A 56-year-old man presented with sudden severe chest and back pain. His chest x-ray showed a slight prominence on the upper descending thoracic aorta. Aortic dissection (type B) was visible on transesophageal echocardiography and CT. Coronary angiography showed normal coronary arteries. MRI and contrast-enhanced magnetic resonance angiography (CE-MRA) confirmed the diagnosis of type B aortic dissection involving the distal aortic arch and descending aorta (Figure). In addition, the CE-MRA depicted an intramural hematoma in the outer curvature wall of the distal aortic arch and the proximal descending thoracic aorta, with a button-shaped focal signal enhancement that was consistent with a penetrating aortic ulcer. The arterial phase MRA showed the aortic ulcer and the true and false aortic lumina, with less contrast in the partially thrombosed false lumen and the intramural hematoma when compared with the late phase MRA. The patient was treated conservatively and is currently well and asymptomatic. To our knowledge, this is the first report of a penetrating aortic ulcer demonstrated by CE-MRA.

A penetrating atherosclerotic ulcer of the descending thoracic aorta, which is a potentially fatal aortic catastrophe, is characterized on angiography by focal enhancement beyond the confines of the aortic lumen but communicating with the lumen. Because of the rare occurrence of aortic ulcers, the prognosis, outcome, and management of such patients are still not clear. Accurate diagnosis of penetrating aortic ulcers is sometimes difficult. CT may demonstrate the surrounding hematoma and displaced calcifications. MRI, including CE-MRA, is a versatile method for assessing aortic disease and seems well suited for the characterization of penetrating aortic ulceration. This is important because surgery to repair a penetrating ulcer requires more extensive aortic resection than does the repair of a dissection, and it involves placing a longer aortoaoatic interposition graft in an atherosclerotic aorta that is often friable.

References
CE-MRA (a, arterial phase; b, late phase) depicted intramural hematoma (IMH) in outer curvature wall of distal aortic arch and in proximal descending thoracic aorta, with button-shape focal signal enhancement (arrows) consistent with penetrating aortic ulcer. Arterial phase MRA showed aortic ulcer and true (t) and false (f) aortic lumina, with less contrast in partially thrombosed false lumen and intramural hematoma when compared with late phase MRA.
Contrast-Enhanced Magnetic Resonance Angiogram of Penetrating Aortic Ulcer
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