

Gastrointestinal Tract "GIT "

**GIT LECTURE [3] Peptic Ulcer Disease
(PUD) PART ONE**

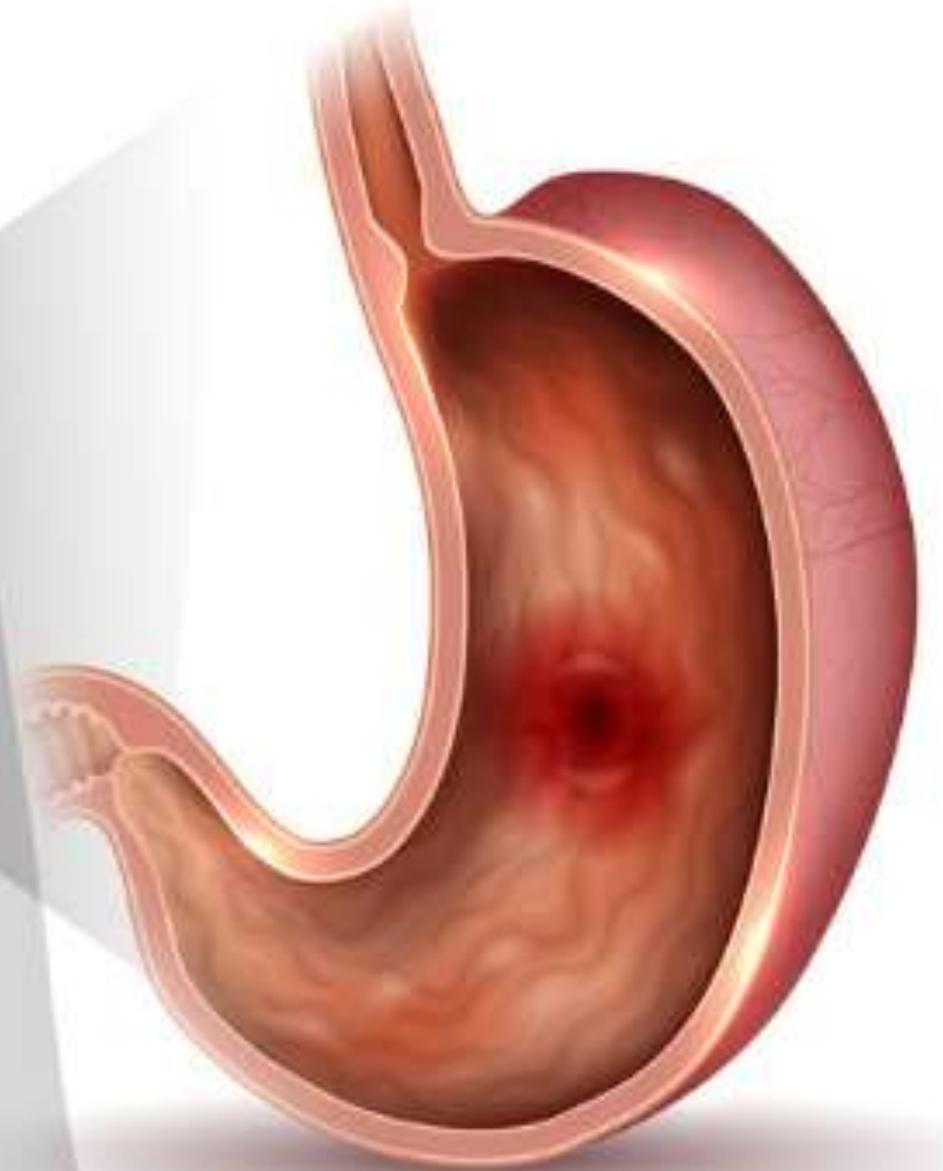
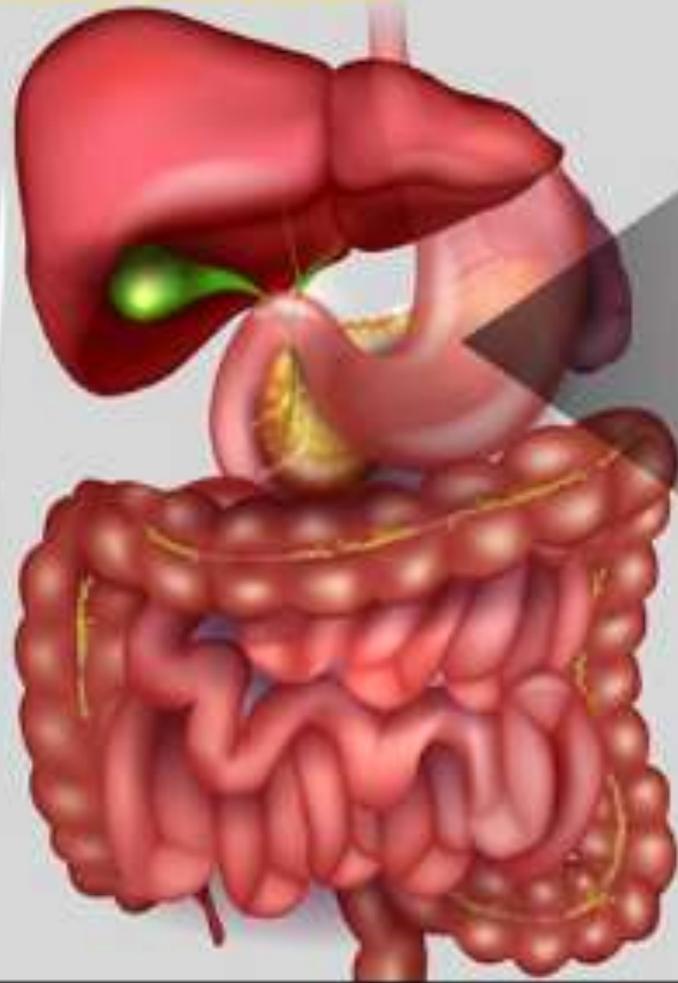
**PROFESSOR DOCTOR
SAAD HASAN MOHAMMED ALI**

2023 / 2024

A sunset over the ocean with a skull silhouette in the foreground and five circles at the top. The text "PEPTIC ULCER DISEASE" is written in a red, jagged, textured font across the middle of the image.

PEPTIC ULCER DISEASE

PEPTIC ULCER



KNOW ITS TYPES, CAUSES, SYMPTOMS, DIAGNOSIS AND TREATMENT

:Types of Peptic Ulcer

Duodenal

Gastric

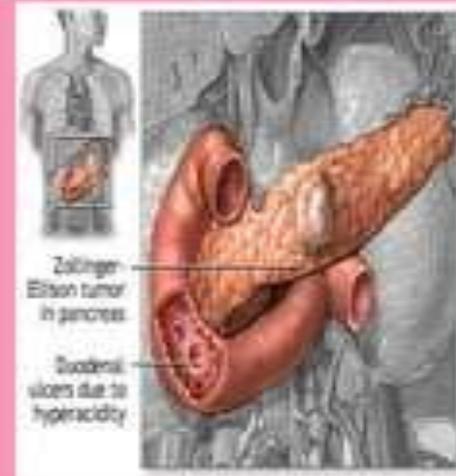
Oesophagal

Zollinger Ellison syndrome (severe peptic ulcer+gastric hyperacidity, gastrinoma: islet cell tumor in pancreas)

Curling's ulcer

:Zollinger-Ellison syndrome

- A large amount of excess acid is produced in response to the overproduction of the hormone gastrin, which in turn is caused by tumors on the pancreas or duodenum. These tumors are usually malignant, must be removed and acid production suppressed to relieve the recurrence of the ulcers.

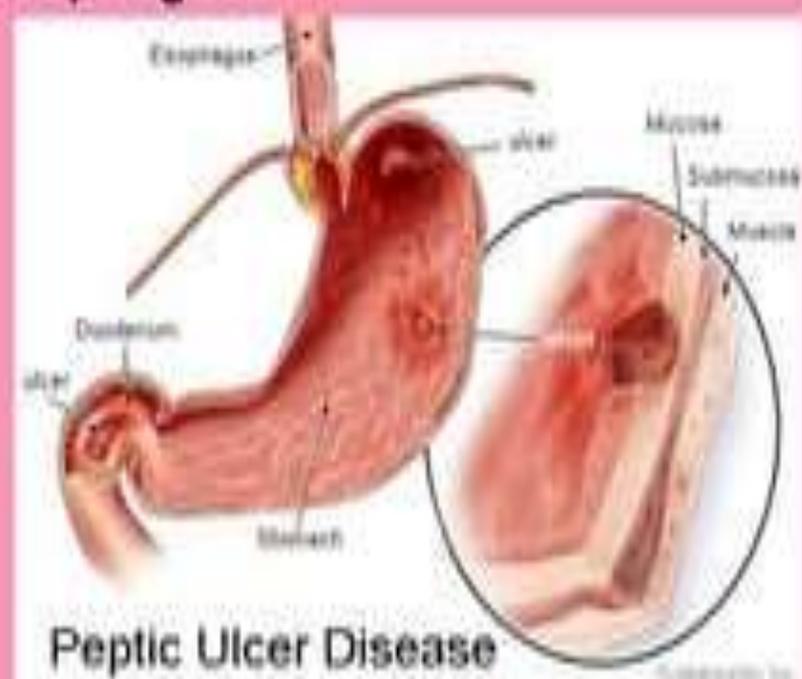


Curling's ulcer

- Curling's ulcer is an **acute** peptic ulcer of the duodenum resulting as a complication from severe burns when reduced plasma volume leads to sloughing of the gastric **mucosa**.
- These **stress ulcers** were once a common complication of serious burns, especially common in child burn victims. They result in perforation and **hemorrhage** and had correspondingly high mortality rates.

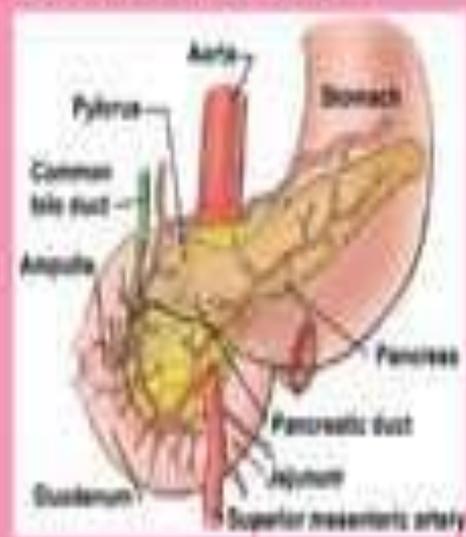
Definition:

- Peptic ulcer is a hole or open sore in the lining of the stomach, duodenum (beginning of the small intestine) or oesophagus.



"peptic" refers to pepsin: a stomach enzyme that breaks down protein.

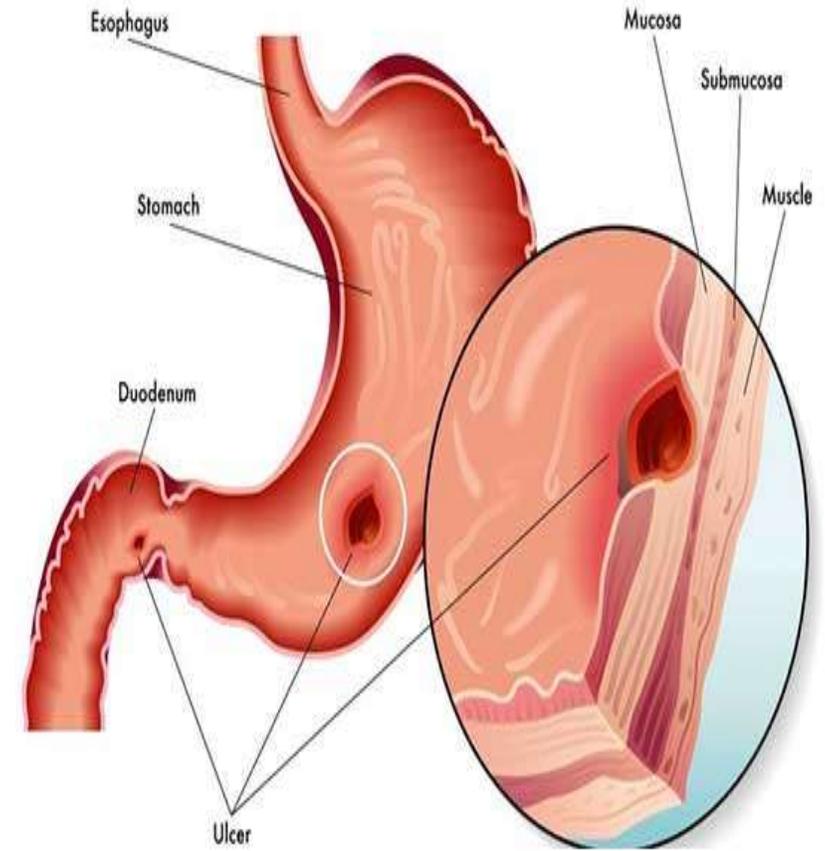
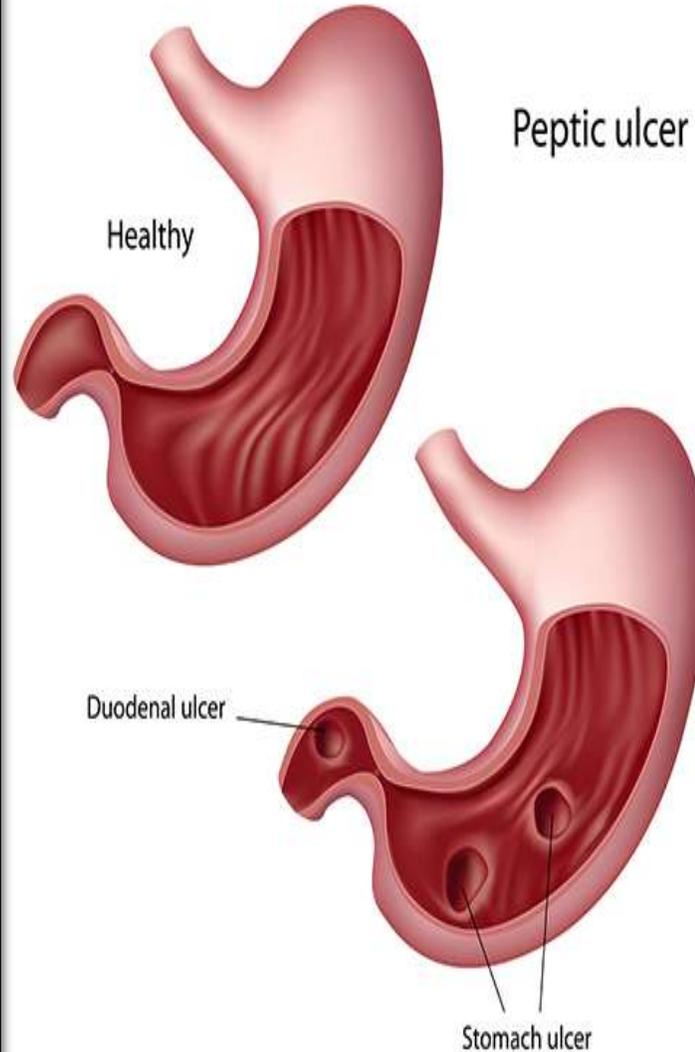
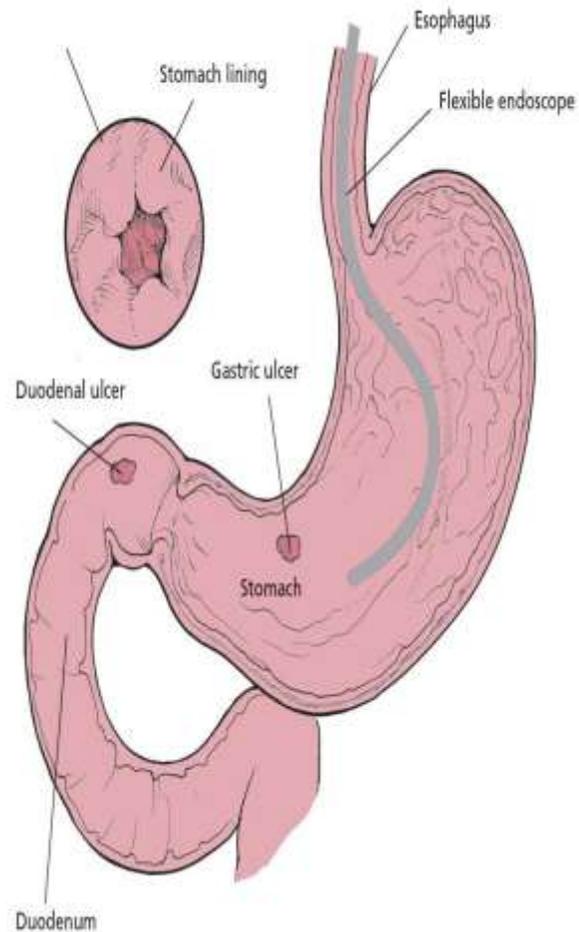
- An ulcer occurs when the lining of these organs is corroded by acidic digestive juices secreted by the stomach cells.



Peptic Ulcer Disease (PUD)

A well-defined break in the GI mucosa (at least 0.5 mm in diameter)

Peptic ulcer viewed through an endoscope



PUD Location :

□ Duodenal Ulcers

= Western Countries

□ Gastric Ulcers =

Asia.

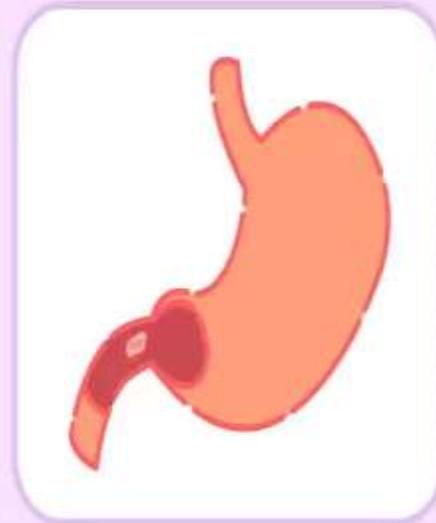
Number of PUD :

A. 90% = Focal ulcers

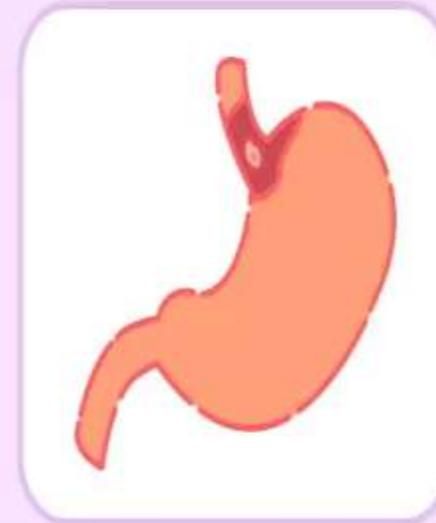
B. 10% = Multiple ulcers.

What Are The Types Of

Peptic Ulcer Disease



Duodenal Ulcers

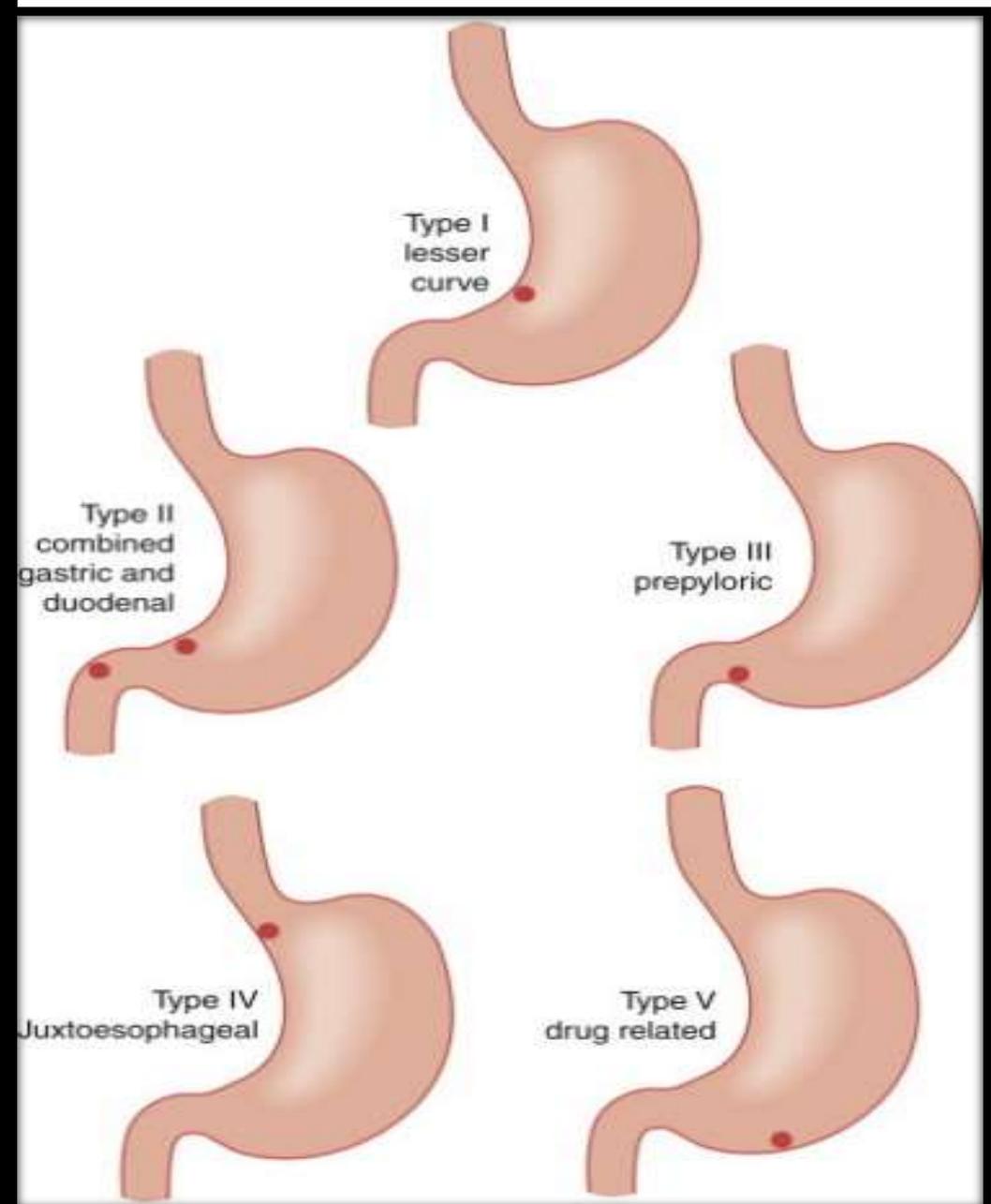


Esophageal Ulcers



Gastric Ulcers

TYPE	LOCATION	INCIDENCE
I	Gastric body, lesser curvature	55%
II	Body of stomach + duodenal ulcer	20%
III	Prepyloric	20%
IV	High on lesser curvature	<5%
V	Anywhere (medication induced)	<5%



PUD Epidemiology

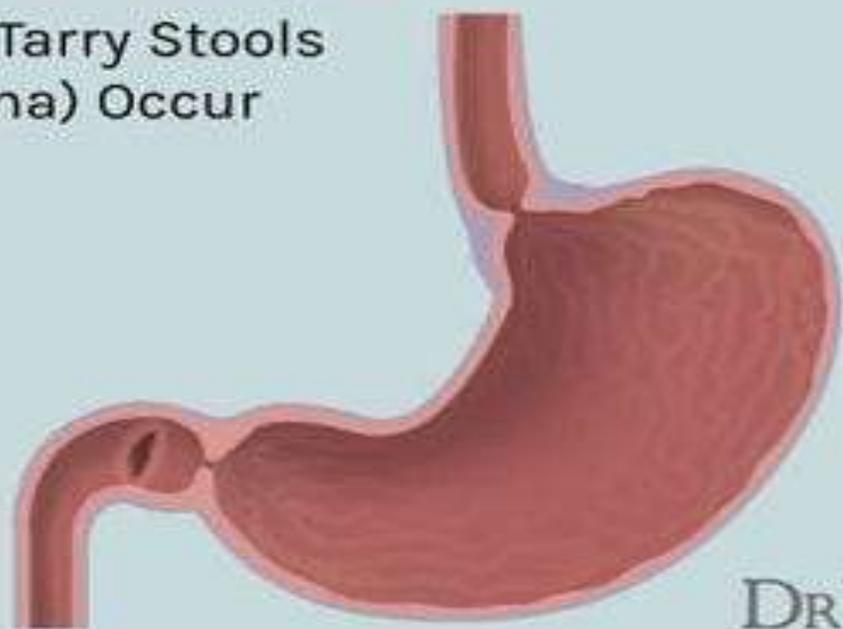
Greater Risk of Developing PUD:

- 1) **2 / 3 = men**
- 2) **Older adults**
- 3) **First-degree relatives = 3-folds**
- 4) **Heavy Smokers**
- 5) **Heavy alcohol drinkers**
- 6) **Higher association with Blood Group O**
- 7) **Use of non-steroidal anti-inflammatory drugs (NSAIDs) for >1 month.**

DUODENAL VS GASTRIC

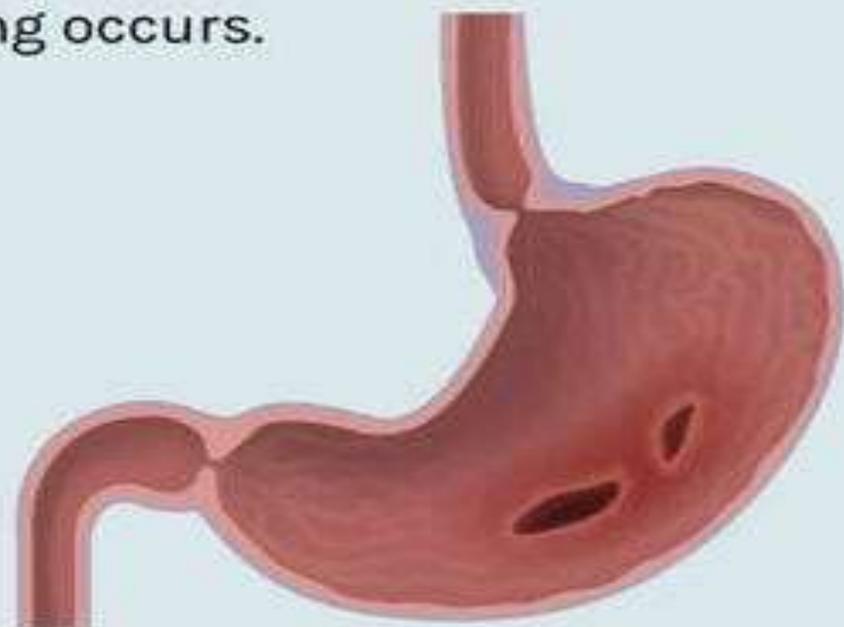
Duodenal Ulcers

- Pain relieved by meal.
- Occurs 2-3 hrs after meal.
- Most common type.
- Dark, Tarry Stools (Melena) Occur



Gastric Ulcers

- Pain increased by meal.
- Occurs 30m to 1hr after meal.
- Not as common.
- Vomiting occurs.



PUD Etiology:

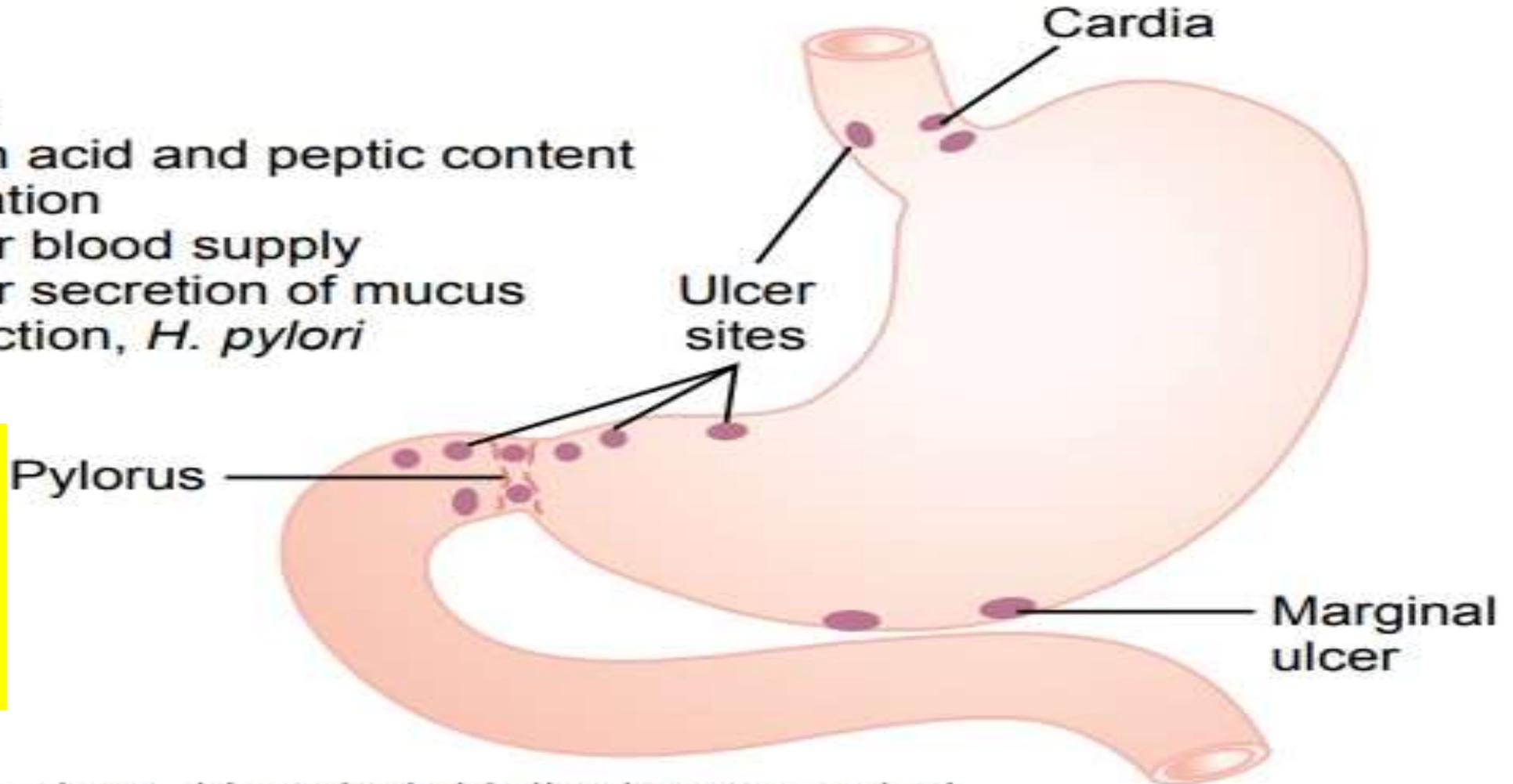
- 1) H. pylori= in 80% of duodenal and gastric ulcers.
- 2) NSAIDs use.
- 3) Other risk factors:
 1. **Advanced age**
 2. **Psychological and physical stress,**
 3. **Acid hyper secretion,**
 4. **Cigarette smoking,**
 5. **Use of certain drugs= Bisphosphonate (Alendronate) to treat osteoporosis is associated with esophageal and gastric ulcers.**

The Following Mechanisms by Which PUD is Caused:

Causes:

1. High acid and peptic content
2. Irritation
3. Poor blood supply
4. Poor secretion of mucus
5. Infection, *H. pylori*

Destructive
effects
+host response
to *H. pylori*.



Peptic ulcer. *H. pylori*, *Helicobacter pylori*.

:Causes of peptic ulcer

While acid is still considered significant in ulcer formation, the leading cause of ulcer disease is currently believed to be infection of the stomach by bacteria called "Helicobacter pyloridus" (H. pylori).



)H. Pylori Bacterium (helicobacter pylori

The H. pylori bacteria excretes the enzyme urease, which converts urea into ammonia and bicarbonate. The release of ammonia 'neutralize' the acidic environment in the stomach, which explains the difficulty in destroying the H. pylori bacterium.! Ammonia is toxic to the epithelial cells and damages them; hence the beginning of a stomach ulcer takes its course.



Cofactors

Cigarette smoking is an important cofactor of ulcer formation and ulcer treatment failure. Cigarette smoking increases the risk of ulcer complications. Nicotine is a ganglionic stimulant so it stimulates vagal nerve and increase HCl secretion through acetylcholine.



alcohol intake disrupts mucus secretion and cause mucosal damage.



Stress increases HCl secretion.



Chronic use of anti-inflammatory medications, commonly referred to as NSAIDs (Nonsteroidal anti-inflammatory drugs).



Coffee

Colas,

spicy foods,

and caffeine



NSAIDs

- **NSAIDs** are medications for arthritis and other painful inflammatory conditions in the body. Aspirin, Ibuprofen (Motrin), Naproxen (Naprosyn), and Etodolac (Lodine) are a few of the examples of this class of medications. NSAIDs cause ulcers by interfering with prostaglandins in the stomach & prevent PGE₂ synthesis.

Prostaglandins

Prostaglandins are substances which are important in helping the gut linings resist corrosive acid damage.

-local prostaglandins production PGE₂.

/ HCl → / Damaging factors.

/ Bicarbonate (production of gastric bicarbonate which is trapped in the mucus layer thus creating a PH gradient from 1-2 at gastric lumen, 6-7 at surface of mucosa).

/ Mucus production (mucus mucopolysaccharides resistant to action of proteolytic enzymes).

Protective
factors



H. Pylori Infection=

- ❑ The organism resides in the oral cavity, >>>>>>descends to colonize the gastric mucosa.
- ❑ Acquired primarily during childhood= entry in the oral cavity via contaminated food and poor sanitary habits.
- ❑ Adherent but noninvasive bacterium = present between the surface of the gastric epithelium and the overlying mucous gel.
- ❑ H. pylori can persist in the stomach indefinitely, and infection = remains clinically silent in most affected persons.
- ❑ Approximately 20% of H. pylori - infected persons develop PUD=== suggesting other physiologic and psychological (stress) factors are required for the presentation of PUD.

NSAIDs Use:

- 1) Causative factor in **15%** of PUD cases.
- 2) Directly **damage mucosa**
- 3) Directly inhibit **mucus secretion.**
- 4) Ulcers more **in stomach >>> duodenum.**

The risk with NSAID use increases with:

- 1) Age > 60 years
- 2) High-dosage long-term therapy
- 3) NSAIDs with long plasma half-life (e.g., piroxicam) rather than with short half-life (i.e., ibuprofen)

4) Concomitant use of :

A. Alcohol الكحول

B. Corticosteroids الستيرويدات

C. Anticoagulants مضادات التخثر

D. Aspirin. الاسبرين

**Thank
You For
Your
Attention**

**Any
questions?**

