

Dyspnea Due to Hiatal Hernia

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Abstract

Introduction: By definition, hiatal hernias are abnormal protrusions of the stomach, associated or not with other organs, towards the thoracic cavity through the esophageal hiatus. The most affected population is elderly patients with comorbidities. Due to the volumetric progression of the hernia, multiple clinical presentations may appear - as acute cardiovascular events and respiratory manifestations. The relationship between dyspnea and hiatal hernia has been known since the 1960s. Recent studies have documented that 53-84% of preoperative patients with par esophageal hernia have symptoms of respiratory dysfunction of different degrees.

Case Report: Two elderly patients with dyspnea at slightest effort without further physical exam changes underwent to a series of tests to investigate the underlying cause. After excluding cardiorespiratory conditions and visualizing through chest X-ray the large hiatal hernias, the dyspnea was attributed to the hernial contents' compressive effect on the cardiopulmonary apparatus. Hiato-plasty was performed with Nissen fundoplication in both cases, but one of them required a reinforcement screen in the hiatus while the other needed a thoracic drainage. Both evolved well after the surgery with great improvement of the dyspnea.

Discussion: Giant paraesophageal hernias may occupy a large and variable space in the thorax, affecting respiratory function. Chest x-ray shows an air-fluid level behind the cardiac shadow and oral barium contrast study demonstrates better the anatomical design of hiatal hernia. On transthoracic echocardiographic images, it may be presented as a left atrial mass. Studies have shown that most of the patients noticed some degree of dyspnea improvement after surgical repair. Such progress was demonstrated both subjectively (53%) and objective (70%). The elderly population is most benefited by the surgical repair of hiatal hernias.

Conclusion: The great hiatal hernias should be considered as differential diagnosis of progressive dyspnea, since they can trigger symptomatic cardiopulmonary diseases resulting from cardiac compression and large thoracic vessels. Surgical treatment proved to be the best therapy for the presented cases.

Keywords: Hiatal Hernia, Dyspnea, Thoracic radiography

1. INTRODUCTION

By definition, hiatal hernias are abnormal protrusions in the stomach, associated or not with other organs, towards the thoracic cavity through the esophageal hiatus. The prevalence of this entity is 0.8-2.9%, when detected by upper digestive endoscopy, although some sources suggest its presence in more than 50% of individuals over 50 years of age. The most affected population are elderly individuals with comorbidities^{1,4,5}.

In general, hiatal hernias are asymptomatic, however dyspeptic complaints such as those present in gastro esophageal reflux disease are frequently cited^{1,3}. With the volumetric

progress -ion of the hernia, variable clinical presentations may arise - such as acute cardiovascular events and respiratory manifestations - may result from the compressive effect on the cardiopulmonary system^{1,2,4}. Respiratory disorders range from exercise intolerance to changes in pulmonary function tests and resting dyspnea, these conditions are commonly neglected because they are attributed to the patient's comorbidities, which culminates in delayed initiation of therapy^{3,4,7}.

The relationship between dyspnea and hiatal hernia has been known since the 1960s. However, only in recent studies have

documented percentages of this association, showing that 53-84% of preoperative patients with par esophageal hiatal hernias present varying degrees of respiratory discomfort – evidencing the importance of hiatal hernia as a cause of progressive dyspnea and reiterates the positive impact of surgical repair of this pathology on patient's quality of life^{3,4,6,7}.

2. CASE REPORT

The first case is about an elderly 77 years old with complaint of dyspnea on the small effort after aortic aneurysm repair with endoprosthesis. The physical examination was in good general condition without other complaints. Personal history of cardiac surgery: bypass. Transthoracic echocardiography showed preserved left ventricular systolic function, discrete degree of tricuspid reflux, and increased atriums. Spirometry show mild restrictive pattern. Requested chest radiography with barium that showed a large hiatal hernia, which was attributed the cause of the respiratory discomfort. The upper digestive endoscopy confirmed the nine-centimeter hiatal hernia. Preoperative exams were requested, in which the cardiovascular evaluation showed moderate risk of cardiac events. The hiatoplasty was performed with Nissen fundoplication technique and reinforcement mesh in the esophageal hiatus (PROCEED®). The patient evolved postoperatively without interurrences or any sign or symptom of dyspnea.

The second case is an elderly woman, 65 years old, with no history of invasive procedures, with progressive dyspnea over years. On physical examination, did not present significant alterations beyond respiratory discomfort. After consultation with the pulmonologist, complementary examinations were performed to exclude cardio respiratory causes of dyspnea, including echocardiogram and spirometry, however, all were normal, except for the presence of hiatal hernia detected in the chest simple radiography. The hiatoplasty was performed with Nissen fundoplication technique, without reinforcement mesh, however a thoracic drainage was necessary due to a pleural damage detected during the procedure. After the surgery this patient evolved without complains and interurrences.

Both patients were kept in follow-up and during the consults when were questioned about respiratory discomfort or symptoms of dyspnea they denied.

3. DISCUSSION

There are three main types of hiatal hernia. Type I – sliding hernia – is the most common, in which the gastro esophageal junction with part

of the stomach slides through the hiatus to the thoracic cavity¹. Type II is the par esophageal hernia; type III, involves a mix of sliding and par esophageal hernia; and finally, type IV, which is a herniation of additional organs - colon, omentum, spleen^{8,9}. Although the cause of hiatal hernia development is unknown, it is accepted that the relaxation of the diaphragmatic muscles resulting from the aging process is related to their formation-which justifies the growth of this entity's incidence with the advancing age^{1,3}.

Although they are mostly asymptomatic, GERD symptoms may arise. Gastrointestinal bleeding related to ulcer or erosion, iron deficiency anemia, mucosal prolapse and incarcerated hernia are the main complications-the last two are the most fearsome^{1,3,5}. Although large hernias may be rare, they may cause atypical symptoms such as heart failure¹², arrhythmias, postprandial syncope, angina chest pain¹³, electrocardiographic changes (T wave inversion, ST elevation), and respiratory manifestations, which may range from exercise intolerance and alteration of pulmonary function tests and dyspnea at rest¹⁰.

Giant paraesophageal hernias may occupy a large and variable space in thorax, affecting respiratory function by reducing the thoracic volume, as well as the stomach being drawn into the chest during inspiration by negative intrapleural pressure¹⁴. Depending on the amount of food eaten during the meal, the volume dislocated by the intrathoracic stomach can be quite dramatic; which increases the risk of triggering acute complications⁴. A compelling evidence for the diagnosis of sliding par esophageal hernia is the location of the esophagogastric junction at a level above the diaphragmatic hiatus visualized by endoscopy¹⁰. The chest X-ray shows an air-fluid level behind the heart shadow and the study with barium oral contrast demonstrates better the anatomical design of the hiatal hernia^{3,8}. On the echocardiogram, may present as a left atrial mass^{1,3,4}.

As in the cases presented, several studies have shown that the majority of the patients reported some degree of improvement in dyspnea after surgery repair. Such progress demonstrated both subjectively (53%) by patient self-assessment and objectively (70%) by lung function tests⁶. Our patients reported complete resolution of dyspnea symptoms after surgery and during outpatient follow-up. The recovery of exercise capacity and cardiac parameters after the hiatal hernia repair indicate that the impairment of

exercise is due, in part at least, to cardiac compression^{7,11}. And the reduction of the paraesophageal hernia improves the respiratory mechanics, as it reduces the effort of the musculature to reach the adequate expansion^{4,6,14}.

The elderly population is the most benefited by the surgical repair of the hiatal hernia and contradictorily it is the group that faces more difficulties to have access to surgery, due to the old age comorbidities^{3,6}. It is important to emphasize that complications such as hemorrhage, ischemia and perforation of viscera can occur without alarming symptoms, which makes the surgical treatment even more important to avoid those occurrences in the symptomatic patients and should be considered in asymptomatic patients^{4,14,15}.

4. CONCLUSION

The large hiatal hernias should be considered as a differential diagnosis of progressive dyspnea, especially in the elderly with a history of surgical procedures in the thoracoabdominal region or associated dyspeptic symptoms. Large hernias can trigger symptomatic cardiopulmonary disease resulting from cardiac and large thoracic vessels compression. The marked improvement in the postoperative period is observed in the elderly patients, those with larger hernias and those with impaired preoperative respiratory function – therefore, based on the bibliographies studied and the present outcomes, it can be stated that the surgical treatment proved to be the best therapy for the cases of dyspnea secondary to hiatal hernia.

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