



Case Report

Seizure: an unusual primary presentation of type A aortic dissection

Abstract

Aortic dissection is a potentially life-threatening condition that must be diagnosed early and accurately. Here we report a case of type A aortic dissection presenting with seizure and unconsciousness. We thought this rare manifestation should be reported because misdiagnosis of such cases could lead to disastrous results.

A 46-year-old man was brought to the emergency department (ED) with sudden loss of consciousness and right hemiconvulsive movements. He had a history of asthma and poorly controlled hypertension. On arrival, we noted right gaze deviation, right upper arm automatisms, and tonic posturing of trunk. Airway support, oxygen, and intravenous lorazepam were given immediately; and the convulsive movements stopped. Upon examination, he was afebrile with a blood pressure of 137/85 mm Hg, a pulse rate of 94/min, and a Glasgow Coma Scale of E1M4V2. Left hemiplegia was noted upon a painful stimulus. After stabilization, brain computed tomography revealed dense middle cerebral artery (MCA) sign in the right hemisphere. Further magnetic resonance imaging showed abnormal hyperintensity at the right MCA territory on diffusion-weighted imaging (Fig. 1). Acute cerebral infarction was diagnosed.

Initial laboratory studies were within reference limits. However, a routine chest radiograph disclosed a widened mediastinum. Reevaluation of the patient revealed significant blood pressure differentials in the patient's arms, with a blood pressure of 100/85 mm Hg in the left arm and 50/30 mm Hg in the right arm. An urgent computed tomography of the chest revealed a type A aortic dissection, extending from the ascending aorta through the entire length of the aorta with upward extension to the brachiocephalic trunk (Fig. 2). Emergency aortic grafting was postponed because of the risk of hemorrhagic complication of the cerebral infarction. He was cared supportively in the intensive care unit, with his blood pressure kept in the normotensive range. One week later, he regained full consciousness, although his left side hemiparesis remained. He recalled that severe abdominal pain radiating to his back and head was his initial symptom. He underwent aortic grafting 1 month later and attended a regular rehabilitation program postoperatively.

By the Stanford classification, aortic dissections are divided into type A and B, depending on whether the ascending aorta is involved [1]. Type A dissection involves the aortic arch, which may result in a seizure either through extension of the dissection into the common carotid arteries or through thromboembolism or cerebral hypoperfusion [2]. Our case shows the difficulty of diagnosing concurrent acute ischemic stroke and aortic dissection in patients with atypical presentations. Ischemic stroke has been reported to account for 5%–10% of type A aortic dissection [1]. Seizures were reported in 7.7% of patients at the onset of stroke [3]. Seizures after the onset of the stroke are more common in patients with intracerebral hemorrhages than ischemic stroke [4]. To our knowledge, seizure as the initial presentation of aortic dissection has not been reported.

Blood pressure is frequently elevated in acute stroke, but aggressive lowering of blood pressure in this setting may be hazardous because of impaired cerebral autoregulation. This blood pressure control principle is opposite to that in aortic dissection. The American Heart Association stroke guideline recommends lowering the blood pressure if the patient has concomitant aortic dissection. However, prompt and accurate diagnosis of an aortic dissection in a patient atypically presenting with seizures and a depressed level of consciousness is challenging for clinicians. Delay in diagnosis of this condition and maintaining a high blood pressure for acute stroke may lead to catastrophic results



Fig. 1 Diffusion-weighted imaging of a magnetic resonance image reveals abnormal hyperintensity at the right MCA territory (arrow).

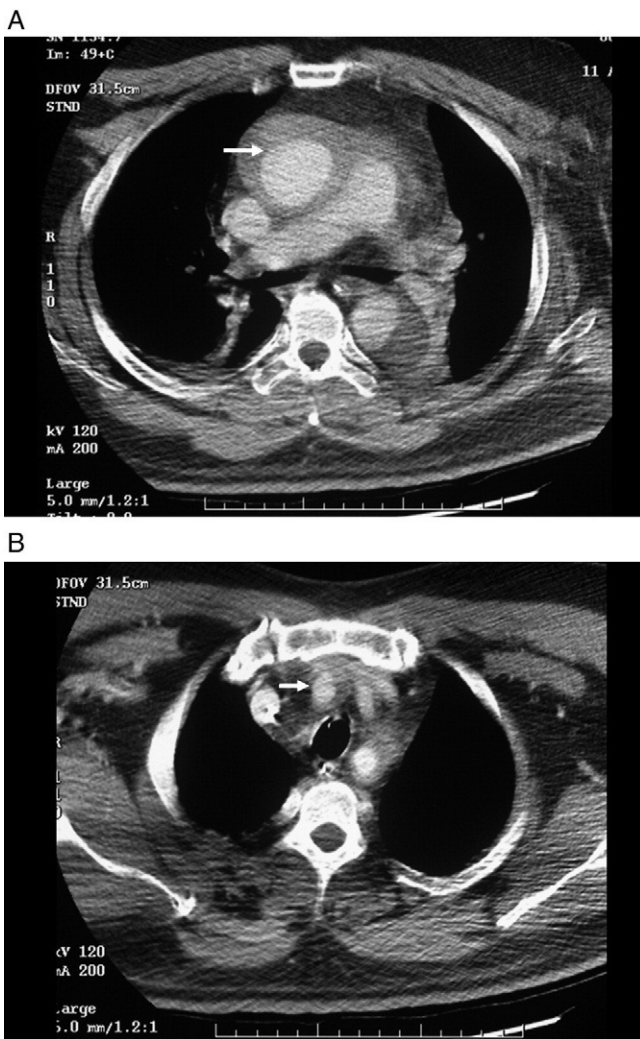


Fig. 2 Computed tomographic angiography reveals type A aortic dissection, extending from the ascending aorta (A, arrow) through the arch to the descending aorta (A, arrowhead). The brachiocephalic trunk is also involved (B, arrow).

including aortic rupture and death. Hence, a high index of clinical suspicion should be kept. We suggest that, aside from chest radiography examination, routine check of the 4 extremities' peripheral pulse and blood pressure should be made mandatory for all patients with a new onset of seizure and focal neurologic deficits, especially when the patient has concomitant unconsciousness that prevents the obtaining of a detailed clinical history. We think that this suggestion, with the advantage of timeliness and ease of performance, may help the emergency physician avoid making a disastrous mistake.

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