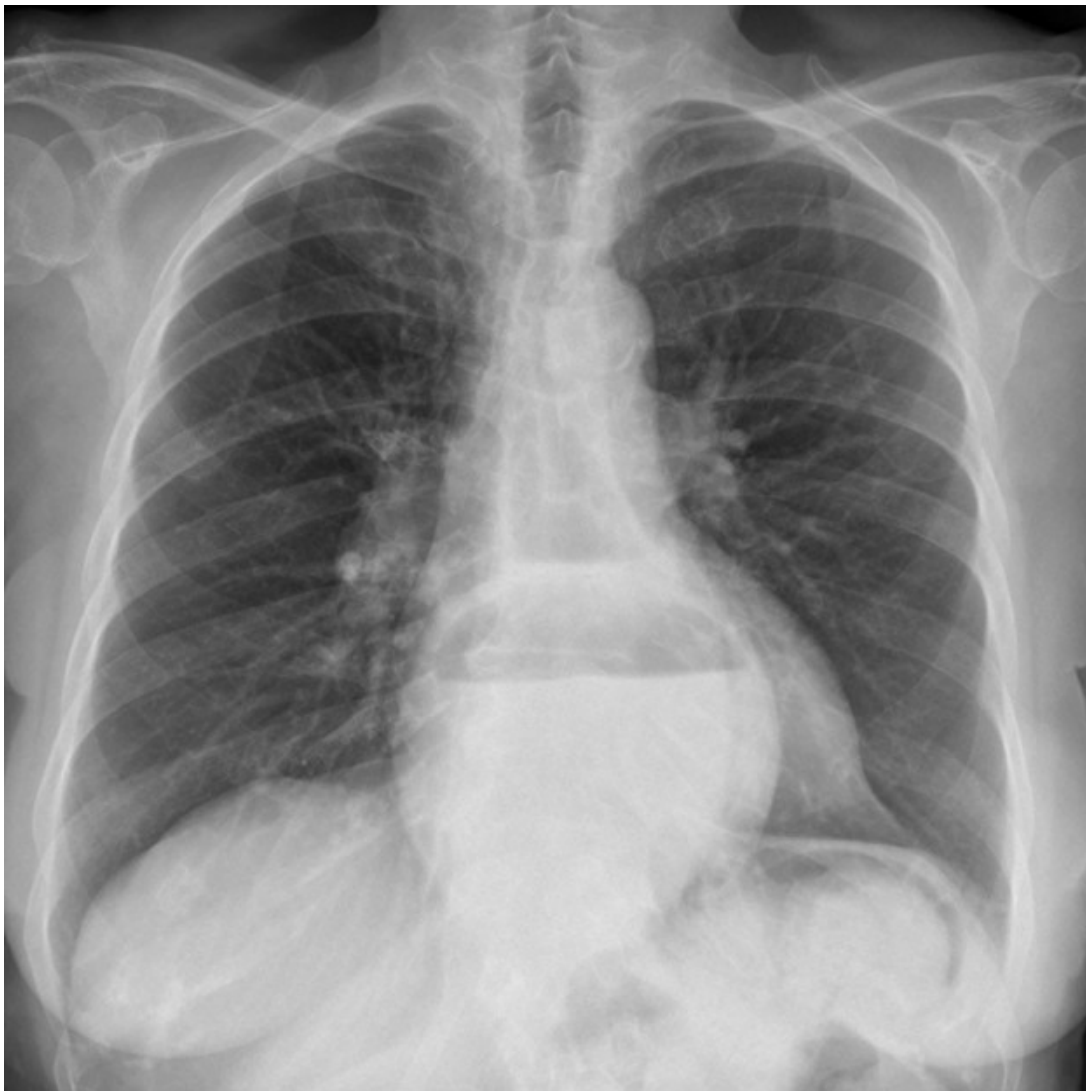


Hiatal Hernia (Stomach Hernia)—Diagnosis and Treatment

[See online here](#)

Can you distinguish between axial and paraesophageal hiatal hernia? What are the clinical manifestations and indications for surgery? The article provides an overview of test content related to hiatal hernia .

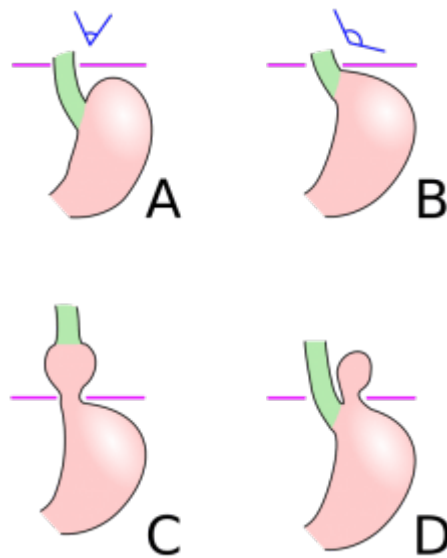


Definition of Hiatal Hernia

Hiatal hernia is also known as hiatus hernia.

Hiatal hernia occurs when a portion of the stomach protrudes through the **hiatus of the diaphragm** into the thoracic cavity.

Classification of hiatal hernia



[Image](#): Schematic diagram of different types of hiatus hernia. A: Normal anatomy, B: Pre-stage, C: Sliding hiatus hernia, D: Paraesophageal hiatus hernia. By Mysid, [License](#): CC0 1.0

Axial hernia (figure C) accounts for nearly 90% of all cases. Its incidence increases significantly with age, with almost half the population aged above 50 years manifesting axial (sliding) hernia. The **cardiac** and **gastric fundi** relocate into the thoracic cavity. The esophageal sphincter plays a limited role.

In the so-called **paraesophageal hernia** (figure D), a part of the **stomach** (mostly the **gastric fundus**) along with the peritoneal sac protrudes through the inguinal ring next to the **esophagus** ('paraesophageal'). The angular location of the cardia and the role of esophageal sphincter are physiologically relevant. In severe cases, complete relocation of the stomach into the thoracic cavity occurs, resulting in the so-called **upside-down stomach**.

Mixed hernia, which is a combination of axial (sliding) hernia and paraesophageal hernia, is detected in only 5% of all cases. In almost 40% of patients, the hiatal hernia may be accompanied by **cholelithiasis**. The occurrence of **diverticular disease** in patients with **cholelithiasis** and **hiatal hernia** completes the so-called **Saint's triad**.

Pathophysiology of Hiatal Hernia

Origin of hiatal hernia

Esophageal hiatus is an opening located at the level of the 10th to 11th thoracic vertebrae. **The esophagus**, the left and right vagus nerves, and portions of the phrenic nerve extend from the cranial to the caudal direction into the peritoneal cavity.

The gastroesophageal junction is located within the diaphragmatic hiatus. Two facets of muscle strands located centrally on the diaphragm surround the esophagus to form a unit with the esophageal sphincter. Increased intra-abdominal pressure leads to **reflux barrier** formation physiologically.

The esophageal and gastric fundi should be at an acute angle to each other (about 50°, the so-called '**angle of His**') for optimal barrier function. Expansion of the diaphragmatic hiatus might lead to an intrathoracic shift of the stomach, and the angle of His may increase to accommodate the change. Additionally, the cranial dislocation of gastric elements perturbs the interaction between the esophageal sphincter and the hiatus, resulting in **gastroesophageal reflux**.

Symptoms of Hiatal Hernia

Complaints based on the type of hernia

Sliding hernias are often detected incidentally and are of no clinical significance. Due to the limited functionality of the esophageal sphincter, up to 20% of patients present with reflux complaints such as heartburn, bloating, or the feeling of pressure and **retrosternal pain**, especially when lying down. Acid reflux can lead to **esophagitis**, which may be associated with chronic bleeding, resulting in iron deficiency anemia. A **bolus obstruction** may develop due to the narrowing of the upper edge of the hernia into the so-called **Schatzki ring** ('Steakhouse syndrome').

Paraesophageal hernias may be symptomatic or associated with non-specific symptoms such as regurgitation, **dysphagia**, and cardiac pressure. Due to the intact esophageal sphincter, patients with paraesophageal hernias do not typically manifest reflux symptoms. However, the paraesophageal hernias are associated with the risk of **incarceration**, passage disorders, ulcers, and bleeding (iron deficiency anemia!), warranting surgical intervention in the asymptomatic stage.

Diagnosis of Hiatal Hernia

Endoscopy

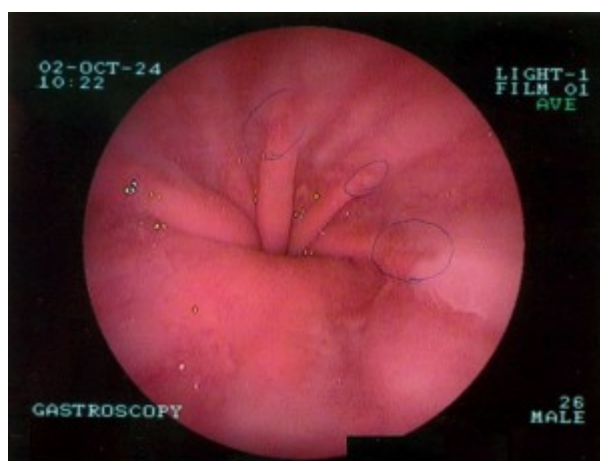


Image: Hiatus hernia. By Adamantios, License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

The so-called '**Z-line**' is assessed via endoscopy. The **Z-line** occurs at the gastroesophageal junction, where the **squamous epithelium** of the esophagus passes into the **columnar epithelium** of the stomach. Physiologically, the Z-line is therefore located in the esophageal hiatus, exactly where the esophagus passes through the diaphragm.

The sliding hernia involves a cranial shift of the Z-line above the diaphragm as a result of intrathoracic relocation of the cardia. If the diaphragmatic esophageal passage is less than 3 cm distal to the Z-line, it is known as a **small hernia**. In contrast, a **large hernia** is characterized by a passage that is larger than 3 cm from the esophageal hiatus to the Z-line. Since the gastroesophageal junction is reduced in the paraesophageal hernia, a definitive diagnosis based on the Z-line alone cannot be established endoscopically.

Chest X-ray



Image: Hiatus hernia in lateral radiograph of the thorax. Arrow points at the air-liquid-mirror. By Hellerhoff, License: [CC BY-SA 3.0](#)

A [chest X-ray](#) can reveal a possible **mirror image** of the herniated stomach, which is then projected into the thorax and substantiated, based on distinct findings.

Barium swallow X-ray

The patient is placed in a head-down position and asked to exert the abdominal prelum to induce herniation and display optimal constrictions and bottlenecks as well as intrathoracic shift of the cardia.

Therapy for Hiatal Hernia

Symptomatic or surgical treatment

Axial hernias are treated symptomatically with **proton pump inhibitors** in the presence of existing reflux disease. Surgical treatment is indicated only in cases of therapeutic resistance.

Paraesophageal hernias and mixed hernias, however, are always considered a surgical indication, due to the risk of incarceration. The treatment, known as **gastropexy**, entails repositioning of the stomach, which is fixed to the anterior abdominal wall. Most cases involve **fundoplication**, in which a fundic wrap sewn around the cardia serves as a novel, mechanical reflux barrier. As part of **hiatoplasty**, the diaphragmatic strands are fixed posterior to the esophagus via sutures to narrow the hernia.

References

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