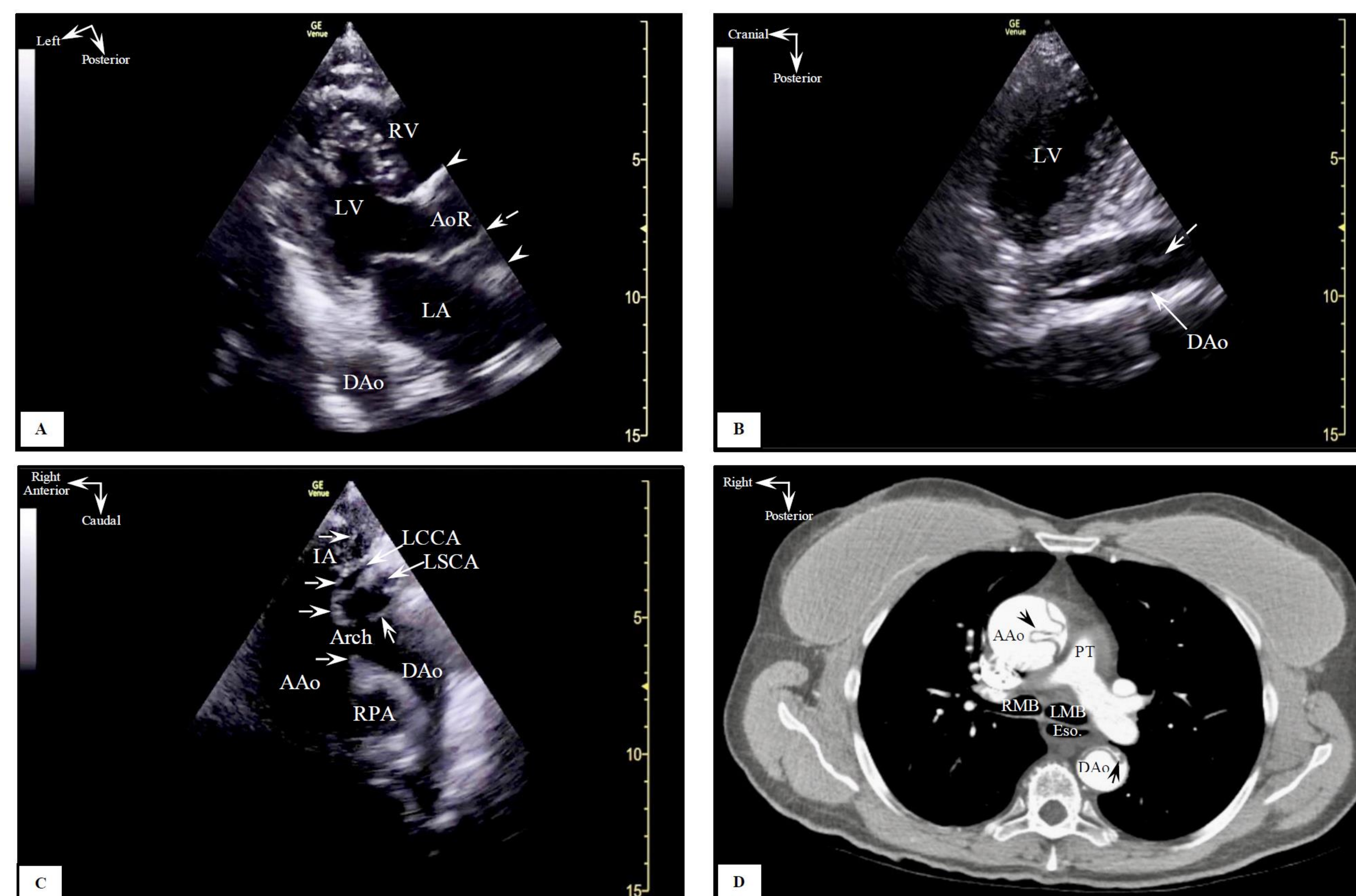


Image 2. A. Echocardiogram parasternal long axis view illustrated type A dissection flap (dashed arrow) arising from a widened aortic root (arrowheads). B. Parasternal short axis view redemonstrated a large dissection flap in the descending thoracic aorta. C. Suprasternal notch view showed extension of the dissection flap from the aortic arch into the innominate artery. D. Chest computed tomography angiogram confirmed point of care ultrasound findings of type A aortic dissection. AAo, ascending aorta; AoR, aortic root; DAo, descending aorta; Eso., esophagus; IA, innominate artery; LA, left atrium; LCCA, left common carotid artery; LMB, left main bronchus; LSCA, left subclavian artery; LV, left ventricle; PT, pulmonary trunk; RMB, right main bronchus; RPA, right pulmonary artery; RV, right ventricle.