

**Case Report****OPEN ACCESS**

# Hiatal hernia: An unusual presentation of dyspnea

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## Abstract

**Context:** Hiatal hernia is an infrequent but serious cause of dyspnea. We report a case of acute dyspnea and paroxysmal nocturnal dyspnea secondary to hiatal hernia and epicardial fat pad. **Case Report:** A 78-year-old woman presented with dyspnea and paroxysmal nocturnal dyspnea. Lab data and physical examination were normal. Computed tomography scan demonstrated a large hiatal hernia and epicardial fat pad. **Conclusion:** Although rare, hiatal hernia should be suspected in patients who develop unexplained dyspnea.

**Keywords:** Hiatal hernia, dyspnea

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## Introduction

Dyspnea can be a life-threatening symptom that has multiple causes. Cardiac and pulmonary causes are the most common causes [1, 2]. Less common causes include psychiatric disorder such as anxiety, hyperventilation syndrome, metabolic conditions (e.g. acidosis, and anemia) and neuromuscular disorder [3]. Hiatal hernia is an unusual cause of dyspnea. Only a few cases of hiatal hernia presented with dyspnea have been reported up till now [4, 5].

## Case Report

A 78-year-old women presented with recurrent attack of PND. Physical examination was normal. Routine laboratory findings were normal. Erythrocyte sedimentation rate (ESR) was 32; the hemoglobin level was 13 g/dl; CRP and RF (rheumatoid factor) were negative. Electrocardiogram (ECG), echo cardiogram (FF = 60%) and spirogram were also normal.

The chest X-ray demonstrated a large epicardial fat pad (Fig 1). The echocardiography showed a hypoechoic mass in the anterior of the heart. Computed Tomography (CT) scan revealed a large hiatal hernia with epicardial fat pad (Fig 2). CT scan of chest demonstrated hiatal hernia (a) and a large epicardial fat pad (b). Endoscopy confirmed a sliding hiatal hernia. Chronic gastritis and intestinal metaplasia were shown in pathology result.



**Fig. 1** Epicardial fat pad in CXR. Posteroanterior chest radiography reveals loss of silhouette at the right border of the heart, an epicardial fat pad.



**Fig. 2** Hiatal hernia and an epicardial fat pad. Chest CT scan

shows herniation of stomach posterior to the heart through the diaphragmatic defect (arrow a) and a large epicardial fat pad as an area of homogenous fat attenuation at the right border of the heart (arrow b).

## Discussion

Hiatal hernia is a rare cause of dyspnea. Small hiatal hernias may cause no problem. Larger hernia may cause some symptoms such as heartburn, belching, regurgitation, dysphagia, chest pain and nausea due to acid reflux [6]. It may rarely lead to gastric volvulus, strangulation and perforation leading to severe chest pain and dysphagia [7-9].

There are three main types of hiatal hernia [10, 11]: a) sliding hernia or type 1 is the most common form in which cardia is displaced upwards into the chest, b) paraesophageal or rolling hernia in which stomach fundus protrude into the chest, and c) compound or mixed hiatal hernia in which both cardia and fundus herniated into the chest.

Hiatal hernia is usually presented as an air-fluid level behind heart shade in chest X-ray, however, a barium swallow study will clearly demonstrate the anatomy. A elective surgery is usually performed on the symptomatic patients, while for the patients with obstruction, an emergent surgery should be performed. Since the paraesophageal complication such as bleeding, the infarction and perforation may occur without any alarming symptoms, therefore, elective surgery is recommend for the asymptomatic patients [12].

Epicardial fat pad is a collection of visceral adipose tissue around the heart, which contains parasympathetic ganglia [13]. The epicardial fat pad stores triglyceride providing myocardial energy, and also produces adipokines [14]. The thickness of the epicardial fat pad increases in the obesity, and is recognized as a metabolic syndrome predictor [15]. Some of recent studies suggest that the epicardial fat pad may be considered as a cardiovascular risk factor, and also seems to be correlated with some cardiac abnormalities such as coronary atherosclerosis and cardiac dysfunction. The mechanisms are not exactly clear, but it may be involved in a low grade of inflammation [16-18]. There is no previous report of the pericardial fat pad as a cause of dyspnea. Our patient was featured with a large epicardial fat pad, a hiatal hernia anterior the mediastine and a large epicardial fat pad posterior, as an extra pulmonary causes, cause dyspnea and paroxysmal nocturnal dyspnea.

In conclusion, although it is rare that a epicardial fat pad or hiatal hernia could alone results in dyspnea, in present case, both presented together are responsible for paroxysmal nocturnal dyspnea.

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