



Atypical Presentation of Aortic Dissection: A Case Report

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Abstract

Background: Aortic dissection (AD) is considered to be one of the life-threatening diseases. Quick diagnosis has great significance so that a one-hour delay in treatment leads to a 1-2% increase in mortality.

Case Report: The 55-year old obese woman with epigastric pain and right upper quadrant pain referred to the emergency department of our hospital. The acute coronary syndrome was our initial diagnosis but an image similar to a Perl in one cut and a crescent in another cut of computed tomography (CT) drew our attention in the mediastinal view of CT without intravenous contrast that was performed to rule out coronavirus disease-19 (COVID-19). Finally, CT-angiography was requested and AD diagnosis was approved accordingly.

Conclusion: The presence of calcification on a non-contrast chest CT in the middle of the aorta or away from the artery wall can be a sign of AD. Thus, special attention should be paid to the atypical symptoms of AD.

Keyword: Aorta, Dissection, Acute coronary syndrome, Myocardial infarction, Tomography

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Received: August 21, 2021, Accepted: September 18, 2021, ePublished: September 30, 2021

Introduction

Aortic dissection (AD) is considered to be one of the emergency and life-threatening cardiovascular diseases, and its quick diagnosis has great significance so that a one-hour delay in treatment causes a 1-2% increase in mortality (1). The prevalence of AD is 4-15 in 100 000 population (2, 3). In AD, the intima layer of the aorta is torn, and the blood surges between the intima and medial layers of the aorta, leading to the formation of a false lumen (2). Stanford and DeBakey aortic classification are employed for AD categorization (2). In Stanford aortic classification, if the ascending aorta is involved, it is considered to be type A, otherwise, it is of type B. There are three types in DeBakey aortic classification. Both ascending and descending, only ascending, and only descending the aorta are involved in types I, II, and III, respectively (2). Sharp or stabbing severe chest or back pain, which begins abruptly, are the typical clinical symptoms of AD. Low blood pressure, syncope, neurologic signs are observed in less than 50% of Stanford type A cases. It is occasionally observed as myocardial infarction (MI) and pulmonary embolism (2). In Stanford type A, cardiac signs occur as the coronary arteries are involved, and it occasionally leads to MI (4). Magnetic resonance imaging, computed tomography (CT), and sometimes

transesophageal echocardiography are employed to assess and diagnose AD. The sensitivity and specificity of CT-angiography have been far more significant and 100 and 100, respectively (5). The radiologic manifestations of AD in CT-angiography are observed as a split between the intima and medial layers of the aorta and the formation of the lumen (5).

In this study, a 55-year old woman was introduced with atypical manifestation and crescent signs in the mediastinal view of chest CT scan without contrast.

Case Presentation

The 55-year old obese woman with epigastric pain and right upper quadrant (RUQ) pain referred to the emergency at 6:30 am. It is noteworthy that her pain had been started at 2 am. Her blood pressure and heart rate were normal upon entrance. The patient was assessed and treated with a differential diagnosis of peptic ulcer, acute cholecystitis, acute coronary syndrome, and pancreatitis. The obtained *electrocardiography* (ECG) was normal. Based on initial examinations, 40 mg of intravenous pantoprazole was injected for potential peptic ulcer, and 7 mg of morphine was injected to pacify pain. Laboratory tests including cTnI and amylase were normal. Sonography was ordered because of potential cholecystitis, and liver and bile

ducts. The time set for the emergency sonography by the radiology ward of the hospital was 10:30. The patient had good general conditions until she fainted when walking toward WC, and thus she was immediately set back to her bed. The patient looked pale and was sweating. Vital signs were measured once again, which were as follow:

Left arm BP=70/57, right arm BP=80/60, PR=87, RR=22, T=36.8

Electrocardiogram (ECG) was recorded once again (Figure 1). ECG showed ST depression changes in inferior leads. Therefore, 300 mg chewable aspirin and 300 mg oral clopidogrel were given to the patient according to the ECG changes and weakness, lethargy, low blood pressure, and emerging chest pain, the patient was diagnosed with non-ST elevation MI (non-STEMI), and hence. In addition, 1000 cc of normal saline serum and 60 mg enoxaparin were injected, and then, she was hospitalized to follow treatment with a cardiologist's counseling. According to the telephone order of the heart specialist of the hospital, the patient was prepared to dispatch to another hospital by ambulance since our hospital did not have a heart ward. Meanwhile, the chest CT scan was

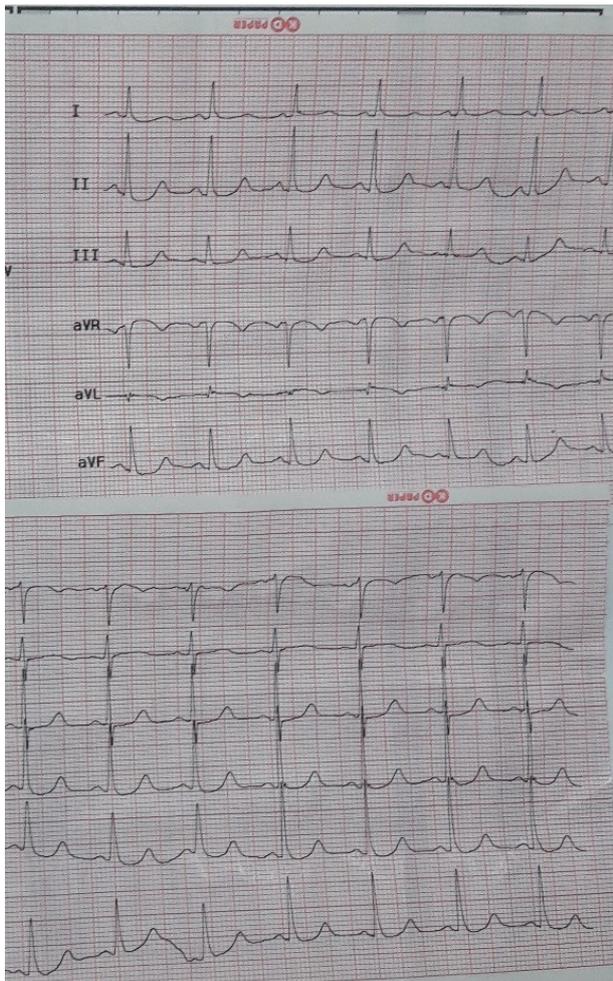


Figure 1. Second ECG After Fainting With ST Depression in Lead II, III and aVF. Note. ECG: Electrocardiography.

ordered before dispatch in order to refute coronavirus disease-19 (COVID-19) potentiality. In the CT scan, the patient had no damage representing COVID-19. However, a Perl-like image in one cut and a crescent-like image in another cut drew our attention while considering the mediastinal view of the CT scan (Figures 2 and 3). After counseling a radiologist and for proving our diagnosis, the consideration of the artery with CT-angiography was requested and AD diagnosis was approved accordingly (Figures 4 and 5). It should be noted that prescribing a heart rate-lowering drug (e.g., esmolol) for controlling the patient's heart rate was impossible because of the low blood pressure. The patient was quickly dispatched to the heart hospital and was under operation at 4:45 p.m. In the surgery report sheet, dissection continued until near coronary. Ultimately, the patient was discharged after 17 days.

Discussion

In this report, a patient was introduced with the atypical manifestations of AD such as epigastric and RUQ pain, and Perl and crescent signs in the mediastinal view of the

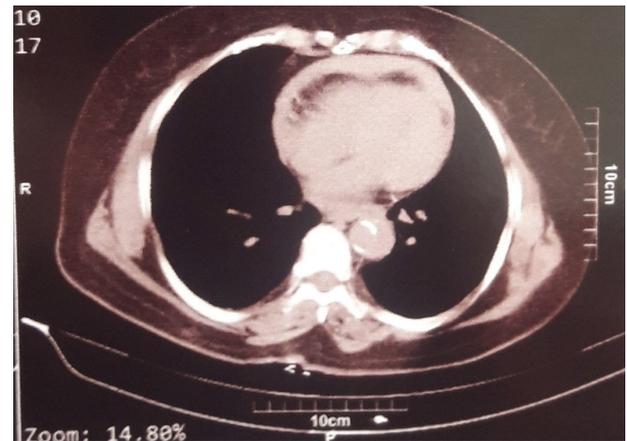


Figure 2. Crescent Sign in Non-contrast CT-Scan. Note. CT: Computed tomography.

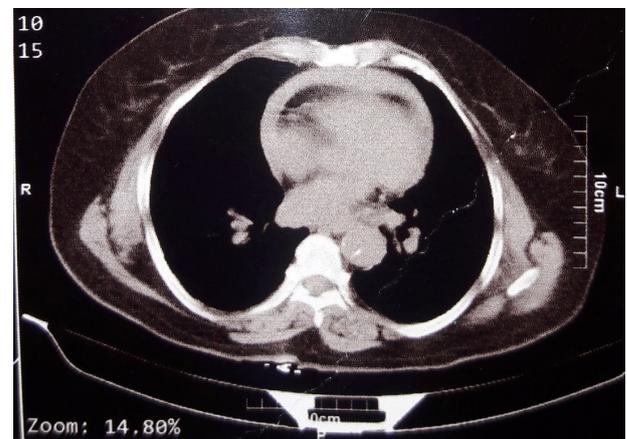


Figure 3. Perl Sign in Non-contrast CT-Scan. Note. CT: Computed tomography.

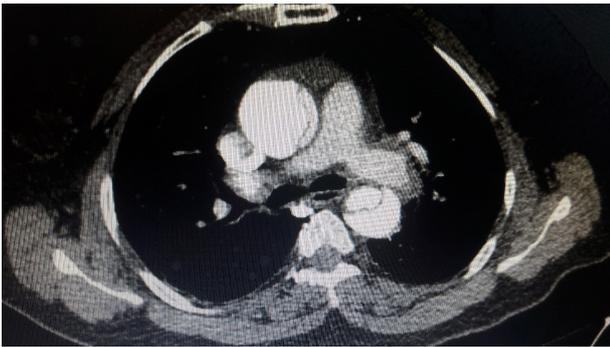


Figure 4. Crescent Sign in Non-contrast CT-Scan. Note. CT: Computed tomography.

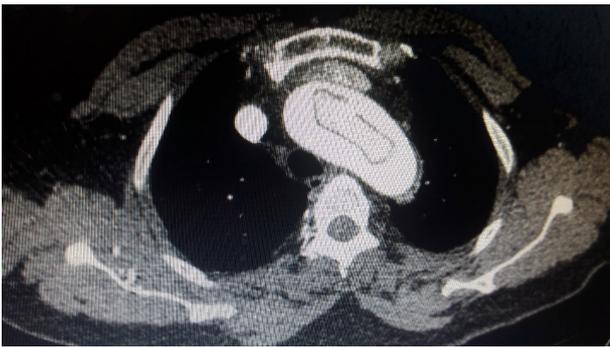


Figure 5. Crescent Sign in Non-contrast CT-Scan. Note. CT: Computed tomography.

chest CT scan without contrast.

Previous studies have reported similar cases of atypical manifestations of AD. For instance, Benbouchta et al presented a case in which the patient referred with chest pain. In ECG, it was inferior STEMI, and the dissected flap was observed while performing echocardiography. Involvement of coronary arteries in Stanford type A, which engages ascending aorta, leads to MI manifestations (4). Similarly, Kang et al reported a 46-year old man with paraplegia, which was caused because of mal-perfusion of the lower extremity (6). Likewise, Álvarez et al introduced a 46-year old man with paraplegia, which was caused by lumbosacral plexopathy. AD with blood flow disorder to the spinal cord, neural stems, or plexopathy can lead to paraplegia (7). Eventually, Saunders and Suzuki reported a young male athlete with suprasternal pain. He had pain down in his throat, which frequently stabbed his left shoulder (8).

Conclusion

The presence of calcification on a non-contrast chest CT scan in the middle of the aorta or away from the artery

wall can be considered as a sign of AD. Accordingly, the atypical symptoms of AD should receive special attention.

Conflict of Interest Disclosures

The authors state that they have no conflict of interests.

Acknowledgments

All authors thank the patient's informed consent for publishing this information.

Authors' Contributions

SS and GF: The idea of case presentation; SS: Data collection; GF: Original draft preparation; SS and GF: Final approval of case presentation.

Funding/Support

The current study received no funds, grants, or other support.

Informed Consent

Patient consent was obtained for the publication of case information.

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