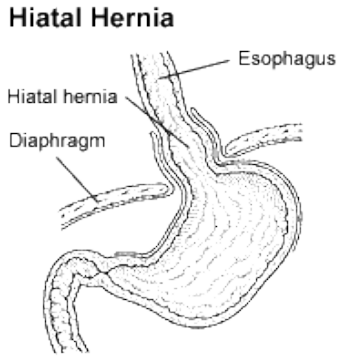
WEEK 8: Nursing care for patient with digestive system disorders: Hernia., Ulcerative Colitis, Peptic Ulcer, Irritable Bowel Syndrome, Appendicitis, Intestinal Obstruction

Hiatal hernia

A **hiatal hernia**, also known as **hiatus hernia**, is a medical condition where abdominal organs, typically the stomach, slip through the diaphragm into the middle compartment of the chest. This condition can lead to gastroesophageal reflux disease (GERD) or laryngopharyngeal reflux (LPR) with symptoms such as acid taste in the back of the mouth and heartburn. Other symptoms may include trouble swallowing and chest pain. Complications can involve iron deficiency anaemia, volvulus, or bowel obstruction. There are two main types of hiatal hernia: sliding and paraesophageal.



A drawing of a hiatal hernia

Signs and Symptoms

Hiatal hernia is often termed the "great mimic" because its symptoms can resemble many disorders. Symptoms include dull chest pains, shortness of breath due to diaphragm pressure, heart palpitations from vagus nerve irritation, and discomfort when swallowed food "balls up" in the lower oesophagus. Heartburn, chest pain, and pain with eating are also common. In many cases, hiatal hernia does not cause any symptoms, and the pain experienced is often due to gastric acid reflux. In newborns, symptoms like difficulty breathing, fast respiration, and increased heart rate may indicate a Bochdalek hernia.

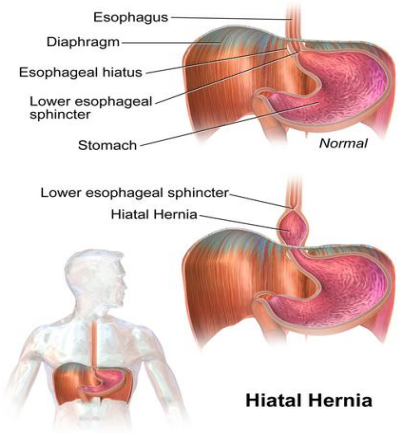


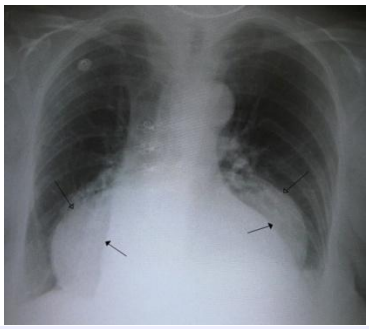
Illustration of a hiatal hernia

Causes

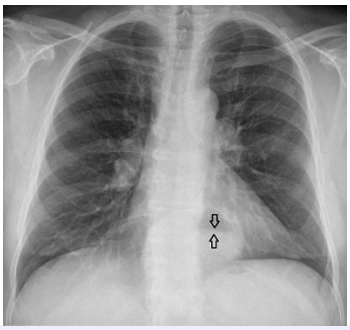
The potential causes of hiatal hernia include increased abdominal pressure due to heavy lifting, frequent coughing, hard sneezing, violent vomiting, and straining during defecation. General risk factors include obesity and age-related changes to the diaphragm.

Diagnosis

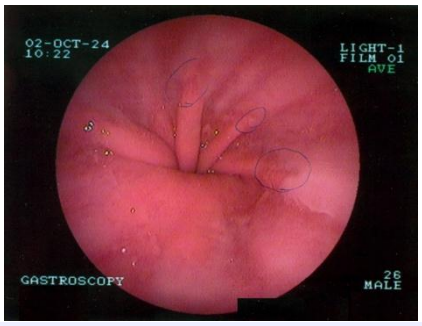
Diagnosis of a hiatal hernia is typically confirmed through an upper GI series, endoscopy, high-resolution manometry, esophageal pH monitoring, and computed tomography (CT). Each method serves different diagnostic purposes, such as evaluating the size and location of the hernia, analysing the esophageal surface, determining esophageal movements, and diagnosing complications like gastric volvulus.



A large hiatal hernia on chest X-ray marked by open arrows in contrast to the heart borders marked by closed arrows



This hiatal hernia is mainly identified by an air-fluid level (labelled with arrows)

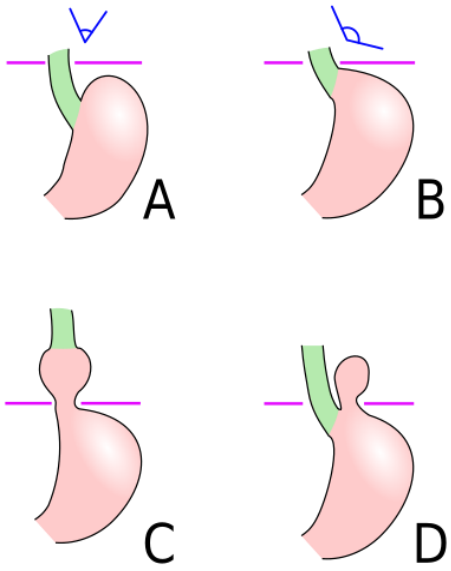


Upper GI endoscopy depicting hiatal hernia

Classification

Hiatal hernias are classified into four types:

1. **Type I (Sliding Hiatal Hernia):** Part of the stomach slides up through the hiatal opening in the diaphragm. This is the most common type, accounting for 95% of all hiatal hernias.
2. **Type II (Paraesophageal or Rolling Hernia):** The fundus and greater curvature of the stomach roll up through the diaphragm, forming a pocket alongside the oesophagus.
3. **Type III:** Combines elements of both Type I and Type II hernias.
4. **Type IV:** Involves a large defect in the phrenoesophageal ligament, allowing other organs such as the colon, spleen, pancreas, and small intestine to enter the hernia sac.



Schematic diagram of different types of hiatus hernia. Green is the oesophagus, red is the stomach, purple is the diaphragm, blue is the HIS-angle. A is the normal anatomy, B is a pre-stage, C is a sliding hiatal hernia, and D is a paraesophageal (rolling) type.

Treatment

Most people with hiatal hernia experience no significant discomfort and do not require treatment. For symptomatic cases, lifestyle modifications such as elevating the head of the bed, avoiding lying down after meals, and weight loss are recommended.

Medications

Antisecretory drugs like proton pump inhibitors and H2 receptor blockers can help reduce acid secretion. Medications that reduce the lower esophageal sphincter (LES) pressure should be avoided.

Procedures

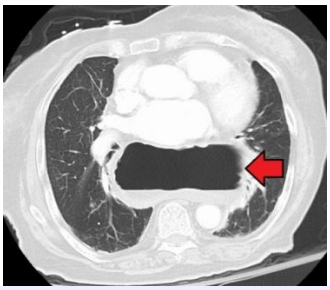
Oral neuromuscular training has shown tentative evidence of symptom improvement. This treatment has been approved by the UK National Health Service for prescription.

Surgery

Surgery may be considered in severe cases, particularly for large or paraesophageal hernias causing significant symptoms or complications like Barrett's oesophagus. However, surgery carries risks including gas bloat syndrome, dysphagia, dumping syndrome, excessive scarring, and occasionally achalasia. Nissen fundoplication is a common surgical procedure where the gastric fundus is wrapped around the lower oesophagus to prevent herniation and acid reflux. This procedure is often performed laparoscopically with relatively low complication rates and good long-term results.

Epidemiology

The incidence of hiatal hernias increases with age, with approximately 60% of individuals aged 50 or older affected. The majority are sliding hernias, while paraesophageal hernias are less common. Hiatal hernias are most prevalent in North America and Western Europe and rare in rural African communities. Insufficient dietary fibre and high sitting position for defecation may increase risk.



A large hiatal hernia as seen on CT imaging

Self-assessment MCQs (select the best answer)

1. **What is a hiatal hernia?**

a. A condition where a part of the liver slips through the diaphragm
b. A condition where abdominal organs, typically the stomach, slip through the diaphragm into the chest
c. A condition where the intestines protrude through the abdominal wall
d. A condition where the heart enlarges and presses against the diaphragm
e. A condition where the oesophagus becomes abnormally narrow

2. **Which of the following is a common symptom of a hiatal hernia?**

a. Severe lower back pain
b. Swollen feet and ankles
c. Heartburn
d. Blurred vision
e. Frequent urination

3. **What are the two main types of hiatal hernia?**

a. Sliding and paraesophageal
b. Inguinal and femoral
c. Umbilical and incisional
d. Direct and indirect
e. Ventral and epigastric

4. **Which diagnostic method is commonly used to confirm a hiatal hernia?**

a. Electrocardiogram (ECG)
b. Endoscopy
c. Ultrasound
d. Magnetic Resonance Imaging (MRI)
e. Blood test

5. Which lifestyle modification is recommended for symptomatic hiatal hernia?
a. Avoiding high-fibre foods
b. Elevating the head of the bed
c. Drinking more coffee
d. Increasing salt intake
e. Performing heavy lifting exercises

6. What type of medication can help reduce acid secretion in hiatal hernia patients?
a. Antibiotics
b. Proton pump inhibitors
c. Diuretics
d. Antihistamines
e. Beta-blockers

7. Which surgical procedure is commonly performed to treat severe hiatal hernia?
a. Appendectomy
b. Cholecystectomy
c. Nissen fundoplication
d. Colectomy
e. Hysterectomy

8. Which type of hiatal hernia is the most common?
a. Type I (Sliding Hiatal Hernia)
b. Type II (Paraesophageal or Rolling Hernia)
c. Type III
d. Type IV
e. Type V

9. What is a potential complication of a hiatal hernia?
a. Chronic kidney disease
b. Iron deficiency anaemia
c. Migraine headaches
d. Rheumatoid arthritis
e. Gallstones

10. In which population is the prevalence of hiatal hernias the highest?
a. Children under 5
b. Teenagers
c. Adults aged 50 or older
d. Pregnant women
e. Athletes

Ulcerative Colitis

Ulcerative colitis (UC) is a type of inflammatory bowel disease (IBD) that primarily affects the colon and rectum. It is characterized by long-term inflammation and ulcers in the lining of the colon.
The condition often presents with periods of active disease (flares) and times of remission.

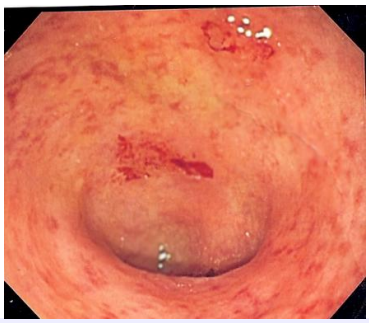
Signs and Symptoms

The primary symptoms of UC include abdominal pain and diarrhoea mixed with blood (hematochezia). Other common symptoms are weight loss, fever, anaemia, dehydration, loss of appetite, fatigue, sores on the skin, urgency to defecate, and rectal pain.
During active disease phases, patients may experience frequent, bloody stools and significant discomfort.

Gastrointestinal Symptoms

People with UC typically have diarrhoea with blood, rectal urgency, and abdominal pain. Severity can range from mild discomfort to severe pain.

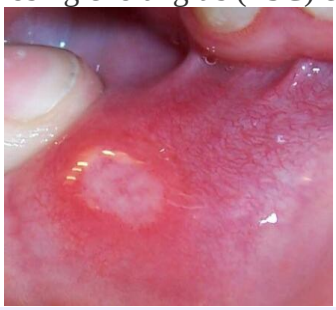
Chronic bleeding from the gastrointestinal tract can lead to anaemia. The extent of inflammation can vary, affecting only the rectum (proctitis), the left side of the colon, or the entire colon (pancolitis).



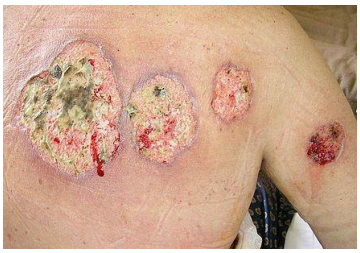
Endoscopic image of a colon affected by ulcerative colitis. The internal surface of the colon is blotchy and broken in places. Mild-moderate disease.

Extraintestinal Symptoms

UC can also cause symptoms outside the gastrointestinal tract, affecting the eyes, skin, and joints. Common extraintestinal manifestations include uveitis, erythema nodosum, and arthritis.
Complications such as primary sclerosing cholangitis (PSC) can occur, leading to liver disease.



Aphthous ulcers involving the tongue, lips, palate, and pharynx.

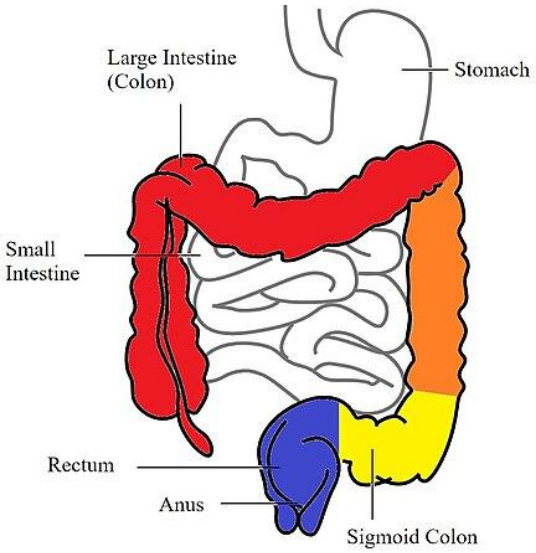


Pyoderma gangrenosum with large ulcerations affecting the back.

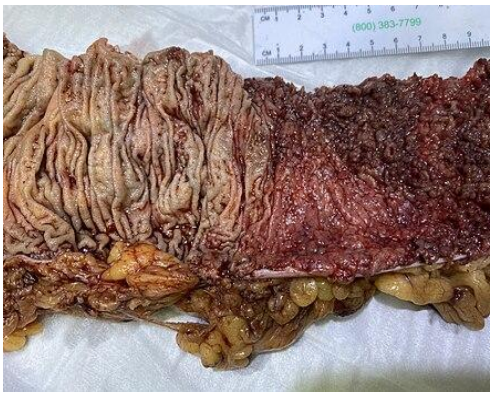
Diagnosis

UC is diagnosed primarily through colonoscopy with tissue biopsies. Endoscopic examination reveals continuous areas of inflammation starting from the rectum.

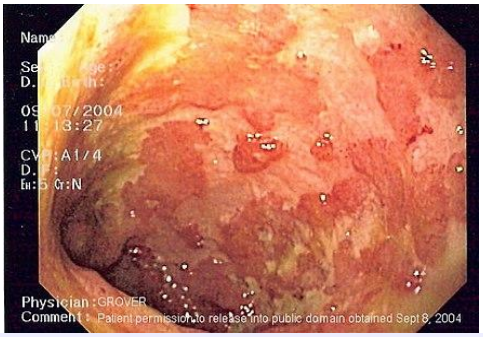
Laboratory tests can show anaemia, elevated inflammatory markers (CRP and ESR), and stool tests help rule out infections.



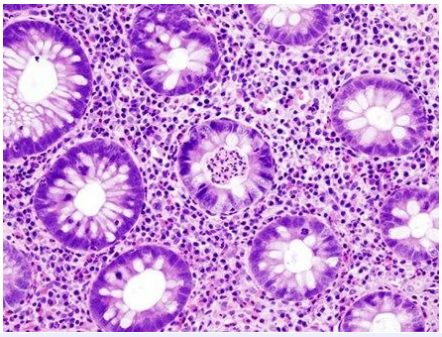
Classification of colitis, often used in defining the extent of involvement of ulcerative colitis, with proctitis (blue), proctosigmoiditis (yellow), left sided colitis (orange) and pancolitis (red).



Gross pathology of normal colon (left) and severe ulcerative colitis (right).



Endoscopic image of ulcerative colitis affecting the left side of the colon. The image shows confluent superficial ulceration and loss of mucosal architecture.



H&E stain of a colonic biopsy showing a crypt abscess, a classic finding in ulcerative colitis.

Treatment

Treatment for UC aims to induce and maintain remission. Medications include aminosalicylates (e.g., mesalazine), corticosteroids for acute flares, immunosuppressants (e.g., azathioprine), and biological agents (e.g., infliximab).

Severe cases may require surgery, such as colectomy, which can be curative for colonic disease.

Medications

First-line maintenance therapy often involves mesalazine. Corticosteroids are used for short-term relief during active flares.

In more severe cases, immunosuppressants and biologic agents are necessary to control the disease.

Surgery

Surgical options include proctocolectomy with ileostomy or ileal pouch-anal anastomosis (IPAA). Surgery is typically reserved for patients who do not respond to medical treatment or develop complications like colon cancer.

Prognosis

The prognosis for UC varies. Some patients experience mild symptoms, while others may have severe disease requiring surgery.

Long-term management is focused on maintaining remission and monitoring for complications, such as colorectal cancer, which has an increased risk after ten years of disease duration. Regular colonoscopies are recommended for surveillance.

Colonic pseudopolyps of a person with intractable UC, colectomy specimen.

Self-assessment MCQs (select the best answer)

1. **Which part of the gastrointestinal tract is most commonly affected by ulcerative colitis?**

a. Small intestine
b. Stomach
c. Duodenum
d. Colon and rectum
e. Oesophagus

2. **What is a common extraintestinal manifestation of ulcerative colitis?**

a. Chronic kidney disease
b. Scleritis
c. Hyperthyroidism
d. Epilepsy
e. Psoriasis

3. **Which of the following is NOT a typical symptom of ulcerative colitis?**

a. Abdominal pain
b. Diarrhoea mixed with blood
c. Weight gain

d. Rectal pain
e. Fever

4. What is the first-line maintenance medication for ulcerative colitis in remission?
a. Prednisone
b. Azathioprine
c. Mesalazine
d. Methotrexate
e. Cyclosporine

5. Which of the following complications is commonly associated with severe ulcerative colitis?
a. Gallstones
b. Toxic megacolon
c. Pancreatitis
d. Appendicitis
e. Nephritis

6. What is the recommended treatment for inducing remission in moderate to severe ulcerative colitis?
a. Antibiotics
b. Probiotics
c. Corticosteroids
d. Antacids
e. Laxatives

7. Which laboratory marker is commonly elevated in patients with active ulcerative colitis?
a. Blood glucose
b. Serum creatinine
c. Erythrocyte sedimentation rate (ESR)
d. Bilirubin
e. Haemoglobin

8. What is the characteristic endoscopic finding in ulcerative colitis?
a. Skip lesions
b. Cobblestone appearance
c. Continuous mucosal inflammation
d. Intestinal polyps
e. Narrowing of the ileum

9. Which genetic factor is associated with an increased risk of developing ulcerative colitis?
a. HLA-B27
b. NOD2 gene mutation
c. OCTN1 and OCTN2 transporter proteins

d. BRCA1 mutation
e. APC gene mutation

10. What is a potential long-term complication of chronic ulcerative colitis?
a. Type 1 diabetes
b. Chronic obstructive pulmonary disease (COPD)
c. Colon cancer
d. Osteoarthritis
e. Hypothyroidism

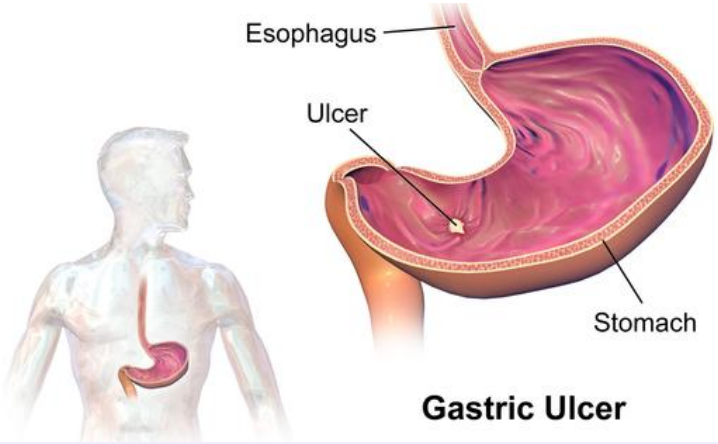
Peptic Ulcer Disease

Peptic ulcer disease (PUD) refers to a break in the inner lining of the stomach, the first part of the small intestine, or sometimes the lower oesophagus. An ulcer in the stomach is called a **gastric ulcer**, while one in the first part of the intestines is a **duodenal ulcer**.

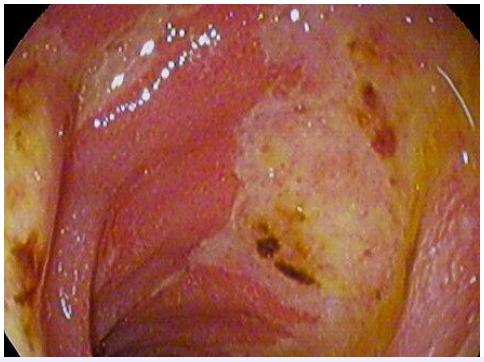
Signs and Symptoms

Common symptoms include heartburn, upper abdominal pain, nausea, belching, vomiting, blood in the stool, weight loss, weight gain, bloating, and loss of appetite. Duodenal ulcers typically cause upper abdominal pain that improves with eating, while gastric ulcers may cause pain that worsens with eating.
A third of older patients may be asymptomatic.

Complications can include bleeding, perforation, and gastric obstruction. Bleeding occurs in approximately 15% of cases, presenting as hematemesis (vomiting blood) or melena (tarry, foul-smelling stools).



Gastric ulcer



Duodenal ulcer A2 stage, acute duodenal mucosal lesion (ADML)

Causes

Helicobacter pylori

The most common causes of PUD are infection with *Helicobacter pylori* and the use of non-steroidal anti-inflammatory drugs (NSAIDs). *H. pylori* bacteria cause inflammation and damage to the stomach lining by producing urease, which creates an alkaline environment suitable for its survival.

NSAIDs

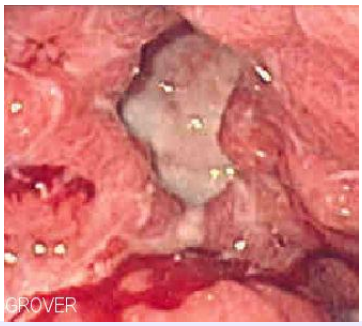
NSAIDs, such as aspirin, can increase the risk of PUD by four times due to their inhibition of prostaglandins that protect the stomach lining.

Other Causes

Other causes include smoking, stress from severe illness, Behçet's disease, Zollinger-Ellison syndrome, Crohn's disease, and liver cirrhosis. Contrary to popular belief, diet and spicy foods play a minor role in ulcer formation.

Diagnosis

Diagnosis is often based on symptoms and confirmed through endoscopy or barium swallow tests. For *H. pylori* detection, methods include the urea breath test, stool antigen test, blood antibody test, and biopsy during endoscopy.



Endoscopic image of gastric ulcer, biopsy proven to be gastric cancer.

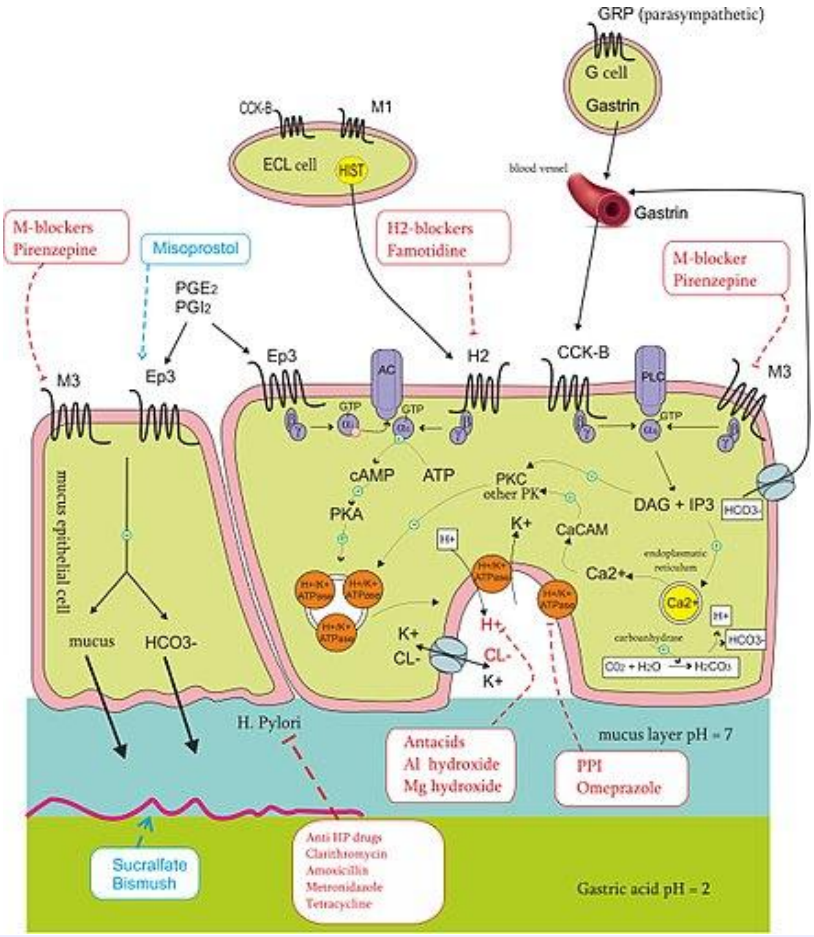
Classification

Peptic ulcers are classified by location: duodenal ulcers, gastric ulcers, esophageal ulcers, and Meckel's diverticulum ulcers. They can also be classified based on their appearance and associated conditions.

Management

Medications

Treatment involves stopping NSAIDs, smoking, and alcohol consumption, along with medications to reduce stomach acid, such as proton pump inhibitors (PPIs) or H2 blockers. *H. pylori* infections are treated with a combination of antibiotics (e.g., amoxicillin, clarithromycin) and PPIs.



Peptic ulcer treatment: pharmacology of drugs

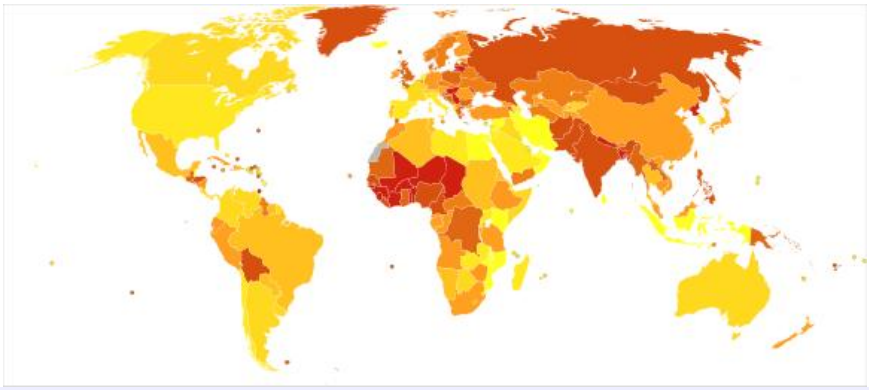
Complications Management

For bleeding ulcers, endoscopy can be used for cauterisation or clipping, and surgery may be required if endoscopy fails. In cases of perforation or obstruction, surgical intervention is often necessary.

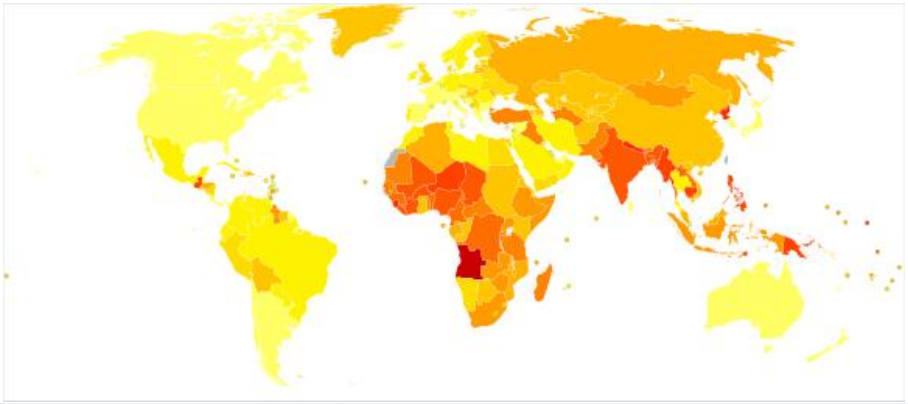
Epidemiology

Peptic ulcers affect around 4% of the population, with approximately 87.4 million new cases worldwide in 2015. The prevalence decreases with the use of effective treatments and rational NSAID use.

Mortality has also declined significantly, from 327,000 deaths in 1990 to 267,500 in 2015.



Deaths from peptic ulcer disease per million persons in 2012



Disability-adjusted life year for peptic ulcer disease per 100,000 inhabitants in 2004

Historical Context

The link between *H. pylori* and peptic ulcers was established by Barry Marshall and Robin Warren in the 1980s, earning them the Nobel Prize in 2005.
This discovery revolutionized the understanding and treatment of peptic ulcer disease.

Self-assessment MCQs (select the best answer)

1. **What is the most common cause of peptic ulcer disease?**

a. High-fat diet
b. Stress
c. Helicobacter pylori infection
d. Alcohol consumption
e. Vitamin deficiency

2. **Which of the following medications is commonly used to reduce stomach acid in the treatment of peptic ulcer disease?**

a. Aspirin
b. Ibuprofen
c. Proton pump inhibitors (PPIs)
d. Acetaminophen
e. Statins

3. A patient with a duodenal ulcer typically experiences pain that is:
a. Worse immediately after eating
b. Relieved by eating
c. Unrelated to meals
d. Only present at night
e. Localised to the lower abdomen

4. Which diagnostic test is considered the gold standard for confirming the presence of a peptic ulcer?
a. Blood test
b. Endoscopy
c. Barium swallow
d. Stool antigen test
e. Urea breath test

5. What complication of peptic ulcer disease is characterized by sudden, intense abdominal pain and requires immediate surgery?
a. Gastroesophageal reflux disease (GERD)
b. Gastric outlet obstruction
c. Perforation
d. Penetration
e. Melena

6. Which of the following bacteria is a major causative factor for peptic ulcers and can be detected using a urea breath test?
a. Escherichia coli
b. Streptococcus pneumoniae
c. Helicobacter pylori
d. Staphylococcus aureus
e. Clostridium difficile

7. A gastric ulcer is most often localised on which part of the stomach?
a. Greater curvature
b. Fundus
c. Lesser curvature
d. Pylorus
e. Cardia

8. What is the typical first-line treatment for an H. pylori infection causing a peptic ulcer?
a. NSAIDs and proton pump inhibitors (PPIs)
b. Clarithromycin, amoxicillin, and a proton pump inhibitor (PPI)
c. Acetaminophen and bismuth subsalicylate
d. Metronidazole and acetaminophen
e. Steroids and proton pump inhibitors (PPIs)

9. Which symptom is more commonly associated with a gastric ulcer compared to a duodenal ulcer?

a. Pain relieved by eating
b. Pain occurring at night
c. Pain aggravated by eating
d. Weight gain
e. Symptomless

10. In the event of a bleeding peptic ulcer, which treatment is typically first attempted?

a. Oral antibiotics
b. Blood transfusion
c. Endoscopic therapy
d. Surgical resection
e. Proton pump inhibitors (PPIs) only