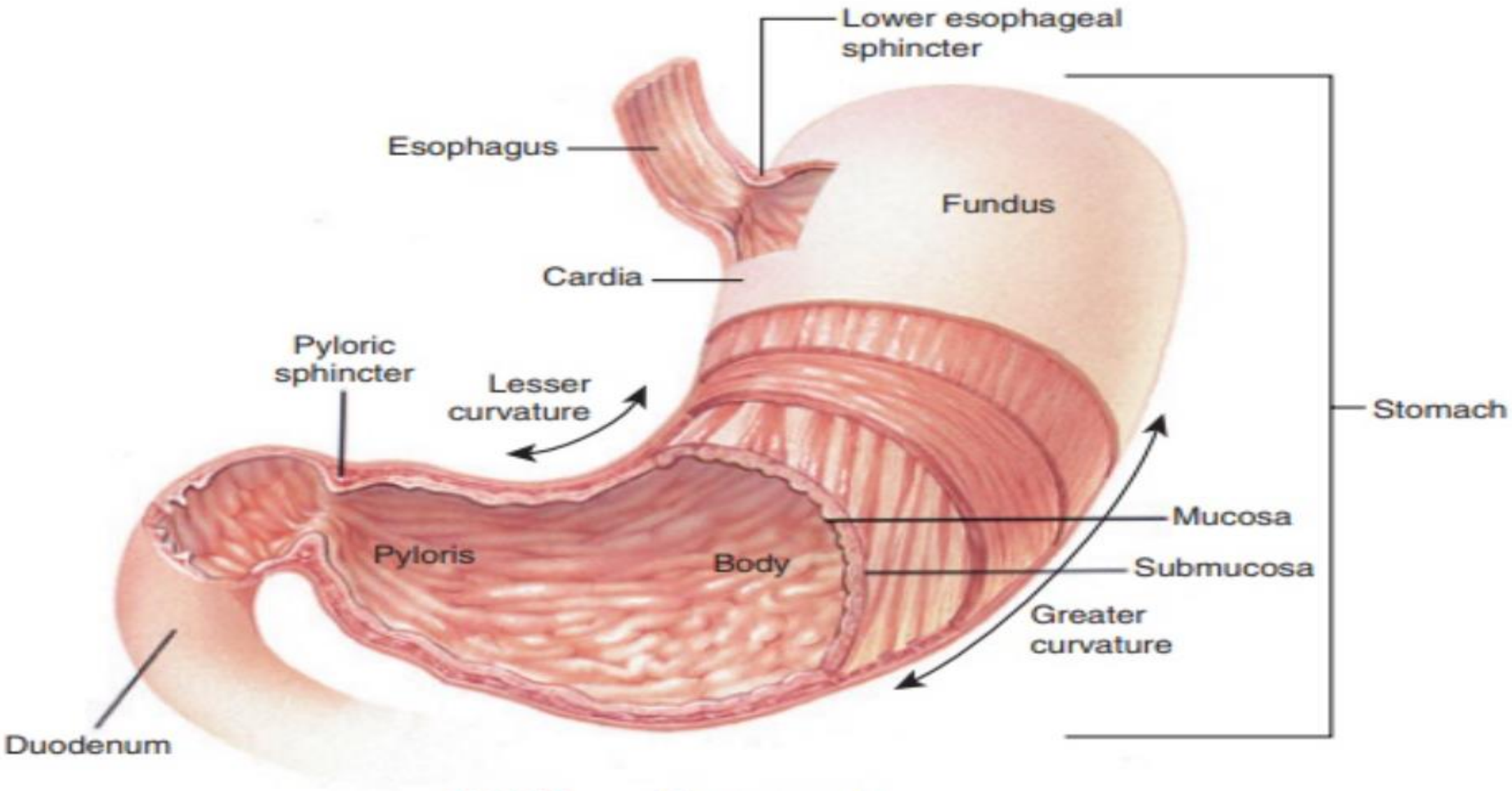
Peptic ulcers

- Peptic ulcers are most commonly located in the stomach or duodenum,
- but can also occur in the lower oesophagus, in the jejunum after surgical anastomosis to the stomach or, rarely, in the ileum adjacent to a Meckel's diverticulum.
- Ulcers in the stomach or duodenum may be acute or chronic;
- both penetrate the muscularis mucosae, but the acute ulcer shows no
- evidence of fibrosis.


Lower esophageal sphincter
Esophagus
Fundus
Cardia
Pyloric sphincter
Lesser curvature
Stomach
Mucosa
Pyloris
Body
Submucosa
Greater curvature
Duodenum

Gastric and duodenal ulcer

Epidemiology

The prevalence of peptic ulcer is around 5%–10%.

The incidence is decreasing in many high-income societies due to the widespread use of Helicobacter pylori eradication therapy.

The male-to-female ratio for duodenal ulcers varies from 5:1 to 2:1, while that for gastric ulcer is 2:1 or less.

- Chronic gastric ulcer is usually single; 90% are situated on the lesser curve within the antrum or at the junction between body and antral mucosa.
- Chronic duodenal ulcer usually occurs in the first part of the duodenum and 50% are on the anterior wall.
- Gastric and duodenal ulcers coexist in 10% of patients and more than one peptic ulcer is found in 10%–15% of patients.

Epidemiology

- Peptic ulceration is strongly associated with H. pylori infection.
- The prevalence of the infection in high-income societies rises with age.
- In low- and middle-income countries, infection is more common, affecting up to 90% of adults.
- These infections are probably acquired in childhood by person-to-person contact

- The vast majority of colonised people remain healthy and asymptomatic, and only a minority develop clinical disease.
- Around 90% of duodenal ulcer patients and 70% of gastric ulcer patients are infected with H. pylori

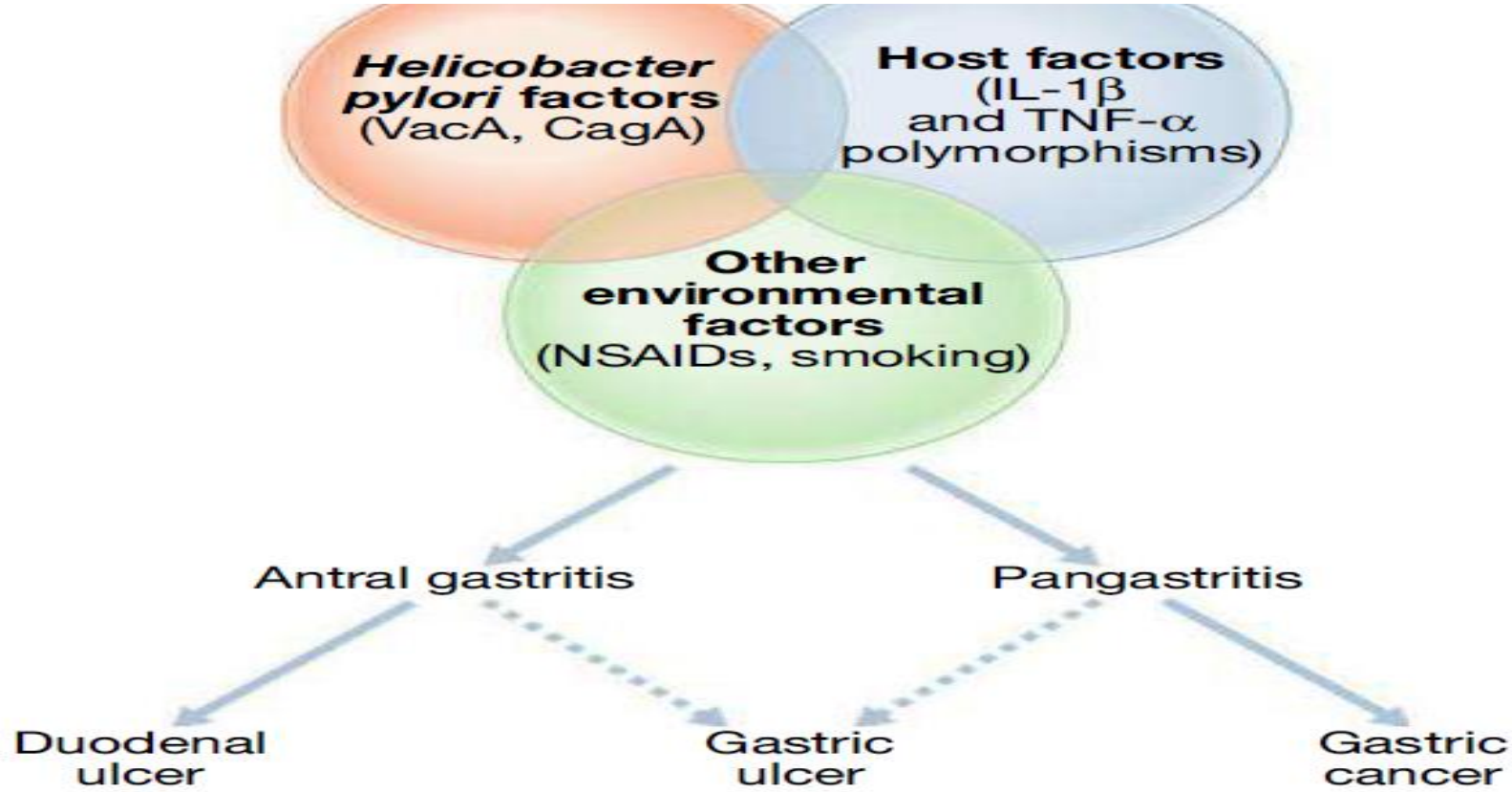
Pathophysiology

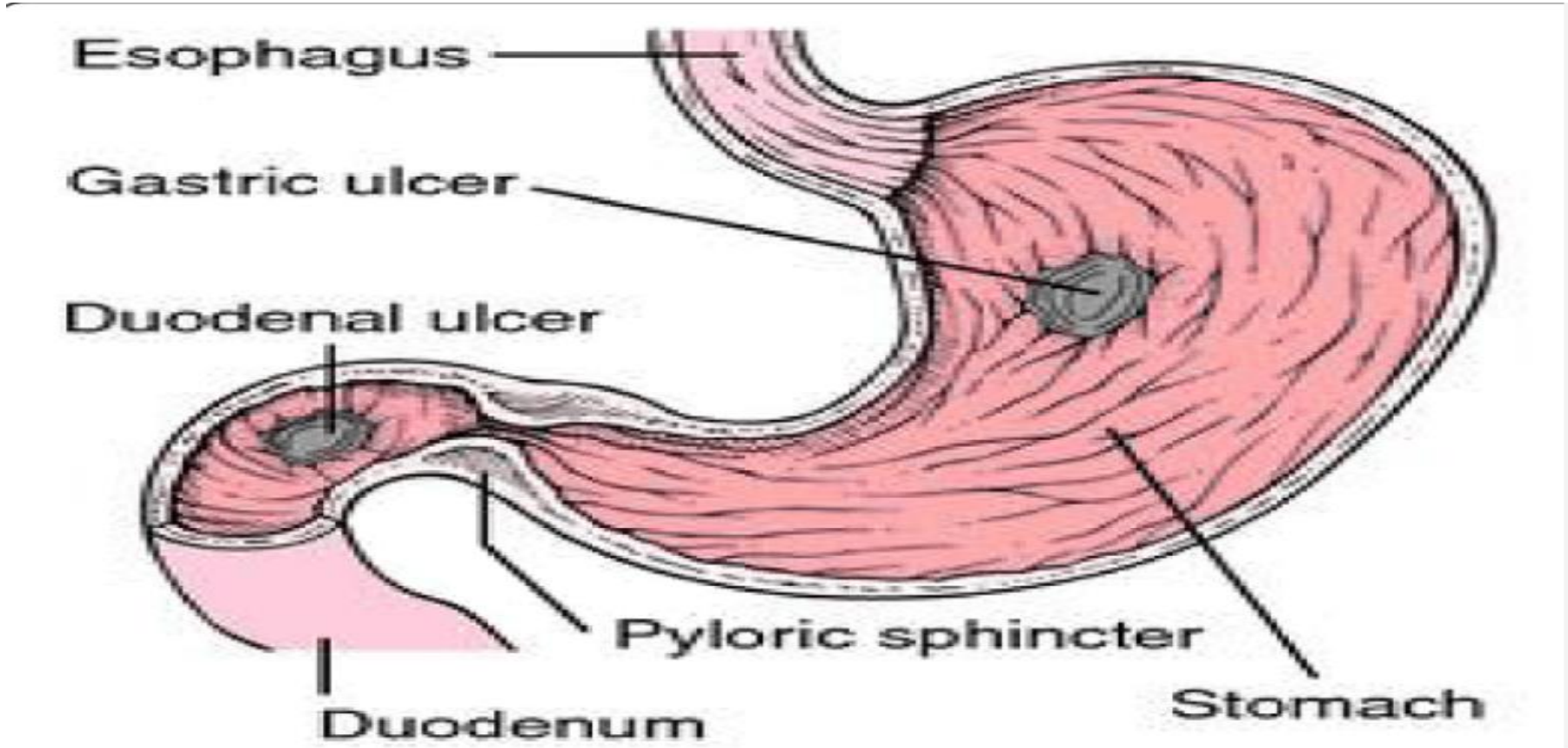
- H. pylori is Gram-negative and spiral, and has multiple flagella at one end, which make it motile, allowing it to burrow and live beneath the mucus layer adherent to the epithelial surface.
- The effects of H. pylori are more complex in gastric ulcer patients compared to those with duodenal ulcers.
- The ulcer probably arises because of impaired mucosal defence resulting from a combination of H. pylori infection, NSAIDs and smoking,rather than excess acid.

causes

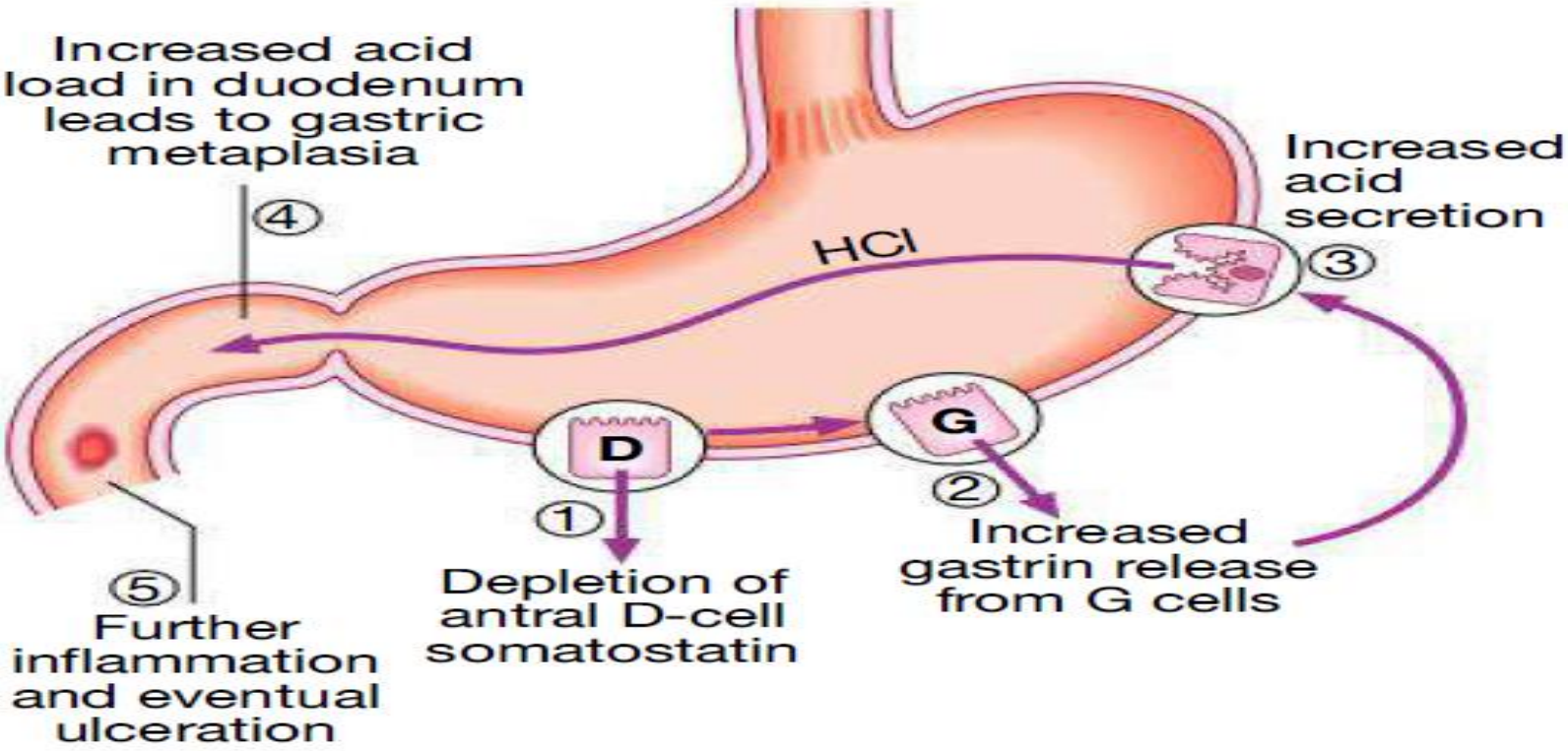
- **1.H. pylori**
- **2.NSAIDs**
- There has been an increase in the use of NSAIDs and aspirin; these drugs account for 10% of peptic ulcers. NSAIDs increase the risk of complication of peptic ulcer disease four-fold, due to impairment of mucosal defences,
- **3.Smoking**
- Smoking confers an increased risk of gastric ulcer and, to a lesser extent, duodenal ulcer. Once the ulcer has formed, it is more likely to cause complications and less likely to heal if the patient continues to smoke.

Consequences of Helicobacter pylori infection




Esophagus
Gastric ulcer
Duodenal ulcer
Pyloric sphincter
Stomach
Duodenum

Sequence of events in the pathophysiology of duodenal ulceration



Clinical features

- Peptic ulcer disease is a chronic condition with spontaneous relapses and remissions lasting for decades, if not for life.
- The most common presentation is with recurrent abdominal pain that has three notable characteristics: localisation to the epigastrium, relationship to food and episodic occurrence.
- Occasional vomiting occurs in about 40% of ulcer subjects; persistent daily

- vomiting suggests gastric outlet obstruction.
- In one-third, the history is less characteristic, especially in older people or those taking NSAIDs).
- In this situation, pain may be absent or so slight that it is experienced only as a vague sense of epigastric unease
- Occasionally, the only symptoms are anorexia and nausea, or early satiety after meals. In some patients, the ulceris completely ‘silent

Investigations

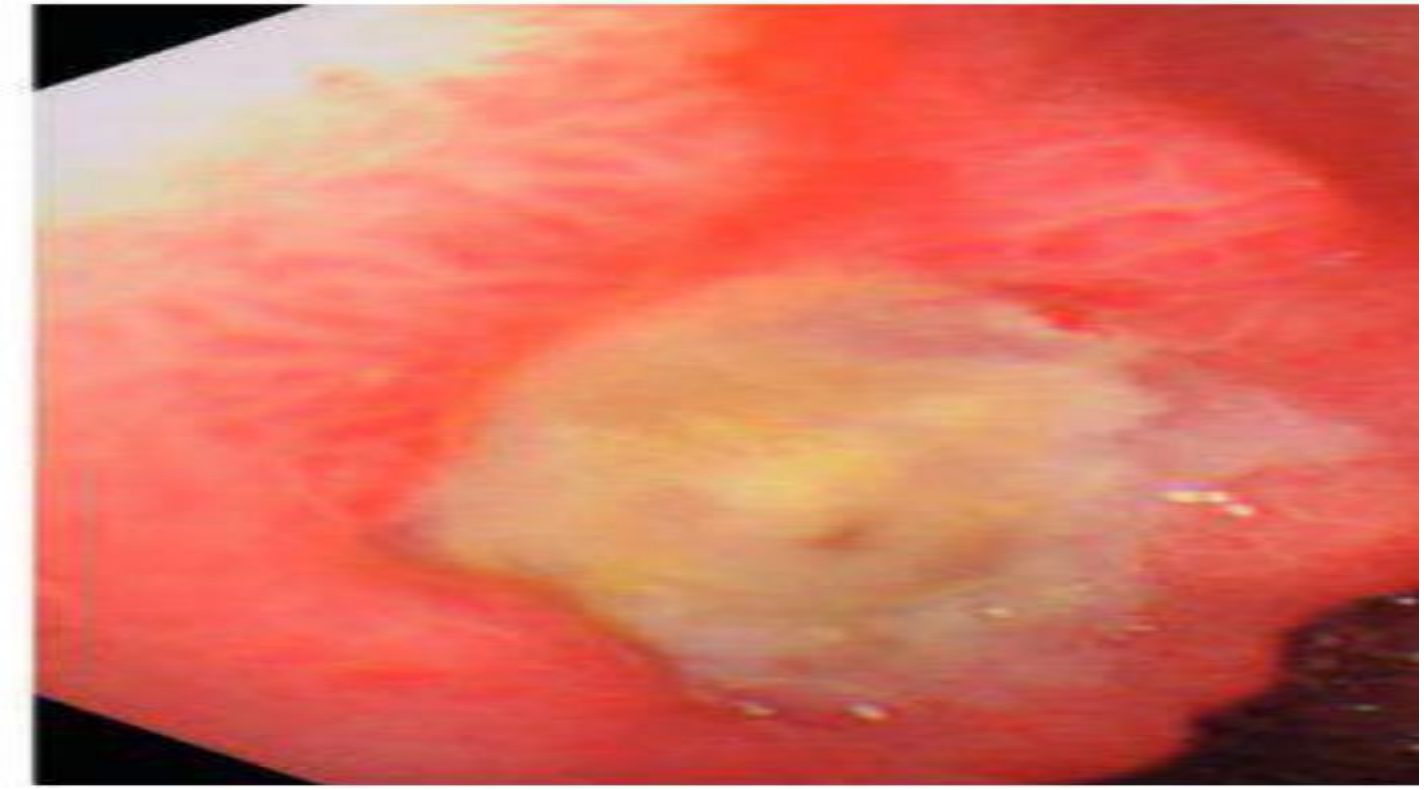
- Endoscopy is the preferred investigation.
- Gastric ulcers may occasionally be malignant and therefore must always be biopsied and followed up to ensure healing.
- Patients should be tested for H. pylori infection.
- Some are invasive and require endoscopy; others are non-invasive. They vary in sensitivity and specifcity.
- Breath tests or faecal antigen tests are best because of accuracy, simplicity and non-invasiveness

Complications of peptic ulcer disease

- **1.Perforation**
- When perforation occurs, the contents of the stomach escape into the peritoneal cavity, leading to peritonitis

- **2. Gastric outlet obstruction**
- The most common is an ulcer in the region of the pylorus
- The presentation is with nausea, vomiting and abdominal distension. Large quantities of gastric content are often vomited and food eaten 24 hours

Endoscopic identi□cation of a duodenal ulcer



Management

- The aims of management are to relieve symptoms, induce healing and prevent recurrence.
- H. pylori eradication is the cornerstone of therapy for peptic ulcers, as this will successfully prevent relapse and eliminate the need for long-term therapy in the majority of patients.

- **1.H. pylori eradication** All patients with proven ulcers who are H. pylori-positive should be
- offered eradication as primary therapy.
- Treatment is based on a PPI taken simultaneously with two antibiotics (from amoxicillin, clarithromycin and metronidazole) for at least 7 days.
- High-dose, twice-daily PPI therapy increases efficacy of treatment, as does extending treatment to 10–14 days.

- **2.General measures**
- Cigarette smoking, aspirin and NSAIDs should be avoided. Alcohol in
- moderation is not harmful and no special dietary advice is required.
- **3.Maintenance treatment**
- Continuous maintenance treatment should not be necessary after successful H. pylori eradication.
- For the minority who do require it, the lowest effective dose of PPI should be used.

Surgery

- **1.Emergency**
- Perforation
- Haemorrhage
- **2.Elective**
- Gastric outflow obstruction
- Persistent ulceration despite adequate medical therapy
- Recurrent ulcer following gastric surgery

- Thank you