

## LAPAROSCOPIC REPAIR OF DIAPHRAGMATIC HERNIA IN AN ELDERLY FEMALE

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### ABSTRACT

#### BACKGROUND

An elderly patient with diaphragmatic hernia underwent laparoscopic hernia repair with Hill fundoplication. This appears to be a very rare surgery considering the age of the patient.

#### KEYWORDS

Surgery, Laparoscopy, Operative Surgery, Diaphragmatic Hernia, Surgical Management.

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#### BACKGROUND

Hiatal hernia is a common disorder. It is characterised by a protrusion of any abdominal structure other than the oesophagus into the thoracic cavity through a widening of the hiatus of the diaphragm.

Attempts began early in the last century to classify hiatal hernia into subtypes. The current anatomic classification has evolved to include a categorisation of hiatal hernias into Types I-IV.

Type I- Hernias are sliding hiatal hernias, where the gastroesophageal junction migrates above the diaphragm. The stomach remains in its usual longitudinal alignment and the fundus remains below the gastroesophageal junction.

Type II- Hernias are pure paraoesophageal hernias (PEH); the gastroesophageal junction remains in its normal anatomic position but a portion of the fundus herniates through the diaphragmatic hiatus adjacent to the oesophagus.

Type III- Hernias are a combination of Types I and II, with both the gastroesophageal junction and the fundus herniating through the hiatus. The fundus lies above the gastroesophageal junction.

Type IV- Hiatal hernias are characterised by the presence of a structure other than stomach, such as the omentum, colon or small bowel within the hernia sac.

Greater than 95% of hiatal hernias are Type I. Types II-IV hernias as a group are referred to as paraoesophageal hernias (PEH), and are differentiated from Type I hernias by relative preservation of posterolateral phreno-oesophageal attachments around the gastroesophageal junction.<sup>[1]</sup> Of the paraoesophageal hernias, more than 90% are Type III, and the least common is Type II. The term "giant" paraoesophageal hernia appears frequently in the literature, though its definition is inconsistent. Various authors have suggested giant paraoesophageal hernias be defined as all type III and IV hernias, but most limit this term to those paraoesophageal hernias having greater than 1 to ½ of the stomach in the chest.<sup>[2,3,4,5,6,7,8]</sup>

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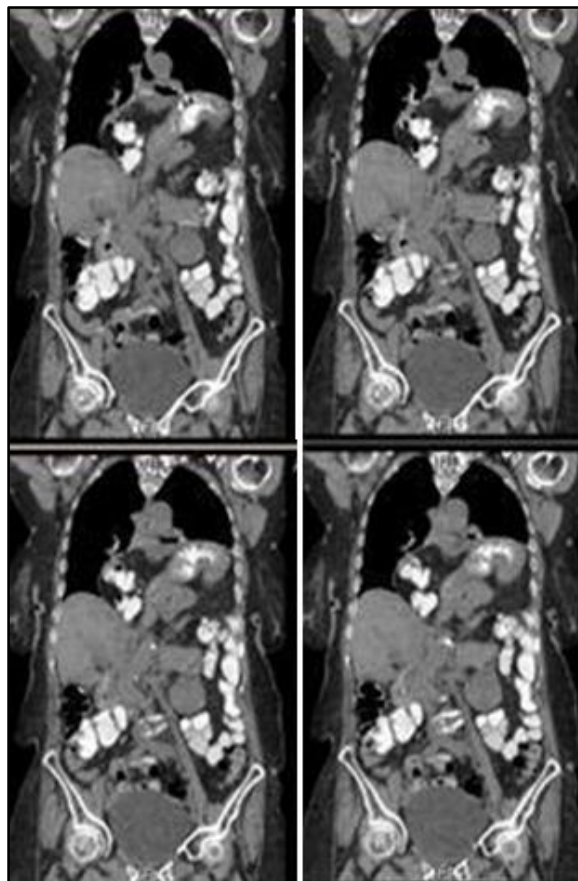
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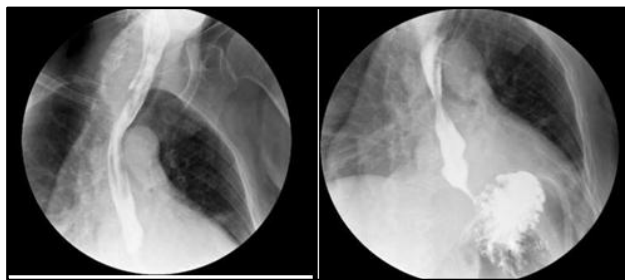
#### Case Report

An 86-year-old female patient was seen in Security Forces Hospital, Dammam (SFHD) ER with complaints of abdominal pain, dyspnoea and vomiting. Patient suffered with these complaints since many years which was aggravated since the past few days. No past medical history, not a known diabetic, hypertensive or asthmatic. No past surgical history. Cardiovascular system revealed regular heart beat and no murmurs

Abdomen- Soft, lax. Extremities: Joint stiffness (+). CNS: Intact reflexes, mild stupor. General appearance: Elderly, poorly built. Vital Signs: BP: 138/64 mmHg, PR: 72/min., RR: 22/min. Chest & Lung: Percussion: dullness on left. Auscultation: wheezing (+), rales (+). CT Scan of the abdomen revealed large hiatal hernia containing most of the stomach, transverse colon and omental fat.



**Figure 1. CT scan- Large Hiatal Hernia containing most of the Stomach, Transverse Colon and Omental Fat**



**Figure 2. Day 1 Post-surgery Gastrografin Study**



**Figure 3. Marked severe Oesophagitis from Oesophagus to GE junction with multiple Bleeding Sites. Multiple active Ulcers noted.**

## DISCUSSION

Diaphragmatic hernia (DH) is a common cause of respiratory distress.<sup>[9]</sup> The symptoms in the majority of patients presented in all types of DH are most often pulmonary or gastrointestinal in nature. These symptoms may be nonspecific like thoracic pain, tachycardia, diaphoresis, nausea and epigastric pain related with food intake. Breathlessness, recurrent chest infections, and other pulmonary sequel can still be presenting symptoms, but they are less common than gastrointestinal complications. A DH defect may become symptomatic later in life.

Numerous complications of a DH have been reported, including small or large bowel obstruction and strangulation, acute appendicitis with malrotation, splenic torsion, gastric volvulus and perforation, acute pneumothorax and gastrothorax.<sup>[10, 11, 12]</sup> Auscultation of bowel sounds over the hemithorax suggests the diagnosis. Therefore, further investigation usually is needed with contrast studies like upper gastrointestinal endoscopy. Colon enema or gastroduodenal series can also be useful but not specific. More accurately CT scan visualises focal defects in the diaphragm and represents an excellent modality for DH preoperative diagnosis.

The conventional treatment is to return the herniated organs to the abdominal cavity and close the diaphragmatic defect through the thorax or through the abdomen. Diaphragmatic defects can be operated by means of minimally invasive surgery or by the traditional open techniques. There are some surgeons who believe that, thoracoscopic views and surgical procedures are beneficial in the repair of diaphragmatic hernias in patients with severe adhesions.<sup>[13,14,15,16,17]</sup>

The diaphragmatic defect can be closed with or without prosthesis. In our unique case having large diaphragmatic hernia defect, we used a primary suture repair to close it.

Although a subject of debate, gastroesophageal reflux is very common after DH repair; therefore, an additional procedure to prevent the lower oesophagus from sliding might be indicated. Because in our patient DH was complicated with a severe reflux and oesophagitis, we also performed a posterior cruroplasty and a Hill fundoplication to prevent reflux.

## CONCLUSION

We consider laparoscopy as a unique method for the precise diagnosis of symptomatic diaphragmatic hernia in adults, a safe and viable technique for a successful repair at the same time. DH in adults is amenable to a minimal access approach, provided a safe and meticulous technique is adopted. Experience of advanced laparoscopic surgery is required.

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