Acute type B dissection in a patient with anomalous aortic arch anatomy

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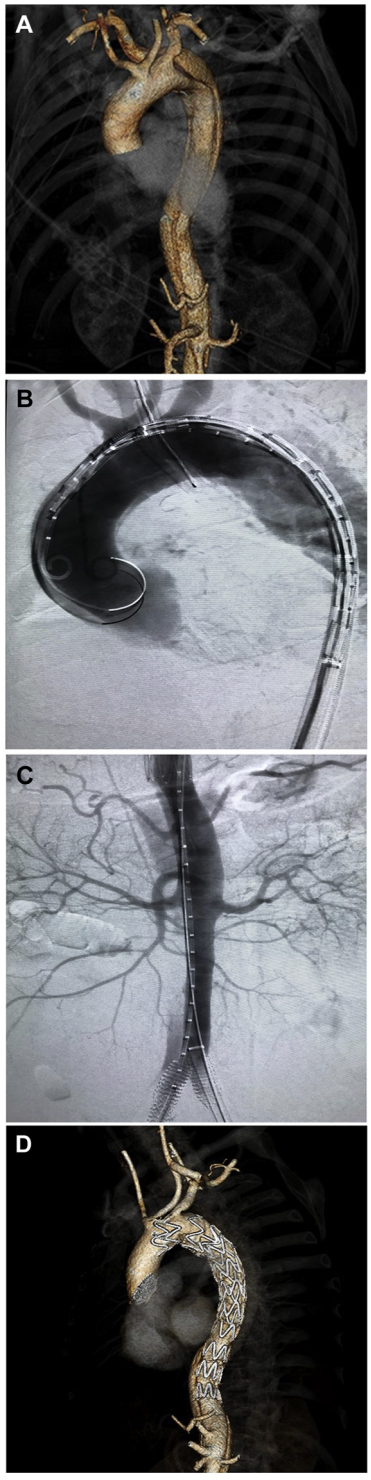
A 48-year-old man presented to the emergency department with acute onset of back pain and left leg numbness and weakness. Computed tomography angiography (CTA) revealed an acute type B aortic dissection in the setting of anomalous aortic arch anatomy. From proximal to distal, the patient had a common origin of bilateral carotid arteries, a left subclavian artery giving rise to a dominant vertebral artery, and an aberrant right subclavian artery that was dissected from its origin to the level of the right shoulder (*A*). The aortic dissection extended from the left subclavian artery to bilateral iliac arteries. The celiac, superior mesenteric, bilateral renal, and left iliac arteries arose from the true lumen, whereas the inferior mesenteric and right iliac arteries arose from the false lumen. The patient had sensory deficits and absent pulses in his left leg. Placement of kissing iliac stents restored perfusion to the left leg. Postoperatively, he was admitted for blood pressure and heart rate control. He initially did well; however, on postoperative day 9, he developed acute renal failure. Repeated CTA demonstrated true lumen collapse with right renal artery occlusion. He was taken emergently for left carotid-subclavian bypass to preserve antegrade blood flow through the dominant vertebral artery and placement of a thoracic endograft to cover the entry tear and to pressurize the true lumen. The endograft was landed distal to the common origin of the carotid arteries, intentionally covering the left and aberrant right subclavian arteries (*B*). Completion angiography demonstrated true lumen expansion with perfusion of visceral vessels (*C*). The 3-month follow-up CTA scan demonstrated an intact repair (*D*). Consent was obtained for publication of case details and images.



Aberrant arch anatomy has been documented in the setting of aortic dissection. Of patients with aortic dissection, 31% have been found to have a bovine arch.[1] Although previous case reports have described thoracic endovascular aortic repair (TEVAR) for type B dissection in the setting of bovine arch or aberrant right subclavian artery using parallel grafts[2] and hybrid arch replacement plus TEVAR into an elephant trunk,[3] the anatomy reported here, treated successfully with carotid-subclavian bypass and TEVAR, has not been published to date.

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