

Computed Tomography Imaging Artifact Simulating Type A Aortic Dissection

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Abstract

Contrast-enhanced computed tomography (CT) is an effective tool for assessment of thoracic aortic disease in the modern era. Here, we describe a case of Type A aortic dissection incidentally detected by CT in a 63-year old man. Upon more precise imaging with electrocardiography (ECG)-gated CT, the dissection vanished, revealing it to be an aortic motion artifact. This report highlights the importance of motion artifacts mimicking a dissection flap. CT imaging gated with ECG can distinguish a dissection flap from an artifact.

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Key Words

Type A aortic dissection • Imaging artifact

A 63-year-old male presented to the emergency department of an outside facility with chest pain following a motorcycle crash. He experienced hypertension and tachycardia. A chest X-ray was suspicious for widened mediastinum. Contrast chest, abdominal, and pelvic computed tomography (CT) scans were performed and demonstrated Type A dissection extending from the aortic root to the level of the pulmonary trunk (Figure 1, Panel A; see supplemental Video 1 at <http://dx.doi.org/10.12945/j.aorta.2015.15.021.vid.01>). The ascending aorta had a maximal diameter of 3.7 cm at the level of the Type

A dissection. While the true and false lumens were seen, no clear intimal tear was observed. It was not known whether this appearance of the aorta was related to the accident, given the flap thickness and lack of acute pain prior to the accident. Consideration was given to the possibility that this could represent a coincidental detection of a prior chronic ascending dissection.

Following identification of the Type A dissection, the patient was transferred to the author's facility for management. Emergency department transthoracic echocardiography was unable to visualize a dissection flap. An electrocardiography (ECG)-gated CT was requested and showed no evidence of dissection (Figure 1, Panel B; see supplemental Video 1 at <http://dx.doi.org/10.12945/j.aorta.2015.15.021.vid.01>). The previously visualized defect proved to be an imaging artifact.

Aortic motion artifacts that result in double-lumen images are well-known [1-4]. They result from cyclical movement of the aortic root causing shadows in multiple image planes. Such artifacts are common because scans obtained in the emergency department are frequently performed to rule out pulmonary embolism—ungated and without contrast. However, an artifact as convincing as observed here, with an apparent false lumen persisting through several axial frames, is rare.





Figure 1. Contrast computed tomography (CT) of aorta for assessment of Type A dissection. *Panel A.* Outside facility CT, non-gated, with true and false lumens observed. *Panel B.* Author's facility, gated, showing normal aorta with no dissection.

Recognition of this dramatic imaging artifact precluded an unnecessary surgical intervention. The importance of ECG gating in CT imaging of aortic dissection is vividly illustrated in this case.

Conflict of Interest

The authors have no conflicts of interest relevant to this publication.

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