D.PHARM • SECOND YEAR

Pharmacotherapeutics

CHAPTER 2.5

Gastrointestinal Disorders

ENGLISH CHAPTER NOTES



DIPLOMA IN PHARMACY

GASTROESOPHAGEAL REFLUX DISEASE (GERD)

DEFINITION

Chronic reflux of stomach contents into the esophagus, causing troublesome symptoms and/or complications.

MECHANISMS

- Lower esophageal sphincter (LES): transient relaxation or low pressure permits reflux.
- Hiatal hernia weakens the anti-reflux barrier.
- Delayed gastric emptying increases reflux.
- Poor esophageal clearance and reduced salivary bicarbonate prolong acid contact.

Stomach contents → esophagus → mucosal irritation or injury.

RISK FACTORS

- Obesity and pregnancy.
- Smoking and alcohol.
- Fatty or spicy foods, citrus and caffeine may trigger symptoms.
- Anticholinergics and calcium channel blockers can relax the LES.
- NSAIDs may worsen upper-GI symptoms.

CLINICAL FEATURES

- Heartburn; sour or bitter regurgitation.
- Often worse after meals or lying down.
- Chest pain may resemble angina.
- Chronic cough, hoarseness, asthma-like symptoms and dental erosion.

COMPLICATIONS

- Esophagitis and strictures.
- Barrett's esophagus: precancerous change.
- Increased esophageal adenocarcinoma risk.

WARNING: Chest pain must not automatically be assumed to be GERD.

GASTROESOPHAGEAL REFLUX DISEASE (GERD)

NON-DRUG MEASURES

- Lose weight if overweight.
- Raise the head of the bed by 6–8 inches for night symptoms.
- Avoid large meals and meals within 2–3 hours of bedtime.
- Reduce personal triggers: chocolate, citrus, caffeine, spicy or fatty foods.
- Stop smoking; avoid alcohol if it worsens symptoms.
- Avoid tight clothing.
- Sugar-free chewing gum may increase saliva and acid clearance.

MEDICINES

- Antacids, e.g., calcium carbonate: quick, short-term relief.
- H_2 blockers, e.g., famotidine: reduce acid secretion.
  Ranitidine: use only currently approved formulations where available.
- PPIs, e.g., omeprazole, esomeprazole: preferred for erosive esophagitis and frequent troublesome symptoms.
  Usually take 30–60 minutes before a meal.
- Prokinetics, e.g., metoclopramide or domperidone: not routine GERD treatment; consider only selected patients with proven gastroparesis and safety review.

LONG-TERM CARE

- Use the lowest effective maintenance treatment when needed.
- Selected patients with objectively confirmed, refractory GERD may need anti-reflux surgery, e.g., Nissen fundoplication.

PEPTIC ULCER DISEASE (PUD)

DEFINITION

An ulcer in the stomach or duodenum that extends through the muscularis mucosae into deeper tissue.

CAUSES AND CONTRIBUTORS

- Helicobacter pylori: a Gram-negative bacterium; causes inflammation and weakens mucosal defenses.
- NSAIDs, including aspirin: reduce protective prostaglandins.
- Severe physical stress, e.g., burns, trauma or critical illness.
- Smoking delays healing and increases recurrence.
- Alcohol irritates mucosa.
- Corticosteroids increase concern especially when combined with NSAIDs.

LOSS OF BALANCE

Protective: mucus, bicarbonate, mucosal blood flow and repair.

Damaging: acid, pepsin, H. pylori and NSAIDs.

Weakened defense → acid–pepsin injury → ulcer.

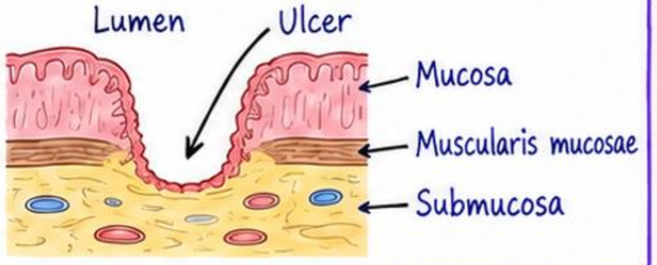
KEY MECHANISMS

- H. pylori urease → ammonia formation → local injury and inflammation.
- Acid secretion changes with the site and pattern of infection; it is not always increased.
- NSAIDs → prostaglandin synthesis falls → less mucus and bicarbonate → mucosal injury.

ULCER DEPTH

Mucosa → muscularis mucosae → submucosa.

An ulcer penetrates deeper than a superficial erosion.



PEPTIC ULCER DISEASE (PUD)

GASTRIC ULCER

- Epigastric pain may worsen after food.
- Nausea and vomiting.
- Reduced food intake and weight loss may occur.

DUODENAL ULCER

- Pain may improve briefly with food.
- It may return **2–3 hours** after eating.
- Night pain is common.
- Eating for relief may lead to weight gain.

IMPORTANT

These are typical patterns, not reliable diagnostic rules.
Symptoms overlap; some ulcers cause no pain until a complication occurs.

COMPLICATIONS

BLEEDING

- Hematemesis: vomiting blood.
- Melena: black, tarry stools.

PERFORATION

- Sudden severe abdominal pain and a rigid abdomen.
- A medical emergency.

GASTRIC OUTLET OBSTRUCTION

- Swelling or scarring blocks stomach emptying.
- Persistent vomiting and early fullness.

CANCER-RELATED CONCERN

- H. pylori increases gastric cancer risk.
- A gastric cancer may look like an ulcer.
- Gastric ulcers need appropriate assessment and follow-up; a benign ulcer does not inevitably become cancer.

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