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Case Study

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THE CHANGING FACES OF AORTIC DISSECTION: AN UNUSUAL PRESENTATION MIMICKING PULMONARY EMBOLISM

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ABSTRACT

Acute aortic dissection and acute pulmonary embolism are life-threatening emergencies that can mimic each other at presentation. Correct identification of of these disease is crucial to initiate the appropriate interventions. The authors present a unique case of acute type A aortic dissection thats mimics acute pulmonary embolism.

INTRODUCTION

Dyspnea is a common presenting complaint accounting for millions of emergency department (ED) visits. Diseases of the heart, aorta, lungs, pleura, and abdominal viscera may all cause chest discomfort. Clinicians in the ED focus on the immediate recognition and exclusion of life-threatening causes. A thorough medical history, followed by a detailed physical examination with echocardiogram is of central importance to organize appropriate investigations. Aortic aneurysm (AAD) and pulmonary embolism (PE), although very rarely, can present with same symptoms; we present a case where this unique high-risk scenario was promptly diagnosed without success. To our knowledge, this has not been reported before.

Case Presentation

A71-year-old man was admitted in emergency room owing to an episode of retrosternal chest pain. Based on ECG and ECHO findings (S1QT3, right block, McConnel'sign fig.1, 2) minimal troponin elevation, the patient was initially treated as having an acute pulmonary embolism.

To obtain a definite diagnosis, chest computed tomography was carried out, which, unexpectedly, disclosed a dissecting aneurysm of the ascending aorta (fig.3). Around the proximal segment of the ascending aorta a haematoma had accumulated (fig.4), compressing the right pulmonary artery, almost occluding its patency and limiting the perfusion of the reciprocal lung.

An emergency operation was not carried out, with repair of the ascending aorta. However, the patient died then 3 hours from diagnosis before transfert on cardiosurgery.

In detail the patient, at 00: 47.41 on 5/12/2020, due to easy fatigue and reported low-grade fever, called the emergency number at 00:34.

Accepted in the emergency room with green code with the following vital parameters: blood pressure 130/90 - heart rate 123 - oxygen saturation 96% with Covid 19 negative rapid antigenic buffer. As per protocol, the patient is isolated in a suspected Covid room.

Clinical and anamnestic reassessment at 04: 02.54: apyretic patient, hematochemical tests and molecular swab are performed.

At 6.25 am, examination reports, following the detection of troponin, repetition of the electrocardiogram and the second troponin and on the basis of leukocytosis (g.b 16240 -pcr 17.58) an intravenous antibiotic is practiced at 07: 11.34.

At 8:01 am, the night doctor on duty communicates by telephone, after paper evaluation of the documentation, to urgently perform a chest CT scan and d-dimer. 54 mm) in the phase of acute dissection "Standford type A" with blockage on the posterior parietal side of the root from which a thin flap of the posterior wall extends to the origin of the arch; concomitant marked stenosis of the right pulmonary artery along the posterior wall of which there is extensive intramural hematoma, hyperdense on basic examination, of acute onset. The pulmonary arterial branches of the left and those downstream of the main pulmonary artery of the right are of regular caliber. Pericardial effusion with blood density up to 20 mm thick to refer to hemopericardium. Dilation of the right heart ventricle. Bilateral pleural effusion with a

maximum thickness of 2.5 cm on the left and 1 cm on the right. Areoles of subtle parenchymal thickening with ground glass in the right perilary area and at the posterior basal segment of the lower left lung lobe."

At 11.20 the patient calls for sweating and general malaise, suffering no pain and alert. Suddenly loss of consciousness and respiratory arrest.

11:22 am signs of cardiac tamponade on echo.
At about 11.40 am cardio-resuscitation maneuvers are interrupted and death is noted.

Acute dissection of the ascending part of the aorta, the first part that originates directly from the heart, is burdened with a high mortality that reaches 50% of cases in the first 48 hours if not addressed. Its treatment is surgical and is pertaining to cardiac surgery. In the first 24 hours (hyperacute period) type A dissection is burdened with a risk of rupture of 1% per hour.Acute DA-A is a cardiac surgery emergency; once the diagnosis has been made, the patient must be sent to the operating room.

DISCUSSION

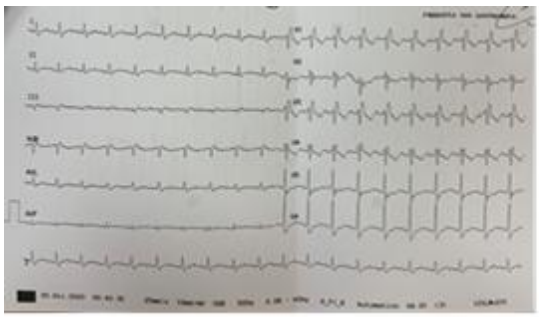
Clinical symptoms of aortic dissection vary widely from symptoms resulting from its rupture to those due to compression of surrounding organs. A clinical presenta- tion mimicking pulmonary embolism is extremely rare. Moreover, the finding of a large unilateral segmental perfusion defect upon lung scanning does not always secure the diagnosis of pulmonary embolism. Instead, other causes of pulmonary artery obstruction should be excluded. In such cases, CT scanning may be extremely valuable in establishing the correct diagnosis and suggesting further treatment.

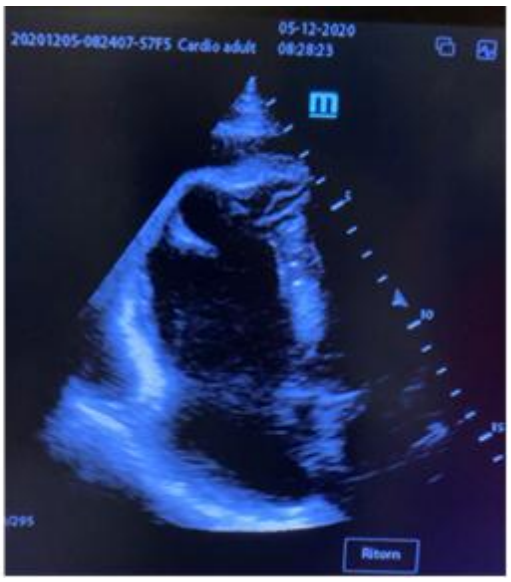
Acute aortic dissection accounts 90% of all acute aortic syndromes and its incidence is 15 cases per 100,000 patient-years. Chest or back pain is the most frequent presenting symptom. In the general population, the incidence of PE has increased to 112 cases per 100,000 patient-years and patients usually present with dyspnea and pleuritic chest pain. Those patients are more likely to experience hemodynamic instability and their acute mortality is high.

Computed tomography aortogram confirming the diagnosis of acute type A aortic dissection. Although differential diagnosis is crucial, physicians AAD and PE can mimic each other clinically. Rapid differential diagnosis is critical to establish the correct treatment and improve outcome. D-dimer is a biomarker with good sensitivity (93.5%) but low specificity (54%) for AAD.

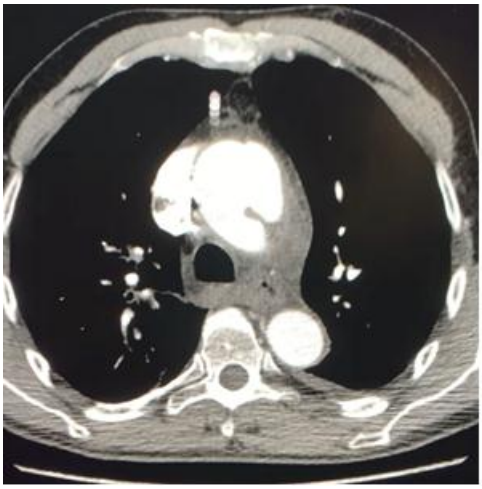
Acute Type A aortic dissection requires both medical and surgical intervention. Mortality is 50% within 48 hours without surgery, and even with surgery, mortality remains high (9%–25%). The goal of surgery is to prevent aortic rupture and minimize aortic regurgitation. If aortic rupture has occurred, mortality reaches100%, regardless of surgical intervention. Emergency clinicians must guard against premature diagnostic closure when assessing patients presenting acute symptom.

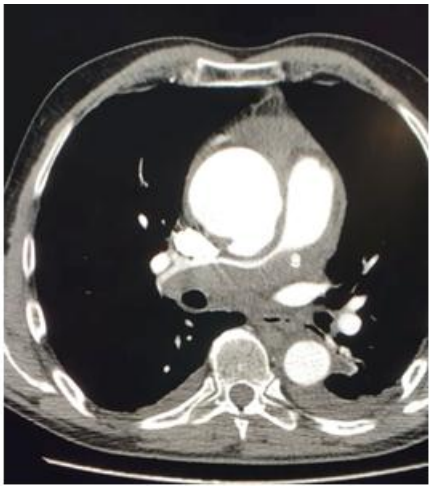
CT aortography is the imaging of choice because of its reliability in the emergency set- tings. This article highlights the importance of clinical and radiologic workups including point-of-care CT aortography for diagnosing Type A aortic dissection and pulmonary embolism, life-threatening pathologies.





ECG and ECHO findings (S1QT3, right block, McConnel’sign fig.1, 2)





Around the proximal segment of the ascending aorta a haematoma had accumulated (fig.4), compressing the right pulmonary artery, almost occluding its patency and limiting the perfusion of the reciprocal lung.

Conflict of Interest

The authors declare no conflict of interest related to this article.

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