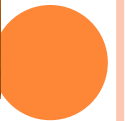


بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



# PEPTIC ULCER

- Presented by Maria Nasir
- Presented to sir Fayyaz



# Definition:

- Peptic ulcers are open sores that develop on the inside lining of our stomach and the upper portion of our small intestine.
- Peptic ulcers include:
- **Gastric ulcers** that occur on the inside of the stomach
- **Duodenal ulcers** that occur on the inside of the upper portion of your small intestine (duodenum)



# DIFFERENCE

## ○ Gastric ulcer

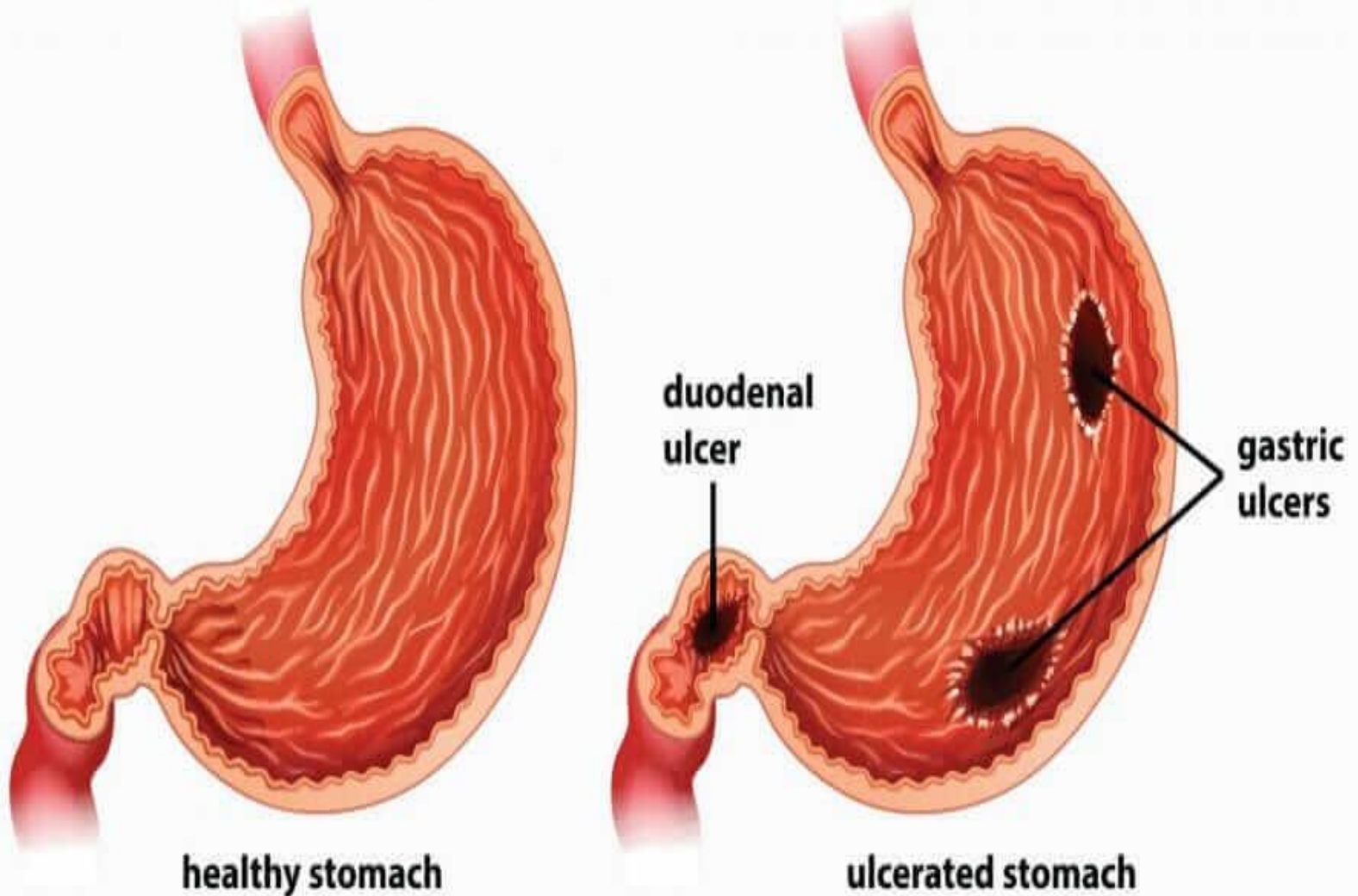
Pain occurs 1-2 hours after meal  
Pain usually does not wake patient  
Risk for malignancy  
More in female  
Middle age 50-60

## Duodenal ulcer

pain occurs 2-4 hr  
pain wakes up pt  
very little risk  
more in male  
any age 30-40



# Peptic Ulcers



# Sign and symptoms:

Stomach pain

Loss of appetite

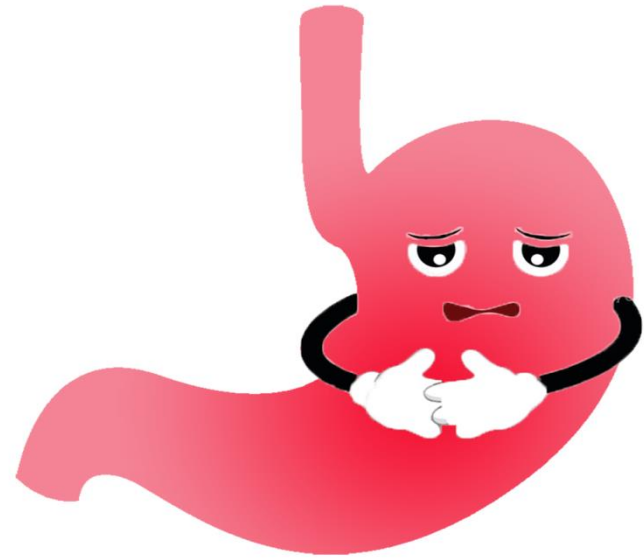
Loss of weight

Nausea and vomiting

Heartburn

Tiredness and weakness

**STOMACH PAIN**



## Causes:

- Helicobacter pylori Infection
- Chronic use of NSAIDS
- Stress
- Hyper secretion of gastric acid (e.g., Zollinger-Ellison syndrome)
- Radiation therapy
- Smoking



# Introduction to upper GI tract:

- The upper GI tract consists of the mouth, esophagus, stomach, and the duodenum.
- The stomach consists of three distinct anatomical regions, each responsible for a variety of specialized functional processes:
- The **Cardia** , which is the uppermost portion of the stomach at the junction



between the esophagus and stomach, is responsible for the mucus secretion that protects against the acid environment of the stomach.

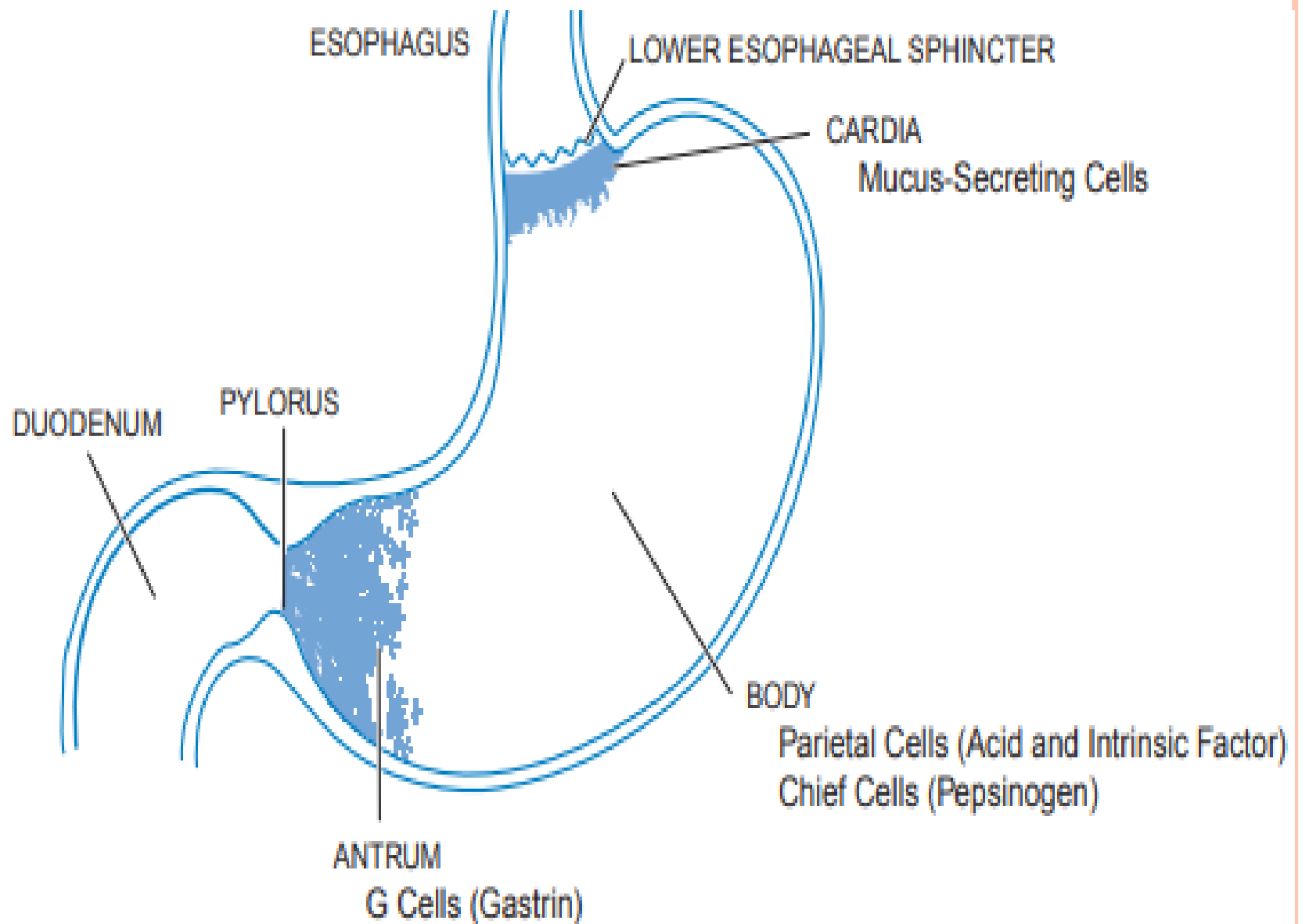
- The **body**, contains the parietal cells, which are responsible for gastric acid secretion.
- The body also contains the peptic (chief ) cells, which secrete pepsinogen. Pepsinogen, under acidic conditions in



the stomach, is converted to pepsin (a proteolytic enzyme), which is responsible for breaking down protein.

- The **antrum**, contains the G cells, which secrete the hormone gastrin, which through a feedback mechanism stimulates acid secretion by the parietal cell.
- The final portion of the upper GI tract is the duodenum.





## **Receptors involved:**

H<sub>2</sub> receptor

Muscarinic receptor

Prostaglandin receptor

Gastrin receptors



# Pathophysiology:

Gastric and duodenal ulcers occur because of an imbalance between aggressive factors (gastric acid and pepsin) and mechanisms that maintain mucosal integrity (mucosal defense and repair).

## Peptic Ulcer: An Imbalance Between:

### Aggressive Factors

Acid  
Pepsin  
Bile salts

### Defensive Factors

Mucus/mucosal barrier  
Bicarbonate  
Blood flow  
Cell regeneration  
Prostaglandins



# Gastric acid and pepsin:

- The potential for producing mucosal damage is related to the secretion of gastric (hydrochloric) acid and pepsin. Hydrochloric acid is secreted by the parietal cells, which contain receptors for histamine, gastrin, and acetylcholine.



- Pepsinogen, the inactive precursor of pepsin, is secreted by the chief cells located in the gastric fundus.
- Pepsin is activated by acid pH (optimal pH of 1.8 to 3.5), inactivated reversibly at pH 4, and irreversibly destroyed at pH 7.



# **Mucosal defense and repair:**


- Mucosal defense mechanisms include mucus and bicarbonate secretion, intrinsic epithelial cell defense, and mucosal blood flow.



- The viscous nature and near-neutral pH of the mucus-bicarbonate barrier protect the stomach from the acidic contents in the gastric lumen.



## **Helicobacter pylori:**

- Helicobacter pylori resides between the mucus layer and surface epithelial cells in the stomach, or any location where gastric type epithelium is found.
  - The combination of its spiral shape and flagellum permits it to move from the lumen of the stomach, where the pH is low, to the mucus layer, where the local pH is neutral.
- 

- H.pylori produces large amounts of urease, which hydrolyzes urea in the gastric juice and converts it to ammonia and carbon dioxide.
- H.pylori uses enzyme urease which converts urea into ammonia and bicarbonate. Ammonia neutralize the acidic environment in the stomach, which explains the difficulty in destroying the H.Pylori bacterium.



# **Nonsteroidal anti-inflammatory drugs:**

NSAIDS are the medications for arthritis and other inflammatory conditions.

NSAIDS cause ulcers by interfering with prostaglandins in the stomach and prevent PGE2 synthesis.



# DIAGNOSING OF H.PYLORI

- breath test
- Stool test
- Blood test
- And tissue test.



# MANAGEMENT OF PEPTIC ULCER

- H.pylori eradication therapy
- Drug therapy
- Life style modification
- Surgery



# H.PYLORI ERADICATION THERAPY

- Proton pump inhibitor
- 2 Antibiotics
  - metronidazole+clarithromycin
  - Clarithromycin+Amoxicillin



# DRUGS FOR THE TREATMENT OF PEPTIC ULCER

- Antibiotics (amoxicillin)
- Antacids (magnesium hydroxide ,aluminium hydroxide)
- H<sub>2</sub> receptor antagonist
- Proton pump inhibitor(omeprazole)



# LIFE STYLE MODIFICATION

- Discontinue NSAIDS
- Smoking cessation
- Alcohol cessation
- Stress reduction



# SURGERY

- Surgery may be necessary if you have bleeding, a perforation, or an obstruction

## Types

- Gastrectomy
- Vagotomy
- pyloroplasty



# Thanks

