

# Esophageal disease

## Esophageal reflux disease

**Esophageal reflux disease** is a disease caused by pathological gastroesophageal reflux. Its most common complication is damage to the lining of the esophagus ( **reflux esophagitis** ).

Gastroesophageal reflux (GER) is the backflow of stomach contents into the esophagus. Episodes of short-term GER occur commonly. It becomes pathological if it causes difficulties and/or inflammatory changes in the mucosa of the esophagus.<sup>[1]</sup>

### Clinical picture

#### *Esophageal symptomatology*

- pyrosis ("burning heartburn"; burning behind the sternum moving from the epigastrium to the sternum manubrium , most often after eating, in a horizontal position or in a forward bend)
- regurgitation (flow of stomach contents into the esophagus and mouth);
- dysphagia (difficulty swallowing );
- odynophagia (pain when swallowing behind the sternum) – signs of severe involvement of the esophagus;
- paroxysmal salivation;
- globus (feeling of a foreign body in the throat);
- chest pain.

#### *Extraesophageal symptomatology*

- dry throat, ear pain, bad breath;
- hoarseness, laryngitis , repeated lung infections;
- irritation of the vagus (bradycardia, bronchoconstriction). <sup>[2]</sup>

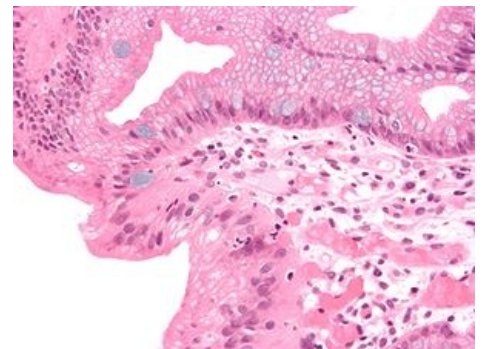
### Diagnostics

The gold standard is an **endoscopic examination (esophagoscopy)** with a biopsy , during which macroscopic and microscopic changes are evaluated. Other examinations include:

- **24-hour esophageal pHmetry**, or **esophageal pHmetry** , which is reliable in determining acid or alkaline reflux and its temporal relationship with symptoms;
- **esophageal manometry** provides information on pressure conditions in the lower esophageal sphincter, does not diagnose GER, but is suitable for excluding achalasia ;
- **X- ray passage** through the esophagus (esophagogram) is useful to rule out anatomical abnormalities of the esophagus (esophageal stenosis/stricture, hiatal hernia, achalasia), but is neither sensitive nor specific for the diagnosis of GER;
- **scintigraphy** with food labeled with <sup>99m</sup>Tc;
- perfusion test;
  - diagnostic therapeutic test (14 days of administration of omeprazole , disappearance of symptoms confirms the diagnosis).



Barrett's esophagus - endoscopic image



Barrett's esophagus - microscopic picture

### Complications

Complications include esophageal stenosis, Barrett's esophagus (and subsequently adenocarcinoma), esophageal ulcer.<sup>[1]</sup>

### Treatment

1. **regimen measures** – reduction of body weight, limitation of intra-abdominal pressure increase, smoking ban, dietary restrictions (non-irritating diet excluding alcohol, fatty foods, sweet yeast bread, chocolate, coffee, peppermint; smaller portions; do not eat before going to bed);
2. **pharmacotherapy** – H<sub>2</sub>-blockers ( *ranitidine* ), proton pump inhibitors ( *omeprazole* ), prokinetics ( *metoclopramide*, *domperidone*, *itopride* ), antacids ;
3. **surgical treatment** – fundoplication according to Nissen <sup>[1]</sup>.

## Corrosive esophagitis

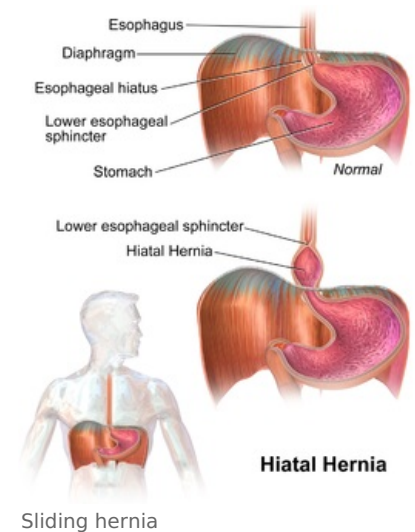
It is caused by **cauterization of the esophagus with acids / lye** (mistake, suicide ) or it can be caused by drugs (alendronate, used in the therapy of osteoporosis , causes a localized cauterization when the tablet is stuck). **The cauterization** is either **superficial** (diluted solution) or **deeper** (necrotic ulcers with risk of perforation that heal with a scar with strictures). Neutralization (milk, etc.), in severe cases opiates , anti-shock therapy, ATB and endoscopic dilatation of the stenosis have a therapeutic effect <sup>[1]</sup>.

## Hiatal hernias

This is the transfer of the cardia and/or part of the stomach from the peritoneal cavity to the mediastinum through the esophageal hiatus. The gastroesophageal junction, the gastric fundus or the fundus with the gastroesophageal junction enters the mediastinum. An extreme case is the dislocation of the entire stomach into the mediastinum (the so-called *upside-down stomach* , when the cardia and pylorus remain in the abdominal cavity). The stomach (and other intra-abdominal organs) can be displaced into the mediastinum or pleural cavity even during severe injuries – these are false hernias (protrusions), the goal of which is a traumatic rupture of the diaphragm.

### Types of hernias

1. **sliding hernia (par glissement)** – the most common, common in old people. This is a false hernia, the hernia sac is missing. The gastroesophageal junction enters the mediastinum, the main complication is gastroesophageal reflux;
2. **paraesophageal hernia** – rare, the mixed form is more common. The gastric fundus passes into the mediastinum, the junction remains in the peritoneal cavity. Complications are chronic bleeding with the development of anemia up to strangulation with wall necrosis and perforation, obstruction with a passageway disorder and oppression of intrathoracic structures (heart, lungs). A pure paraesophageal hernia is often present in the congenital defect of the *hiatus communis* – the common passage of the esophagus and the aorta through the diaphragm;
3. **mixed hernia** – the gastric fundus enters the mediastinum with the gastroesophageal junction while the angle of His is preserved .



### Clinical signs and diagnosis

Difficulty in swallowing , pressure behind the sternum, pain in the epigastrium (in strangulation), vomiting (in disorders of passage), heartburn in sliding or mixed hernia, chronic anemia in bleeding.

### Diagnostics

We use x-rays (swallowing of a contrast material - will determine the type of hernia) and endoscopy (esophagitis - gastroesophageal reflux, otherwise indicated by pH-metry) for confirmation.

### Treatment

Conservative treatment consists in the administration of H<sub>2</sub>-blockers for gastroesophageal reflux. Surgical treatment includes repositioning of the stomach, resection or retention of the hernial sac, closure of the hernia gate (hiatorrhaphy), possibly. fixation of the fundus to the diaphragm ( fundopexy – can also be used to close the defect) and the anterior stomach wall to the abdominal wall ( gastropexy ), for gastroesophageal reflux, fundoplication according to Nissen-Rossetti is indicated <sup>[2]</sup>.

## Achalasia

It is a motility disorder of the lower esophageal sphincter, which does not relax during food intake and the esophagus has non-peristaltic contractions. <sup>[3]</sup> The basis of achalasia is a neuromuscular disorder (at the level of the vagus nerve or in the esophageal musculature), associated with the loss of cells in the myenteric plexus and muscle hypertrophy . Increasing intraluminal pressure can lead to the formation of pulsatile diverticula above the sphincters.

### Clinical picture and diagnosis

- dysphagia
- chest pain
- regurgitation
- aspiration

### Diagnostics

X-ray passage of contrast material and esophageal manometry are used for diagnosis. According to the X-ray findings, 4 stages are distinguished:

1. motility disorders without dilatation of the esophagus, increased resting tone of the lower sphincter;
2. gradual dilatation of the esophagus, loss of peristalsis;
3. the esophagus sags like an ace, it becomes an atonic bag resting on the P diaphragm;
4. dolichomegaesophagus.

1.

## Treatment

1. **conservative** - the administration of calcium channel blockers will alleviate the difficulties
2. **endoscopic** - injection of botulinum toxin into the lower esophageal sphincter, balloon dilation (method of choice)
3. **surgical** - Heller 's myotomy of the lower esophageal sphincter, in case of failure of the myotomy, resection and replacement of the esophagus [2]

## Diverticula

A diverticulum is a protrusion of a hollow organ, it can be:

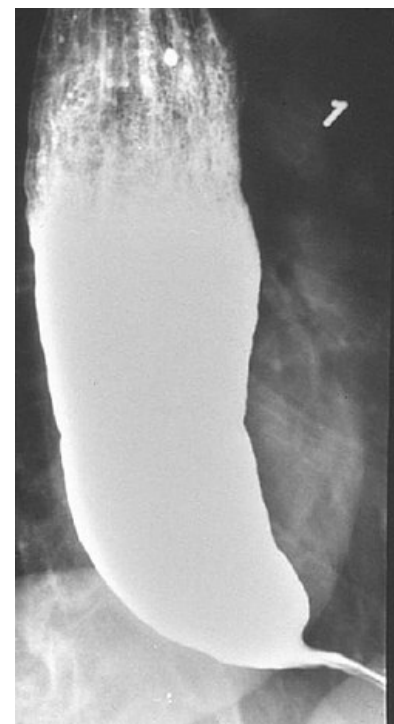
- right (formed by all layers of the wall);
- false (mucosa and submucosa protruding through the muscle);
- tractional (arising from external pull);
- pulsatile (arising from an increase in intraluminal pressure).

Examples of diverticula include:

1. **Zenker's diverticulum** - pulsating right diverticulum protruding between the pars thyropharyngea and cricopharyngea musculus constrictor pharyngis inferior , arises in upper esophageal achalasia, clinically upper dysphagia with regurgitation, foetor ex ore, arching of the neck when swallowing, possibility of aspiration of contents with the development of bronchopneumonia ;
2. **parabronchial diverticulum** - tractional right diverticulum in the area of the bifurcation of the trachea - is caused by a pull behind the wall of the esophagus by a scarred inflammatory process of the mediastinal nodes, it usually does not manifest itself clinically, only when it is large it can cause problems due to pressure on the surrounding area;
3. **epiphrenic diverticulum** - pulsatile diverticulum arising in achalasia (hypertonus of the lower esophageal sphincter), clinically dysphagia.

## Diagnostics

X-ray passage of contrast material through the esophagus and manometry (assessment of achalasia) are mainly used in diagnosis. Endoscopy has only a supplementary meaning.



Skiagram of Achalasia

## Treatment

If the diverticulum causes problems, surgical treatment is the next step. Larger diverticula are resected and wall sutured, smaller ones can be left or sunk. It is important to treat the cause - in achalasia (esophageal manometry is necessary - a myotomy is performed in Zenker's diverticulum with hypertonicity of the upper sphincter and in epiphrenic diverticula with hypertonicity of the lower esophageal sphincter). After surgery, ATB should be administered (possibility of mediastinitis due to putrefactive processes occurring in the stagnant content of the diverticula). Recurrent laryngeal nerve paresis may occur with Zenker's diverticulum surgery. [2]

## Links

### Related Articles

- Gastroesophageal reflux (pediatrics)
- Antacid

### Reference

1. KLENER, Pavel. *Internal Medicine*. 3. edition. Galén, 2006. pp. 558. ISBN 80-7262-430-X.
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