

### Reflux esophagitis

#### MOTILITY disorder

##### Definition:

- Complication of gastroesophageal disease (GERD = malfunction of LES)
- Oesophagus inflammation due to stomach acid reflux

##### Mechanism:

- Abnormal lower esophageal sphincter (**LES**) relaxation → allowing the ascent of stomach acid into the esophagus damaging the lining → inflammation

##### Pathophysiology:

Causes of excessive / prolonged LES relaxation

- 1°: Hiatal hernia (\*), foods (coffee, alcohol, chocolate, mint, citrus), drugs (Ca channel blockers, β-agonist, anti-cholinergics)
- 2°: scleroderma (autoimmune disorder), delayed gastric emptying

##### Sx & Ssx:

- Barret's esophagus: pre-cancerous lesion
- Bright red hematemesis: blood in vomit
- Mechanical dysphagia while eating solid foods (swallowing)
- HEARTBURN: epigastric / retrosternal burning sensation
- Acid regurgitation (water brash), can lead to → chronic cough (especially @ night), asthma, hoarse voice

##### \* Hiatal hernia

- **Type 1:** sliding h.h. stomach intermittently slides up through the diaphragm (hiatus)
- **Type 2:** paraoesophageal h.h. (< common) stomach bulges through hiatus but lies along the esophagus
- **Mechanism:** muscle weakness or ↑ abdominal pressure

### Acid peptic disease

#### SECRETION disorder

##### Definition:

- Formation of open ulcers in the lining of the stomach, duodenum (upper small intestine), or esophagus
- 1° caused by imbalance between factors that protect the mucosal lining & those that promote its erosion

##### Pathophysiology:

- **Helicobacter pylori infection:** bacterium that colonises in the stomach & weakens the protective mechanisms of the gastric mucosa → > vulnerable to acid & other harmful substances
- **Acid production:** excessive production (1° hydrochloric acid), contributes to development of peptic ulcers
- **Impaired mucosal defence mechanisms:** such as reduced mucus production, diminished blood flow to mucosa, or inadequate bicarbonate secretion, can compromise mucosal defense
- **NSAIDs:** such as aspirin or ibuprofen, can directly irritate gastric mucosa & inhibit the production of protective substances like prostaglandins

**Mechanism:** imbalance between aggressive factors (acid & pepsin) & protective mechanisms leads to erosion & damage to the mucosal lining, eventually → formation of ulcers

- **Acid:** excessive production / secretion of stomach acid ↑ acidity of gastric contents, can damage mucosal lining
- **Pepsin:** (enzyme that helps breakdown proteins in stomach), when excessive presence, can contribute to mucosal injury
- **Mucus secretion:** reduced mucus production can make the mucosa more susceptible to injury
- **Bicarbonate secretion:** (neutralises stomach acid), insufficient secretion can disrupt mucosal defence mechanisms



### Acid peptic disease (cont)

#### Sx & Ssx:

- Epigastric pain: in upper abdomen between meals or during the night
- Heartburn
- Nausea & vomiting: especially if ulcers present in stomach
- Loss of appetite or weight loss
- GI bleeding: in severe cases

Duodenal cancer is a complication of acid peptic disease

### Acute & chronic gastritis

#### Complication of acid peptic disease

#### Definition:

- Sudden onset inflammation in the stomach lining
- Tends affect a wider area of mucosa

#### Acute gastritis

- Pathophysiology & mechanisms:**
- **Irritants & toxins:** consumption can directly damage the gastric mucosa, leading to acute inflammation
  - **Helicobacter pylori:** infection
  - **Immune response:** immune system triggers an inflammatory response in gastric mucosa, leading to release of inflammatory mediators (lymphocytes & plasma cells), this inflammation can cause damage to mucosal lining

#### Chronic gastritis

- **Helicobacter pylori:** leads to chronic inflammation of the gastric mucosa
  - **Autoimmune response:** mistakenly attacks the stomach lining cells, causing chronic inflammation
  - **Other factors:** prolonged use of NSAIDs, alcohol, bile reflux & certain medical conditions such as Crohn's disease or HIV infection
- Sx & Ssx:**
- Dyspepsia: abdominal discomfort after eating (often w/ early satiety & bloating)
  - Loss of appetite or weight loss
  - Nausea or vomiting
  - Bloating or fullness
  - Anemia: vitamin B12 deficiency

- Sx & Ssx:**
- Epigastric pain: typically burning or gnawing
  - Nausea & vomiting
  - Loss of appetite
  - Bloating or feeling of fullness
  - Hematemesis: in severe cases

Chronic gastritis aka 'atrophic gastritis' is a pre-cancerous condition

