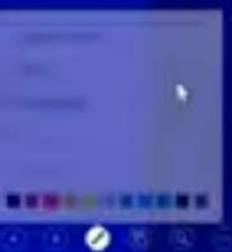


Peptic Ulcer Disease

E J Arteen
FRCSI



Peptic Ulcer Disease

- Defect in mucosa of GIT which may extend to submucosa or muscle layer.
- It occurs in regions which touch HCL, and pepsin.
- Imbalance between acid secretion and mucosal defense system.

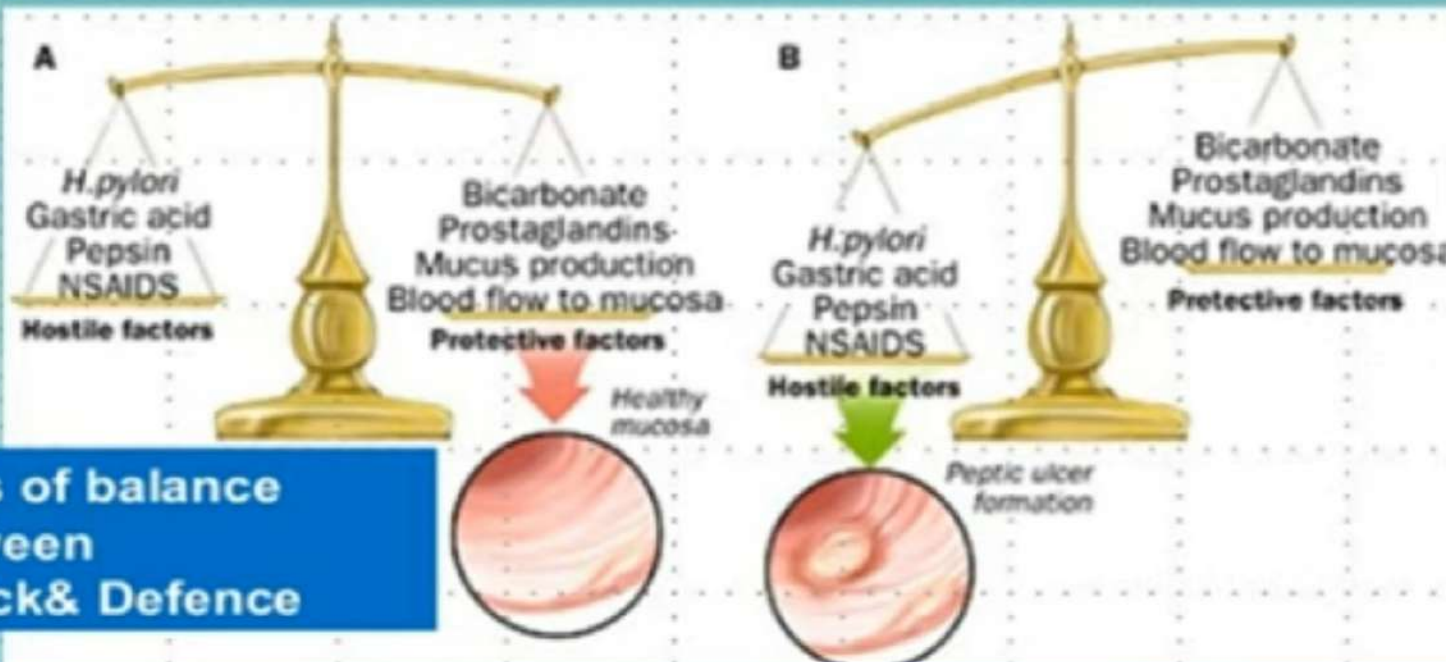


Peptic Ulcer Disease

Pathogenesis :

Ulcers are caused by loss of balance
Between protective & Hostile factors.

Protective factors vs. hostile factors



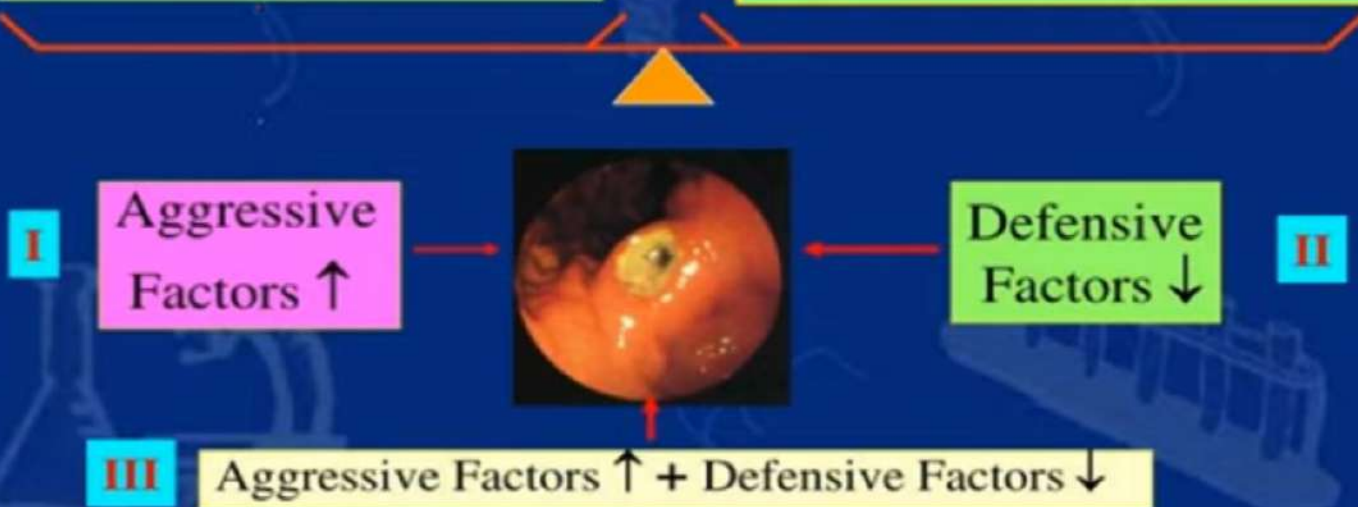
Aggressive Factors

Acid/Pepsin

- H. pylori infection
- NSAIDs
- Smoking

Defensive Factors

- Mucus-bicarbonate barrier
- Barrier of apical membrane
- Mucosal blood flow
- Prostaglandins
- Epithelial cell restitution



PEPTIC ULCER DISEASE

FACTORS THAT PROTECT AGAINST ACIDITY

- ✓ Mucus
- ✓ bicarbonate layer
- ✓ Blood flow
- ✓ cell renewal
- ✓ Prostaglandins
- ✓ Tight junction b/w epithelium

IMBALANCE

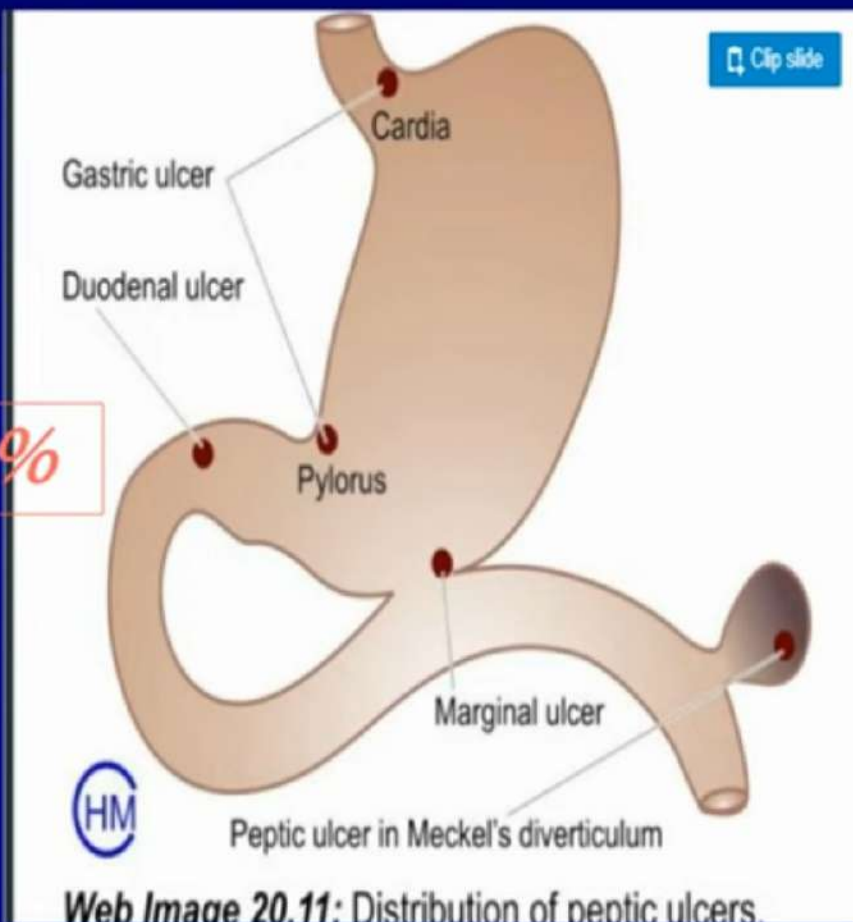
- ✓ Acid
- ✓ Pepsin
- ✓ Bile acids
- ✓ NSAIDs
- ✓ H. pylori
- ✓ Alcohol
- ✓ Pancreatic enzymes

FACTORS THAT INCREASE ACID SECRETION

Sites of PUD

- **Duodenum: 80%**
- **Gastric: 15%**
- **D1, Stomach: 4%**
- **O-G Junction :**
- **Meckel's D:**
- **Marginal :**

1 %



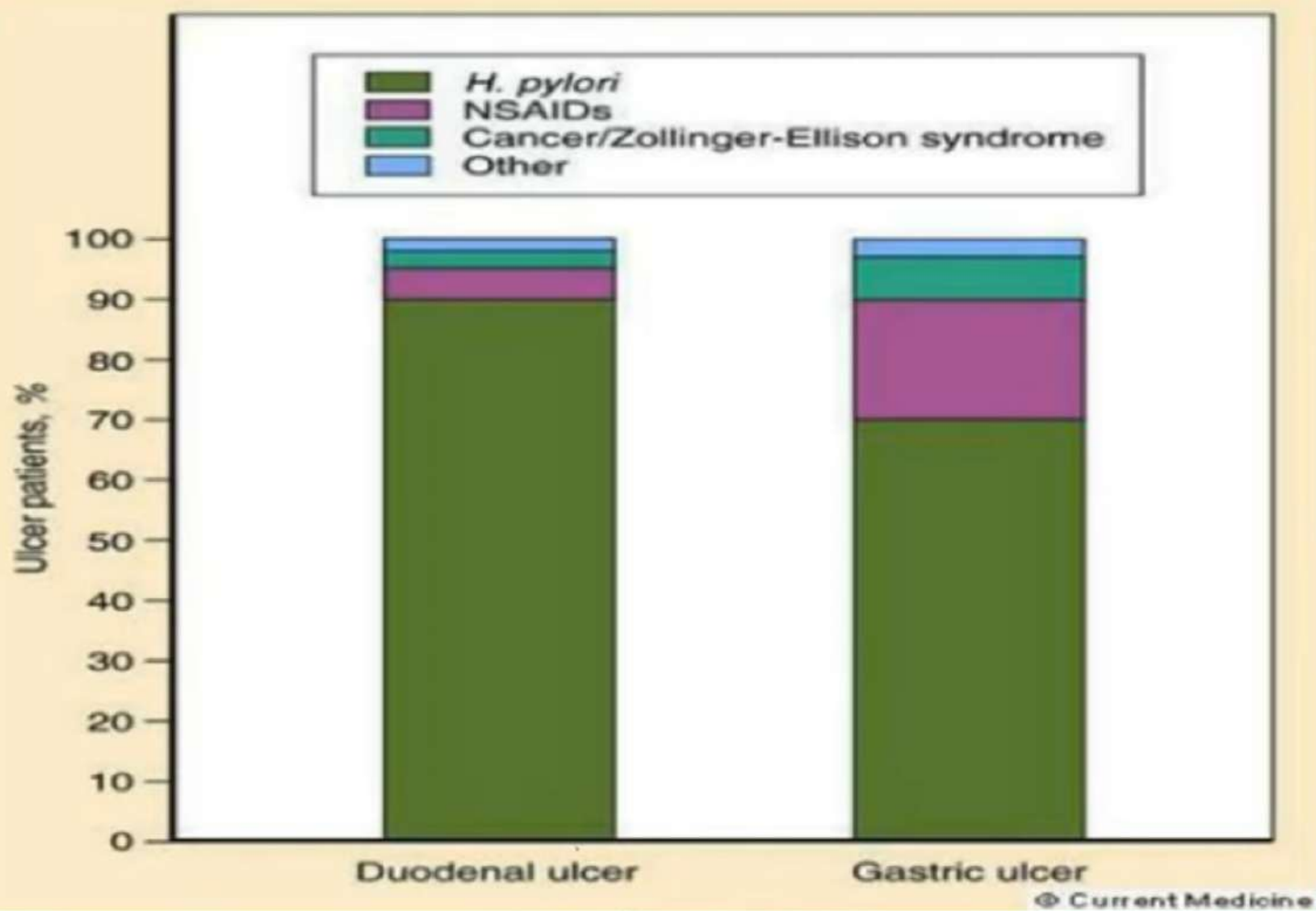
Epidemiology

- Estimated life long prevalence is 10%.
- Male : female 4:1.
- DU:GU 4:1.
- DU emerge 10-20 year earlier.
- ***HLO is Responsible for 95 % of DU and 75 % of GU.***

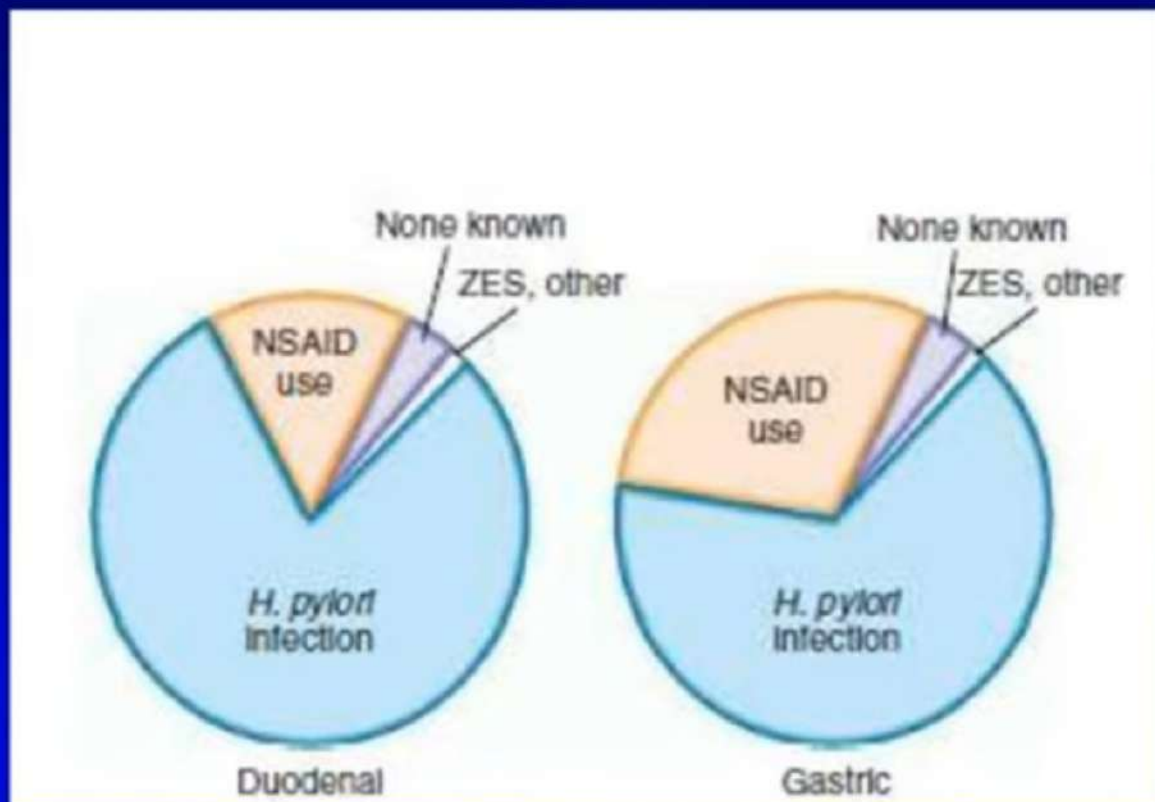


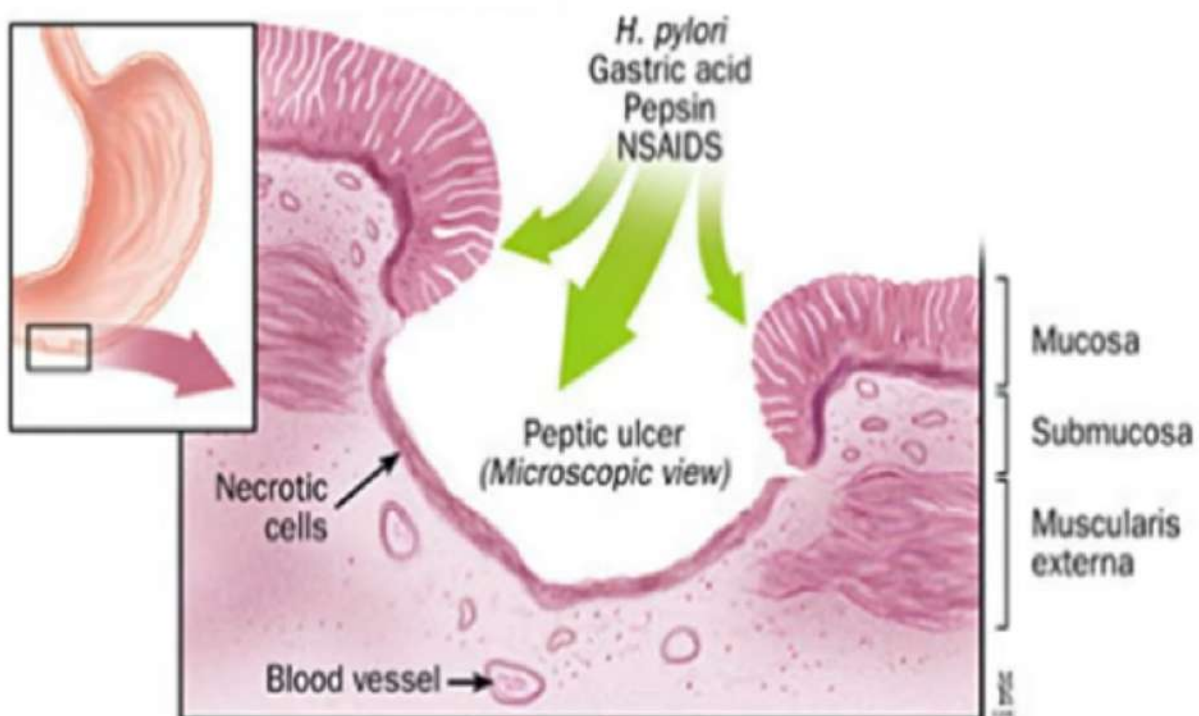
Etiology of PUD

- **H Pylori :**
 - Urease → Stimulate gastrin release increase HCL secretion .
 - Protease : Breaks glycoprotein of mucus layer.
- **Hyperacidity:** ↑ Z- E syndrome , MEN I , Antral G cell hyperplasia .
- **Drugs :** NSAIDS , Steroids .
- **Smoking , Alcohol.**
- Rapid gastric emptying .
- Systemic stress .



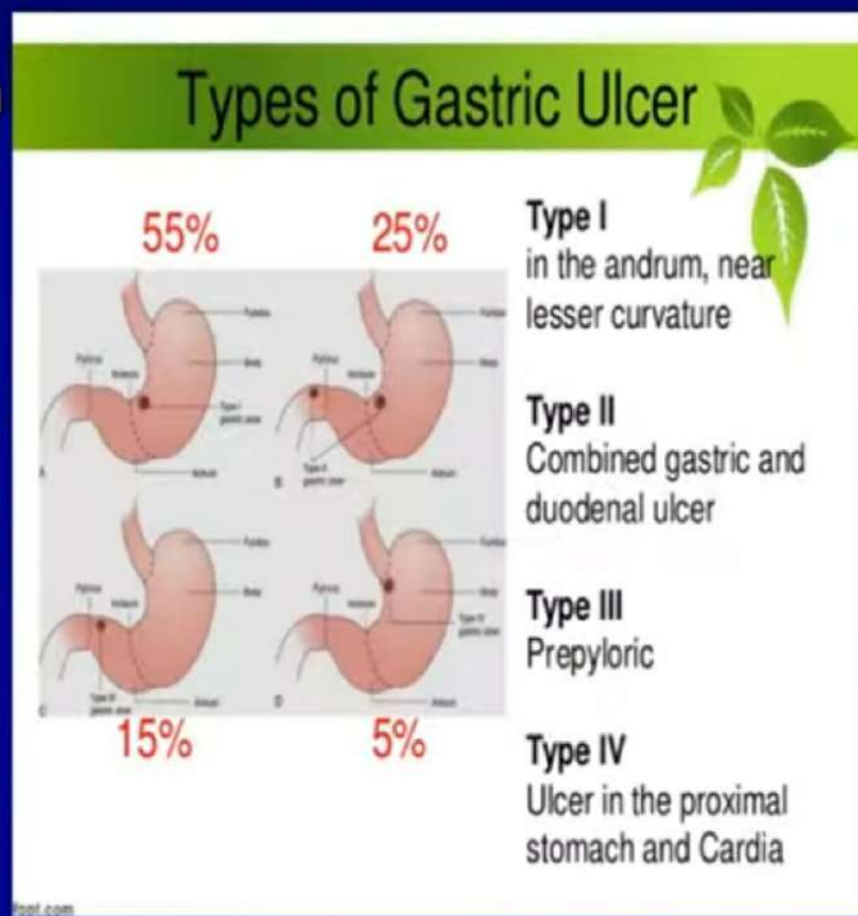
Conditions associated with PUD





Gastric Ulcer Types

- **Type I** : Near Incisura angularis 60%.
- **Type II** : Pre pyloric and Duodenal ulcer.
- **Type III** : Pre pyloric ulcer .
- **Type IV** : High lesser curve ulcer.
- **Type V** : Any where else in stomach .

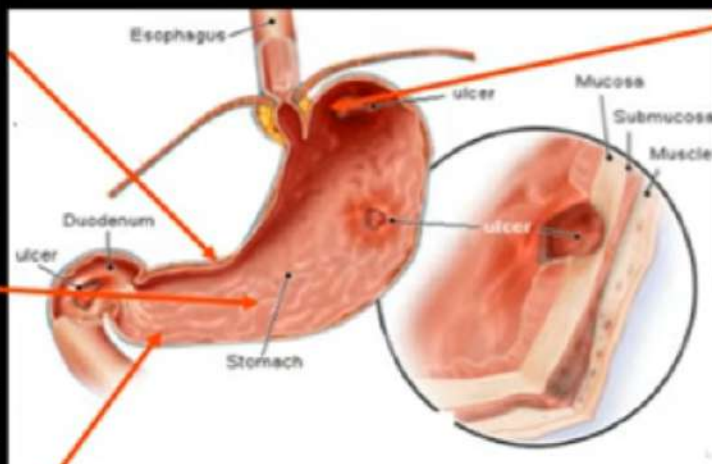


PU Types (Johnson Classification)

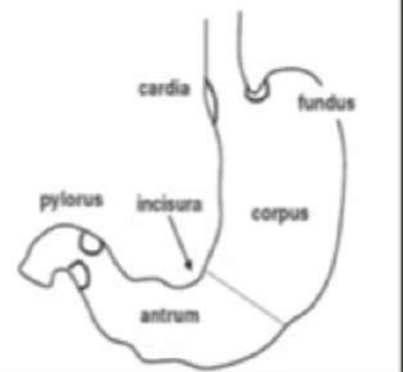
Type I: Near Angularis incisura, lesser curvature, *N* or ↓ acid secretion

Type II: Associate with DU, *N* or ↑ acid secretion

Type III: Prepyloric, *N* or ↑ acid secretion



Type IV: Associate with active DU, *N* or ↓ acid secretion

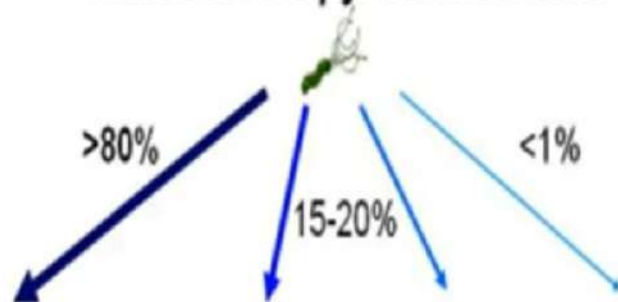


Helicobacter Pylori

- Gram -ve Comma Shaped Bacteria Micro Aerophilic with 4-6 Flagella .
- Is most common cause of PUD, gastric antrum MC site of colonization.
- Transmission is Feco - Oral.
- Secrete urease convert Urea to Ammonia.
- Produce alkaline environment to survive in stomach.
- Higher prevalence in low socio economic.
- Almost all patient with DU and 2/3 of GU are HLO +.



The Clinical Outcomes of *Helicobacter pylori* Infections

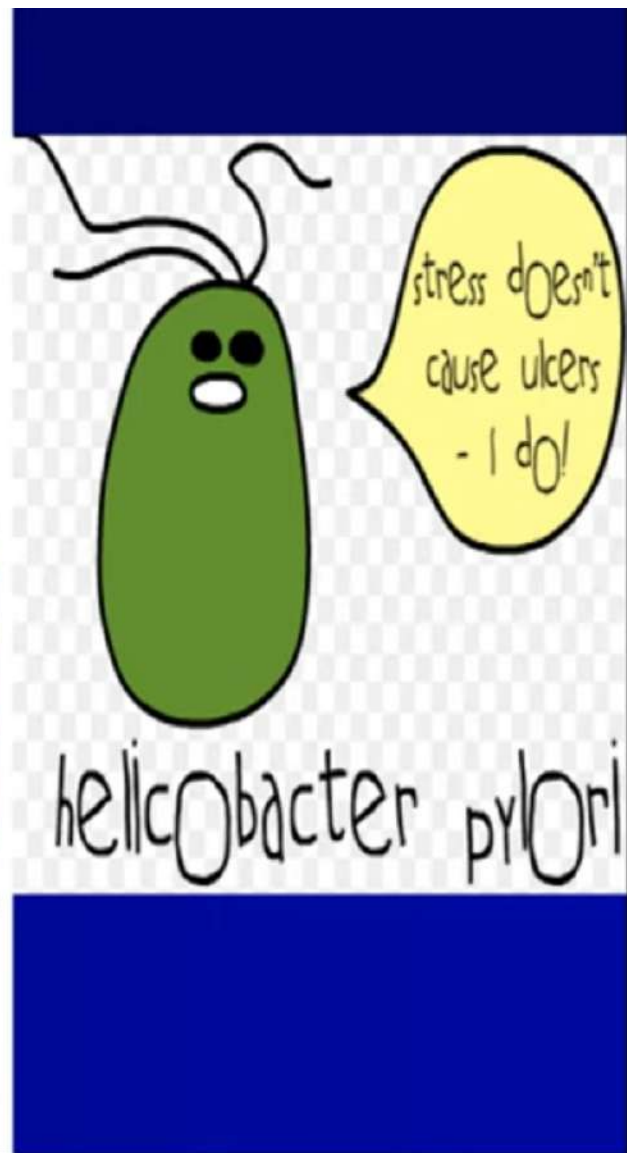


Asymptomatic
or chronic gastritis

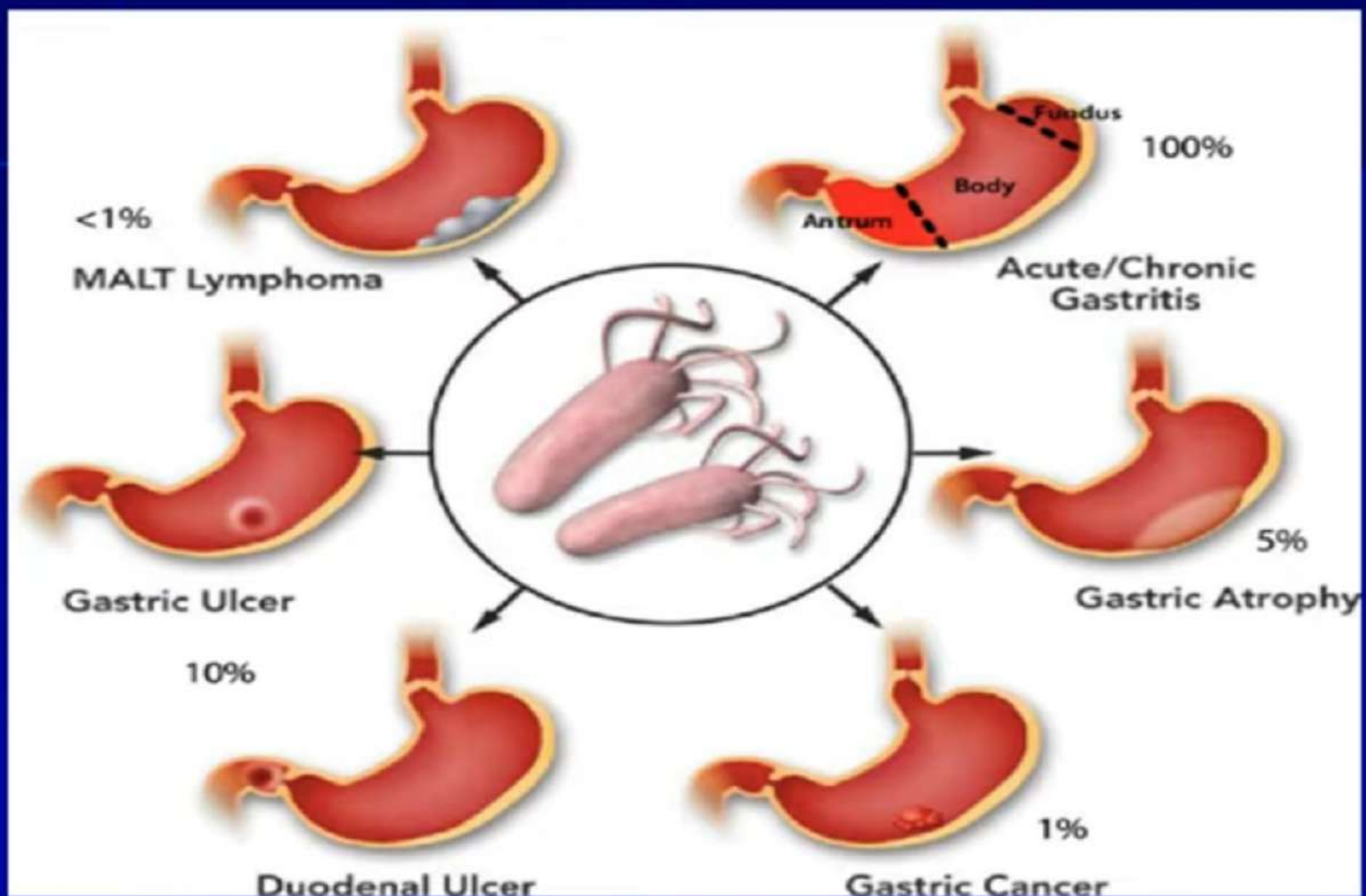
Chronic atrophic gastritis
Intestinal metaplasia

Gastric or
Duodenal ulcer

Gastric cancer
MALT lymphoma



HLO OUTCOME



Urease Breath Test.



Difference between HLO and NSAIDS ulcer

- **HLO ulcers are more common in D1 superficial less severe bleeding .**
- **NSAIDS ulcer more in Stomach Deep more severe bleeding sometimes asymptomatic.**

Differences between GU & Du ulcer

Duodenal ulcer	Gastric ulcer
D ulcers X 4 times more common than GU.	Common in late middle age 50Y
Most common in young and middle age peak incidence 25-50 years.	NSAIDS ↑ risk 4 times.
Male : female 4:1	Male: female 2:1
More common with blood group O	More common with blood group A
95% with HLO , ↑ pepsin production	80% with HLO.
Smoking is twice as common.	10% of gastric ulcer have also D ulcer.

Symptoms off GU,DU

Duodenal ulcer

Upper abdominal pain 2 h after food to Rt of midline.

Relieved by food eats everything night pain , less severe pain.
Remissions i.e. seasonal variations.

Wt gain , Never vomit.
Symptoms improve by anti acids.

No cancer risk

Hyper secretion of HCl

Bleeding less likely more Melena.

Gastric ulcer

Epigastric pain 1/2 h after food to LT of midline.

Afraid to eat ,certain food make pain worse pain is more severe recurses quickly after 1/2 h
Infrequent remissions.

Wt loss , Nausea Induce vomiting.
Less relief by anti acids.

Cancer risk 4%

Usually low HCl secretion.

Bleeding more likely more Hematemesis.

Acute peptic stress ulcer

- Multiple , small mucosal erosions seen in Stomach and less frequently in Duodenum.
- Etiology
- Psychological stress i.e. worry .
- Physiological stress Shock, Septicemia, Polytrauma, Extensive Burns Curling's Ulcer.
- Cushing's Ulcer : Intracranial Pathology .
- Drug Intake : Aspirin , Steroids , NSAIDS .
- Local Irritant : Coffee , Bile salts , Smoking ,Alcohol Vinegar.

Diagnosis

- *Endoscopy Versus Radiology*
- *Endoscopy*
 - *More accurate .*
 - *Take biopsy & Rule out malignancy.*
 - *Diagnose HLO .*
 - *Treat complication .*

Zollinger-Ellison Syndrome

■ Clinical Characteristics

- Peptic ulcer with Diarrhea.
- Peptic ulcer in an usual location.
- Multiple ulcers .
- Refractory ulcer.
- Complications.
- NO HLO NO INSAIDS .
- Diagnosis

- ## ■ Serum gastrin level CT, MRI .

General Strategy of Treatment

- Determine Etiology of Ulcer.
- Discontinue NSAIDS if possible .
- Eradicate HLO if present .
- Non pharmacological treatment .
- Use PPIs to decrease HCL secretion in case of HLO – Ve .
- Improve mucosal defense .
- Treat complication if present .

Eradicate *H. pylori* infection

**PPI (H₂-RA)
or
Bismuth**

+

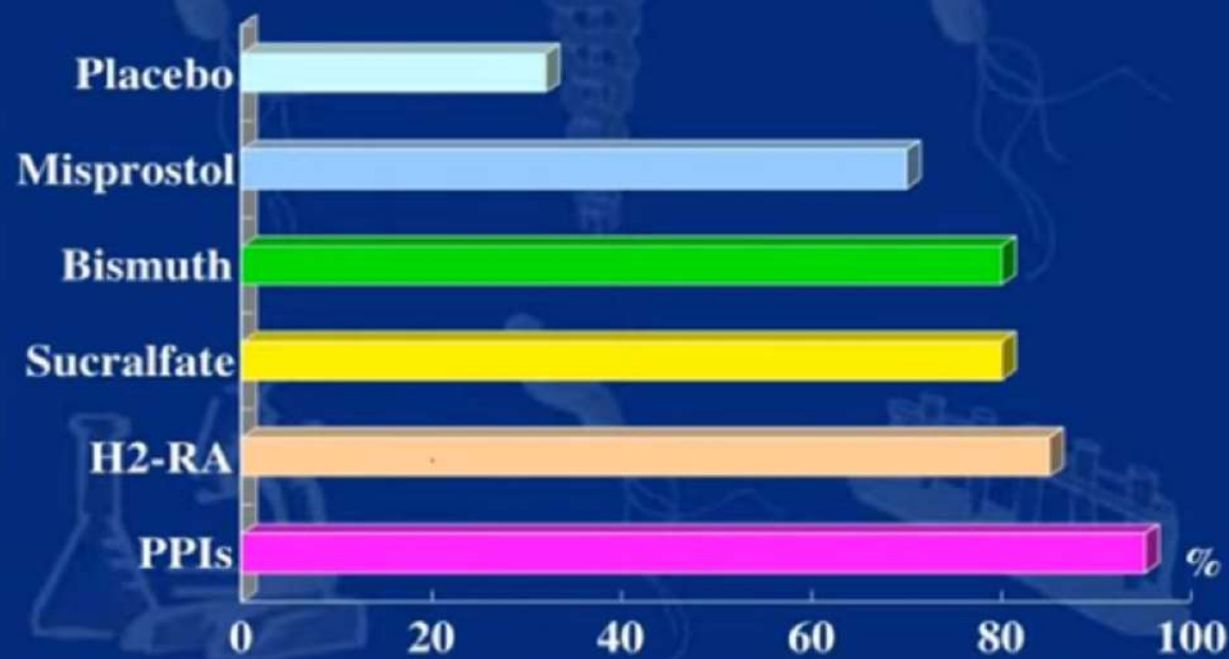
**Two
Antibiotics**

Colloidal Bismuth
Subcitrate (CBS)
240mg

Clarithromycin 250-500mg
Amoxicillin 500-1000mg
(Tetracycline)
Metronidazole 400mg
Furazolidone 100mg

Triple therapy, bid for 1 week

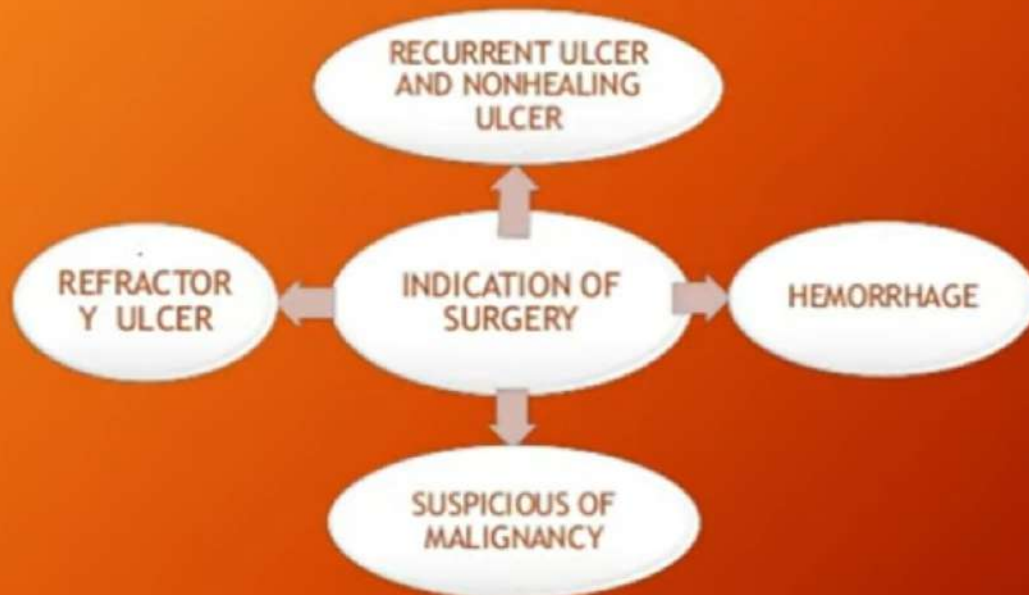
Healing Rates of DU After 4 Weeks Treatment with Various Anti-ulcer Agents



Complication of PUD

- Intractability .
- Bleeding 15-20% .
- Perforation 2-8 % .
- Pyloric Obstruction 5 % .
- Penetration .
- Inflammation .
- Malignant transformation .
- ***N.B Silent Ulcer : Discovered by Chance or present by Complication i.e. Bleeding perforation 10-20% .***

Indication of surgery



Complications of PUD on Endoscopy



Bleeding DU



Perforated GU

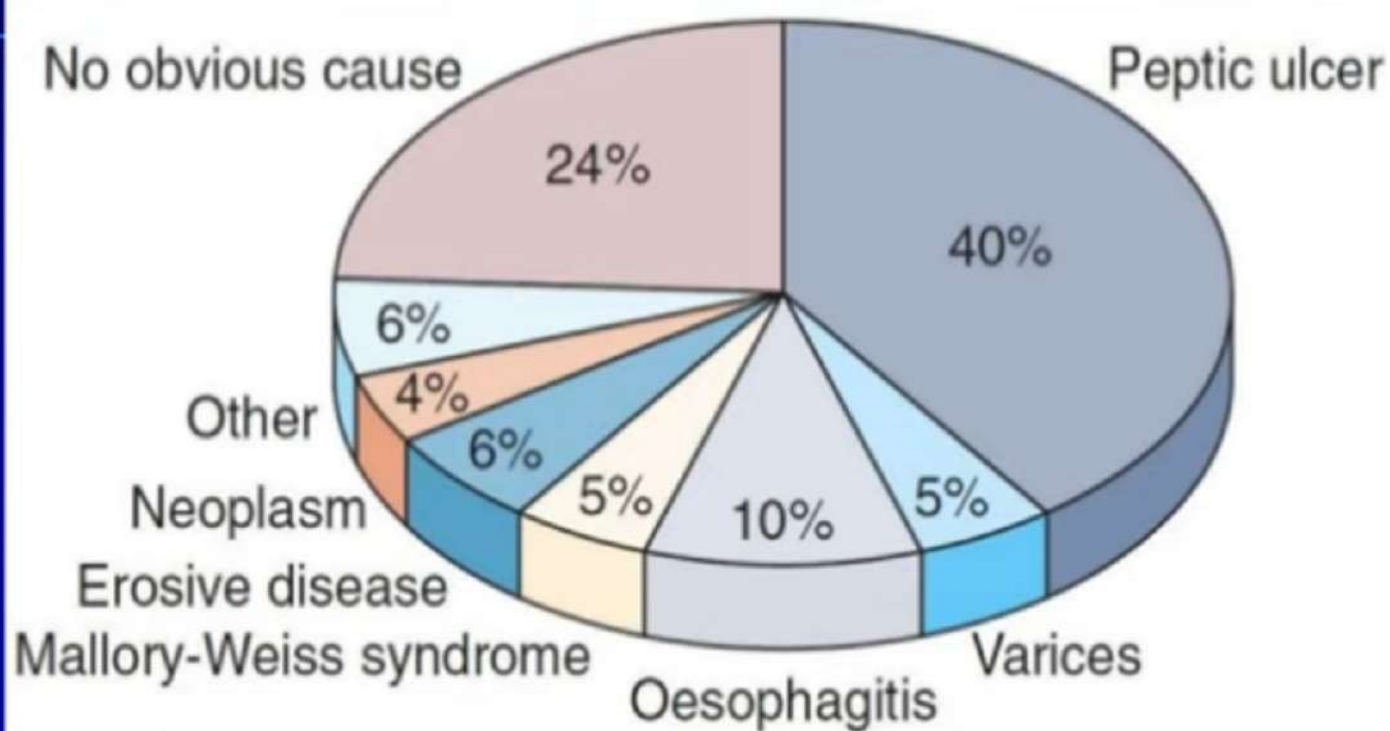


Duodenal stricture

Bleeding

- 15% of PUD cases more with NSAIDS.
- 15 -20% no warning signs.
- Bleeding ulcer mortality is related to age.
- 50% of patients present with hematemesis and melena , 30% with only hematemesis .
- Initially step is assessment of stability of patient (P,BP,RES, Mental status .
- Where pt. go type of care ??.
- Endoscopy when ? 24 hours .(diagnostic and therapeutic).
- Most pt will be discharged 3 days post admission.

Causes of upper GI bleeding

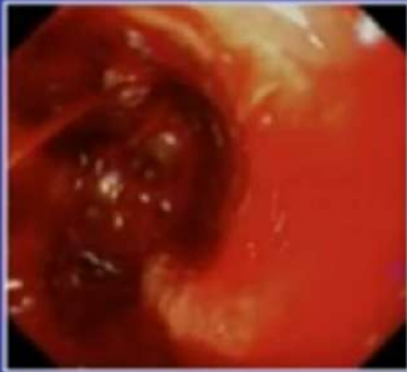


The Forrest classification of severity of bleeding from the ulcer and the risk of re bleed depending on the Upper GI endoscopic picture.

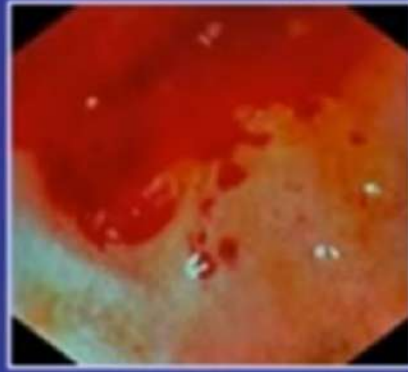
Grade	Endoscopic Picture	Risk of rebleeding
I	Active haemorrhage	
IA	Spurting	85-100%
IB	Oozing	10-27%
II	Signs of recent haemorrhage	
IIA	Visible vessel	50%
IIB	Adherent clot	30-35%
IIC	Haematin covered flat spot	<8%
III	No signs of haemorrhage – clean bed of ulcer	<3%

Forrest's classification for bleeding PU

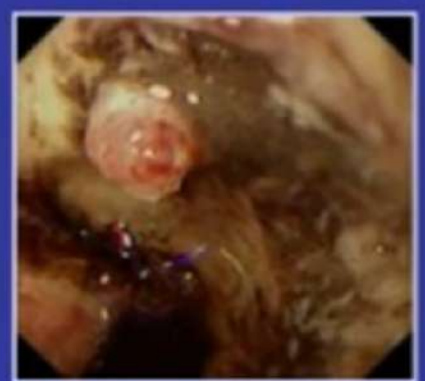
I-a (arterial jet)



I-b (oozing)



II-a (visible vessel)



II-b (adherent clot)



II-c (black spot)



III (clean base)





Clean Base, III



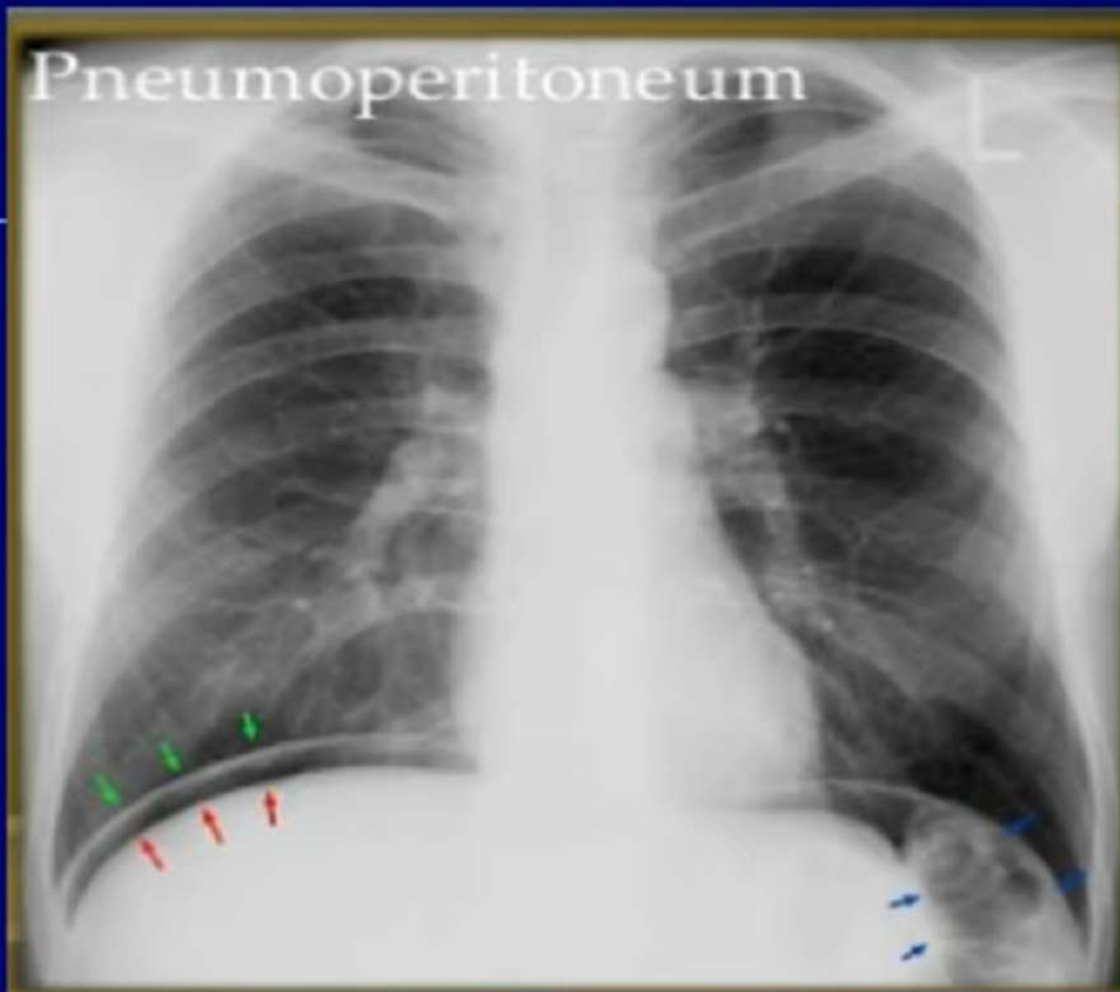
Perforation

- ❖ 6-7% Either
 - Free in to peritoneal cavity .
 - Or Penetration into lesser sac pancreas T. colon.
 - Perf is chemical at first (inflammatory) and then bacterial in 6 to 12 hours.
 - Elderly above 60 y , comorbidities , taking ulcerogenic drugs .
 - Time of perforatio: Severe upper abdominal pain radiating throughout abdomen and possibly to shoulder.
 - Abdomen becomes rigid, Board Like with absent bowel sounds; lying still symptoms of shock.
 - Older adults may present with mental confusion and non-specific symptoms.

Diagnosis

- **PFA**
- **US & CT SCAN**
- **Contrast study water soluble
(Gastrograffin)**

Pneumoperitoneum



Contrast study water soluble (Gastrograffin)



Treatment

- High risk patient is defined as:
 - Older patient
 - Multiple co morbidities
 - Perf > 24 hours.
 - Hypotension at presentation.
- So conservative treatment in these cases.
- NG tube suction.
- Antibiotics.
- IV fluids resuscitation.
- Failure to improve in 24 h → Surgery