Squamo oxyntic gap (SOG)

Basics

The squamo oxyntic gap (SOG) is the morphological consequence of the reflux. It develops at the cost of the normal tissue of the esophagus. Normally the squamous lined mucosa covers the esophagus. The oxyntic mucosa lines the upper portion of the stomach. Reflux alters the innermost layer (mucosa) of the esophagus. A columnar type mucosa replaces the normal squamous mucosa. This is the columnar lined esophagus (CLE).

The CLE covers the squamo oxyntic gap (SOG) between the normal mucosa of the lower portion of the esophagus and the upper segment of the stomach. Over time the SOG increases in length. Initially the gap restricts to the innermost layer of the esophagus. At this stage the esophagus keeps its tubular shape. As reflux induced inflammation impairs the function of the musculature at the cost of the anti reflux mechanism (lower esophageal sphincter), the gap dilates: this is the dilated distal esophagus (DDE).

Above the dilated forms the tubular portion of the gap. This is the columnar lined esophagus, which can be assessed by the magnification of the endoscope: endoscopically visible columnar lined esophagus (CLEv). At the advanced stage the squamo oxyntic gap (SOG) includes the CLEv and the dilated distal esophagus.

The famous US American pathologist Para Chandrasoma (Los Angeles) coined the term to describe the reflux induced tissue changes of the esophagus.

Causes

The squamo oxyntic gap (SOG) results from the reflux. Causes of reflux include the dysfunction of the anti reflux mechanism (lower esophageal sphincter; LES), abnormal eating behavior (too much, often and sweet), carbonated beverages, juices, alcohol and cigarette smoking.

Symptoms

The symptoms of the squamo oxyntic gap (SOG) include heartburn, acid regurgitation, cough, asthma and difficulties at swallowing (dysphagia).

Diagnosis and tests

The diagnosis and tests for the assessment of the squamo oxyntic gap (SOG) include gastroscopy, esophageal manometry and esophageal reflux monitoring.

Treatment

The treatment of the squamo oxyntic gap (SOG) depends on the type of the innermost lining (mucosa). Barrett’s esophagus is removed by radiofrequency ablation (HALO®). Reflux symptoms (heartburn, cough, asthma) are treated by medical therapy or anti reflux surgery (ring operation, fundoplication). Early cancer of the esophagus is eradicated by endoscopic mucosal resection (EMR) and subsequent radiofrequency ablation (HALO®). Advanced adenocarcinoma of the esophagus requires a more complex treatment (chemo radiation, surgery).
Prevention

The squamo oxyntic gap (SOG) results from reflux and life style. Therefore almost every body harbors the gap to some extent. Prevention includes normal life style: avoid abnormal eating behavior (too much, often and sweet), carbonated beverages, juices, alcohol and cigarette smoking. Early elimination of Barrett’s esophagus (radiofrequency ablation) prevents the development of cancer. Thus we recommend screening gastroscopy for cancer prevention. Treatment of heartburn and reflux includes medical therapy or anti reflux surgery (ring operation, fundoplication). We are pleased to inform you on the diagnosis, tests and treatment options of the squamo oxyntic gap (SOG).

Self test

Heartburn, acid regurgitation, cough, asthma indicate that you may have the squamo oxyntic gap (SOG). If medical therapy (antacids, proton pump inhibitor) causes the relief of heartburn, you can be sure to have reflux and the SOG. We recommend gastroscopy, esophageal manometry and esophageal reflux monitoring.

Expert opinion

Martin Riegler (Surgeon, Vienna). The squamo oxyntic gap is the essence for the grading, diagnosis and the treatment of reflux. It fuses the findings of endoscopy and histopathology. It centers our attention to that segment the esophagus, which is to be treated.

Johannes Lenglinger (Physiologist, Vienna). The dimensions of the squamo oxyntic gap and the data obtained with esophageal manometry and esophageal reflux monitoring help us to tailor the surgical therapy. The magnetic ring operation should be offered to persons with a short gap. Those with a long gap will benefit from laparoscopic fundoplication.

Ildiko Mesteri (Pathologist, Vienna). The squamo oxyntic gap summarizes the extent of the disease. And it tells us: the patient has reflux. There is no other cause for the gap except the reflux. Here pathology helps the physician to diagnose reflux. However, without adequate endoscopic information and biopsy sampling we cannot establish the diagnosis. In our institute the clinician and the pathologist cooperate to achieve excellent results at diagnosis and treatment.

Literature

7. Connell K, Velanovich V. Effects of Nissen fundplication on endoscopic endoluminal