



## HIATAL HERNIAS THERAPY OUR EXPERIENCE

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### ABSTRACT

**Background:** Aim of this study to demonstrate the effectiveness of laparoscopic hiatal hernia repair, strategy for treatment, operative technique and literature review. **Methods:** Between the years 2015-2020, fifty one patients underwent elective uneventfully laparoscopic diaphragmatic hernia repair by surgical team from University general surgery clinic at Oncological Hospital of Kifisia –Agioi Anargyroi, Athens Greece. **Results:** During the last 5 years 51 patients already diagnosed with diaphragmatic hiatal hernia underwent elective laparoscopic repair uneventfully. Twenty one male and thirty female aged 19 – 68 mean age 44 years. The hospital stay was min 2 max 5 days mean stay approx 3 days. All patients underwent gastrografin shallow. No death has been recorded. No ileus no volvulus was noticed. Three patients developed Dysphagia but post a week was disappeared. One male patient developed haematoma but this was cured within a two week period. All these patients as a follow up patients no complication or discomfort noticed. **Conclusion:** Laparoscopic diaphragmatic hiatal hernia repair considered safe, low cost and hospital stay with no complications, but needs to be done by well trained and experience team.

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## INTRODUCTION

Hiatal hernias are caused by an opening or defect in the diaphragm that may cause displacement of the stomach and other organ of the abdomen. Not all hernias require repair. A large hernia when symptomatic required surgery. The aim of surgical intervention is to restore normal anatomy, close the defect of the diaphragm, to prevent complications and recurrence, to improve symptoms and quality of life.

### BACKGROUND

Aim of this study to demonstrate the effectiveness of laparoscopic hiatal hernia repair, strategy for treatment, operative technique and literature review.

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## METHODS

Between the years 2015- 2020, fifty one patients underwent elective uneventfully laparoscopic diaphragmatic hernia repair by surgical team from University general surgery clinic at Oncological Hospital of Kifisia –Agioi Anargyroi, Athens Greece

## RESULTS

During a 5 year period, 51 patients already diagnosed with diaphragmatic hernia underwent elective laparoscopic diaphragmatic hernia repair uneventfully. Twenty one male and thirty female aged 19 – 68 mean age 44 years. The hospital stay was min 2 max 5 days mean stay approx 3 days. All patients underwent gastrografin shallow. No death has been recorded. No ileus or volvulus was noticed. Three patients developed dysphagia but post a week was disappeared. One male patient developed haematoma but this was cured within a two week period. All these patients as a follow up patients no other complication or discomfort noticed.

## DISCUSSION

Diaphragm is a muscular barrier between chest and abdomen. It separates heart and lungs from abdominal organs (stomach, intestines, spleen, and liver). A diaphragmatic hernia occurs when one or more of abdominal organs move upward into the chest through a defect in the diaphragm. This kind of defect can be present at birth (congenital diaphragmatic hernia) or acquired later in life as acquired diaphragmatic hernia (Chang, 2004; Chinnusamy Palanivelu, 2009). This also can be the result of a blunt injuries due to a traffic accident, surgical procedures on the chest or abdomen, falls, stab wounds, gunshot wounds (Chang, 2004; Chinnusamy Palanivelu, 2009; Metaxas, 2014; Efsthathios, 2006). Also a diaphragmatic hernia may be undiagnosed for a long period of time, until it becomes severe enough to cause symptoms or be diagnosed accidentally.<sup>2</sup>

### Types of diaphragmatic hernia:

#### )] Congenital diaphragmatic hernia:

1. Morgagni's hernia: is a less common type, occurring in only 5–10% of cases, with 90% of cases involving the right side (anterior midline—foramen of Morgagni)
2. -Bochdalek's hernia: In most congenital diaphragmatic hernias (posterolaterally)

#### )] Iatrogenic diaphragmatic hernia :

Caused by surgical procedures on the chest or in the abdomen

#### )] Traumatic diaphragmatic hernia:

Traumatic aetiology as the result of a traffic accident, falls, stab wounds, gunshot wounds, blunt injuries

#### )] Hiatal hernia

Occurs when the upper part of the stomach moves through the diaphragm to the chest. Diaphragm has a small opening (hiatus) through which oesophagus passes before connecting to the stomach. In a hiatal hernia, the stomach pushes up through hiatus and into the chest. Hiatal hernia could be by birth (congenital) or traumatic aetiology (acquired). Pregnancy also reported for hiatal hernia. A small hiatal hernia usually doesn't cause problems. But a large hiatal hernia can allow food and acid to back up into esophagus, leading to heartburn. In small hiatal hernias patients may be asymptomatic, but in large one may be presented with:

- )] Heartburn
- )] Regurgitation
- )] Backflow of stomach acid into the esophagus (acid reflux)
- )] Difficulty swallowing
- )] Chest pain
- )] Abdominal pain
- )] Feeling full soon after meals
- )] Dyspnoea
- )] Vomiting of blood or passing of black stools, which may indicate gastrointestinal bleeding

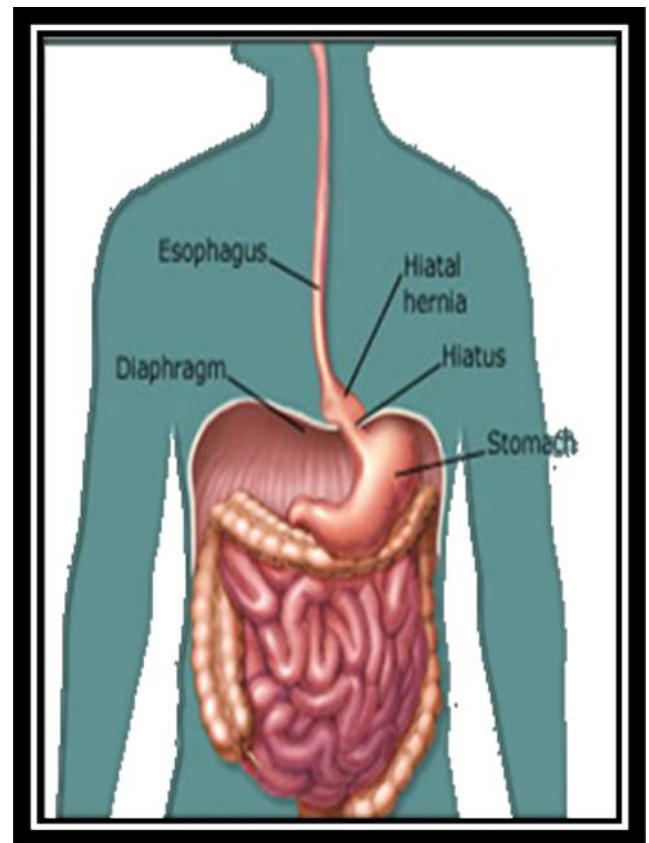
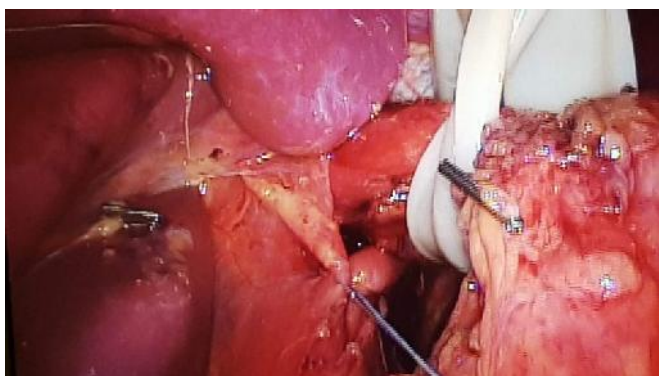
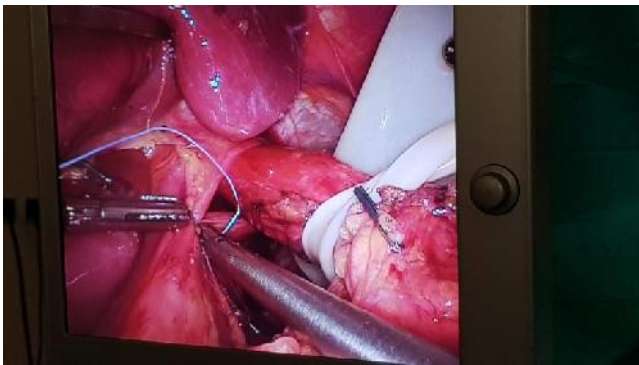
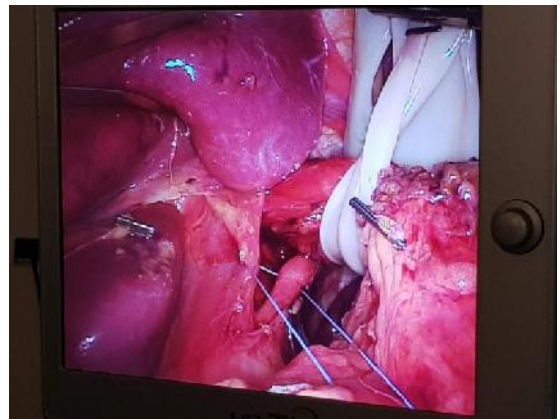


Image 1. Hiatal hernia



Tachypnoea, dyspnoea, tachycardia, cyanosis and diminished or absent bowel sounds in the chest area are also characteristic symptoms and findings in patients with diaphragmatic hernias. Diagnosis should be based on clinical anamnesis of the patient and clinical examination.



bleeding; recurrent aspiration pneumonia; large sliding hernias; and all paraesophageal hernias. The management of diaphragmatic hernias has been accomplished by laparotomy, laparoscopy, thoracotomy or thoracoscopy.

The strategy of the operation is to reposition the stomach below the diaphragm and to re-establish gastro esophageal competence. General and Thoracic surgeons may perform the procedures. This has to do with experience and skills of the operating surgeon and the surgical team. All approaches (transabdominal, transthoracic and laparoscopic) and three primary techniques (Belsey, Hill, and Nissen) are used, depending on the preference and further experience of the surgeon. The advantage of a thoracic approach is that reduction of the hernial contents can be easily achieved aided by the pneumothorax, with a hypoplastic lung providing better vision (Chinnusamy Palanivelu, 2009). Schaarschmidt et al. (2005) reported a technique in which a thoracoscopic inflation-assisted reduction of the thoracic contents was performed. This technique offers a more physiologic access to congenital diaphragmatic hernia than laparoscopy or laparotomy. However, the drawback of such techniques is the inability. It is also more difficult to identify bowel injury and the vision in peritoneal cavity is limited (Schaarschmidt, 2005). Today the laparoscopic repair of a hiatal hernia has almost completely replaced the open approach through either a laparotomy or a left thoracotomy.

Chest radiography (CXR) may demonstrate an abnormal shadow – opacity. In addition contrast solutions like Barium or Gastrografin (swallow) can easily show the existence of stomach or intestine in pleural cavity. Endoscopy, oesophageal manometry and Computer tomography considered gold standard for diagnosis. Risk factors obesity, pregnancy and age above 50. Antacids, Proton pump inhibitors or H-2 receptor blockers (to keep stomach from making as much acid) and Prokinetics take a part of medication, but the effective treatment considered surgical. Indications for surgical repair of hiatal hernia include failure of strict medical management (intractability); reflux esophagitis with ulcerations, stricture, or

Acute gastric volvulus occurs when the stomach or a part of it rotates more than 180 degrees which leads to obstruction (closed loop syndrome), that finally concludes to incarceration and ischemia of the organ. It can be observed as a result of diaphragmatic hernia, a gap of the diaphragm, pancreatic or gastric cancers, traumatic injuries and fixation anomalies (Metaxas, 2007). Palanivelu et al reported post operative three patients developed volvulus (Chinnusamy Palanivelu, 2009) and they resolve the complication (Schaarschmidt, 2005).

Geha et al they supported that hernias should be repaired soon after recognition.<sup>7</sup> Reflux should be evaluated before the operation, and if present, fundoplication should be part of the repair along with the reduction of the hernia, excision of the sac, gastropexy, and crural closure. They operated 100 patients during the years 1967 -1999 (Alexander, 2000). Eighty patients underwent an elective operation, and 20 patients underwent an emergency procedure for complications. A thoracic approach was used in 18 patients, mostly early in our experience; postoperative gastric volvulus requiring transabdominal repair developed in 2 patients. The remaining 82 patients underwent an abdominal repair, with temporary gastrostomy to prevent gastric displacement in 75 patients; the hernial sac was resected, and the hiatus was reconstructed in all of the patients. Thirty-five patients with reflux on preoperative work up underwent a fundoplication, with gastroplasty in 2 patients because of a short esophagus. No patient has experienced hernia recurrence. Reported 2 hospital deaths among those patients who underwent emergency operation (Alexander, 2000). Cubas et al. (2020) supported that Robotic-assisted paraesophageal hernia repair is a safe procedure that has a learning curve of about 36 cases. Upon review of the literature, this approach seems to have the same benefits as those of the laparoscopic approach in terms of total surgical time, complication rate, length of hospital stay, and quality of life.

**Operative technique:** It is a five ports technique. A 10-mm port just above (5cm) the umbilicus, a 5-mm port (right working hand) in the left midclavicular line, a 5-mm port (left working hand) in the right midclavicular line, a 5-mm port (for liver retraction) in the epigastrium, and a 5-mm port in the left midclavicular line below the level of the umbilicus (for bowel retraction). A Veress needle was placed 5cm above umbilicus. Intraabdominal pressure was maintained at 10 mmHg and Pneumoperitoneum was achieved. The head end of the patient was raised to 25° to facilitate falling away of the bowels from the upper abdomen to occupy the pelvis (anti Trendelenburg position). A 5-mm flexible retractor was placed to retract the left lateral segment of the liver.

Through hiatus and with intraabdominal pressure at 10 mmHg, a no traumatic bowel-holding grasper used for reduction of hernial contents (stomach, omentum transverse colon, etc). The hernial defects were closed in all patients with three sutures using 1.0 polypropylene and the larger defects with mesh. For the three patients with eventration of the diaphragm, plication of the diaphragm was performed by double-breasting with several 1.0 polypropylene intracorporeal sutures. Nissen fundoplication was done and only one suture was used.

## CONCLUSION

Laparoscopic hiatal hernia repair considered safe, low cost and hospital stay with no complications, but needs to be done by well trained and experience team.

## REFERENCES

- Alexander S Geha, Malek G Massad, Norman J. Snow et al., 2000. A 32 year experience in 100 patients with giant paraesophageal hernia: The case for abdominal approach and selective antireflux repair. *Central Surgical Association Volume 128, Issue 4, P 623-630, Oct.*
- Chang TH. 2004. Laparoscopic treatment of Morgagni–Larrey hernia. *W V Med J 100:14–17.*
- Chinnusamy Palanivelu, Muthukumaran Rangarajan et al. Laparoscopic repair of adult diaphragmatic hernias and eventration with primary sutured closure and prosthetic reinforcement: a retrospective study. *Surgical Endoscopy volume 23, pages 978-985 (2009).*
- Efstathios. K. Metaxas, Nicolas Condilis et al., 2006. Sternal fracture with or without associated injuries. Assessment of the difference in the diagnosis and complications. Eighteen years of experience. *Annali Italiani Di Chirurgia;77:379-383.*
- Metaxas, E.K., Condilis, N., Kyriazis H. et al. 2007. The management of acute gastric volvulus. *Annali Italiani Di Chirurgia Nov–Dec ;78(6):501-3.*
- Metaxas, E.K., Moustardas, M.P., M.I. Gerazounis. Rib Fractures: Retrospective Analysis of 1428 Cases. *Surgical Chronicles Vol 19, Issue 1, Jan-Mar 2014.*
- Robert F. Cubas, Joslin N. 2020. Cheverie, Santiago Horgan. Robotic Paraesophageal Hernia Repair Management of Gastroesophageal Reflux Disease pp119-137 July.
- Schaarschmidt K., Strau ß J., Kolberg-Schwerdt A. et al. 2005. Thoracoscopic repair of congenital diaphragmatic hernia by inflation-assisted bowel reduction in a resuscitated neonate: a better access? *Pediatr Surg Int 21:806–808*

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