Mixed type of hiatus hernia: incidental diagnosis of a potentially life-threatening condition

Kritika Sharma,1 Rajaram Sharma ○,2 Tapendra Tiwari,2 Saurabh Goyal2

DESCRIPTION

Hiatus hernia refers to a condition in which elements of the abdominal cavity, most commonly the stomach, herniate through the oesophageal hiatus into the mediastinum. The oesophageal hiatus is vulnerable to visceral herniation because it faces directly to the abdominal cavity and is subjected to pressure stresses between the two cavities. Broadly, hiatus hernias are of four types: type I, sliding hiatal hernia (~95%), where the gastro-oesophageal junction (GEJ) slides upwards; type II, paraoesophageal hiatal hernia (~5%), where the GEJ at its usual position and the gastric fundus roll upwards through the widened hiatus; type III, the mixed type, where there is herniation of the cardiac and fundus part of the stomach, along with sliding of the GEJ upwards; and type IV, which includes herniation of the entire stomach into the thorax, leading to an upside-down orientation of the stomach. Types III and IV constitute approximately 5% of all hernias. The most significant hiatal defect is noted in type IV. Large paraoesophageal hernias, with most of the stomach in the thorax, increase the risk of complications such as volvulus, obstruction and ischaemia. Large hiatal hernias rarely present with a gastro-oesophageal reflux disease manifestation in most patients, so either pH metre or pH impedance alone is superfluous during presurgical management. CT with an oral contrast agent is ideally recommended whenever type III/IV hernia is suspected. Laparoscopic fundoplication is the standard treatment to restore the function of the lower oesophageal sphincter by wrapping the stomach around the oesophagus. However, the approach of surgical treatment of large hernias can be challenging. The main technical concern is relocating the hernial contents into the abdominal cavity, repairing large diaphragmatic defects, dissection of adhesions with the abdomen and the mediastinum, and occasionally shortening of the oesophagus. The use of mesh for support and cruroplasty is decided intraoperatively.

Figure 1 Plain scout radiograph of the chest. (A) Left lateral decubitus view shows areas of air-fluid levelling in the thoracic region in the middle mediastinum (black arrow). (B) Posteroanterior view shows lucency with the air-fluid level in the lower thoracic region, overlapping the cardiac shadow (white arrow).

Figure 2 (A, B and C) CT scan axial plane images show widened oesophageal hiatus with cephalic migration of the gastro-oesophageal junction (black arrow) and herniation of the entire stomach into the thoracic cavity (white arrow) with surrounding fat (thick white arrow). (D) A reformatted coronal image shows widened oesophageal hiatus and herniation of the entire stomach into the thoracic cavity (thick white arrow).
On CT scan, classic features are seen, such as the omentum herniating through the junction into the middle mediastinum, widened oesophageal hiatus, dehiscence of the diaphragmatic crura (>1.5 mm), and increased distance between the crura and the oesophageal wall. Additionally, a CT scan will help visualise the distal oesophagus, sac content, and size and orientation of the herniated stomach in the sac.

A 55-year-old man came to us with complaints of breathing difficulty, recurrent vomiting, heartburn and loss of appetite. Echocardiography was done in the emergency room and was unremarkable. The emergency medical officer prescribed a radiograph of the chest for breathing difficulty and revealed a double-pocket-like lucency in the lower thoracic region with an air-fluid level (white arrow in figure 1). Based on these radiographic features, the surgeon suspected a hiatus hernia, and lung abscess was kept as a differential diagnosis. As the patient had persistent vomiting and breathing difficulty, barium examination or gastroscopy was not possible. To ascertain the final diagnosis between the differentials mentioned above, an emergency enhanced CT scan of the thorax was performed as the next reasonable step. It showed herniation of the entire stomach into the thorax (white arrow in figure 2) through the hiatus with a displaced GEJ (black arrow in figure 2) (video 1). After all the initial battery of investigations, all the options were explained to the patient, and a decision for laparoscopic fundoplication was finally made. During the surgery, with the help of a Veress needle, pneumoperitoneum was achieved, and the operating surgeon noticed a large hiatal hernia containing the GEJ and almost the entire stomach into the thoracic cavity. The phrenoesophageal membrane was dissected with a harmonic scalpel, and the right crus of the diaphragm was bared. In the next step, the abdominal part of the oesophagus was mobilised, and cruroplasty was performed using interrupted sutures. Lastly, the fundus of the stomach was used for a 360° wrap. The patient was kept on proton pump inhibitors and regular follow-up at monthly intervals. He is doing fine as of his recent follow-up.

Patient’s perspective
It was very difficult initially with breathlessness and heartburn symptoms. I could not even walk a bit, and after the initial radiograph, it was suspected some lung disease and advised further investigation like CT thorax. In CT scan, I was diagnosed with a Hiatus hernia and referred to surgery on an immediate basis.

Learning points
► Symptoms of mixed hiatus hernia may mimic symptoms of cardiopathy and need urgent attention.
► An unenhanced CT scan of the thorax, including the upper abdomen, is the ideal non-invasive imaging modality on an emergency basis to narrow the differential diagnosis and reach an accurate diagnosis.
► It is important to differentiate type III/IV hiatus hernia from other types in view of preoperative planning due to risk of entrapment of the abdominal viscera and manifestations related to compression of thoracic structures.

REFERENCES