

Case Report

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TANAFFOS 

Spontaneous Right Hemothorax in the Elderly

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Rupture of thoracic aortic aneurysm is a life threatening condition. Rupture in the right pleural cavity is extremely rare. We report the case of an 80-year-old man with a spontaneous right hemothorax. Diagnosis was made by computed tomography (CT) scan. He was managed with chest tube and stabilization. The patient died before any surgical intervention.

We report this case to emphasize that rupture of aortic aneurysm should be considered in the evaluation of spontaneous hemothorax even if it is right-sided particularly in the elderly. Emergent therapy is necessary to prevent mortality.

Key words: Elderly; Right hemothorax; Thoracic aortic aneurysm; Computed tomography

INTRODUCTION

Hemothorax may be the consequence of trauma or may develop spontaneously. Non-traumatic or spontaneous hemothorax is a relatively uncommon event. The wide range of pathological processes that may trigger intra-thoracic bleeding includes rupture of thoracic aortic dissection or aneurysm (1). A ruptured thoracic aortic aneurysm is a critical condition leading to multiple complications including hemothorax and life threatening hemorrhage (2).

A ruptured aortic aneurysm usually causes left hemothorax. We present a case of ruptured aortic aneurysm, which caused right hemothorax.

CASE SUMMARY

An 80-year-old smoker male patient with no medical history was admitted for acute right chest pain. On physical examination, the patient was alert and pale. His blood pressure was 100/60 mmHg and heart rate of 96 beats/minute. Breath sounds were decreased on the right

side associated with dullness at percussion. Peripheral pulses were present in all extremities. Chest radiograph demonstrated a right-sided pleural effusion associated with middle mediastinal widening (Figure 1).



Figure 1. Frontal radiograph of the chest demonstrating a right sided pleural effusion and middle mediastinal widening

Electrocardiogram showed normal sinus rhythm. Hemoglobin was 8,6g/dL and hematocrit was 26%. Total count of leukocytes was 19,200/mm³ and the platelet count was 204,000/mm³. The prothrombin and partial thromboplastin times were within normal limits. Functional renal failure with creatinine of 253 μ mol/L and urea of 27 mg/dL was detected. Arterial blood gases showed hypoxemia at 50 mmHg.

A CT scan of the thorax (Figure 2) revealed two aneurysms in the descending thoracic aorta measuring 8 cm \times 9.5 cm and 9.2 \times 9.5 cm, respectively. The second one was at the right side and contained rupture side. Near total collapse of the right lung with large right hemothorax were noted. A pleural puncture was performed and 1000 mL of blood was drained. Surgical treatment was indicated but the patient died due to refractory shock.

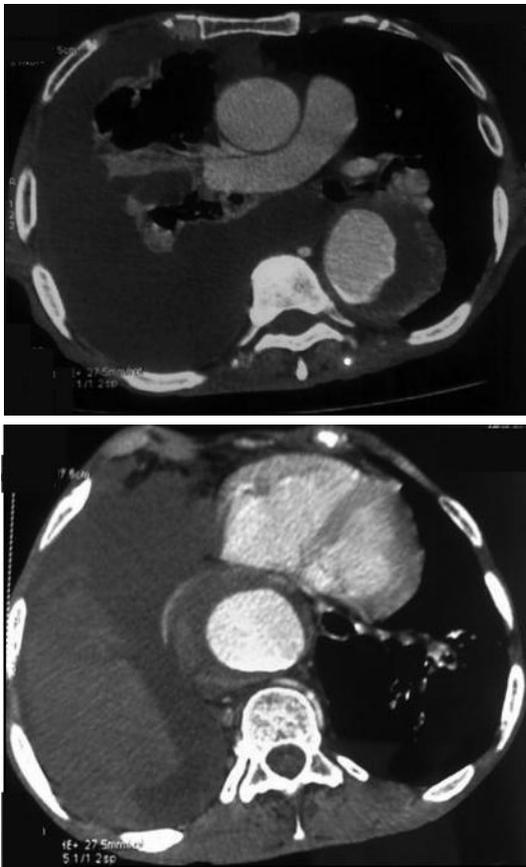


Figure 2. Contrast enhanced axial CT scan showing the hyperattenuating pleural effusion and two aneurysms in the descending aorta.

DISCUSSION

Spontaneous hemothorax is a rare phenomenon (3-5) which has been described in association with various pulmonary diseases, coagulopathies and metastatic malignant diseases. It has also been reported in patients on anticoagulation therapy and in presence of bleeding disorders (3,4). Hemothorax may complicate spontaneous pneumothorax (3,4) and may also be caused by acute aortic syndrome (AAS) including aortic dissection, intramural hematoma and penetrating atherosclerotic ulcer (5-8). It affects mostly men in their eighth decade of life and is commonly associated with hypertension. Rupture is rare and is seen in 4% of the cases (8). When presenting to the emergency department, the diagnosis of AAS can be challenging. Aortic dissection is missed in up to 38% of the cases. An incorrect diagnosis is associated with absence of pulse deficit on physical examination as in this case (8). Hemothorax is seen in 10% of descending aorta ruptures (6) and is usually located on the left side (2,5,6,7). In fact, non-traumatic rupture of the descending aorta most commonly involves the surrounding soft tissue or left chest as the descending aorta is on the left (9). A right hemothorax secondary to rupture of an aortic aneurysm is rare (8-13). To the best of our knowledge, only 10 cases have been reported in the literature (8-13). Right hemothorax has been reported in the majority of cases to arise from a medial tear in the aorta at the level of the mid-thoracic spine, which bleeds into the posterior mediastinum and crosses the midline to rupture into the right pleural space (8,10).

The onset is generally acute and is associated with the signs and symptoms of shock, chest, dorsal or abdominal pain and signs of internal hemorrhage (3,10). Rarely, it may be insidious, which was the case in our patient. Physical examination of the chest shows the classical signs of pleural effusion. A tension hemothorax will cause progressive hemodynamic instability. This occurs due to acute blood loss as well as increased intra-thoracic pressure causing decreased cardiac output. In addition, respiratory distress hypoxia can occur due to these reasons as well as

acute loss of lung volume (2). The diagnosis may not be readily apparent until a chest roentgenogram is done (3).

Each of several imaging modalities such as chest X-ray, trans-esophageal echocardiography (TEE), CT, magnetic resonance imaging, and conventional angiography has certain advantages and limitations (8).

Chest X-ray can be valuable for the initial prediction of an aortic dissection if widening of the mediastinum or aortic modification is found in addition to the pleural opacity (4-8, 10). Some authors considered that TEE must be widely used in the diagnosis of aortic pathologies since it can be performed quickly and easily at the patient's bedside (3,4). Although, because of its suboptimal specificity in the evaluation of the ascending aorta when there is extensive plaque formation or echo reverberations in an ectatic vessel and a false-positive type A dissection diagnosis, TEE has higher indication for evaluation of unstable patients (6,7). Generally, positive diagnosis is made by CT with a sensitivity and specificity of nearly 100% (8,10). The signs of aortic rupture include hyperattenuating mediastinal, pericardial, or pleural fluid collection on unenhanced CT scans, irregularity of the aortic wall and extravasation of vascular contrast material on contrast-enhanced CT scans (8). Moreover, CT images make it easy to exclude the other pathologies that cause acute chest pain by providing information about all structures in the thoracic cavity. In the case of aortic dissection, the presence of hemothorax, pericardial effusion with or without cardiac tamponade and patency of the dissection's false lumen are important negative prognostic factors (5).

Emergent treatment is required. For some surgeons, placement of a chest tube is an obligation to reduce intrathoracic pressure (2) and to prevent the development of a film of fibrin and blood, which form a thick inelastic membrane, trapping the lungs and decreasing pulmonary function (4). For others, chest tube placement is dissuaded because it worsens hemodynamic instability (10).

Emergent surgical repair to control the source of bleeding is the real curative treatment (2,10). Surgical repair consists of clamping the aorta to quickly stop the hemorrhage before the placement of prosthetic graft (8).

Ruptured thoracic aortic aneurysm or aortic dissection is fatal if left undiagnosed or untreated. In fact, they may cause massive hemorrhaging and have been associated with a mortality rate of over 50% (8).

CONCLUSION

Aortic aneurysm with rupture is a fatal condition that may be, rarely, associated with right hemothorax. It requires immediate diagnosis and treatment to prevent mortality. This unusual presentation should always be considered in the elderly with acute chest pain. Computed tomography is crucial for surgical planning and should be the first diagnostic examination performed.

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