Chronic expanding hematoma in the chest

A case of chronic expanding hematoma presenting as a huge mass in the chest

Abstract: A 42-year-old man presented with a huge mass in the chest. The disease was recognized as a complain of chest pain and was successfully resected by surgery. He had a history of blunt chest injury 25 years ago. Magnetic resonanceT2-weighted imaging demonstrated a mosaic pattern of various signal intensities. In cases of an intrathoracic mass with this imaging feature, with combined a past history of blunt chest injury, we should consider the existence of a chronic expanding hematoma.

Keywords: Hematoma; thoracic tumor; chest injury; diagnosis

Introduction

Chronic expanding hematoma in the chest is a rare condition that often develops after thoracic surgery, thoracic injury or tuberculous pleuritis (1-4). In general, hematomas are naturally reabsorbed and rarely cause serious problems. Thoracic hematomas that develop slowly without symptoms until the mass compresses other organs are often difficult to early detection. Surgical removal is the first treatment for thoracic hematomas, but it is not easy to achieve a complete resection because of the presence of a dense fibrous adhesion to adjacent tissues (3-5). Herein, we describe a patient, with a history of blunt chest injury 25 years ago, who exhibited a huge chronic expanding hematoma in the chest treated by surgical resection successfully.

Case report

A 42-year-old man was admitted to our hospital complaining of chest dull pain. He did not have any other symptoms and had no history of thoracic operation or pulmonary disorders including tuberculosis. Twenty-five years earlier, at the age of 17, the patient had a blunt chest injury after a fight for which he did not seek medical help. He was a heavy smoker for 26 years. Physical and lab examination revealed no positive findings. Chest X-ray revealed a huge mass shadow in the anterior mediastinum, with few pleural effusion in the left pleural cavity. Computed tomography (CT) revealed a huge intrathoracic mass (10. 2cm×13. 3cm×17. 9cm) with a tissue density adhered to the left pericardium (*Figure 1*). Calcification was not detected in the mass. Left pleural cavity had a moderate pleural effusion. The tissue content in the mass was not obvious enhanced following contrast administration. T2-weighted magnetic resonance imaging (MRI) revealed the mass containing various signal intensities, just like a mosaic pattern (*Figure 2*). Diagnostic thoracocentesis of the left pleural effusion was performed, but cytological examination showed only erythrocytes with a few inflammatory cells.

Although we could not reach a conclusive diagnosis, our preoperative diagnoses were benign or low malignant tumors including teratoma, chronic empyema and aneurysmal bone cyst. In addition, the probability of complete resection of the lesion is higher than incomplete resection based on the preoperative imaging evaluation. So a surgical resection of the lesion was decided. A left posterolateral thoracotomy along the 5th intercostal space with combined a cut off of the 5th and 6th posterior rib was performed for the purpose of obtaining a wide operative field. The mass which located in

the left anterior mediastinu had a thickened and hard capsule, and was completely adhered tothymus, pericardium and part of upper lobe of left lung. Diaphragm just had a mild adhesion to the mass. Completely resection of the huge mass was achieved, including most thymus, most left parietal pericardium and partial upper lobe of left lung. The total operation time was 140 minutes and the total blood loss was 250 ml.

Macroscopic observations showed that the resected mass contained a dense fibrous capsule with hemorrhagic materials and necrotic tissues (*Figure 3*). Pathological examination showed that the mass was an old hematoma surrounded by dense fibrous tissues and the center was consisted of fresh and old hemorrhages (*Figure 4*). There was no evidence of malignancy or infection in the mass, thymus, pericardium and lung. The postoperative course was uneventful and the patient's chest dull pain disappeared. The patient was discharged without complications. There was no sign of recurrence for two months after the operation.

Discussion

Chronic expanding hematoma first advocated by Reid et al (6). is a rare clinicopathologic entity that can occur in various locations, such as scrotum, kidney, thigh, retroperitoneum, cerebrum and chest (6-9). The most frequently reports of chronic expanding hematoma was occured in the cerebrum, followed by occurred in the chest. The majority of reports of chronic expanding hematoma in the chest were come from Japan (1, 3, 5, 10). To the best of our knowledge, this present case was the first case reported in China.

Chronic expanding hematoma in the chest often develops after thoracic surgery, thoracic injury or tuberculous pleuritis (1-4). It can also develop in the absence of thoracic surgical treatment, injury or inflammatory disorders (5, 10). A hematoma persists and increases in size more than one month after the initial hemorrhage is a chronic expanding hematoma. It is still unclear why hematomas grow continuously. Labadie and Glover (11) proposed a theory that microscopic hematomas forming after theinitial hemorrhage do not resolve naturally, and slowly grow due to repeated organization and hemorrhage from new fragile microvessels beneath the fibrous capsule. Various blood factors and its breakdown products that have inflammatory properties, are possibly associated with repeated exudation or hemorrhage from fragile microvessels resulting in inflammation. As was seen in our case, we presumed that the initial hemorrhage was caused by the blunt chest injury 25 years ago, and then the hematoma grow slowly due to repeated organization andhemorrhage from the fragile microvessels in the granulation tissue. Respiratory movements, heart beating or constant coughing under a negative pleural pressure favor the growth of thoracic hematomas to become a larger one thanother locations (5).

The diagnosis of chronic expanding hematoma in the chest is difficult due to its rarity, especially for those that develop slowly in patients with no history of surgery, trauma or tuberculosis. Chronic expanding hematoma in the chest should be differentiate from teratoma, chronic empyema or aneurysmal bone cyst (5). MRI has an important significance in diagnosis of chronic expanding hematoma. The mosaic pattern of various signal intensities on T2-weighted MRI was reported as specific feature of chronic

expanding hematoma (10, 12). These various signal intensities indicated fresh and old blood caused by repeated hemorrhage over time. MRI results showed a good correlation with pathology of the disease.

Conclusions

We conclude that the following characteristics may be helpful in diagnosing chronic expanding hematoma in the chest: (1)have a long course of disease with few symptoms; (2) once received chest surgery, had a history of chest injury or tuberculous pleuritis occurred; (3) T2-weighted MRI presents a mosaic pattern of various signal intensities; (4) preoperative biopsy of the lesion without positive found. Chronic expanding hematoma in the chest remains a very rare disease. However, it should be considered in the differential diagnosis when a patient has a mass in the chest with the above characteristics.

Figure 1Chest CT scan revealed a hugeintrathoracic mass with a tissue density adhered to the left pericardium and a moderate pleural effusion in the left pleural cavity.

Figure 2T2-weighted MRIdemonstrated a large well-defined mass in the chest, with a mosaic pattern of various signal intensities.

Figure 3Macroscopic observations showed that the resected mass contained a dense fibrous capsule with hemorrhagic materials and necrotic tissues.

Figure 4Pathological examination showed an old hematoma surrounded by fibrous tissues and revealed some dilated microvessels and blood stasis.