

# PEPTIC ULCER DISEASE

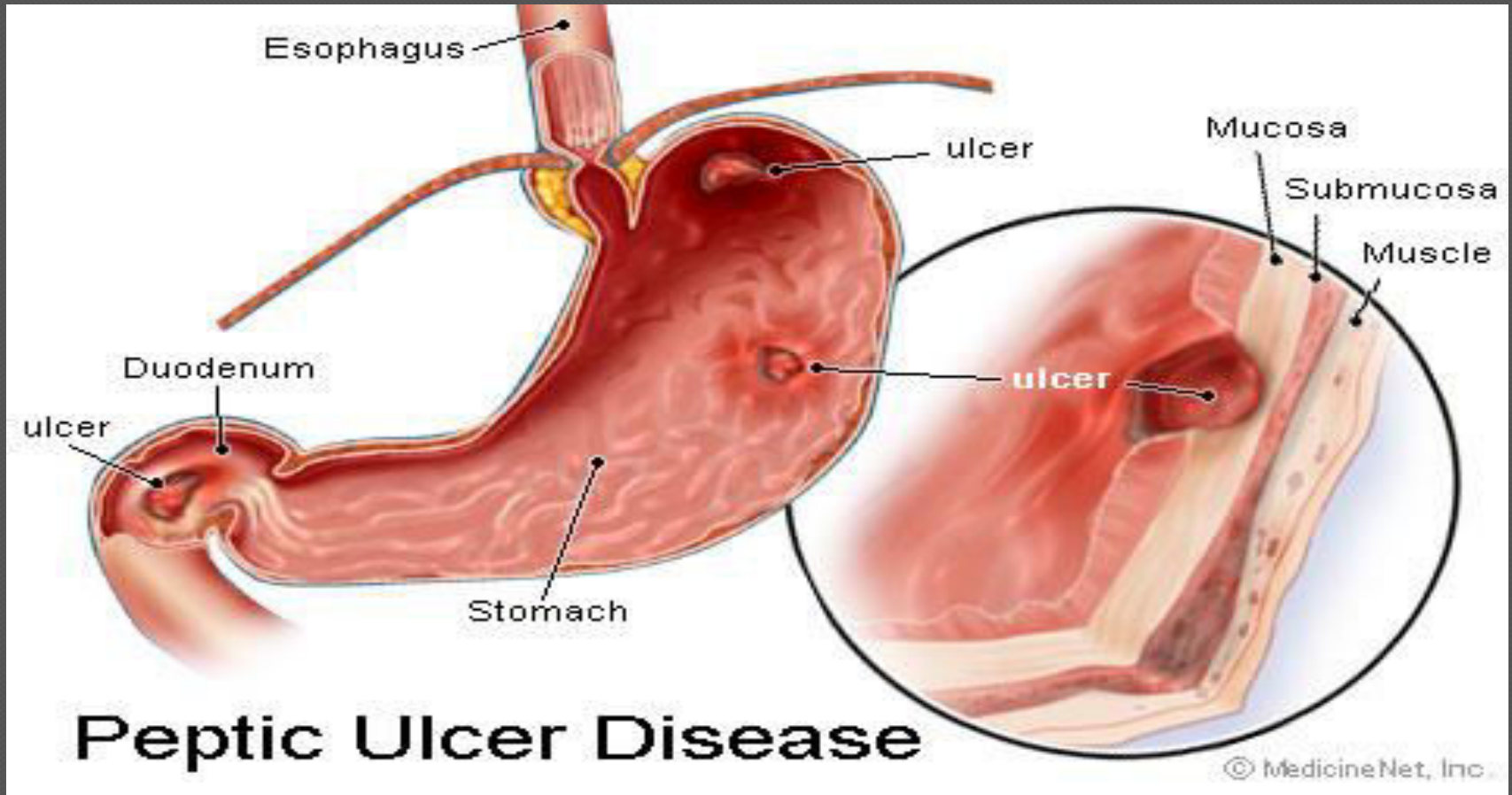
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# Definition

Ulceration (discontinuation of in epithelial layer) of the gastrointestinal mucosa occurring in areas exposed to acid and pepsin.



# Comparing Duodenal and Gastric Ulcers



# Sites of PUD

- Where acid and pepsin are present
- Commonest sites:
  - **Duodenum** especially first part “duodenal bulb”
  - **Stomach** especially over **lesser curvature**
- Other sites:
  - Lower end of esophagus
  - site of gastro -jejunal anastomosis
  - Opposite to Meckel’s diverticulum



# Aetiology of PUD

- **Helicobacter Pylori infection**
- **NSAID**
- **Steroids**
- **Alcohol ingestion**
- **Smoking**
- **Stress**
- **Hyper-secretory state:**
  - **Zollinger – Ellison's Syndrome**

# Epidemiology of PUD

- Prevalence about 5-10%
- More common in Blood group “O”
- Higher prevalence in **low socioeconomic classes** and with certain diseases
- **DU** more in males: **M/F: 3:1**
- **GU** equal in both sexes but increases with age
- **Family History: 3-4 increased risk .**
- **Cigarette smoking:**
- **Emotional disturbance & Stress:**



# Role of Acid in PUD

- **NEVER** when = “MAO” < 10 mmol/hour
- **RARE** when = “MAO” < 20 mmol/h
- **COMMON** with = higher MAO rates
- **NOT** when fasting gastric pH > 2.5

# DEFENSIVE FACTORS

- Prostaglandins
- Mucosal blood flow
- Mucus gel layer
- HCO<sub>3</sub>
- Regeneration of epithelial layer



# Clinical Feature

- Epigastric Pain— “aching” or “burning”
  - Duodenal ulcers:
    - Pain after 2-3 hours of a meal
    - May awaken patient from sleep.
    - Pain is relieved by food, antacids, or vomiting.
    - Patient may be obese
  - Gastric ulcers:
    - Food may exacerbate the pain while vomiting relieves it.
    - So patient may have weight loss
    - Nausea, Vomiting, & weight loss more common
- Nausea, vomiting, belching, dyspepsia, bloating, chest discomfort, anorexia,
- hematemesis, &/or melena may also occur.

# Objective Data

- Epigastric tenderness
- Occult blood loss in stool
- Succussion splash
  - A succussion splash describes the sound obtained by shaking an individual who has free fluid and air or gas in a hollow organ or body cavity.
  - Done by gently shaking the abdomen by holding either side of the pelvis.



# Differential Diagnosis

- Gastritis
- Cholecystitis
- Pancreatitis
- Hiatus hernia
- Epigastric hernia
- Gastro-Esophageal Reflux Disease
- Neoplasm of the stomach
- Pancreatic cancer
- Diverticulitis
- MI—not to be missed if having chest pain

# Diagnostic Plan

- **Stool** for fecal occult blood
- **CBC, liver function test, amylase, and lipase.**
- **H. Pylori** can be diagnosed by
  - Urea breath test,
  - Stool antigen assays
- **Upper GI Endoscopy:**
  - Any pt >50 years.
  - with alarm markings including anemia, weight loss, or GI bleeding.
- **Gastric Biopsy**
  - Highly sensitive for dx of ulcers
  - To rule out malignancy and rapid urease tests.



# Complications of PUD

- **Bleeding from ulcer**
- **Perforation**
- **Gastric outlet obstruction = Pyloric Stenosis**
- **Malignancy at site of ulcer**

# Natural history of PUD

- Chronic disease with relapses and remissions.
- If left untreated, 30-40 % of ulcers heal within 8 weeks.
- Recurrence rate without treatment is 70-90%.
- Complications develop in 20% of PUD



# TREATMENT OF PEPTIC ULCER DISEASE

- **AIM OF TREATMENT:**
  - Relief from Symptoms
  - Heal Ulcer
  - Prevent Complication
  - Prevent Recurrence

# Life-style modification in PUD

- **Doubtful efficacy**
  - **Rest**
  - **Relaxation**
  - **Good sleep**
  - **Diet:**
    - **Frequent small meals**
    - **milk**
    - **More amount of fiber**
    - **Fat free diet**
    - **Avoid caffeine-containing beverages**
    - **Avoid Spices**
    - **Avoid addiction like alcohol & smoking**



# HISTAMINE - RECEPTOR ANTAGONISTS (H2-Blockers )

- **Cimetidine 400mg b.d or 800mg at bed time**
- **Ranitidine 150mg b.d. or 300mg at bed time**
- **Famotidine 20mg b.d. or 40mg at bed time**
- **Act through blocking H2 receptors in the parietal cells**
- **Suppress nocturnal acid secretion**
- **Suppress 24 hour acid secretion**
- **Side effects :**
  - **Reversible gynecomastia and impotence.**

# PROTON PUMP INHIBITORS(PPIs)

- Irreversibly inhibiting the  $H^+$  ,  $K^+$ - ATPase of the gastric parietal cells
- Inhibit over 90 % of 24-hour acid secretion
- Omeprazole: 40 mg BD
- Pantoprazole: 40 mg OD
- Rabeprazole: 20 mg OD
- Esomeprazole: 40 mg OD



# ANTACIDS

- **Rapid symptomatic relief**
- **Cheap**
- **If taken on empty stomach; they are effective only for 10-20 minutes**
- **If taken one hour after meals they are effective for 2-3 hours.**
- **Tablet preparations are less effective than suspensions**

## Side effects of antacids

- **Sod bicarbonates:**
  - increases sodium load
- **Aluminum compounds:**
  - constipation
  - binds phosphates
  - binds drugs.
- **Magnesium compounds:**
  - diarrhea
  - accumulation in renal failure
- **Calcium compounds:**
  - constipation



# Eradication therapy for H.Pylori

- **Sensitive to the following agents:**
  - **Amoxicillin**
  - **Tetracyclin**
  - **Clarithromycin**
  - **Metronidazole, Tinidazole**
  - **Bismuth**
  - **Second line drugs:**
    - **Levofloxacin, Gatifloxacin**
- **Use triple or quadruple regimen for 7-14 days.**
- **Relapse rate drops to less than 10% per year after successful eradication**

# SUCRALFATE

- **1gm 4 times daily on empty stomach**
- **Increasing local mucosal production of PGs**
- **Side effects:**
  - **constipation**
  - **nausea**
  - **reduces the absorption of some drugs**



# PROSTAGLANDINS (Misoprostol)

- Inhibit gastric acid secretion.
- Less effective than H<sub>2</sub>- blockers

# Anti- Cholinergic drugs

- Name : Pirenzepine
- Action : Inhibit muscarinic receptor
- Side effect :
  - Dryness in mouth
  - Tachycardia
  - Urinary retention



# Surgery

- People who do not respond to medication, or who develop complications:
  - Vagotomy –
  - Antrectomy -
  - Pyloroplasty -