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Spontaneous non-traumatic mediastinal hematoma associated with oral anticoagulant therapy: A case report and literature review

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ABSTRACT

INTRODUCTION: Mediastinal hematoma is usually caused by thoracic trauma or a ruptured aortic aneurysm. Spontaneous non-traumatic mediastinal hematomas are rare but potentially life-threatening conditions that can occur in patients taking anticoagulants.
PRESENTATION OF CASE: We report a case of 72-year-old man with a massive mediastinal hematoma associated with anticoagulant therapy. He had complained of acute chest discomfort and subsequent tarry diarrhea. Because he had been taking warfarin for paroxysmal atrial fibrillation, an upper gastrointestinal hemorrhage was initially suspected, but no bleeding was detected by upper endoscopy. A computed tomography scan revealed a massive posterior mediastinal hematoma and markedly compressed surrounding structures. The compression of the left atrium caused a congested lung and exacerbated respiratory and hemodynamic status despite conservative therapy. Therefore, we surgically removed the hematoma. Immediately after removal, the respiratory and hemodynamic conditions improved, and the postoperative course was uneventful.
DISCUSSION: Spontaneous mediastinal hematoma is rare but can occur in patients who are administered anticoagulants regardless of the therapeutic level of anticoagulation. Although conservative therapy is commonly effective, active surgical intervention should be considered for cases in which the hematoma is symptomatic or conservative therapy is ineffective.
CONCLUSION: To facilitate prompt and proper management, clinicians should be aware of this condition as a potential complication of anticoagulant therapy.

1. Introduction

Mediastinal hematomas usually occur secondary to thoracic trauma or a ruptured aortic aneurysm [1,2], and spontaneous non-traumatic mediastinal hematomas are rare. Although anticoagulant therapy is one of the risk factors for hemorrhagic events, and because mediastinum is an unusual bleeding site and difficult to recognize in radiographic examinations in the early stage, mediastinal hemorrhage is easily missed in initial medical examinations. There have been only a few reports of mediastinal hemorrhage, and the clinical features and treatment strategy have not been elucidated. Here, we present a case of mediastinal hematoma as a complication of warfarin that required surgical removal. This work has been reported in line with the SCARE criteria [3].

2. Presentation of case

A 72-year-old man had complained of chest discomfort and subsequent tarry diarrhea. He had a medical history of hypertension, chronic obstructive pulmonary disease (COPD) and paroxysmal atrial fibrillation, and he had been taking warfarin for arrhythmia. He had a smoking history of 20 pack-years and no family history of genetic disorders. The laboratory studies indicated anemia (hemoglobin 7.2 mg/dl) and a prolonged prothrombin time (PT-INR 5.9). Because gastrointestinal bleeding was suspected, an upper endoscopy was performed after the administration of vitamin K. There was only a mild degree of submucosal hemorrhage in the esophagus and no active bleeding. A computed tomography (CT) scan was performed to determine the cause of anemia and it demonstrated a mediastinal mass in the posterior mediastinum. The patient developed further chest discomfort and dyspnea after the examinations; therefore, he was referred to our institution for further investigation and treatment. A CT scan revealed a mas-

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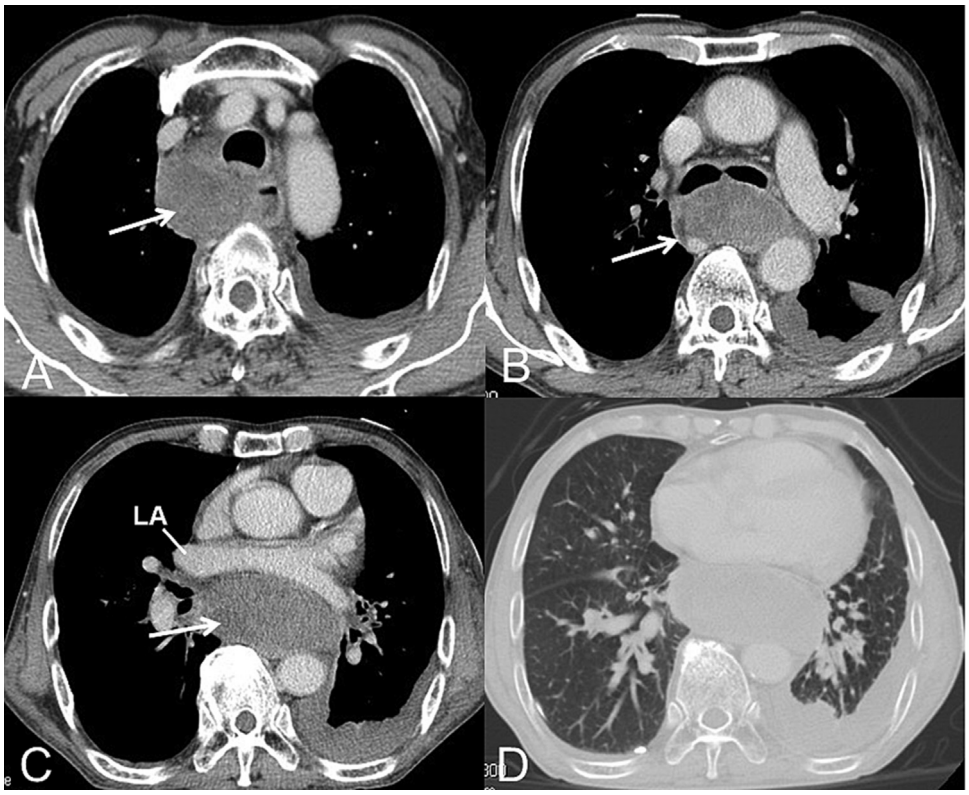

Fig. 1. Preoperative computed tomography scan findings.
A massive mediastinal hematoma extended from the superior to the posterior mediastinum (arrows). The trachea, main bronchi, and left atrium were extremely anteriorly displaced by the hematoma (A–C), and a congested lung was detected (D). LA, left atrium.

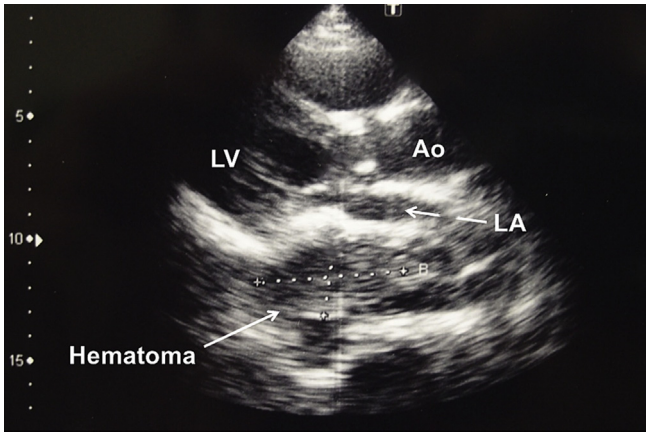

Fig. 2. Preoperative echocardiogram findings.
The left atrium was compressed and narrowed because of the hematoma. LA, left atrium; LV, left ventricle; Ao, aorta.

sive mediastinal mass extending from the superior to the posterior mediastinum and left pleural effusion. The trachea and left atrium were extremely displaced by the mass in the anterior direction, and the lungs were congested (Fig. 1). The mediastinal mass was compatible with a hematoma from the CT value. There were no abnormal findings in the cardiac and great vessels, and no bleeding lesions were identified other than lesions in the mediastinum. An aortogram did not indicate a feeding artery or extravasation. Echocardiography showed normal ventricular systolic function, but the left atrium was compressed and narrowed because of the hematoma (Fig. 2). Upon hospital admission, the patient's blood pressure was 120/80 mmHg, and his heart rate was 120 bpm with an irregular rhythm. An arterial blood gas analysis on 40% oxygen revealed acidemia, hypoxemia, and hypercapnia (pH 7.17, PaO_2 90.8 mmHg, and $PaCO_2$ 77.8 mmHg), and he was therefore placed on non-invasive positive-pressure ventilation. After admission, he developed further chest discomfort and dyspnea despite a blood transfusion and pleural effusion drainage. We theorized that the left atrium was compressed because of the hematoma and that left atrial overload was causing lung congestion and the worsening of both the respiratory and hemodynamic status. Therefore, we decided to perform a surgical intervention to decompress the left atrium.

Surgery was performed through a right posterolateral thoracotomy; the patient did not receive thoracoscopic surgery because his respiratory condition was poor, and one-lung ventilation made it difficult to maintain oxygenation. Thoracotomy revealed that the superior and posterior mediastinum was diffusely enlarged, and the mediastinal pleura was an abnormal dusky red. When we opened the posterior mediastinal pleura, we identified a large hematoma compressing the left atrium, esophagus, and trachea. A most part of the hematoma was coagulated, and collected blood could not be adequately drained from the incision of the mediastinal pleura. We therefore surgically removed as much of the hematoma as possible. Immediately after removal of the hematoma, the tachycardia improved, and respiratory and hemodynamic parameters were stabilized. We detected no active bleeding or abnormal vessels that might have caused the hematoma. The post-operative course was uneventful, and the patient was discharged 23 days after surgery. After a 4-year follow-up, the patient remains in good health, with no evidence of mediastinal hematoma recurrence.

3. Discussion

Several causes of mediastinal hematomas have been recognized, including traumatic vascular injury and a ruptured aortic