

# HEARTBURN

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**H**earthburn is a burning chest pain or discomfort that often occurs after eating. Although a typical symptom of GERD, heartburn can occur in a number of gastroenterological conditions (such as achalasia or eosinophilic oesophagitis) or it can be 'functional' with no organic cause.

## GERD SYMPTOMS

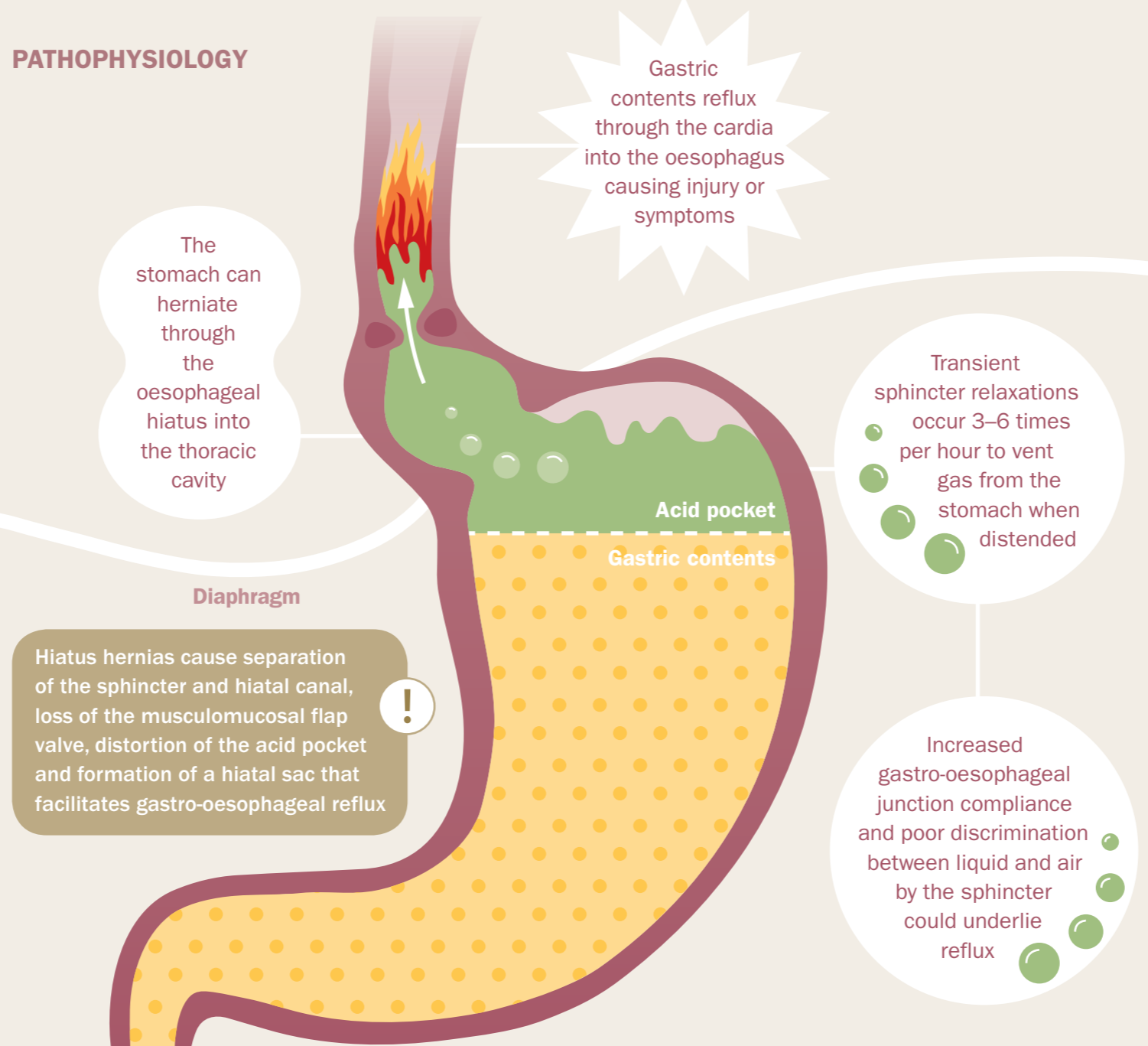
Heartburn (a burning sensation in the retrosternal area) and regurgitation (the sensation of flow of reflux contents into the mouth or pharynx) are the most reliable diagnostic symptoms for GERD. The sensitivity and specificity of these symptoms are limited (50–70%); some patients with GERD do not have heartburn, and a number of individuals with heartburn do not have GERD. Patients with GERD can also report chest pain, epigastric pain, epigastric burning, nausea and dysphagia, as well as extra-oesophageal symptoms, including cough, wheeze, hoarseness and sore throat.



## REFLUX OESOPHAGITIS

The finding of mucosal erosions or ulcers at endoscopy is highly specific for a diagnosis of GERD. These features are present in only 30–40% of patients with GERD; the remainder have nonerosive reflux disease. Severity of oesophagitis should be assessed using the 'Los Angeles' classification, which predicts treatment response. Other manifestations of reflux syndromes with oesophageal injury (such as stricture) should also be recorded. Oesophageal biopsy for heartburn is required only for Barrett oesophagus, complications or for suspected eosinophilic oesophagitis.

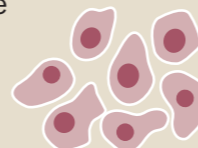
## PATHOPHYSIOLOGY



Hiatus hernias cause separation of the sphincter and hiatal canal, loss of the musculomucosal flap valve, distortion of the acid pocket and formation of a hiatal sac that facilitates gastro-oesophageal reflux

## BARRETT OESOPHAGUS & CANCER

Proximal displacement of the squamocolumnar junction, above the gastro-oesophageal junction, constitutes 'endoscopic suspicion of oesophageal metaplasia'. Biopsy samples should be taken from any region of mucosal irregularity and the remaining abnormal area to exclude dysplasia or neoplasia. The extent of Barrett epithelium is recorded using the Prague 'C&M' criteria.



## FUNCTIONAL HEARTBURN

The Rome III definition of functional heartburn specifies a burning retrosternal discomfort or pain in patients who have no evidence of GERD, oesophageal dysmotility or oesophageal injury. It is often associated with psychological factors and other functional disorders. Data on treatment are limited, but pain modulators and behavioural therapies might be useful.



## ACID SECRETION & SUPPRESSION

Acid hypersecretion is not a cause of GERD other than for Zollinger–Ellison syndrome. However, pharmacological suppression of gastric acid secretion is fundamental to GERD treatment, with effectiveness correlated with the duration and extent of gastric acid suppression. The acid pocket can be reduced by inhibition of acid secretion or by neutralization of acid by antacids; alginates form a barrier to reflux. PPIs that block  $H^+K^+ATPase$ —the proton pump—in gastric parietal cells are much more effective than histamine  $H_2$  receptor antagonists. After 8 weeks, PPIs have oesophagitis healing rates of 85–95% and symptom relief rates of 60–70%, compared with 50–60% and 30–40%, respectively, for  $H_2$  receptor antagonists. Prokinetic (promotility) agents have little benefit.



## REFERENCES

1. Vakil, N. *et al.* *Am. J. Gastroenterol.* **101**, 1900–1920 (2006)
2. Galmiche, J. P. *et al.* *Gastroenterology* **130**, 1459–1465 (2006)
3. Katz, P. O. *et al.* *Am. J. Gastroenterol.* **108**, 308–328 (2013)
4. Kahrilas, P. *et al.* *Am. J. Gastroenterol.* **108**, 1058–1064 (2013)
5. Fock, K. M. *et al.* *J. Gastroenterol. Hepatol.* **23**, 8–22 (2008)
6. Fitzgerald, R. C. *et al.* *Gut* **63**, 7–42 (2014)

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