



Misdiagnosis of Acute Aortic Dissection in Emergency Room

Andri Octavallen,¹ Anthony Setiawan²

¹Emergency Specialist, Department of Emergency,

²Maranatha Christian University, Bandung, Indonesia

ABSTRACT

Acute aortic dissection is a life-threatening condition requiring rapid recognition and treatment. The immediate mortality rate in aortic dissection is as high as 1% /hour over the first several hours. The typical presentation of acute aortic dissection is the abrupt onset of severe pain in the chest, back, or abdomen, often described as tearing or ripping. This case concerns a 67-year-old woman who lost consciousness one and a half hours before being presented to the emergency room without chest pain. Since there was left hemiparesis, a stroke was suspected. However, a chest x-ray showed wide mediastinum, and a thorax CT-Scan with contrast showed aortic dissection. Aortic dissection may manifest in various symptoms without typical presentation.

Keywords: Aortic dissection, misdiagnosis

ABSTRAK

Diseksi aorta akut adalah kondisi mengancam nyawa yang membutuhkan diagnosis cepat dan tepat disertai penatalaksanaan adekuat. Tingkat kematian langsung pada diseksi aorta sebesar 1% /jam selama beberapa jam pertama. Gejala utamanya adalah nyeri akut seperti dirobek terutama di dada, punggung, atau perut. Kasus pada seorang wanita usia 67 tahun, dengan gejala utama penurunan kesadaran satu setengah jam sebelum ke instalasi gawat darurat. Didapatkan hemiparesis sinistra tanpa nyeri dada. Pasien diduga *stroke*, namun ada pelebaran mediastinum pada *x-ray* dada; *CT-scan* dada dengan kontras didapatkan adanya diseksi aorta. Klinisi harus selalu waspada terhadap kasus diseksi aorta dengan manifestasi tidak khas. **Andri Octavallen, Anthony Setiawan. Laporan Kasus: Misdiagnosis Diseksi Aorta Akut di Instalasi Gawat Darurat**

Kata kunci: Diseksi aorta, misdiagnosis



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INTRODUCTION

Acute aortic dissection is a potentially fatal condition; it occurs when the inner layer of the aorta (intima) tears and separates from the middle layer (media). Blood enters the new channel (false lumen) between the inner and middle layers and propagates anterogradely or retrogradely.¹ Stanford classification for aortic dissection is based on anatomic involvement. Type A dissections involve the ascending aorta, and type B dissections do not involve the ascending aorta. According to The International Registry of Acute Aortic Dissection (IRAD) data, most patients presented with type A (67%).² Incidence of aortic dissection is estimated at 6 per 100.000-person per year;³ men have a higher incidence than women and increases with age.⁴ The mortality rate is about 1% per hour, so accurate diagnosis should be made as soon as possible.²

The most frequent symptom is the sudden onset of severe chest pain (80%), followed by back (40%) and abdominal pain (25%). Other symptoms may appear because of the complications, such as aortic regurgitation, myocardial ischemia or infarction, neurological deficits, and cardiac tamponade.⁵ Neurological symptoms occur because of carotid, spinal, and/or vertebral artery occlusion or the global deficit from hypotension; the ischemic stroke is the most common. The frequency of neurological symptoms ranges from 15% -47%.⁶ Diagnosis of aortic dissection in atypical presentation with neurological symptoms is often missed and increases mortality.

A case of acute aortic dissection with the presentation of stroke is presented.

CASE

A 67-year-old woman came to the emergency

room with a loss of consciousness one hour and a half before. She experienced epigastric pain during the last two weeks without chest pain—no history of hypertension, diabetes, stroke, or cardiovascular diseases.

At arrival, Glasgow's coma scale was 7. Initial vital signs: blood pressure 167/89 mmHg, pulse rate 104 x/min, respiration rate 34 x/min, temperature 36.6° C, saturation 99% room air. Physical examination showed left hemiparesis. A cardiac examination showed regular heart sounds and no murmur. The pulmonary examination also showed no abnormality. The electrocardiogram showed normal sinus rhythm. Laboratory findings were: haemoglobin 10.9 g/dL, haematocrit 33%, leukocyte 19.5 x 10³/mm³, thrombocyte 416 x 10³/mm³. Non-contrast brain CT-scan was ordered because of a stroke possibility; the result showed no abnormalities.

Alamat Korespondensi email: anthonysetiawan94@gmail.com



The presumptive diagnosis was a stroke, but her head CT-scan showed no abnormalities. In contrast, her chest X-ray as hospital screening showed wide mediastinum (**Figure 1**). Re-evaluation found a pulse deficit in the right arm and a blood pressure difference between the right and left arm. Bedside echocardiography showed aortic regurgitation with a dancing heart (**Figure 2**). As the suspect for aortic dissection was getting stronger, a chest CT-scan with contrast was ordered as one of the gold standards for aortic dissection diagnosis. Chest CT-scan with contrast demonstrated Stanford type A aortic dissection extending from ascending aorta to descending aorta (**Figure 3**). Axial image from spiral CT scan reveals aortic dissection. Intimal flap (yellow arrow) is demonstrated within the ascending and descending thoracic aorta. The ascending aorta is moderately dilated (blue arrow).

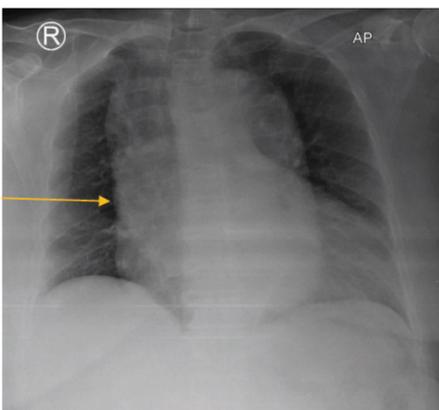


Figure 1. Chest X-Ray showed wide mediastinum (yellow arrow).



Figure 2. Bedside echocardiography showed dilated ascending aortic (yellow arrow)

It was concluded that the stroke manifestation was the complication of acute aortic dissection. After discussion with experts, we finally referred the patient to a hospital with more complete facilities.

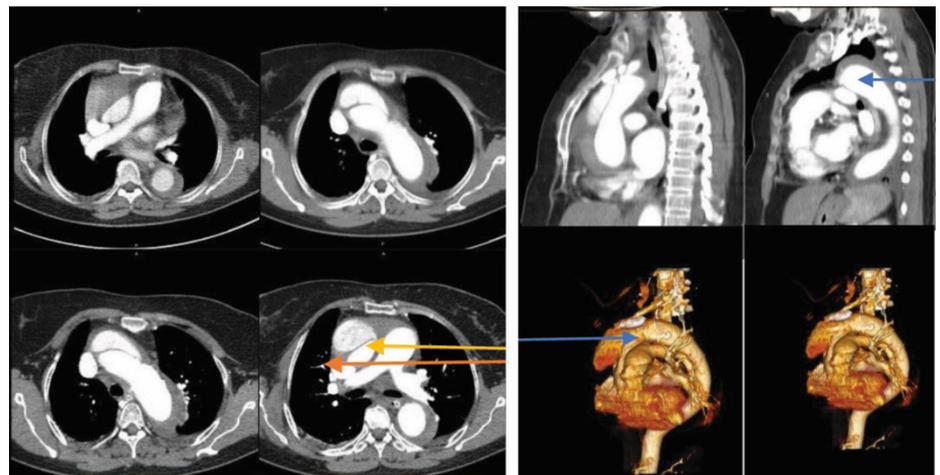


Figure 3. Chest CT-scan with contrast, showed intimal flap (yellow arrow), and dilated ascending aorta (blue arrow)

DISCUSSION

Identifying aortic dissection is challenging because of many presenting symptoms of aortic dissection, such as acute coronary syndrome, neurological deficits, cardiac tamponade, and aortic regurgitation. Factors leading to misdiagnosis of aortic dissection are mild clinical presentation, mimicry of another disease, and lack of typical symptoms and findings.⁷ Imaging modalities such as echocardiography and CT scan are needed to diagnose aortic dissection. The sensitivity and specificity of echocardiography for the involvement of the ascending aorta range from 77-80% and 93-96%, respectively.¹² The most frequently imaging modality used for aortic dissection is chest CT-scan because the sensitivity is > 95%.⁵

This patient presented with loss of consciousness and left hemiparesis, suggesting a stroke diagnosis, but there was wide mediastinum in the chest x-ray. A wide mediastinum in chest x-ray showed high sensitivity in the diagnosis of aortic dissection.⁹ In IRAD, a widened mediastinum was noted in 61,1% of aortic dissection.⁹ After re-evaluation, pulse deficit in the right arm and the blood pressure difference between the right arm and left arm were found. Pulse deficits imply that the significant arterial side branches are compressed by the flap or by the hematoma. Pulse deficits are common findings in Stanford type A patients and carry a high risk of hospital adverse events.¹⁰ The echocardiography showed aortic regurgitation. The chest CT-scan with contrast that followed showed Stanford type A dissection from ascending aorta to descending aorta.

This patient had aortic dissection with atypical neurological symptoms. Neurological symptoms may be caused by cerebral mal-perfusion, hypotension, distal thromboembolism, or peripheral nerve compression;² they often dominate and mask the underlying condition. One-third of aortic dissection patients usually present with cerebral mal-perfusion symptoms and are consequently often misdiagnosed and delaying aortic dissection diagnosis.⁸

Aortic dissection misdiagnosis can be fatal because the mortality rate increases by 1%-2% per hour if left untreated.¹³ Aortic dissection patients with acute coronary syndrome or stroke presentation may be planned for thrombolytic/fibrinolytic therapy, which could be fatal and increase mortality. Simple physical examinations like comparing pulse and blood measurements on both sides of arms and legs can detect discrepancies. Chest X-ray must be considered for all patients with the awareness that aortic dissection may have various symptoms and presentations.¹¹

CONCLUSION

Aortic dissection with atypical symptoms should be considered in all patients. Simple physical findings such as pulse deficit and blood pressure difference should be sought. Aortic dissection can be suspected from chest X-ray and bedside echocardiography before confirming the diagnosis with contrast chest CT-Scan. Delayed diagnosis, or worse, misdiagnosis, will increase its mortality and morbidity.



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