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Post prandial and nocturnal recurrent acute heart failure caused by a large hiatal hernia

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ABSTRACT

We report a case of left heart failure caused by a sliding hiatus hernia compressing on left atrium. A 95-year-old woman was admitted with recurrent episodes of shortness of breath and chest pain. The cause was uncertain as she had normal cardiothoracic ratio on chest radiography. Computed tomography (CT) of the thorax revealed an intrathoracic mass behind the left atrium causing external compression of the left atrium suggestive of sliding hiatus hernia. We present such a case and possible mechanisms of heart failure.

1. Introduction

Hiatal hernia (hh) rarely have significant cardiac effects, as long as bulk of the stomach remove in its infradiaphragmatic location. However, when a significant part of the stomach migrates into the thorax, through the esophageal hiatus, there is a potential for gastric encroachment on the heart, or even left atrial compression[1]. In such patients, radiologic imaging reveals an abnormal retrocardiac mediastinal mass. Extrinsic left atrial compression is an uncommon source of hemodynamic compromise that can be caused by many mediastinal structures including bronchogenic cysts, carcinoma, lymphoma, thymoma, aortic aneurysm and diaphragmatic hernia. A hh constitutes an atrial mass effect. Although there are important gastrointestinal and radiologic aspects of hh, it may be confused with an atrial mass or other mediastinal masses. Furthermore, a hh encroaching on the heart may cause heart failure[2].

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2. Case report

A 95 year-old woman admitted with recurrent episodes of shortness of breath and chest pain within the last three months requiring multiple admissions. Acute pulmonary oedema was diagnosed but no cause could be found on previous admissions. Her symptoms occurred typically at bed time, especially after a heavy dinner, and were associated with orthopnea and paroxysmal nocturnal dyspnea. Physical examination showed regular pulses with a normal blood pressure finding of 125/60 mmHg. The jugular venous pressure was raised, the heart sounds were normal, and no murmur could be heard. There was basal crackles heart over both lungs. The chest radiography revealed mild congested lung field with bilateral pleural effusion compatible with acute pulmonary oedema. There was also a round shadow behind the heart with an air-fluid level within it (Figure 1). Blood tests including complete blood count were within normal limits. CT of the thorax demonstrated a large hh with intrathoracic extension. The hh was located behind the left atrium (Figure 2). Since the patient did not accept the surgery, she was treated conservatively with frequent small meals and sleeping in slanting position using several pillows. She had no further recurrence of pulmonary oedema in the subsequent six

months.

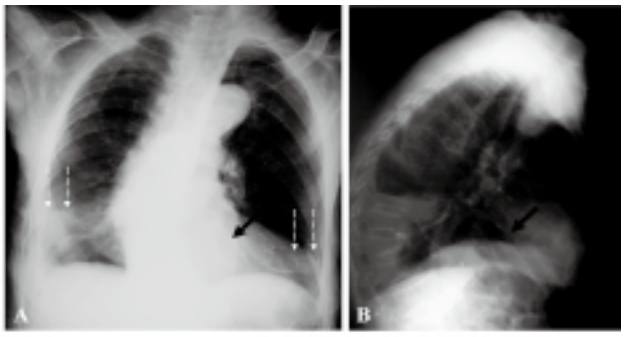

Figure 1. Posteroanterior (A) and lateral (B) chest radiographs showe the hiatal herni, reveale mild congested lung fields with Kerley B lines (dashed arrows) compatible with pulmonary oedema. There was also an fluid–air level behind the heart (arrows).

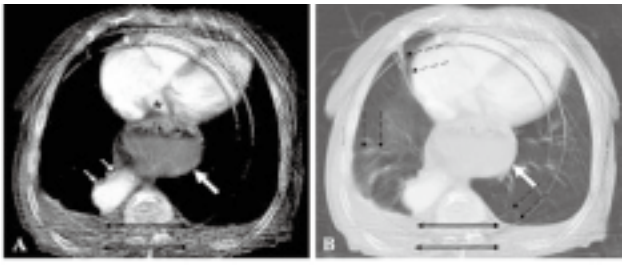

Figure 2. Axial CT of the thorax; mediastinal (A) and parenchymal (B) window showing a large mixed type hiatal hernia (arrows) compressing the left atrium (*), bilateral pleural effusion (double arrows), Kerley B lines (dashed arrows), elongated and tortuous aorta (small arrows).

In this case, we performed cardiac haemodynamic evaluation during supine position, and showed the compressive effect of the hh on the left atrium. This resulted in an increase in pulmonary capillary wedge pressure and subsequently contributed to the development of acute pulmonary oedema in this patient.

3. Discussion

Incidence of hh increases with age. It does not produce symptoms itself, but may contribute to the pathogenesis of reflux oesophagitis. Infrequently, hh may become incarcerated and strangulated, which may subsequently lead to acute chest pain and dysphagia. Furthermore, cardiac compression with haemodynamic collapse has been reported in patients with complicated or large hh[1]. To our knowledge, there are few cases of recurrent acute heart failure caused by sliding hh. As reported previously, hh may mimic a left atrial mass on CT as shown in this case. However, the clinical significance of these findings remains unclear.

Hiatus hernia can simulate a left atrial mass on the posterior aspect of the left atrium, and sometimes posterior to the left atrioventricular junction. Left atrial mass effect was of maximal size when the left atrium was imaged in supine position as in our case. Descending thoracic aorta located posterolateral of the left atrium, is obscured by superimposition of the mass effect of the hh[2].

There are many reports of single cases of hh in the literature, some of which merely reiterate the simulation of a left atrial mass by the hh. Only a few instances of cardiac compression causing serious symptoms have been reported. When larger hernias occur in patients with hh, they may present with syncope or dyspnea attributable to the hh; the important clue to the diagnosis is the postprandial dyspnea or syncope[3].

Cardiac symptoms such as recurrent acute heart failure, as well as compression of the heart and impairment of the respiratory function, have also been described with large hh. A clinical presentation closely resembling acute coronary syndrome with electrocardiographic changes, chest pain, and edema has also been documented[4].

The causal pathway of left heart failure due to left atrial compression is the impaired left atrial filling, leading to pulmonary venous hypertension and pulmonary edema. However, the clinical significance remains unclear since data is limited to the case reports[1,4]. Our case shows that hh is a potential cause of heart failure, and accurate diagnosis and successful treatment of hh can prevent further recurrence of acute heart failure.

Conflict of interest statement

We declare that we have no conflict of interest.

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