



## Gastroesophageal Surgery Case

### A 68-Year-Old Woman with Paraesophageal Hernia

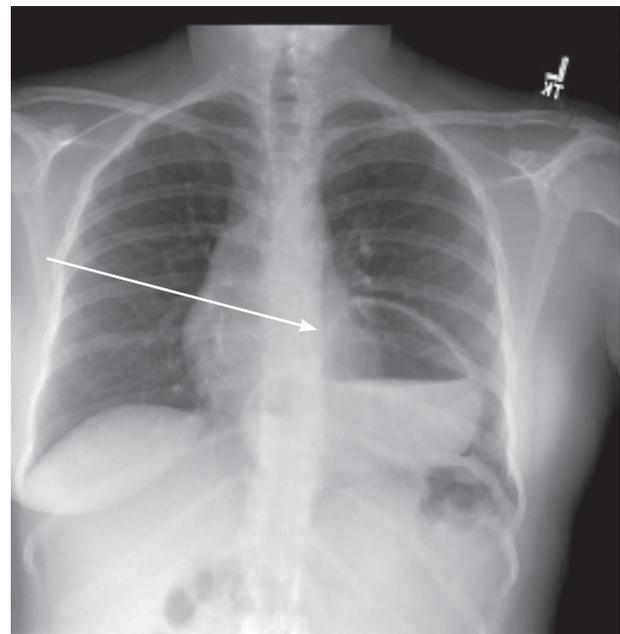
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#### PRESENTATION OF CASE

A 68-year-old woman began experiencing chest discomfort after dinner. Initially, she dismissed this as indigestion and found that belching would partially relieve her pain. One evening after a large meal, her pain was severe enough to prevent her from going to sleep. At her husband's urging, she reluctantly went to the emergency room. After initial tests excluded a heart attack, an X-ray was taken that showed a large hiatal hernia (Figure 1). With medication, the patient's pain improved and she was allowed to go home. She was advised to see a surgeon, but fearful about undergoing major surgery, she attempted to control her symptoms by eating smaller meals. She began losing weight unintentionally and after meeting with her primary care physician, agreed to a surgical consultation. The patient's Massachusetts General Hospital surgeon suggested several tests to exclude other causes of the patient's symptoms, determined that she had a paraesophageal hernia and recommended minimally invasive repair of her hiatal hernia. She underwent a successful laparoscopic paraesophageal hernia repair, was discharged from the hospital one day after surgery and resumed normal activities several weeks following surgery.

Hiatal hernias are classified as "sliding hernias" (or axial hernias) and paraesophageal hernias. Aging, tobacco abuse, kyphosis and obesity are all associated with hiatal hernia formation<sup>1</sup>. Sliding



**FIGURE 1.** Chest X-ray showing hiatal hernia

hiatal hernias are very common, and most don't require surgery. A paraesophageal hernia is differentiated from a sliding, or axial, hiatal hernia by the location of the gastroesophageal (GE) junction. In a pure paraesophageal hernia (i.e., type II hernia), the gastroesophageal junction is in a completely normal position and the stomach herniates from the abdomen into the chest through the esophageal hiatus adjacent to the GE junction. This is exceedingly rare, accounting for only 2-5% of hiatal hernias. More common are mixed hiatal hernias that have features of both axial and sliding hernias. Most articles discussing



paraesophageal hernias use a broader definition and include heterogeneous groups of patients with different types of hernias—commonly types II, III and IV. By this criteria, paraesophageal hernias account for 15% of all hiatal hernias. The actual incidence of such paraesophageal hernias in the general population is unknown, since most are asymptomatic. However, as the population ages and imaging studies are obtained more frequently, the clinically apparent incidence of paraesophageal hernias will undoubtedly increase. Two studies that used the nationwide inpatient sample (NIS)—a large administrative dataset—confirm this trend, at least among surgically treated patients<sup>2,3</sup>. When these hernias become quite large, the stomach can twist (called a gastric volvulus) and cause intermittent episodes of obstruction.

Surgery to repair paraesophageal hernias is much more complex than elective surgery to correct gastroesophageal reflux. Most series report mortality rates of 1.7-2.5% following elective repair of paraesophageal hernias<sup>3-7</sup>. This is due in part to the fact that patients with paraesophageal hernias are often elderly and have other significant associated medical conditions. Given the relatively high mortality rate, it is important that surgery be performed only when indicated and not simply because a paraesophageal hernia was detected incidentally on a diagnostic study. The classic indications for surgery are obstruction, postprandial pain or early satiety, and bleeding. In some patients, the volume of the stomach when full of food or fluid can create respiratory symptoms such as shortness of breath. Patients with these symptoms should undergo an elective operation. If patients are asymptomatic, the decision to operate is perhaps less clear. A recent study of octogenarians found a very high mortality rate following emergency repair, leading the

authors to conclude that elective repair of all paraesophageal hernias in patients over 80 without major co-morbidities was indicated. Other studies in which the mortality rate of emergency surgery is lower have come to the opposite conclusion. Because laparoscopic surgery is associated with less pain, less pulmonary compromise and a shorter ileus than laparotomy or thoracotomy, it is the preferred approach. Over the past decade, the full armamentarium of techniques for esophageal lengthening and cruroplasty have been adapted to laparoscopic methods. Hence if good exposure is attained and the surgeon skilled, most cases are best managed by a laparoscopic approach.

Surgical correction of paraesophageal hernias, whether preformed laparoscopically or with open surgery, must include the following elements:

1. A careful, anatomic dissection of the hernia sac from the mediastinum and entire circumference of the esophageal hiatus and crura so that the stomach and hernia sac can be reduced without tension
2. Adequate intra-abdominal esophageal length so that the GE junction lies tension free in the abdomen after crural closure
3. A closure of the crura that will be durable—this usually requires pledgeted sutures or mesh
4. A gastropexy

The results both short- and long-term of laparoscopic paraesophageal hernia repair are highly dependent on surgical technique and patient selection. Some have advocated for routine addition of a Collis gastroplasty and reported excellent results<sup>8,9</sup>. Others do not subscribe to this school of thought because of complications such



as strictures and motility disorders associated with the neo-esophagus created by the Collis gastroplasty. Furthermore, if the dilated crural opening is closed in a caudal to cephalad direction, one effectively displaces the hiatus cephalad by at least 3–4 cm so that when closure is complete, there is more intra-abdominal esophagus than initially thought to be present.

Some centers, particularly when reporting their initial experience, have noted high recurrence rates following laparoscopic paraesophageal hernia repair<sup>10,11</sup>. Others have reported better results<sup>12</sup>. Part of the discrepancy between these reports is attributable to definitions of recurrence. Many feel that the presence of a small axial hiatal hernia on a barium swallow is clinically insignificant and that only recurrence of large paraesophageal hernias (such as were present

prior to surgery) should be considered failures (Figure 2).

If one uses this standard, the recurrence rate using surgical modern methods is indeed low. There is great debate in the surgical community about the risks and benefits of strengthening hiatal hernia repairs with mesh. Since many surgeons are concerned about erosion of PTFE or polypropylene mesh in the esophagus, the use of bio-absorbable mesh has gained popularity. Perhaps the best available evidence on this subject comes from a recent prospective multicenter randomized controlled trial. Initially this trial showed mesh reinforced cruroplasty significantly lowered the radiological and clinical recurrence rate at one year following surgery<sup>13</sup>. However, when the patients were followed for five years, there was no difference in recurrence rate or symptoms between patients who were repaired with or without mesh<sup>14</sup>. Interestingly, the radiologic finding of a recurrent hernia did not correlate with recurrence of symptoms. Most patients undergoing repair of their paraesophageal hernias had relief of their presenting complaints even if their X-ray studies showed a small recurrent hernia.

In summary, repair of paraesophageal hernias should be performed only on symptomatic patients by high volume providers with excellent laparoscopic skills. Most patients obtain relief of their symptoms and have a good outcome. The persistently high radiographic recurrence rate continues to fuel the debate about the need for mesh reinforcement of hiatal hernia repairs.

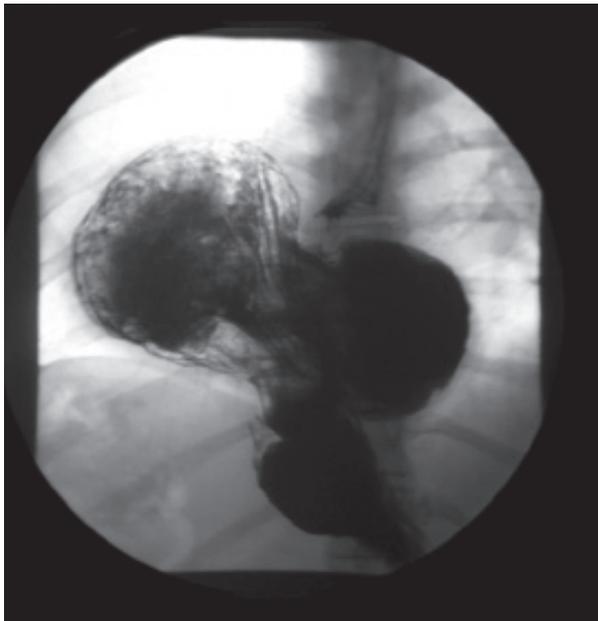


FIGURE 2. Barium swallow showing gastric volvulus



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