GERD and Peptic Ulcer Disease

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GERD…. Definition

- Prolonged reflux of hydrochloric acid and pepsin in esophagus, oral cavity and respiratory system
- Chronic and relapsing condition
- Lead to esophagitis and other post inflammatory conditions of intestinal and respiratory mucosa

GERD…. Epidemiology

- Developed countries
- Epidemic proportion; present in 40% of healthy population
- Adult male , over 40 year
- Low mortality

GERD…. Pathophysiology

- Dysfunction of LES(lower esophageal sphincter)
- Barrier Function: prevent reflux with mutual contraction of diaphragm
- Retain high pressure during gastric digestion

GERD… Risk Factor

- Prolonged gastric emptying
- Obesity
- Pregnancy
- Hiatal hernia
- Trauma
- Transient LES relaxation- Nocturnal and Post prandial

GERD…. Symptoms

- Main symptom of GERD is HEART BURN which is
  - retrosternal burning pain
  - may star in abdomen and extend into neck

Other symptoms are

Regurgitation

Globus syndrome

Respiratory symptoms – atypical symptoms connected to asthma, hoarseness and hiccough

Nausea resulting in vomiting but very uncommon

GERD…. Complications

- Chronic esophagitis …. Erosive changes
- Stricture leading to dysphagia
- Barrett's esophagus
- Dysplasia
- adenocarcinoma

GERD….Diagnosis

- Clinical

  Evaluation of symptoms ,excluding other possible cause like angina pectoris

- Endoscopic procedure

  Esophagogastroscopy with biopsy

- PH metric

  24 hour intraluminal monitoring

GERD… Treatment

- Non Pharmacological (life style modifications)

Other

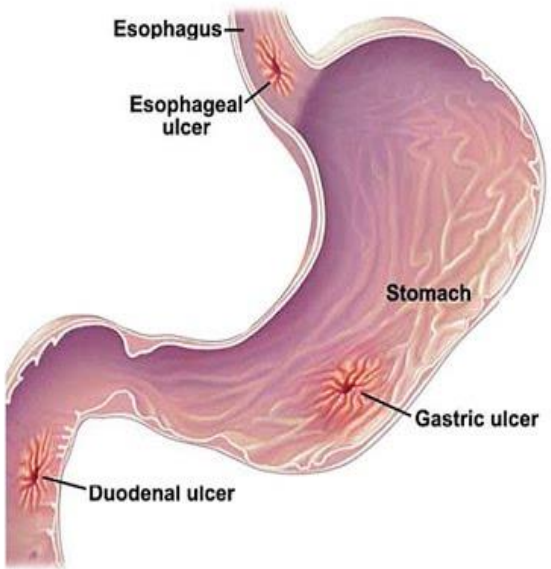
- Elevate the head of your bed while sleeping
- Slowly eat and chew thoroughly
- Avoid trigger food that is fried and fatty food

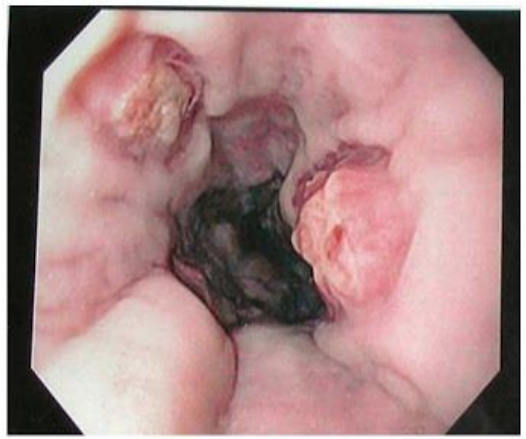
GERD… Treatment

Medication

- Proton pump inhibitors
- H2 antagonist
- Antacid
- Surgical and endoscopic procedue

Peptic Ulcer Disease





Introduction

Erosion of GI mucosa resulting from digestive action of HCl and pepsin

Site

- Lower esophagus
- Stomach
- Duodenum
- 10% of men, 4% of women

Definition

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

Introduction

Peptic refers to pepsin: a stomach enzyme that breaks down protein

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

Types

Acute

- Superficial erosion
- Minimal erosion

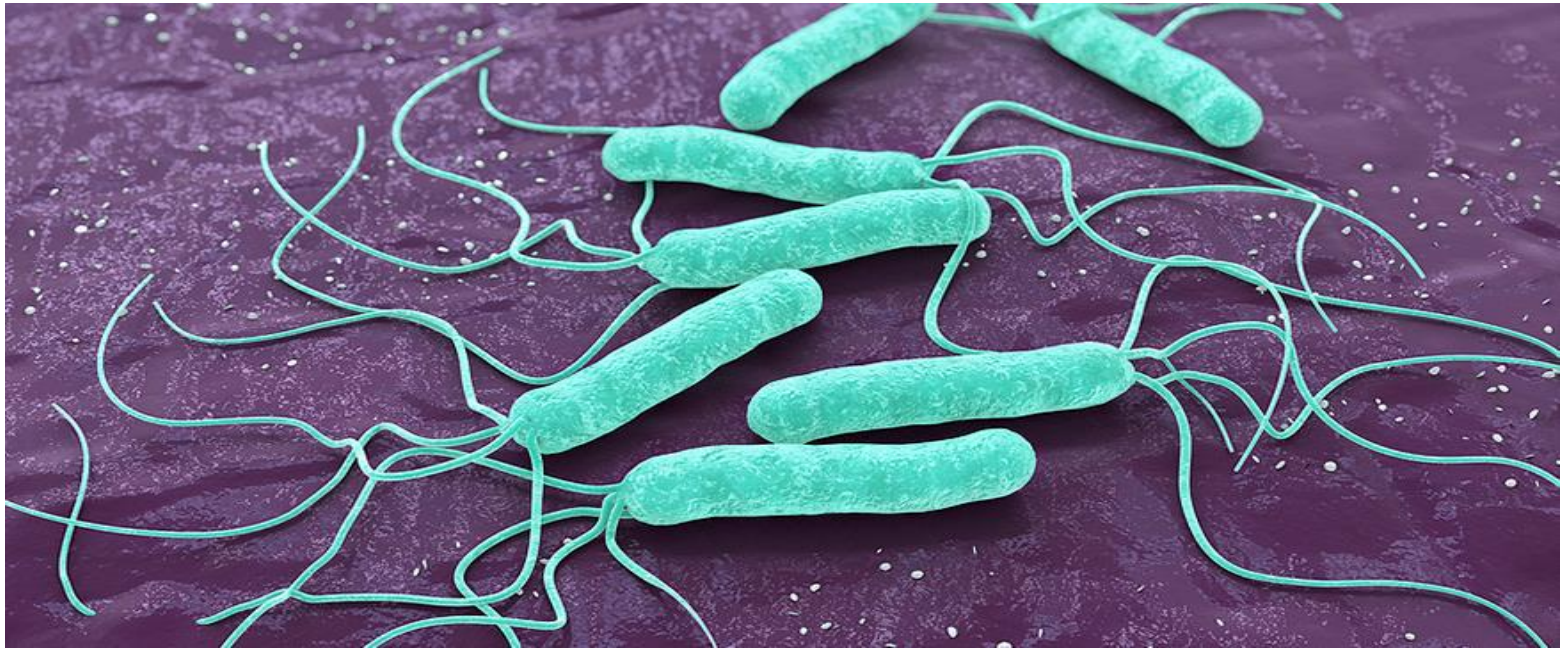
Chronic

- Muscular wall erosion with formation of fibrous tissue
- Present continuously for many months or intermittently

Etiology

- 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)



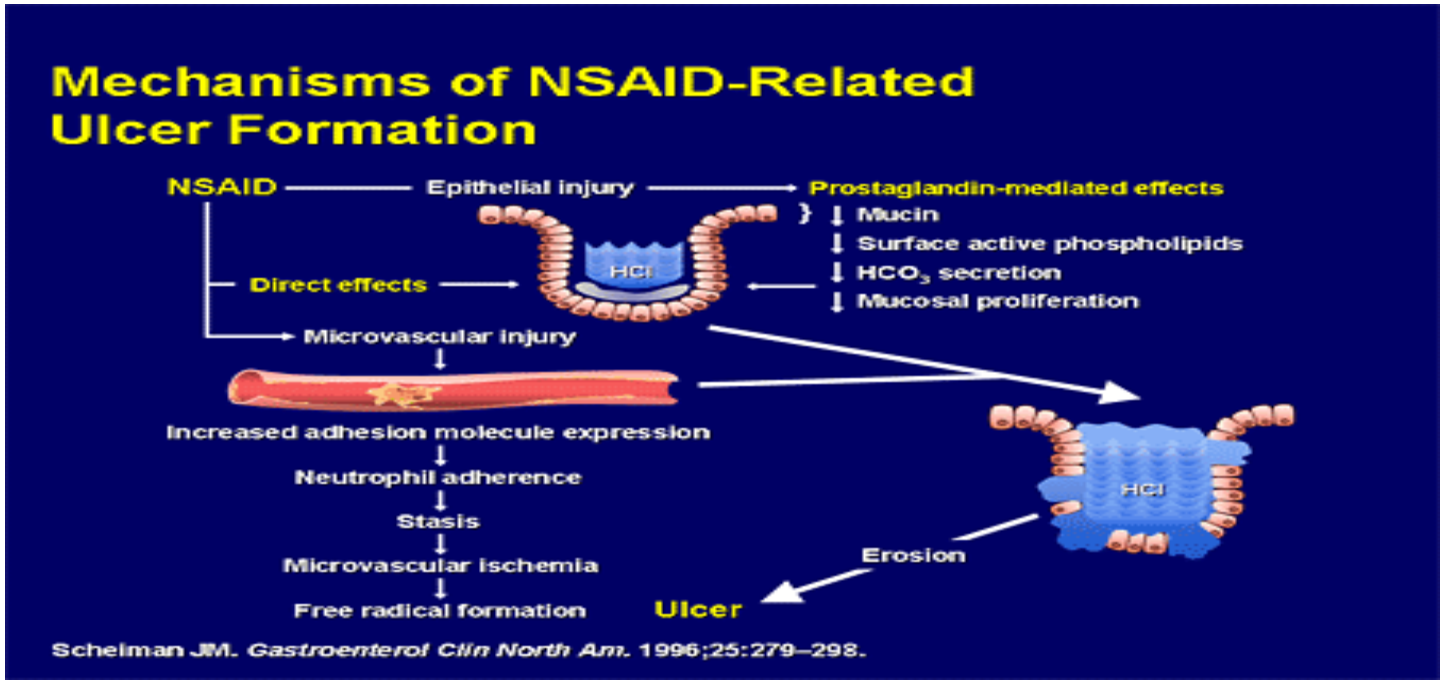
Stress increase HCL secretion.

Stress Ulcer

Nonsteriodal anti-inflammatory drugs

- Chronic use of NSAID is another cause of ulcer formation

Prostaglandins are substances which are important in helping the gut lining resist corrosive acid damage. NSAIDS inhibit prostaglandin secretion

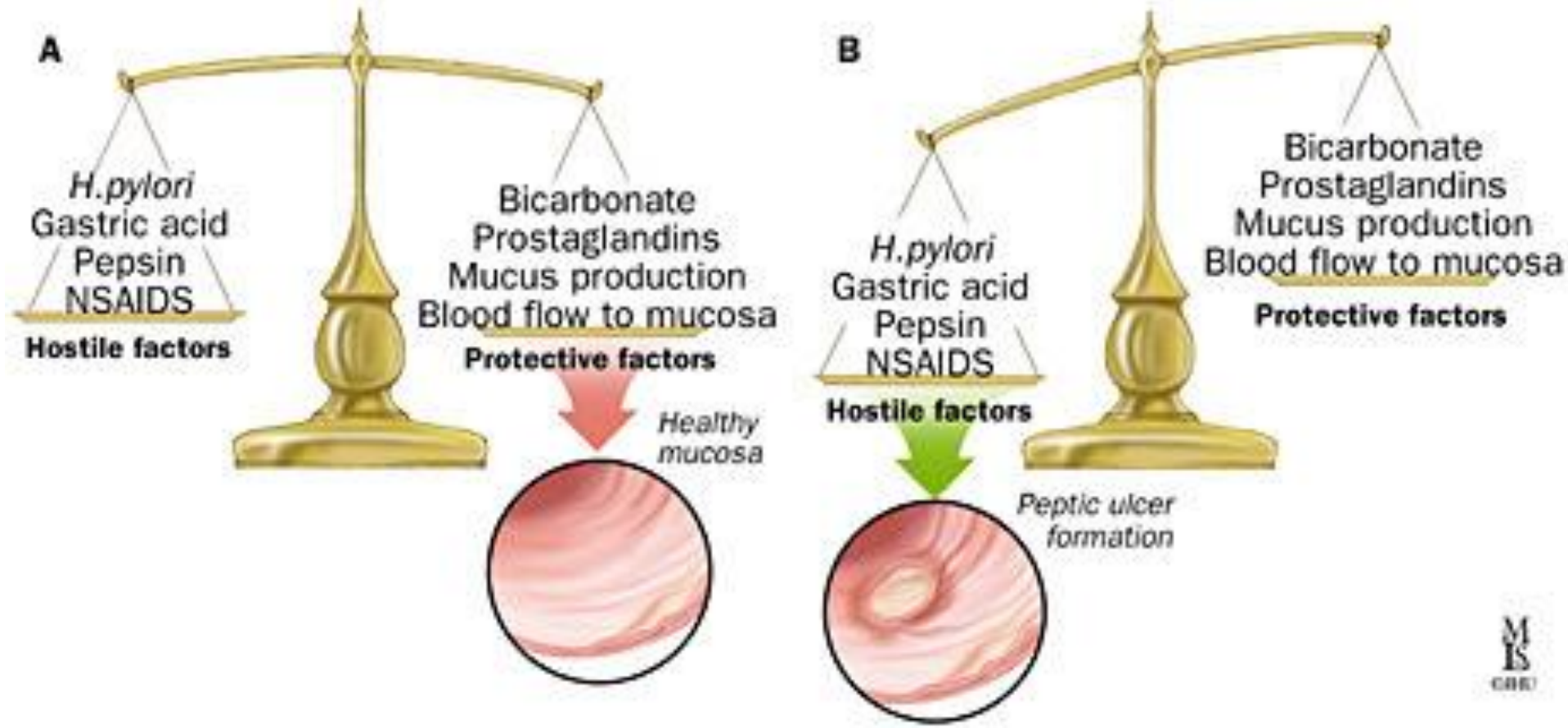


Smoking

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

others

- Alcohol
- Coffee
- Caffeine
- Colas
- Spicy food


A
H.pylori
Gastric acid
Pepsin
NSAIDS
Hostile factors
Bicarbonate
Prostaglandins
Mucus production
Blood flow to mucosa
Protective factors
Healthy mucosa
B
H.pylori
Gastric acid
Pepsin
NSAIDS
Hostile factors
Bicarbonate
Prostaglandins
Mucus production
Blood flow to mucosa
Protective factors
Peptic ulcer formation

Types of Peptic Ulcer

- Duodenal
- Gastric
- Esophageal
- Zollinger Ellison syndrome(severe peptic ulcer +gastric hyperacidity,gastrinoma: islet cell tumor of pancreas)
- Curling’s Ulcer

Gastric Ulcers

Characterized by

- A normal to low secretion of gastric acid
- Back diffusion of acid is greater (chronic)
- Critical pathologic process is amount of acid able to penetrate mucosal barrier
- H pylori is present in 50% to 70%
- Drugs --- Aspirin, corticosteroids, N SAIDs, reserpine, Chronic alcohol abuse, chronic gastritis

Duodenal Ulcers

- Between ages of 35 to 45 years
- Account for 8 0% of all peptic ulcers
- Associated with ↑HCl acid secretion
- H.pylori associated in 9 0- 9 5 % of cases
- Diseases with ↑risk of duodenal ulcers

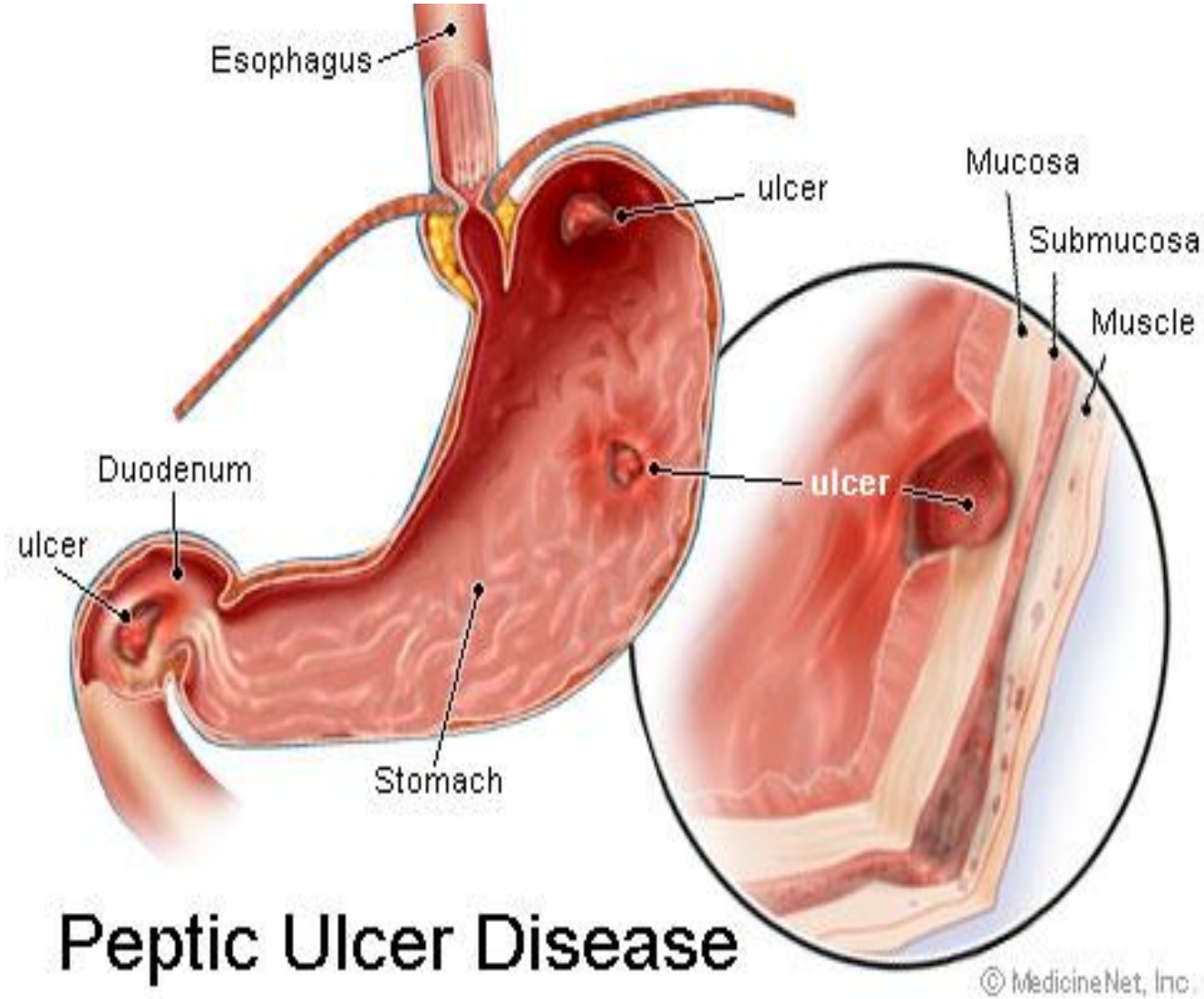
  COPD, cirrhosis of liver, chronic pancreatitis, hyperparathyroidism, chronic renal failure

Clinical Features

- Common to have no pain or other symptoms
  - Gastric and duodenal mucosa not rich in sensory pain fibers
  - Duodenal ulcer pain
    - Burning, cramp like
  - Gastric ulcer pain
    - Burning, gaseous

Complications

- 3 major complications
  - ❖Hemorrhage
  - ❖Perforation
  - ❖Gastric outlet obstruction
- Initially treated conservatively
- May require surgery at any time during course of therapy


Esophagus
ulcer
Mucosa
Submucosa
Muscle
Duodenum
ulcer
ulcer
Stomach
Peptic Ulcer Disease
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Diagnostic Studies

- **Endoscopy procedure**
  - Determines degree of ulcer healing after treatment
  - Tissue specimens can be obtained to identify H. pylori and to rule out gastric cancer
- **Tests for H.pylori**
  - Noninvasive tests
    - Serum or whole blood antibody tests
      - Immunoglobin G (I g G)
    - Urea breath test
    - C 14 breath test
  - Invasive tests
    - Biopsy of stomach
    - Rapid urease test

- **Barium contrast studies**
  - Widely used
- **X- ray studies**
  - Ineffective in differentiating a peptic ulcer from a malignant tumor
- **Gastric analysis**
- **Lab analysis**

Drug Therapy

- Antacids
- H_2 receptor blockers
- PPIs
- Antibiotics
- Anticholinergics
- Cytoproctective therapy

Histamine receptor blocks (H_2 R blockers)

- Used to manage peptic ulcer disease
- Block action of histamine on H_2 receptors
  - **↓ HCl acid secretion**
  - **↓ conversion of pepsinogen to pepsin**
  - **↑ ulcer healing**

Proton pump inhibitors

- Block ATPase en zyme that is important for secretion of HCl acid

Antibiotic therapy

- Eradicate H. pylori infection
- No single agents have been effective in eliminating H. pylori

Differential Diagnosis

- Stomach perforation – surgical emergency, rigid abdomen, rebound tenderness
- UGI bleed – melena or hematemesis
- Gastric Cancer – needs EGD to view the lesion and for histologic exam of the biopsy specimens
- Gastritis – negative physical exam, consistent burning epigastric pain
- GERD/Esophagitis - epigastric pain after eating and improves with antacids . Negative physical exams
- Duodenal Ulcer – pain is nocturnal and occurs after 30 minutes to 2 hours after eating when stomach is empty. Relieved with food or antacid intake.


THANK
YOU