

Transthoracic Repair of Paraesophageal Diaphragmatic Hernia Presenting with Symptoms Mimicking Cardiac Disease (Chest Pain and Breathlessness)

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ABSTRACT

We discuss a case of 60-year-old female patient, who presented with history of chest pain radiating to left shoulder, breathlessness and postprandial discomfort. Patient was initially suspected to be suffering from cardiac pathology and was evaluated accordingly. Upper gastrointestinal endoscopy also missed the findings of paraesophageal hernia as the gastroesophageal junction was at its normal position. Chest roentgenogram raised the suspicion of diaphragmatic hernia, computed tomogram of chest and abdomen was done later on and showed characteristic features of paraesophageal hernia. Patient underwent transthoracic repair of the paraesophageal hernia along with partial fundoplication and had complete relief from the symptoms after surgery.

Keywords: Chest pain, Breathlessness, Belsey mark Iv repair, Paraesophageal hernia, Thoracotomy

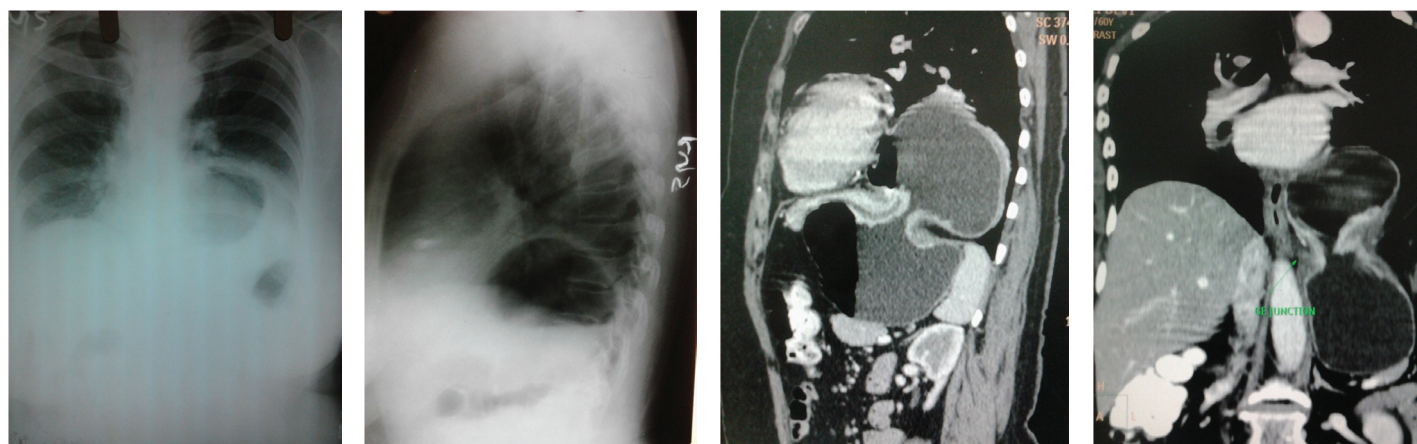
CASE REPORT

A 60-year-old female patient presented with history of chest pain radiating to left shoulder, breathlessness and postprandial discomfort. Patient had apprehension of some cardiac problem and consulted a cardiologist. Electrocardiogram (ECG) showed nonspecific T-wave changes and further investigations like echocardiography and stress electrocardiogram were done. Unfortunately chest roentgenogram was not done at that time. As the echocardiogram and stress electrocardiogram were normal; patient was then referred to a gastroenterologist, upper gastrointestinal endoscopy was done and there were no positive findings. Patient got consultation from another physician as her symptoms were not relieved; chest Roentgenogram done afterwards showed elevation of left dome of diaphragm. Chest roentgenograms in antero-posterior and lateral views [Table/Fig-1a,b] were suggestive of diaphragmatic eventration, however computed tomogram (CT) of chest and abdomen showed features of paraesophageal hernia with characteristic finding of 'hourglass stomach' in sagittal and coronal sections [Table/Fig-2a,b]. Diagnosis of paraesophageal hernia was missed on endoscopy probably due to the normal position of the gastroesophageal junction. Patient was then referred to us, patient was advised urgent surgery for the condition but patient wanted only medical treatment and refused

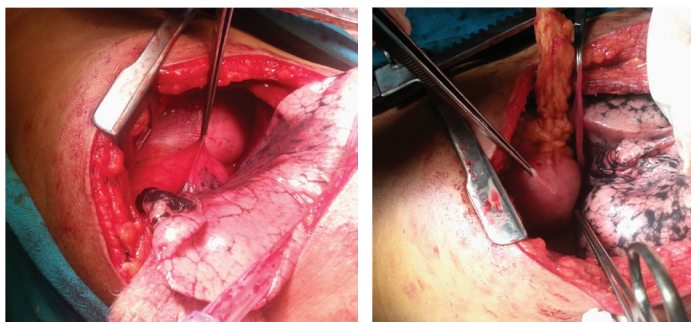
for surgery. Few days later patient had sudden onset severe pain and again came to us, strangulation of stomach was suspected and patient was taken for surgery on the same day in emergency. General anesthesia was used for surgery using single lumen endotracheal tube supplemented with thoracic epidural analgesia. Posterolateral thoracotomy was done through the sixth intercostal space, adhesions were found between hernia sac and the left lower lobe of the lung [Table/Fig-3a] and esophagus. Hernial sac was dissected from surrounding structures and its margins were defined, sac was opened and hernia contents were examined [Table/Fig-3b], part of stomach and omentum were found in the sac and fortunately they were not found to be strangulated, however reduction of stomach into the abdomen required dissection of adhesions within the sac also. Margins of the diaphragmatic defects were closed in two layers using interrupted non-absorbable sutures, partial fundoplication using Belsey Mark IV repair was also done. Standard thoracotomy closure was done after inserting an intercostal drain. Patient recovered well and was discharged after seven days.

DISCUSSION

Paraesophageal hernia [1] also known as hiatus hernia type 2 is found in only 5% of cases of hiatal hernia whereas sliding hernia or



[Table/Fig-1a]: Chest roentgenogram antero-posterior view showing elevated left dome of diaphragm **[Table/Fig-1b]:** Chest roentgenogram lateral view showing stomach bubble behind pericardium **[Table/Fig-2a]:** Computed tomogram (sagittal section) showing herniated stomach into the left chest giving the characteristic hour glass appearance **[Table/Fig-2b]:** Computed tomogram (coronal section) showing herniated stomach into the left chest with normally placed gastroesophageal junction



[Table/Fig-3a]: Intra-operative photograph showing adhesions between hernia sac and left lower lobe

[Table/Fig-3b]: Intra-operative photograph showing contents of the hernia sac (Stomach and omentum)

hiatus hernia type 1 is found in 95% of cases [2]. Paraesophageal hernia can be associated with life threatening complications like gastric volvulus, strangulation or even perforation and surgical treatment is required in majority of cases [3,4], patients managed conservatively have high complication rate; whereas majority of hiatus hernia type 1 can be managed conservatively.

Common presenting symptoms [5] of paraesophageal hernia include those related to gastroesophageal reflux, dyspepsia, breathlessness [6] and pulmonary complications [7] but symptoms mimicking coronary artery disease like chest pain radiating to left shoulder and arm and perspiration are not commonly seen and there are few reports in literature [8,9]. In this case the major symptoms were postprandial chest pain, perspiration and breathlessness which initially raised the suspicion of coronary artery disease. Characteristic radiological feature of paraesophageal hernia type 2 is the presence of the gastroesophageal junction at its normal position whereas it is displaced to variable extent in to the chest in cases of sliding hernia or hiatus hernia type 1.

Clinical features of paraesophageal hernia may mimic those of coronary artery disease. In the current era due to the large awareness and high prevalence of the coronary artery disease sometimes more specific investigations like echocardiogram, stress electrocardiogram gets precedence over the basic investigations like chest roentgenogram. There are reports in literature in which left atrial mass was suspected on echocardiography due to large hiatus hernia [10,11]. Eventration of diaphragm may also be difficult to differentiate from paraesophageal hernia on chest Roentgenogram and endoscopic examination may also miss the findings of paraesophageal hernia as happened in this case. CT chest and upper abdomen is the investigation of choice and clearly differentiates paraesophageal hernia from eventration of diaphragm. Characteristic appearance of paraesophageal hernia is 'hourglass stomach' clearly appreciable on CT scan and sometimes on chest roentgenogram.

Paraesophageal hernias can be treated using abdominal [12,13] or thoracic approach [14] and laparoscopy/thoracoscopy or open

technique. Choice of approach and technique depends on various factors like 1) duration of disease 2) obesity 3) previous surgery 4) surgeon's preference 5) condition of the patient 6) emergency or elective repair. In patients with longstanding disease adhesions are usually found between the herniated stomach and lung, which may create difficulty in reduction of stomach and hernia contents when using abdominal approach. In this case open thoracic approach was chosen as the patient was operated in emergency and patient also had long standing disease. Advantages of thoracic approach are adhesions between lung and hernia sac esophagus can be dissected under vision and excision of sac can be done easily. Abdominal approach may be more useful in patients with symptoms of short duration or where part of stomach needs excision for strangulation or ischemic necrosis.

CONCLUSION

Paraesophageal hernia can also present with features of postprandial chest pain, perspiration and breathlessness. CT chest and upper abdomen is the investigation of choice for paraesophageal hernia and gives the characteristic appearance of hour-glass stomach in coronal or sagittal section.

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