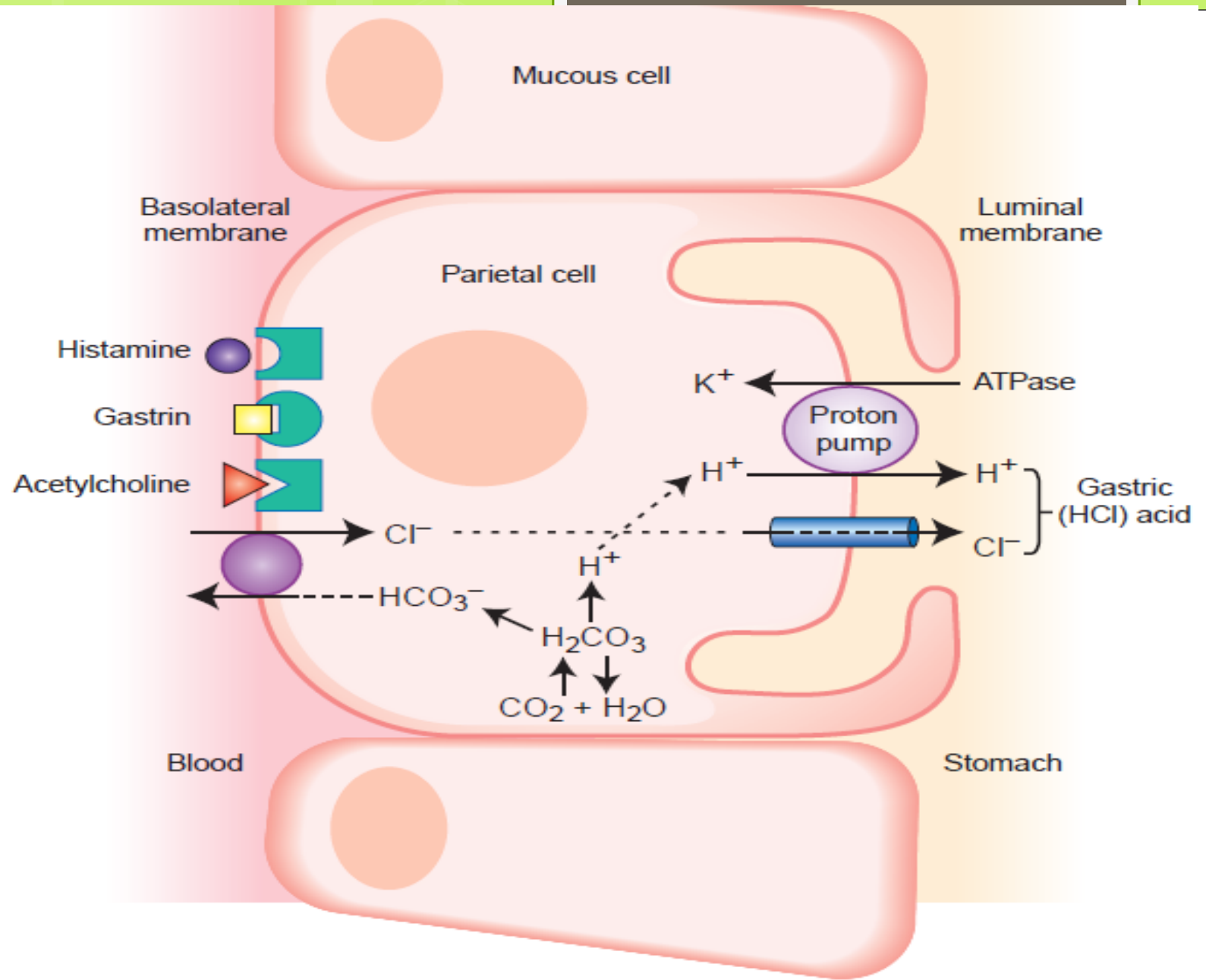
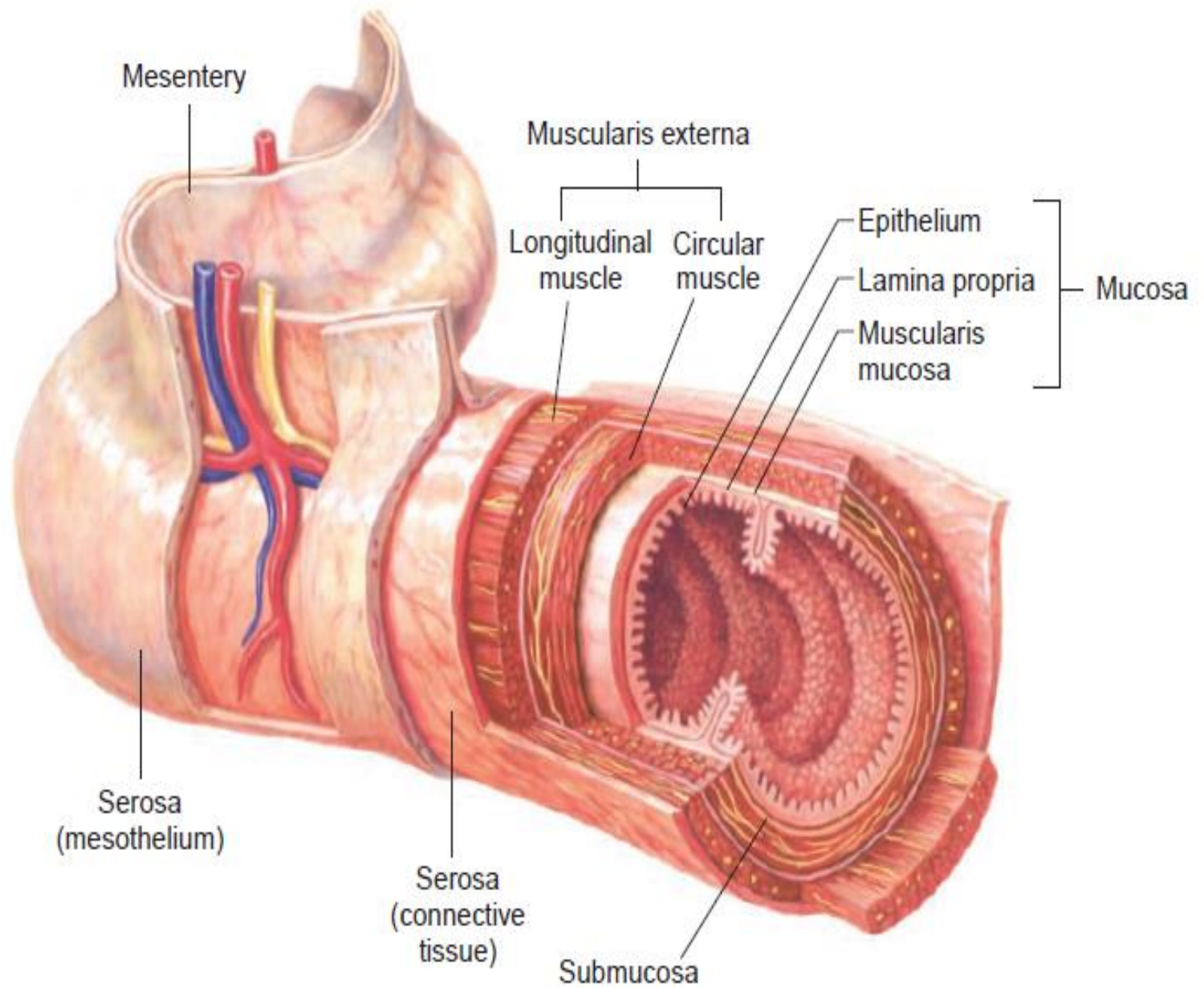


# PEPTIC ULCER

BY Dr. SWATHI SWAROOPA. B



- Ulcers develop when digestive juices produced in the stomach, intestines, and digestive glands damage the lining of the stomach or duodenum



section of

- Parietal (or oxyntic) cells, chief cells, and G cells.
- Parietal cells secrete hydrochloric acid (HCl) and intrinsic factor.
- HCL-chemically breakdown and disinfect ingested food.
- Intrinsic factor-necessary for the absorption of vitamin B12
- The chief cells secrete pepsinogen, which is converted rapidly to pepsin that initiates proteolysis
- G cells secrete gastrin.

# Protection

- The **mucus layer**, which coats the stomach and duodenum, forms the **first line of defense**.
- **Bicarbonate**, which the **mucus layer** secretes, **neutralizes** the digestive acids.
- **Prostaglandins** are also believed to **stimulate bicarbonate and mucus production**.

# Introduction

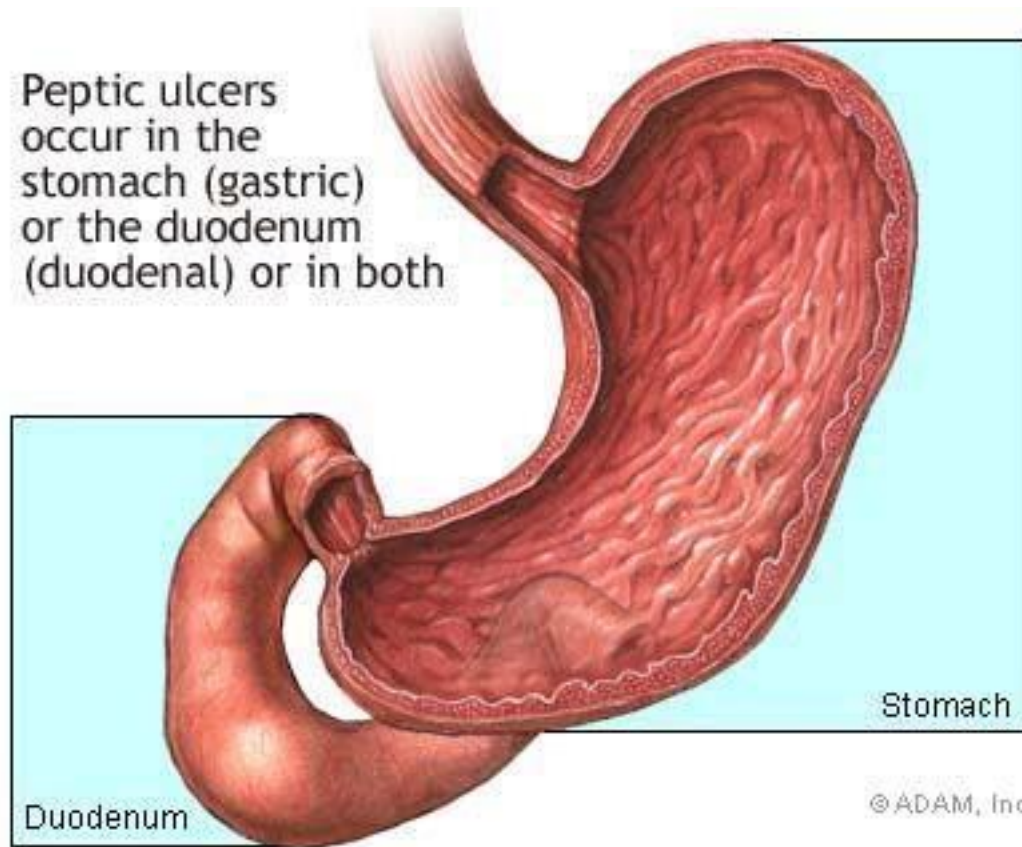
- Peptic ulcer disease is a term used to describe a group of ulcerative disorders that occur in areas of the upper GI tract that are exposed to acid-pepsin secretions
- It is related to variety of causes, such as medication use and *H. pylori* infection
- The most common forms of peptic ulcer are duodenal and gastric ulcers.
- 98 % Peptic Ulcer occurs in duodenum or in stomach in the ratio of 4 : 1

- Gastric ulcers are more prevalent among middle-aged and older adults.
- Incidence of gastric ulcers is more equally distributed between men and women
- For duodenal ulcers, there is a male predominance and occurs between 30 and 60 years of age



- A **peptic ulcer** can affect one or **all layers** of the stomach or duodenum
- **Occasionally**, an ulcer **penetrates the outer wall** of the stomach or duodenum.
- **Healing** involves **replacement with scar tissue**
- Although the **mucosal layers** that cover the scarred muscle layer regenerate, the regeneration often is **less than perfect**, which contributes to **repeated episodes of ulceration**.

Peptic ulcers  
occur in the  
stomach (gastric)  
or the duodenum  
(duodenal) or in both



© ADAM, Inc.

- Stress and Psychological Factors.
- Smoking

# Causes

- H.pylori
- NSAID'S
- Genetic disorder
- Others

# Pathogenesis

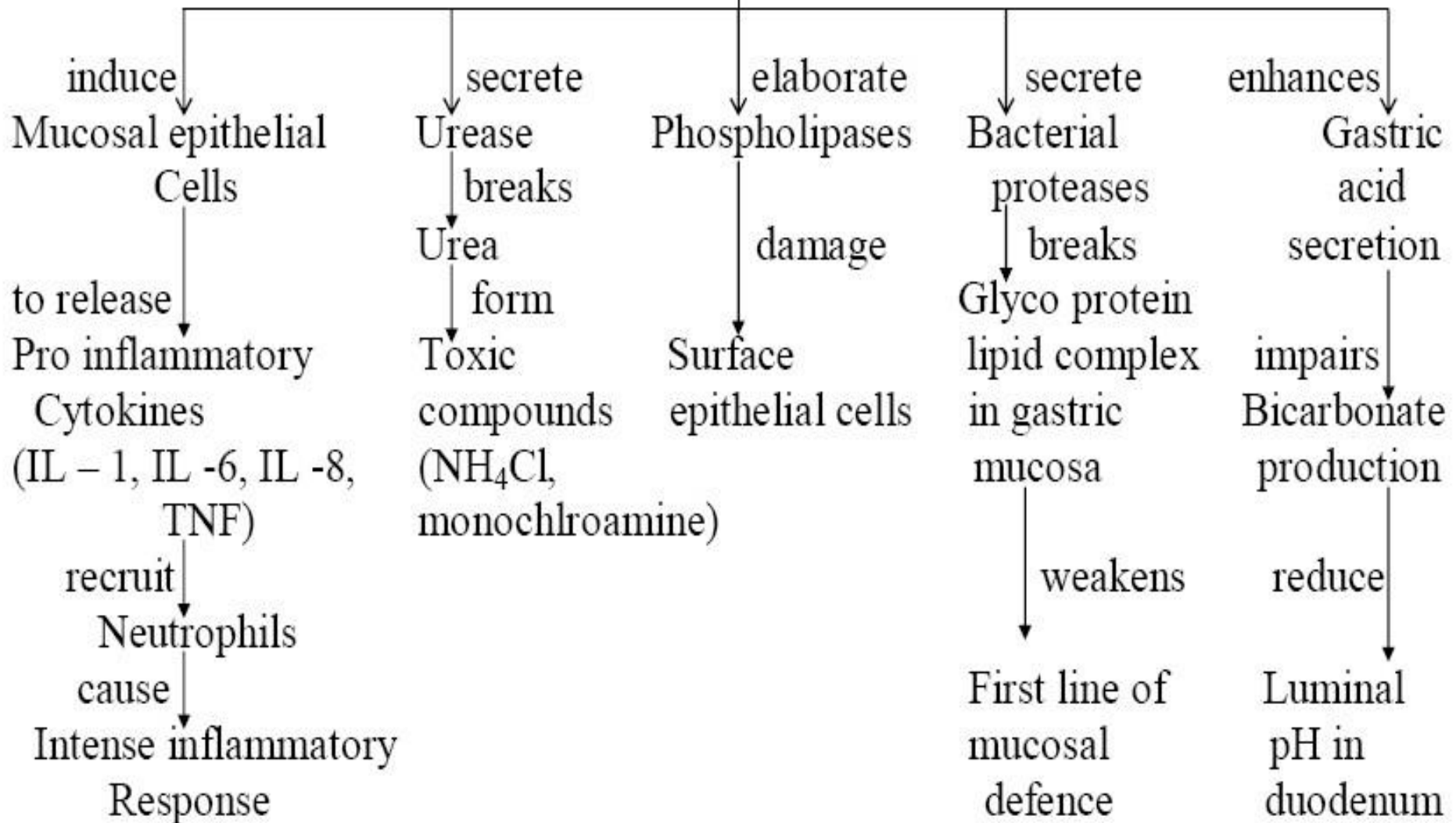
- *H. pylori*'s penetrates the mucus layer of the stomach or duodenum so that it can attach itself to the lining.
- The surfaces of the cells lining the stomach contain a protein, called decay-accelerating factor, which acts as a receptor for the bacterium.
- *H. pylori* survives in the highly acidic environment by producing urease, an enzyme that generates ammonia to neutralize the acid.

- Induce inflammation and **stimulate** the release of cytokines and other mediators of **inflammation** contributes to mucosal damage.
- Infection, predominantly in the **antrum** of the stomach, leads to **hypergastrinemia** and an increased acid production.
- Acid injury to the duodenum is thought to promote the development of **gastric metaplasia**

- Allowing the organism to colonize these areas and promote the development of duodenal ulcers
- Only around 10 to 15% of people who are infected with *H. pylori* develop peptic ulcer disease

# Pathophysiology of Peptic Ulcer:

## 1. H. Pylori Infection





- Genetic Factors
- Immune Abnormalities
- Lifestyle Factors: chronic stress, drinking coffee, and smoking.
- Interruptions of sleep may weaken the immune system's ability to protect against harmful bacterial substances

## NSAID-induced ulcers

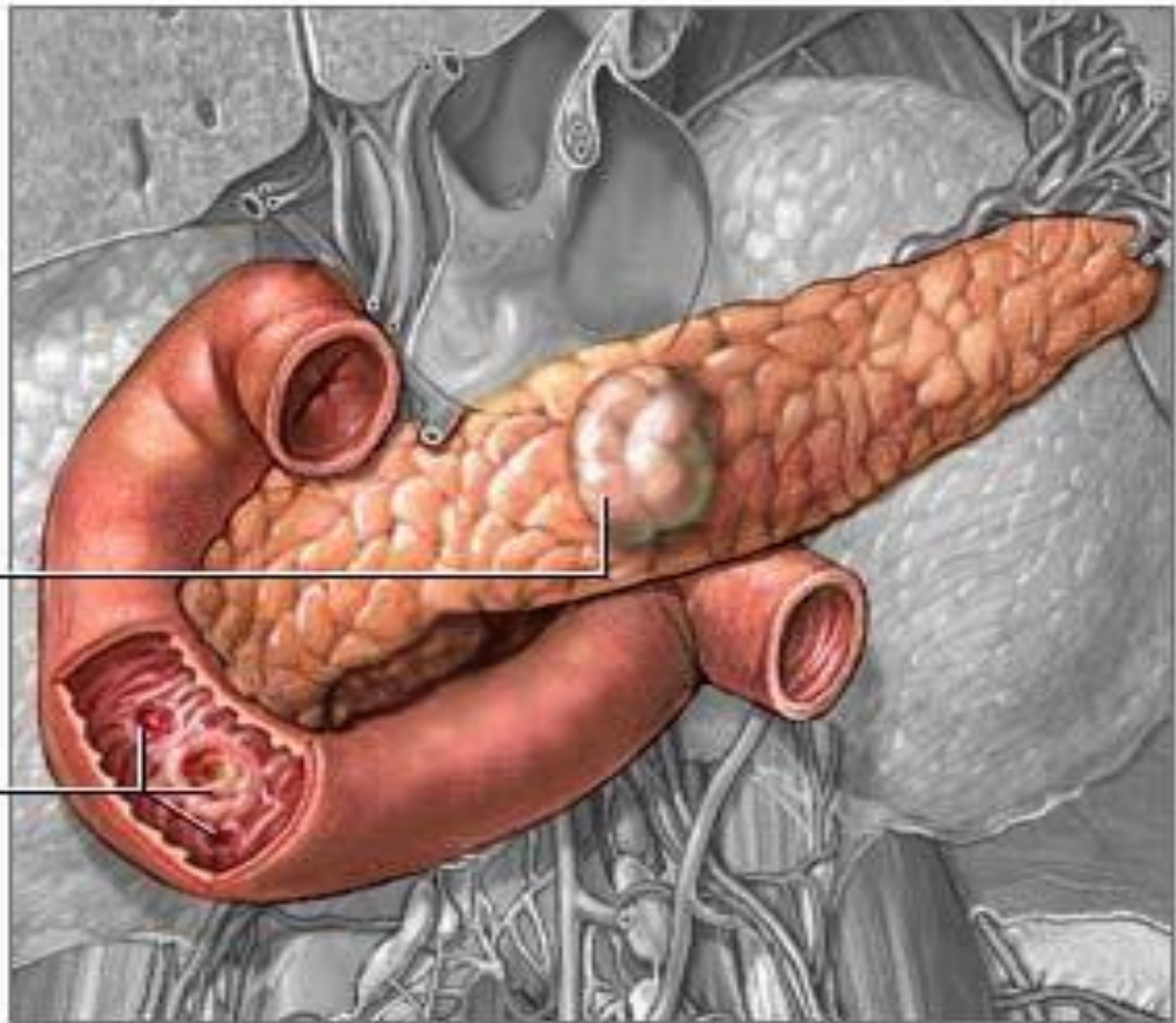
- The most common NSAIDs are **aspirin, ibuprofen and naproxen** although many others are available.
- **Aspirin** appears to be the most ulcerogenic of the NSAIDs and is dose dependent
- Involve **mucosal injury and inhibition of prostaglandin synthesis.**
- **Topical irritant effect** of these drugs on the epithelium
- **Reduction of gastric mucosal blood flow** and **interference** with the **repair of superficial injury**

- Zollinger–Ellison Syndrome
- (ZES) is the least common major cause of peptic ulcer disease.
- In this condition, tumors in the pancreas and duodenum (called gastrinomas) produce excessive amounts of gastrin, a hormone that stimulates gastric acid secretion.
- Multiple peptic ulceration in the stomach, duodenum, and even in jejunum
- This is a rare genetic condition



Zollinger-  
Ellison tumor  
in pancreas

Duodenal  
ulcers due to  
hyperacidity



## OTHERS

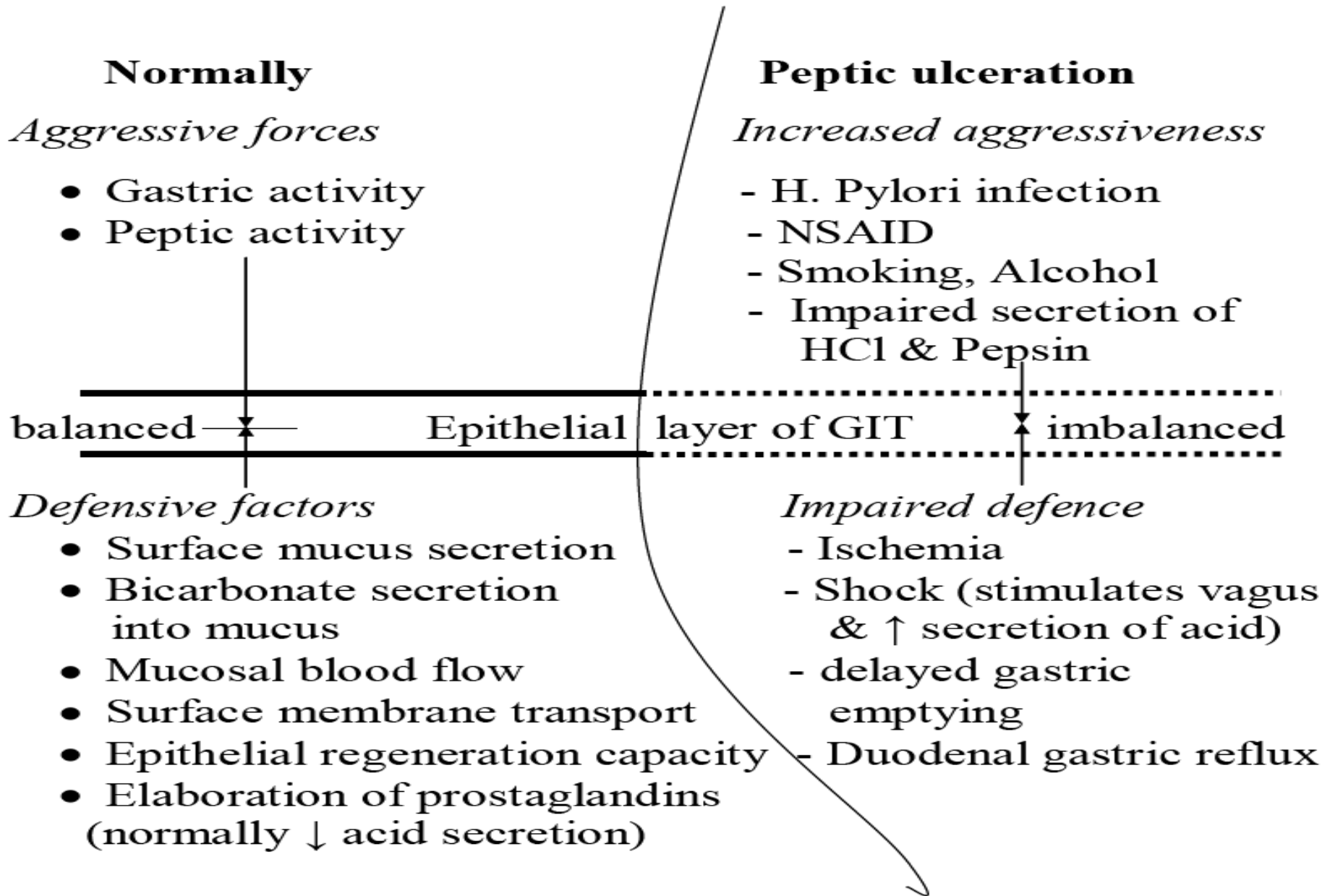
- Smoking may augment the risk of peptic ulcer by impairing healing.
- Alcohol use may cause increased acid Production
- There is no convincing evidence that dietary factors play a role in development of peptic ulcer.
- Certain drugs other than NSAIDs may aggravate ulcers. These include warfarin -- an anticoagulant that increases the risk of bleeding, oral corticosteroids, some chemotherapy drugs, spironolactone, Bevacizumab

# Complications

- Bleeding and hemorrhage
- Stomach Cancer

- Remitting, relapsing lesion
- Epigastric burning or aching pain.
- Dyspepsia.
- Pain worse at night and 1 to 3 hours after meal.
- Nausea, vomiting, bloating , belching and weight loss occur.

# Aggravating causes of & Defence mechanism against Peptic Ulcer:





THANK YOU