

Surgical Management of Hiatal Hernias

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Hiatal Hernias

- Described for the first time by Henry Ingersoll Bowditch in 1853.
- Ake Akerlund first to use term “paraesophageal hernia” in 1926 for acquired hiatal hernia.
- Paraesophageal hernias 3 – 15% of all hiatal hernias. 90,000 patients in 1997.
- Incidence in general population range between 15 and 45 per 100,000.
- Associated with increase age.

Diagnosis

- Symptoms: Acid reflux symptoms 46% (5-85%) of patients with paraesophageal hernias. Anemia in 20-30%.
- Post prandial chest pain, vomiting or dry heaves in partial or complete gastric outlet obstruction.
- Acute symptoms associated with severe complications such as strangulation, perforation and bleeding.
- 24h pH probe: abnormal acid reflux in 70% of patients with type II hiatal hernias. Important when planning a 360° wrap.

- Physical exam: decreased breath sounds, dullness on percussion or audible bowel sounds over the left hemithorax.
- Chest XR: air-fluid level behind cardiac silhouette.
- UGIS: diagnostic in virtually every patient and provides information regarding the type.
- Endoscopy essential to rule out esophageal or gastric pathology.

CXR

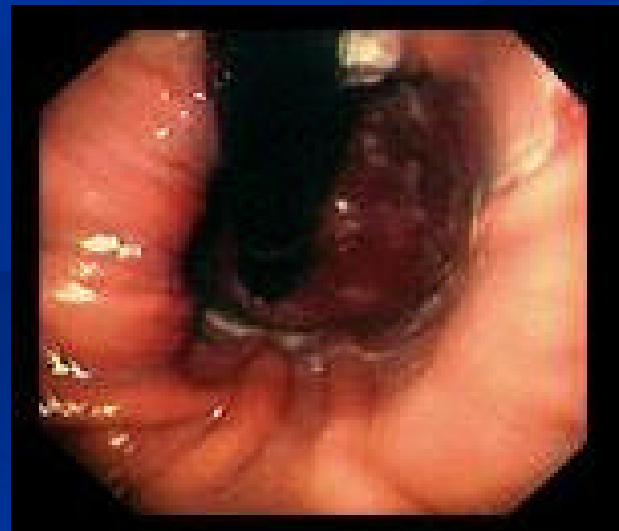
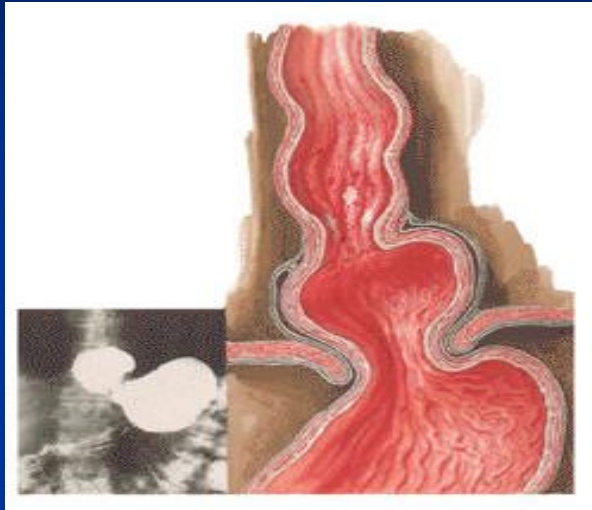


Classification

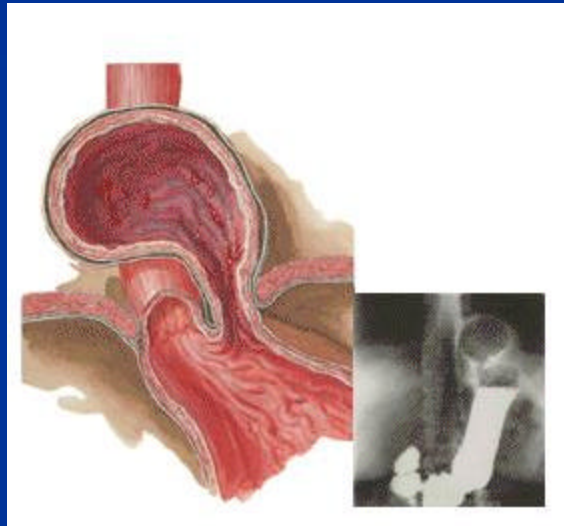
- 1. Type I: The GE junction displaced superior to hiatus.
- 2. Type II: GE junction normal position. Fundus/whole stomach superior to hiatus.
- 3. Type III: Combination of Type I and Type II.
- 4. Type IV: Large hiatal defect with colon, spleen, or other visceral in the sac.



Type I



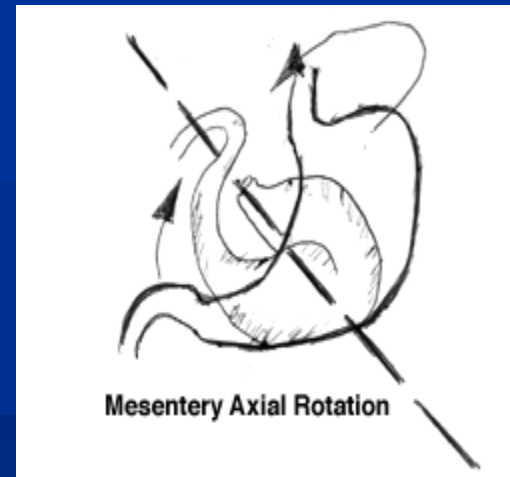
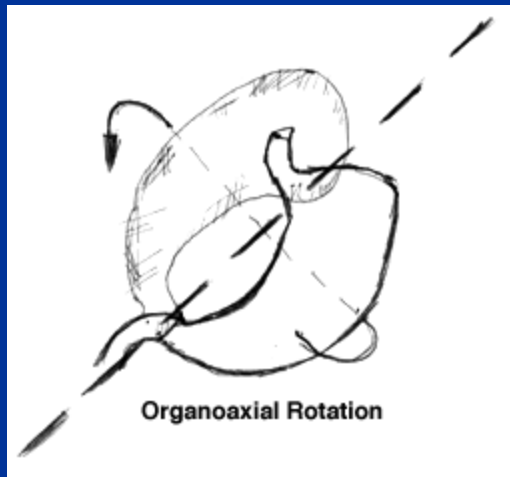
Type II



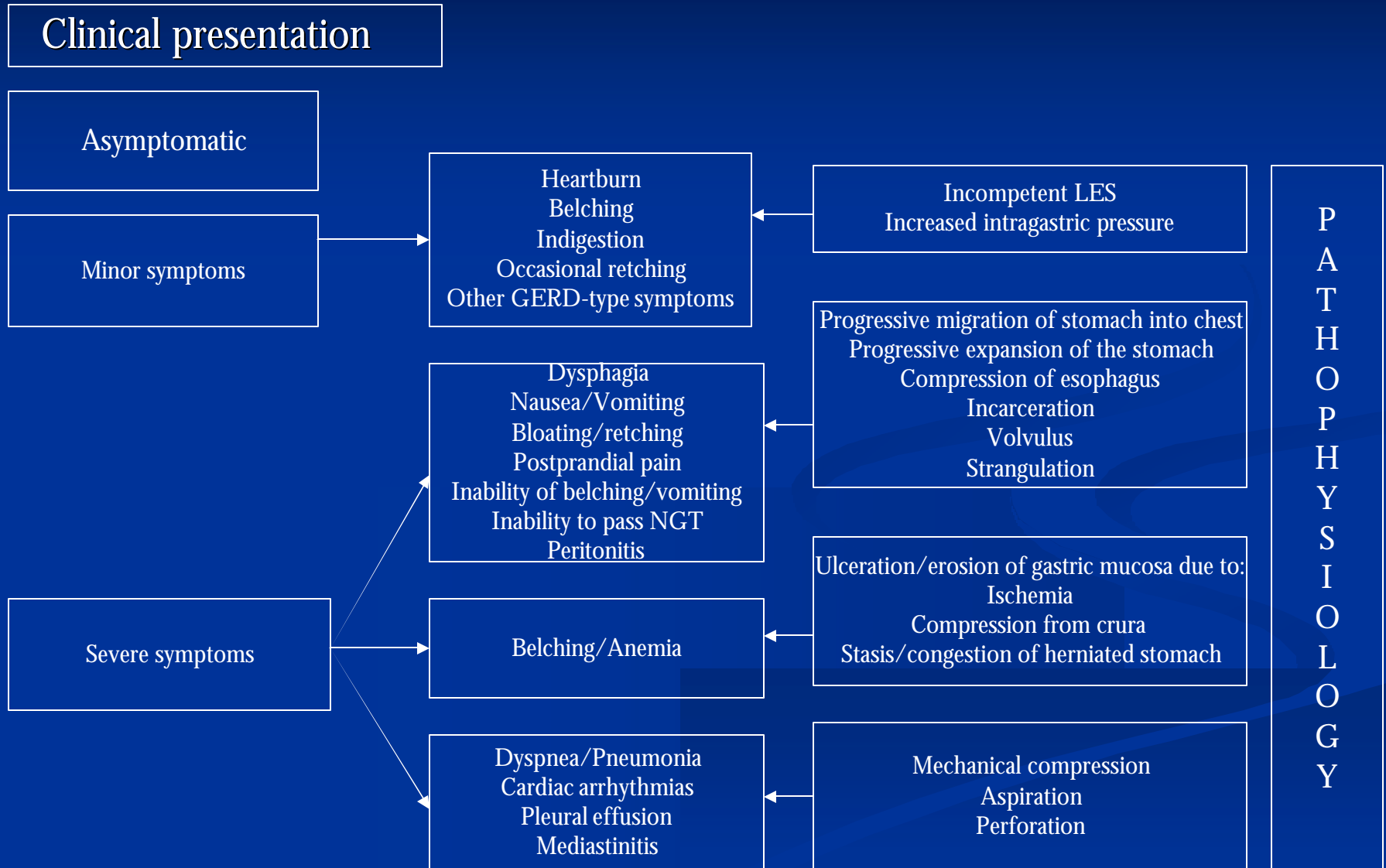
Pathophysiology

- Advanced stage of type I hernias.
- Characterized by large diaphragmatic opening and lax gastrosplenic and gastrocolic ligaments.
- Mobile portions of the stomach migrate into the posterior mediastinum as a result of negative intrathoracic and positive intra-abdominal pressures.
- Fixed GE junction to preaortic fascia results in Type II hernia.

Lax ligamentous attachments as hernia enlarges, allows the stomach to rotate. Around its longitudinal axis known as organoaxial volvulus, or around its transverse axis known as mesentericoaxial volvulus.



Clinical presentation



Treatment

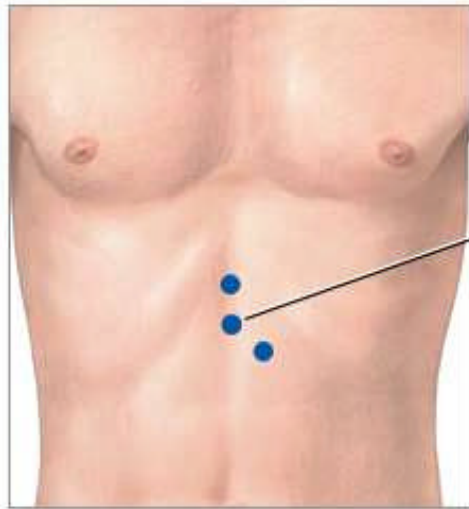
- Inability to pass a NGT in the presence of acute symptoms is an indication for emergency surgical repair.
- If NGT can be passed and the stomach decompressed, the patient should be optimized and perform a semielective procedure.
- Operative principles reduction of the hernia, excision of the sac and partial closure of the hiatus.

- In high risk patients anterior gastropexy via PEG prevents organoaxial volvulus.
- Approaches: transthoracic, transabdominal, laparoscopic.
- 40% re-herniation with laparoscopic approach. Usually small and asymptomatic.
- Partial fundoplication: posterior fixation of the stomach, improves acid reflux, avoid distal esophagus motility problems when pre-op motility studies are not available.
- Anterior gastropexy: no additional risk, provides anterior wall fixation.

- In large hernias a relaxing incision in the diaphragm to decrease tension in hiatus. The incision should be closed with PTFE patch.
- Hiatal patch repair, low tension but mesh and esophagus are in direct contact increasing the chance of erosion and infection.
- Laparoscopic mesh cruroplasty only 3.7% recurrence. (Champion et al.,Surgical Endoscopy, 2003, 17: 551-553).
- Important in paraesophageal hernia repair is the assessment of esophageal length. High incidence of recurrent herniation if intra-abdominal esophagus <2.5cm after dissection and mobilization of the GE junction

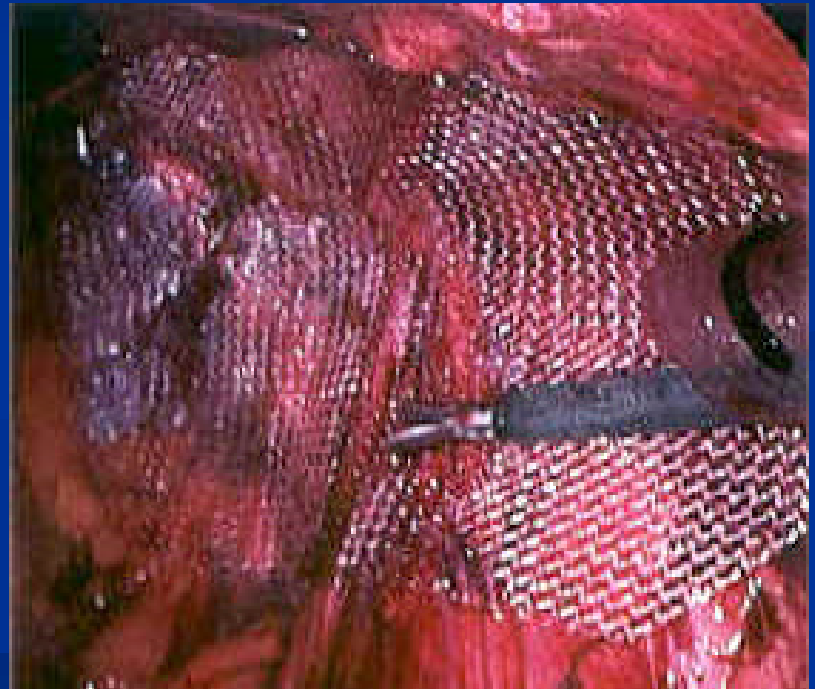
- Collis gastroplasty is advised if shortening of the esophagus is noticed.

Laparoscopic repair



Laparoscopic incisions

adam.com

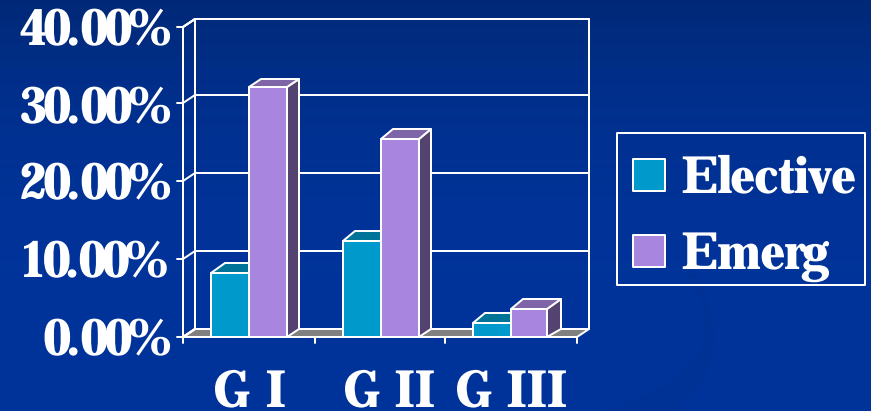
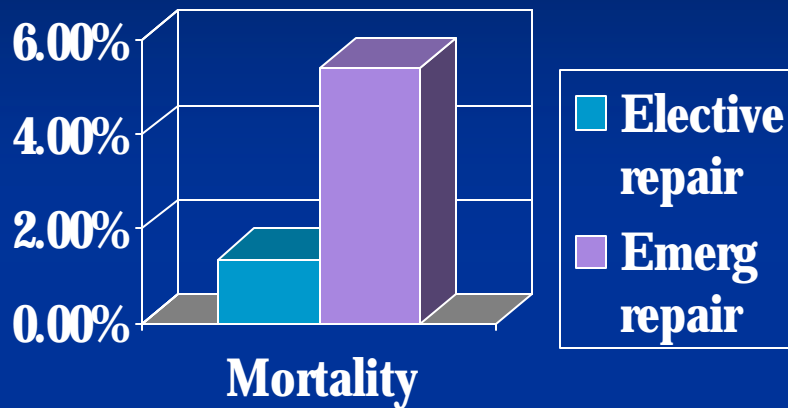


Elective surgery vs watchful waiting

(Stylopoulos et al, Ann Surg 236: 492-501, 2002)

- Asymptomatic patients have 85% annual probability of remaining asymptomatic.
- 15% will develop new symptoms requiring elective repair.
- 1% of patients with new symptoms will require emergent surgery.
- Emergency operation 5.4% mortality according to Nationwide Inpatient Sample.
- Elective laparoscopic hernia repair 1.38% mortality rate.

Elective vs emergency repair



Grade I: non-life-threatening alterations from the ideal post op course, never hospital stay greater than twice the median. No residual disability.

Grade II: potentially life-threatening complications or complications that result in hospital stay greater than twice the median. No residual disability or organ resection.

Grade III: complications with residual disability including organ resection or persistent life-threatening condition. Surgery related symptoms.

(Clavien et al. Surgery 111: 518-526, 1992).

Conclusions

- Surgery is not routinely indicated in asymptomatic patients unless development of progressive symptoms or severe acute symptoms.
- Patients with bleeding or obstruction symptoms related to paraesophageal hernias should undergo surgical repair.
- Watchful waiting is advised for asymptomatic as well as minimally symptomatic patients who are elderly or have significant comorbid conditions.
- Laparoscopic repair is an appropriate method.

- Tension free repair is advisable to prevent recurrences.
- Anterior gastropexy and partial fundoplication are indicated for fixation of the anterior and posterior gastric wall and to prevent volvulus.