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RESEARCH ARTICLE

LEFT HEMOTHORAX: UNUSUAL MANIFESTATION OF AORTIC DISSECTION

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Abstract

Aortic dissection is a medical and surgical emergency often revealed by acute chest pain. Its discovery in the context of hemorrhagic pleurisy is rare, and it often poses a diagnostic challenge.We report the case of a 52-year-old patient with a history of chronic smoking, without known arterial hypertension, admitted forexploring a moderately abundant left pleural effusion. Pleural puncture yielded non-coagulable hemorrhagic fluid. Thoracic angio-CT scan revealed a type B aortic dissection (Stanford classification). In the absence of surgical indication, antihypertensive treatment was initiated in this patient, combined with close medical monitoring. The course was marked by the death of the patient after refractory hemorrhagic shock.Aortic dissection should be systematically considered in the presence of any spontaneous hemothorax, even in the absence of suggestive clinical signs.

Introduction

Hemothorax refers to the accumulation of blood in the pleural cavity, typically resulting from thoracic trauma or an iatrogenic cause. Spontaneous hemothorax, although less frequent, can have a variety of causes. The appearance of a rupturing thoracic aortic dissection in the pleural cavity is a rare cause of spontaneous hemothorax and often presents a diagnostic difficulty.

Observation

This is a 52-year-old man, a chronic smoker with a 30-pack history, with no notable medical history, particularly systemic arterial hypertension. He arrived in the emergency department with stage III acute dyspnea according to the NYHA classification, which had been progressing for a week, associated with moderate precordial chest pain. The patient's vital signs upon admission were as follows: blood pressure 115 / 65 mmHg, heart rate of 92 beats per minute, respiratory rate of 20 cycles per minute at rest, and oxygen saturation of 96% in room air. A left basal pleural effusionsyndrome was detected during pleuropulmonary examination. Heart sounds were clear, and no additional sounds were present. The calves were supple. The rest of the clinical examination was unremarkable.

The electrocardiogram showed a regular sinus rhythm, without repolarization or conduction disorders. Frontal chest radiograph revealed a moderate amount of left pleural effusion associated with enlargement of the middle mediastinum (Fig. 1). On a biological level, normochromic normocytic anemia was found with a hemoglobin level of 10g/dl, a platelet count of 142,000 mm3, a prothrombin level of 67% and a negative troponin. The exploratory

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pleural puncture produced an incoagulable hematic fluid, with a hematocrit greater than 50% of the blood hematocrit level.

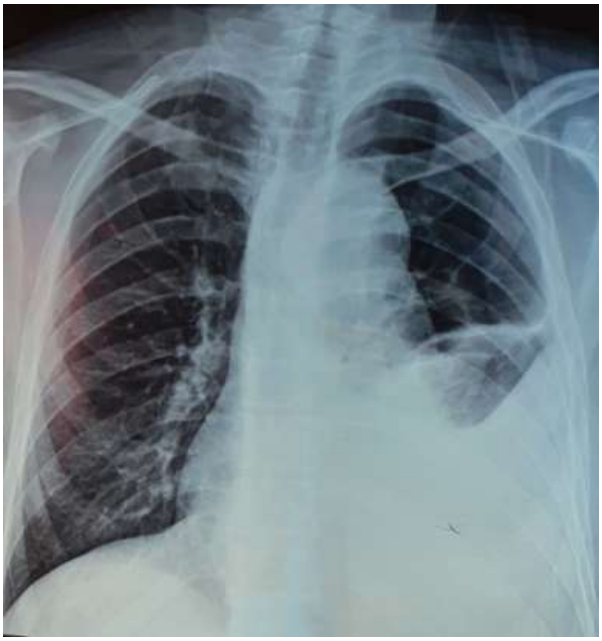

Figure 1: Frontal chest radiograph upon admission to the emergency room.

As part of the investigation of this hemorrhagic pleurisy, a contrast-enhanced thoracic CT scan was performed. It revealed a type B Stanford aortic dissection (De Bakey type 3), involving the middle part of the aortic arch, the descending thoracic aorta, the abdominal aorta, the primitive iliac arteries, and the left subclavian artery. This dissection was complicated by a fissure in the thoracic aorta, leading to the formation of a left anterolateral mediastinal hematoma and a left pleural effusion with a hemorrhagic appearance (Fig. 2).

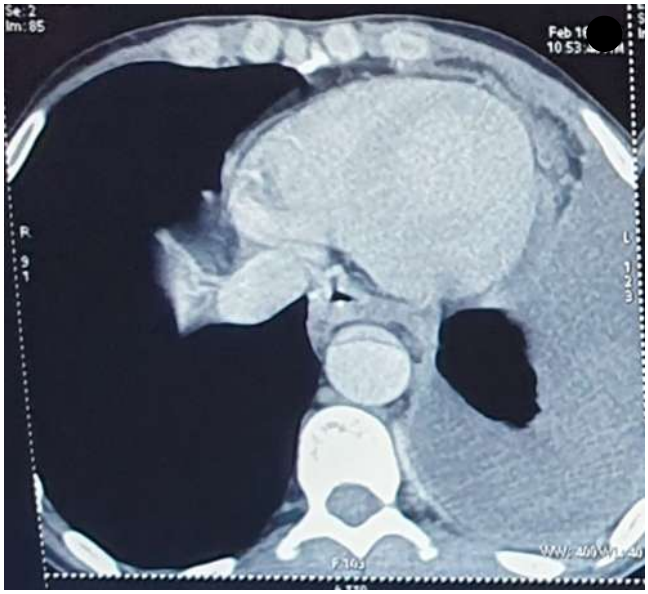

Figure 2: Injected thoracic scanner visualizing the dissection of the thoracic aorta and the left pleural effusion.

The stable condition of the patient and the location of the dissection did not require surgical intervention. Instead, the patient received beta-blocker treatment and was closely monitored in a cardiovascular surgery

department. Unfortunately, three days later, the patient died from refractory hemorrhagic shock and cardiovascular collapse.

Discussion

Hemothorax is defined by the presence of a hemorrhagic pleural effusion with a pleural hematocrit greater than 50% of the blood hematocrit. This last criterion is important because it allows us to distinguish hemothorax from sero-hematic pleurisy, which is defined by a pleural hematocrit less than 5% of the blood hematocrit(1).

The most common causes of hemothorax are chest trauma (73.3%) and iatrogenic causes (25%). Spontaneous hemothorax is much rarer (1.7%) and has a variety of etiologies (2).

Among the vascular etiologies leading to spontaneous hemothorax, aortic dissection remains the most common (1). In the study by Hara et al (3), which included 48 patients with aortic dissection, 3 cases of hemothorax were reported. The presence of pleural effusion is observed in 20% of aortic dissections on initial radiologic evaluation (4). The effusion may be inflammatory or hemorrhagic. In the latter case, the main mechanism is the rupture of the descending thoracic aorta first into the mediastinum and then into the left pleural cavity due to anatomical lateralization of the aorta to the left (5), as was the case in our patient. The rupture of the thoracic aorta into the right pleural cavity is less common (5).

Clinically, extremely acute and persistent chest pain is known to be the main symptom of aortic dissection, occurring in 90% of patients (6). However, the clinical presentation of our patient was more characterized by dyspnea and chest pain was in the background, described as moderate pain that resolved spontaneously, making the diagnosis of aortic dissection less likely.

Chest radiographs often show suggestive abnormalities, such as mediastinum widening, a wide aortic contour that extends into the left hemithorax, and the presence of a left pleural effusion. These abnormalities were observed in our patient, but are not sufficient to establish the diagnosis (6).

Computed tomography with contrast injection is the test of choice for the diagnosis of vascular and aortic pathologies. The diagnosis of dissection is based on the identification of an intimal membrane, called an intimal flap, which divides the aortic lumen into two compartments or channels. Usually, the false channel is the larger of the two visualized channels. This examination also allows the detection of complications related to the dissection process, particularly the hemopericardium and hemothorax (6,7).

Several classifications have been proposed to describe aortic dissection(6). The Stanford classification is the most widely used because of its simplicity and therapeutic orientation. It distinguishes two types.
Type A: dissection involving the ascending aorta, regardless of the site of entry, requiring urgent surgical intervention.
Type B: dissection that does not involve the ascending aorta, in which case initial treatment is medical.

The De Bakey classification is the oldest, but is becoming less widely used (Fig. 3)(6).

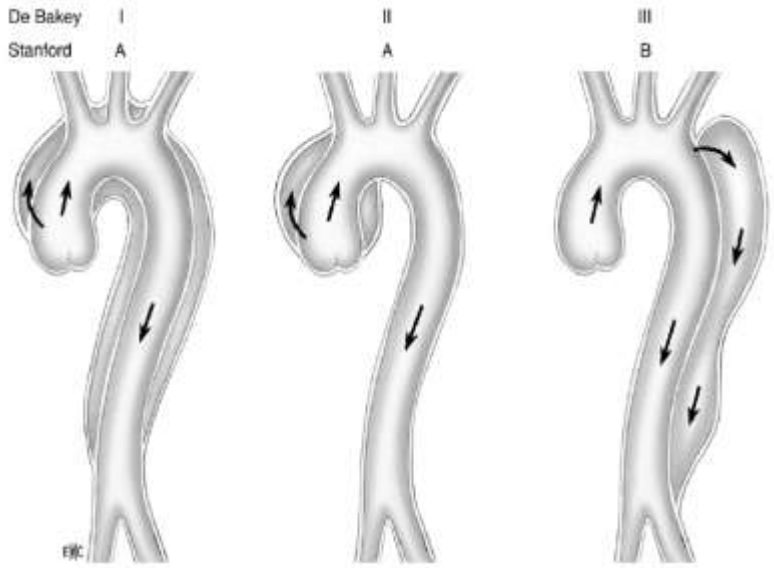

Figure 3: Schematic representation of the De Bakey classifications (I, II, and III) and the Stanford classifications (A, B)(6).

In our observation, the patient presented Stanford type B aortic dissection and De Bakey type 3. The emergency administration of beta-blockers is necessary to reduce heart rate and systolic blood pressure. In addition, pain management and monitoring of blood pressure and heart rate should be implemented. To detect acute complications such as rupture or malperfusion, close clinical and radiological surveillance is crucial. Surgical intervention may be required if such complications occur (8).

The patient's unfavorable outcome can be attributed to the rupture of the dissection in the pleural cavity, causing rapid exsanguination and resulting in death due to hemorrhagic shock (6).

Conclusion

This observation reminds medical professionals to always consider the possibility of aortic dissection when faced with spontaneous hemothorax, even in the absence of usual clinical indications. This is crucial to avoid any delayed diagnosis that could result in fatal consequences.

Conflicts of interest

There are no conflicts of interest.

Declaration of generative AI in scientific writing

During the preparation of this work the authors used https://hindawi.writefull.ai/ to check language correctness and completeness. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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