Diverticula can be found in various organs, particularly the colon but also the duodenum, ileum, and esophagus. Every medical student should know the differences between true diverticula and false/pseudo-diverticula.

**Definition and Pathogenesis of Diverticula**

**True and false diverticula**

Diverticula are wall protrusions in hollow organs. A distinction must be made between ‘true’ and ‘false’ diverticula. Medical students should learn the definitions and differences, as they usually appear on medical student exams, particularly Zenker’s diverticulum.

**True diverticula**

In the case of a true diverticulum, all wall layers are affected, even the muscularis. The **protrusion** often occurs due to tension from outside, such as scarring or inflammatory changes (with **tuberculosis** or **lymphadenitis**, for example).

**False diverticula**

In the case of a false diverticulum (or pseudo-diverticulum), only the **mucosa** and **submucosa** evert to the outside through a weak spot in the muscle layer. The reason for this is increased **intraluminal pressure**.

With respect to the esophagus, diverticula can be classified on the basis of location, as well as whether they are true or false.

**Traction diverticula**

Traction diverticula are true diverticula and are usually found on the level of the **tracheal bifurcation**. They also are referred to as **bifurcation diverticula** or **parabronchial diverticula**.

**Pulsion diverticula**

Pulsion diverticula are false diverticula. Predilection sites include the following points of the esophagus that have weak muscle:

- **Laimer triangle** (longitudinal muscle-free zone on the **upper esophagus**)
- **Killian triangle** (muscle-weak area between the **pars obliqua** and the **pars fundiformis** of the **cricopharyngeal muscle** of the **dorsal hypopharynx**).
This is really a diverticulum of the hypopharynx, although it is usually dealt within the context of the esophagus. Diverticula in the area of the Killian triangle are also known as Zenker's diverticula.

- **Above the diaphragm:** called an epiphrenic diverticulum

**Epidemiology of Zenker’s Diverticulum**

*Zenker's diverticulum* is the most common type. It represents 70% of all cases of diverticula, followed by traction diverticula (20%) and epiphrenic diverticula (10%). Zenker’s diverticulum affects mostly older men.

**Symptoms of Esophageal Diverticula**

**Dysphagia and regurgitation**

Large diverticula are accompanied by symptoms. Patients complain of dysphagia, retrosternal pain, feelings of pressure, and nightly regurgitation of undigested food residue. The latter is associated with risks of aspiration and pneumonia. The deposition of food residue in the bulges may lead to halitosis. Some patients describe a ‘gurgling’ sound when they drink.

Diverticula rarely become inflamed, bleed, perforate, or form fistulas.

![Image: Barium esophagram revealing traction esophageal diverticulum with communication into the right upper lobe segmental bronchi. By Openi, License: CC BY 2.0](image_url)

**Note:** Small diverticula, especially epiphrenic and parabronchial diverticula, often remain asymptomatic and are found incidentally (e.g., during X-rays).

**Diagnosis of Esophageal Diverticula**
Esophageal bolus swallow test is the method of choice

The diagnostic method of choice is an esophageal bolus swallow test. X-ray images often clearly show the accumulation of contrast agents in protuberances, allowing precise differentiation of diverticula according to their location. Traction diverticula usually feature ‘ear-like’ outgrowths, whereas pulsion diverticula are mainly sack-shaped.

Due to the possible presence of a perforation, it is recommended that healthcare professionals use a water-soluble contrast medium, as barium poses the risk of mediastinitis or peritonitis upon exit from the esophagus.

Endoscopy

In order to exclude other possible causes of symptoms, endoscopy should be performed as well. However, care must be taken because the mucous membranes near diverticula are particularly prone to perforation.
Differential Diagnoses

In terms of differential diagnoses, healthcare practitioners should consider esophageal carcinoma.

Therapy of Zenker’s Diverticulum

Surgical measures for Zenker’s diverticula

Diverticula can be treated surgically. Surgery is usually indicated only for Zenker’s diverticula—rarely for larger and symptomatic epiphrenic diverticula.

**Note:** Traction diverticula and epiphrenic diverticula usually require no treatment. With Zenker’s diverticula, however, there is always a surgical indication. The operation can be performed endoscopically or openly. The diverticulum is resected, and myotomy of the cricopharyngeal muscle is performed to avoid recurrence. Mortality rates are very low, and the success rate is high (95%). Postoperative complications may include recurrent paresis, mediastinitis, neck abscess, or salivary fistula.

References


**Legal Note:** Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).