

Lecture: GI I – Esophagus & Stomach

1. Introduction to the Gastrointestinal (GI) System

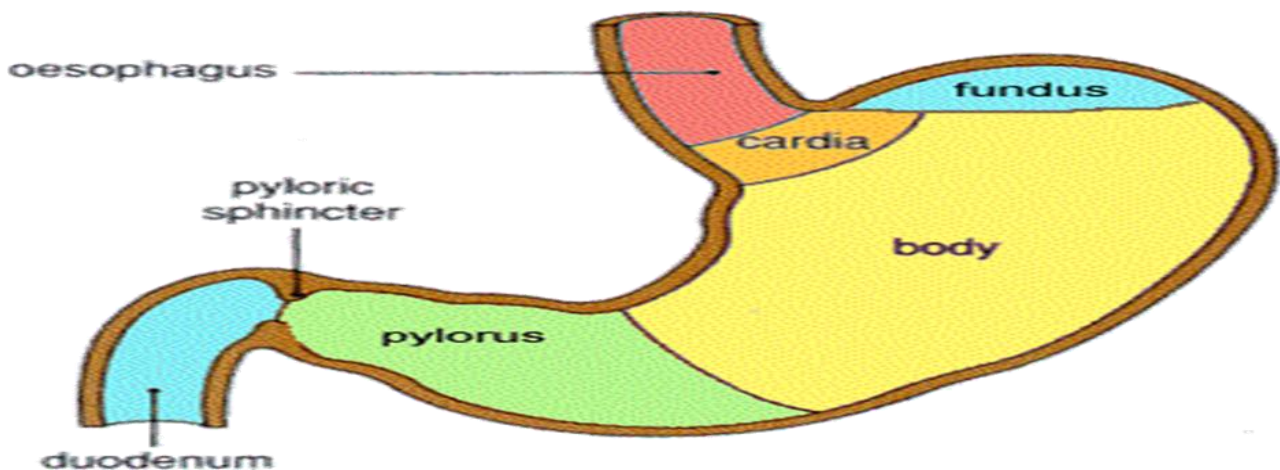
The **Gastrointestinal (GI) system** is responsible for digestion, absorption of nutrients, and elimination of waste. It includes several organs such as the **mouth, esophagus, stomach, small intestine, and large intestine**.

In this lecture we will focus on the **esophagus and stomach**, which play important roles in transporting and digesting food. Understanding these organs is important for students in **cosmetic and laser departments** because digestive health influences **skin condition, nutrition, healing after cosmetic procedures, and general patient health**.

2. Esophagus

Definition

The **esophagus** is a muscular tube about **25 cm long** that connects the **pharynx (throat)** to the **stomach**. Its main function is to transport food from the mouth to the stomach.



Structure of the Esophagus

The esophagus consists of several layers:

1. **Mucosa** – inner lining that protects the esophagus.
2. **Submucosa** – contains blood vessels and nerves.
3. **Muscular layer** – responsible for movement of food.
4. **Outer layer (Adventitia)** – provides support.

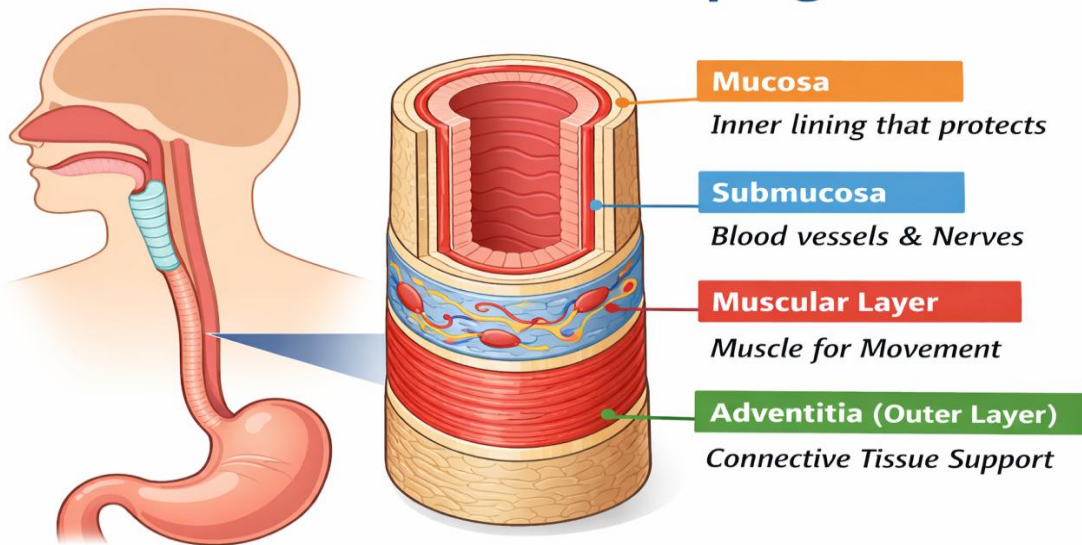
Function

The esophagus moves food using a process called **peristalsis**.

Peristalsis:

Rhythmic muscular contractions that push food downward into the stomach.

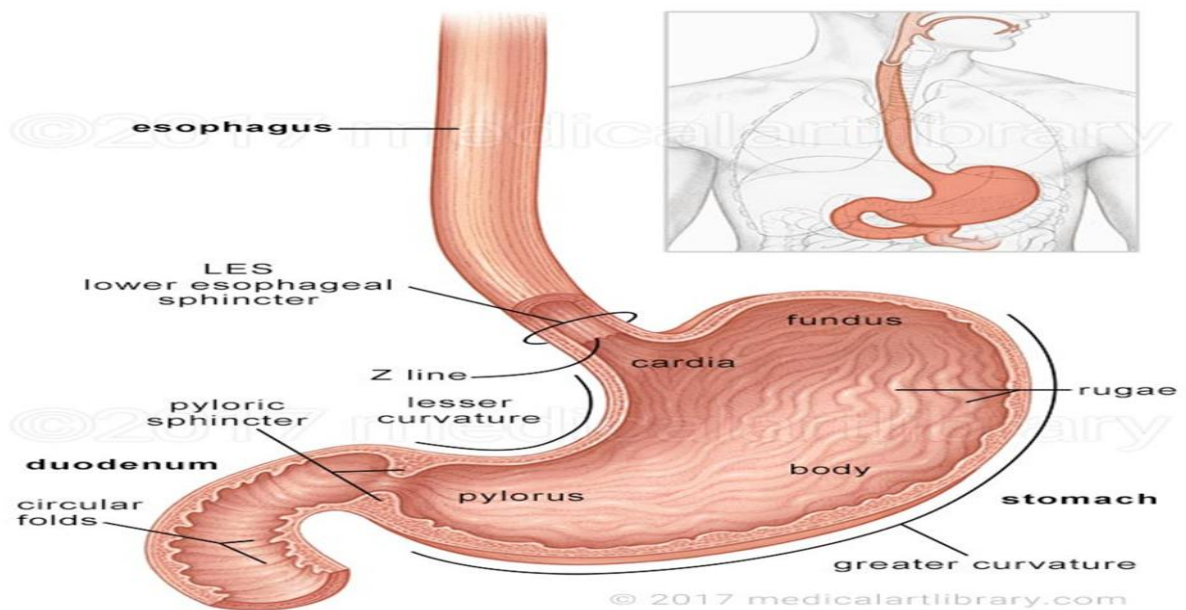
Structure of the Esophagus



Esophageal Sphincters

There are two important sphincters:

1. **Upper esophageal sphincter (UES)** – controls entry of food from the throat.
2. **Lower esophageal sphincter (LES)** – prevents stomach acid from moving back into the esophagus.



3. Common Esophageal Disorders

1. Gastroesophageal Reflux Disease (GERD)

GERD occurs when stomach acid flows back into the esophagus.

Symptoms

- Heartburn
- Chest discomfort
- Difficulty swallowing
- Acid taste in mouth

Importance for Cosmetic Students

Chronic GERD may cause:

- Dental erosion
- Bad breath
- Skin irritation due to poor digestion
- Nutritional deficiencies affecting skin health

2. Esophagitis

Inflammation of the esophagus caused by infection, acid reflux, or medications.

4. Stomach

Definition

The **stomach** is a **muscular sac-like organ** located in the upper abdomen. It connects the esophagus to the **small intestine** and plays a key role in **digesting food**.

Main Functions of the Stomach

1. **Storage of food**
2. **Mechanical digestion** (mixing food)
3. **Chemical digestion** using acids and enzymes
4. **Killing harmful microorganisms**

5. Structure of the Stomach

The stomach has four main regions:

1. **Cardia** – area where the esophagus enters.
2. **Fundus** – upper curved portion.
3. **Body** – main central region.
4. **Pylorus** – connects stomach to small intestine.

The stomach wall contains strong muscles that help mix food and produce **chyme**, a semi-liquid mixture of food and gastric juices.

6. Gastric Secretions

The stomach produces **gastric juice**, which contains:

Component	Function
Hydrochloric Acid (HCl)	Kills bacteria and activates enzymes
Pepsin	Breaks down proteins
Mucus	Protects stomach lining
Intrinsic factor	Helps absorb vitamin B12

7. Common Stomach Disorders

1. Gastritis

Inflammation of the stomach lining.

Causes

- Infection (*Helicobacter pylori*)
- Excess acid
- Stress
- Alcohol
- Certain medications

Symptoms

- Stomach pain
- Nausea
- Vomiting
- Indigestion

2. Peptic Ulcer

An open sore in the stomach lining.

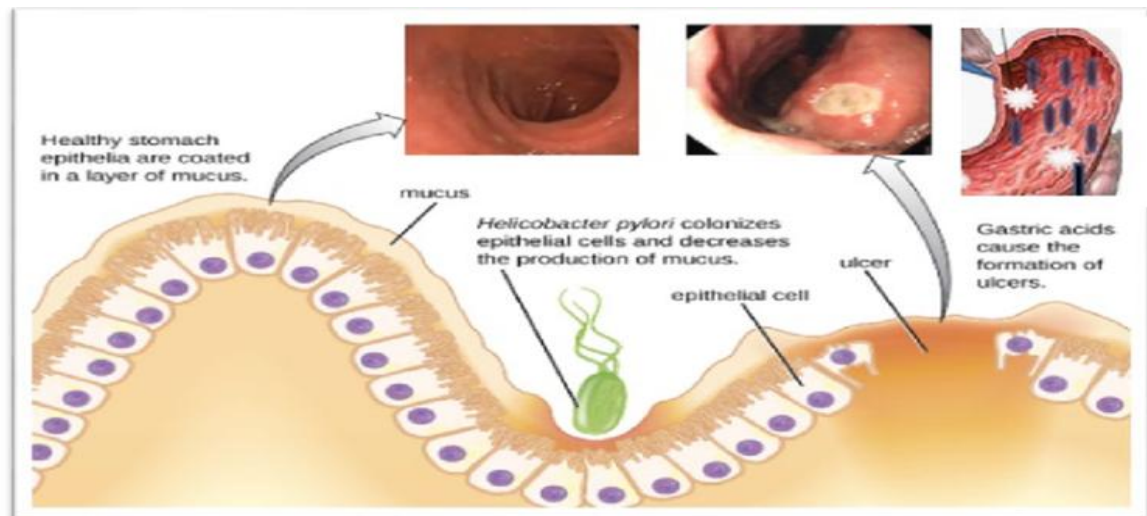
Causes

- *H. pylori* infection
- Long-term use of pain medications
- Excess stomach acid

Symptoms

- Burning stomach pain
- Nausea

- Loss of appetite



8. Relationship to Cosmetic and Laser Practice

Digestive health strongly affects **skin and cosmetic outcomes**.

1. Nutrition and Skin Health

Proper digestion allows absorption of nutrients such as:

- **Vitamin A** – skin repair
- **Vitamin C** – collagen production
- **Vitamin E** – antioxidant protection
- **Protein** – tissue healing

Poor stomach function can lead to **skin dryness, acne, and delayed healing**.

2. Healing After Cosmetic Procedures

Patients undergoing:

- Laser therapy
- Skin resurfacing
- Cosmetic injections

require good nutrition for **fast healing and collagen production**.

3. Medication Considerations

Some cosmetic treatments involve medications that may irritate the stomach, so understanding stomach health is important.

9. Healthy Habits for Digestive and Skin Health

To maintain healthy esophagus and stomach:

- Eat balanced meals
- Avoid excessive spicy or fatty foods
- Reduce alcohol and smoking
- Eat slowly and chew food well
- Avoid lying down immediately after meals
- Drink enough water

These habits improve **digestion, nutrient absorption, and skin appearance.**

10. Summary

- The **esophagus** transports food from the mouth to the stomach using **peristalsis**.
- The **stomach** stores food and performs mechanical and chemical digestion.
- Common diseases include **GERD, gastritis, and peptic ulcers**.
- Digestive health affects **nutrition, skin condition, and healing after cosmetic and laser procedures**.
- Maintaining good digestive health supports **better cosmetic treatment outcomes**.

1. The esophagus connects the:

- A. Mouth to stomach
- B. Pharynx to stomach
- C. Stomach to intestine
- D. Liver to stomach
- E. Pancreas to intestine

Answer: B

2. The approximate length of the esophagus in adults is:

- A. 10 cm
- B. 15 cm
- C. 20 cm
- D. 25 cm
- E. 40 cm

Answer: D

3. The main function of the esophagus is to:

- A. Digest proteins
- B. Absorb nutrients
- C. Transport food to the stomach
- D. Produce enzymes
- E. Store food

Answer: C

4. The movement that pushes food through the esophagus is called:

- A. Diffusion
- B. Peristalsis
- C. Filtration
- D. Osmosis
- E. Absorption

Answer: B

5. The sphincter that prevents stomach acid from entering the esophagus is the:

- A. Pyloric sphincter
- B. Cardiac sphincter
- C. Lower esophageal sphincter
- D. Upper intestinal sphincter
- E. Anal sphincter

Answer: C

6. GERD stands for:

- A. Gastrointestinal enzyme reaction disease
- B. Gastric enzyme reflux disorder
- C. Gastroesophageal reflux disease
- D. Gastric erosion reflux disease
- E. Gastroenteric reaction disease

Answer: C

7. A common symptom of GERD is:

- A. Fever
- B. Heartburn
- C. Skin rash
- D. Headache
- E. Diarrhea

Answer: B

8. Inflammation of the esophagus is called:

- A. Gastritis
- B. Esophagitis
- C. Hepatitis

- D. Colitis
- E. Pancreatitis

Answer: B

9. The stomach is located in the:

- A. Lower abdomen
- B. Pelvic cavity
- C. Upper abdomen
- D. Thoracic cavity
- E. Back region

Answer: C

10. The stomach mainly functions to:

- A. Absorb oxygen
- B. Produce hormones only
- C. Digest and store food
- D. Filter blood
- E. Produce urine

Answer: C

11. The four main regions of the stomach include all EXCEPT:

- A. Cardia
- B. Fundus
- C. Body
- D. Pylorus
- E. Colon

Answer: E

12. The region where the esophagus enters the stomach is called the:

- A. Fundus
- B. Cardia
- C. Body
- D. Pylorus
- E. Duodenum

Answer: B

13. The lower part of the stomach that connects to the small intestine is:

- A. Fundus
- B. Body
- C. Pylorus
- D. Cardia
- E. Jejunum

Answer: C

14. The stomach produces a semi-liquid mixture called:

- A. Plasma
- B. Saliva
- C. Chyme
- D. Serum
- E. Bile

Answer: C

15. Hydrochloric acid (HCl) in the stomach helps to:

- A. Produce insulin
- B. Kill bacteria
- C. Absorb fats
- D. Produce bile
- E. Absorb calcium

Answer: B

16. The enzyme responsible for protein digestion in the stomach is:

- A. Amylase
- B. Pepsin
- C. Lipase
- D. Trypsin
- E. Maltase

Answer: B

17. The substance that protects the stomach lining is:

- A. Bile
- B. Pepsin
- C. Mucus
- D. Saliva
- E. Insulin

Answer: C

18. Vitamin B12 absorption requires:

- A. Bile
- B. Intrinsic factor
- C. Pepsin
- D. Amylase
- E. Lipase

Answer: B

19. Inflammation of the stomach lining is called:

- A. Colitis
- B. Gastritis
- C. Hepatitis
- D. Nephritis
- E. Dermatitis

Answer: B

20. A common cause of gastritis is infection with:

- A. Staphylococcus aureus
- B. Streptococcus pneumoniae
- C. Helicobacter pylori
- D. Escherichia coli
- E. Salmonella

Answer: C

21. A peptic ulcer is defined as:

- A. Skin infection
- B. Open sore in stomach lining
- C. Liver inflammation
- D. Intestinal blockage
- E. Pancreatic tumor

Answer: B

22. One symptom of peptic ulcer is:

- A. Burning stomach pain

- B. Joint pain
- C. Vision problems
- D. Hearing loss
- E. Skin itching

Answer: A

23. Peristalsis is produced by:

- A. Nervous tissue
- B. Muscle contractions
- C. Bone movement
- D. Blood flow
- E. Hormones

Answer: B

24. The upper esophageal sphincter controls:

- A. Food entry into stomach
- B. Food entry from throat
- C. Intestinal movement
- D. Acid production
- E. Saliva secretion

Answer: B

25. The stomach primarily digests:

- A. Carbohydrates
- B. Proteins
- C. Vitamins
- D. Minerals
- E. Water

Answer: B

26. Which organ directly follows the stomach in digestion?

- A. Large intestine
- B. Small intestine
- C. Liver
- D. Pancreas
- E. Gallbladder

Answer: B

27. Poor digestion may affect:

- A. Hair growth only
- B. Skin health
- C. Hearing ability
- D. Bone shape
- E. Eye color

Answer: B

28. Vitamin C is important for:

- A. Collagen production
- B. Hearing
- C. Bone length
- D. Tooth color
- E. Eye movement

Answer: A

29. Good digestion helps improve:

- A. Skin healing
- B. Vision only
- C. Blood pressure only
- D. Hearing only
- E. Hair color only

Answer: A

30. Laser cosmetic treatments require good:

- A. Oxygen supply only
- B. Nutrition and healing ability
- C. Eye movement
- D. Hair thickness
- E. Bone density

Answer: B

31. Excess stomach acid can cause:

- A. GERD
- B. Asthma
- C. Diabetes

- D. Arthritis
- E. Anemia

Answer: A

32. One lifestyle factor that may worsen gastritis is:

- A. Drinking water
- B. Eating vegetables
- C. Alcohol consumption
- D. Sleeping early
- E. Exercise

Answer: C

33. The stomach acts as a:

- A. Storage organ
- B. Respiratory organ
- C. Circulatory organ
- D. Nervous organ
- E. Excretory organ

Answer: A

34. The muscular wall of the stomach helps in:

- A. Pumping blood
- B. Mixing food
- C. Producing bile
- D. Producing insulin
- E. Filtering toxins

Answer: B

35. One healthy habit for digestive health is:

- A. Eating quickly
- B. Skipping meals
- C. Chewing food well
- D. Drinking alcohol daily
- E. Sleeping immediately after eating

Answer: C

36. Smoking may increase risk of:

- A. GERD
- B. Skin hydration
- C. Eye improvement
- D. Hair growth
- E. Bone strength

Answer: A

37. Poor nutrient absorption may lead to:

- A. Better skin health
- B. Skin problems
- C. Improved vision
- D. Increased muscle mass
- E. Faster hair growth

Answer: B

38. Which nutrient is important for tissue repair after cosmetic procedures?

- A. Protein
- B. Sodium
- C. Chloride
- D. Fluoride
- E. Iodine

Answer: A

39. The stomach kills many microorganisms due to:

- A. Saliva
- B. Hydrochloric acid
- C. Insulin
- D. Bile salts
- E. Hormones

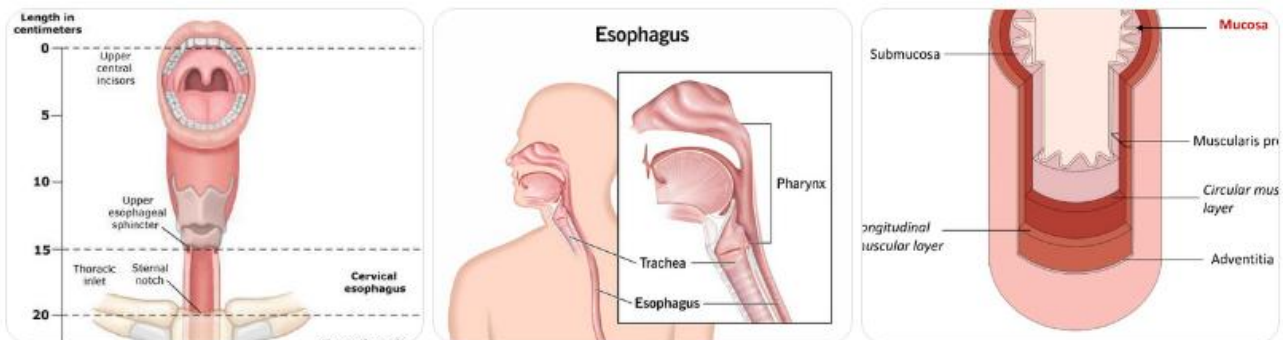
Answer: B

40. Maintaining good digestive health helps improve:

- A. Cosmetic treatment outcomes
- B. Bone fractures
- C. Vision defects
- D. Hearing loss
- E. Tooth alignment

Answer: A

Question 1

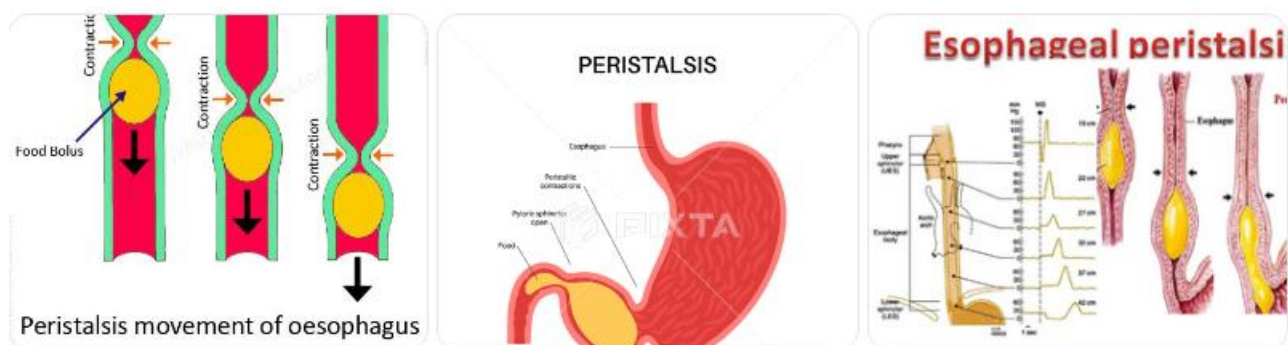


Which structure in the image transports food from the pharynx to the stomach?

- A. Trachea
- B. Esophagus
- C. Small intestine
- D. Pancreas
- E. Colon

Correct Answer: B. Esophagus

Question 2



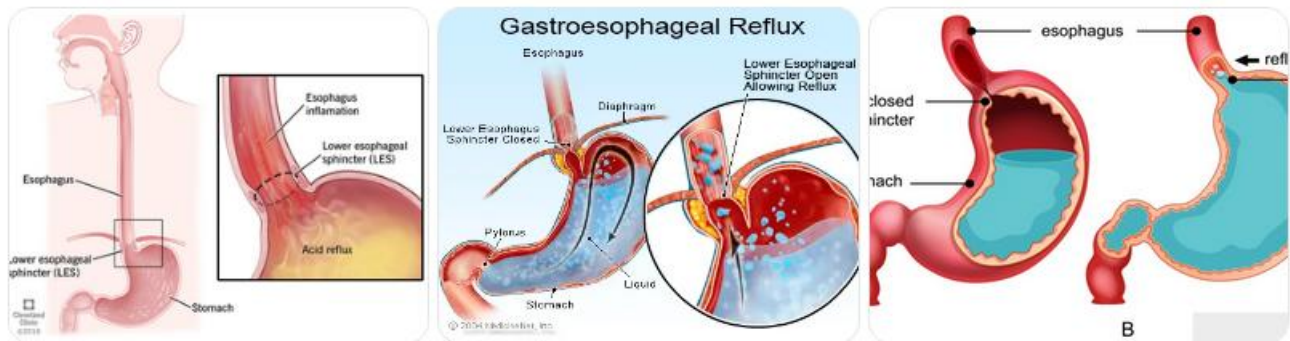
The movement shown in the image that pushes food toward the stomach is called:

- A. Diffusion
- B. Peristalsis
- C. Filtration

- D. Absorption
- E. Secretion

Correct Answer: B. Peristalsis

Question 3

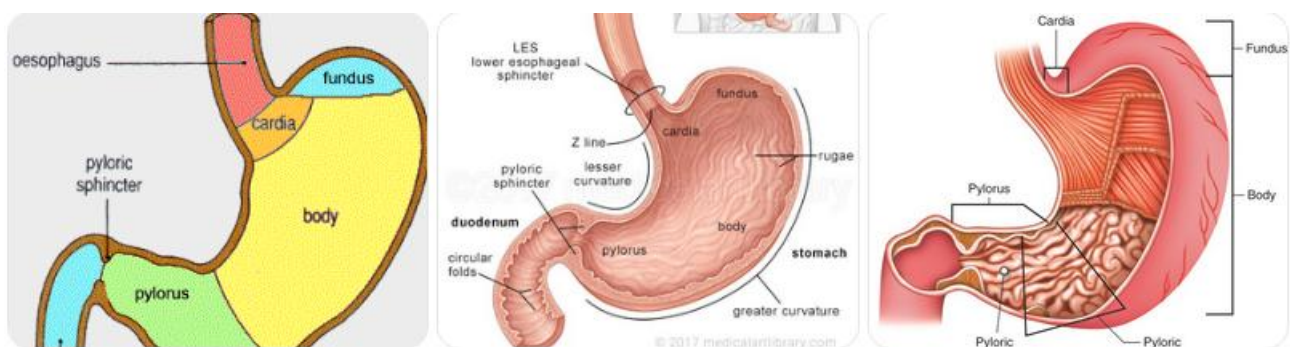


The condition illustrated in the image, where stomach acid flows back into the esophagus, is called:

- A. Gastritis
- B. GERD
- C. Peptic ulcer
- D. Hepatitis
- E. Pancreatitis

Correct Answer: B. GERD

Question 4



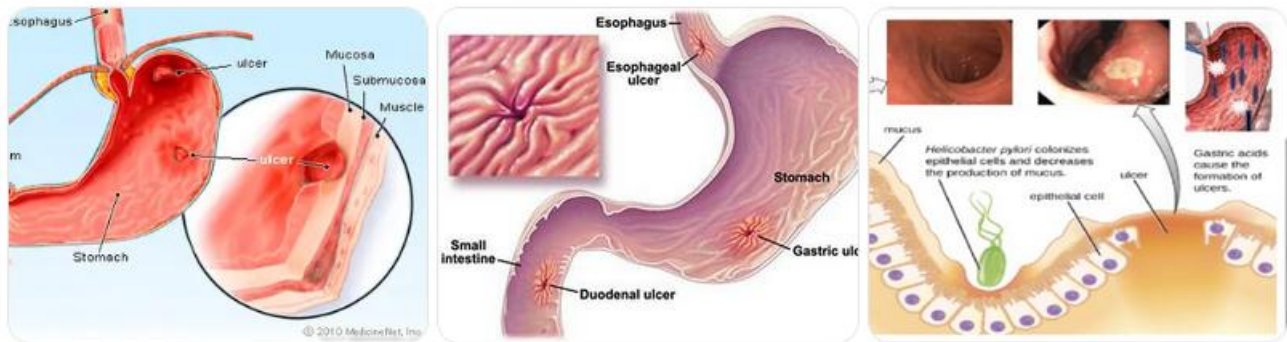
Which part of the stomach connects the stomach to the small intestine?

- A. Cardia
- B. Fundus
- C. Body

- D. Pylorus
- E. Esophagus

Correct Answer: D. Pylorus

Question 5

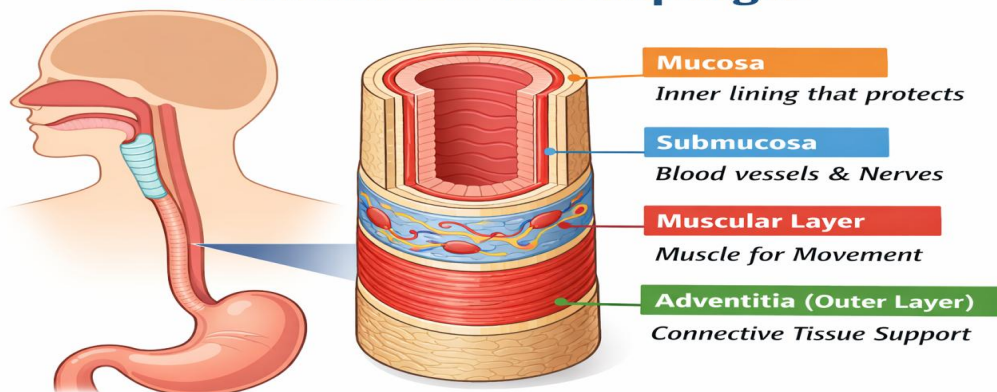


The lesion shown in the image represents which condition?

- A. GERD
- B. Gastritis
- C. Peptic ulcer
- D. Hepatitis
- E. Appendicitis

Correct Answer: C. Peptic ulcer

Structure of the Esophagus



1. Which layer forms the inner lining of the esophagus and protects it?

- A. Adventitia
- B. Muscular layer
- C. Mucosa
- D. Submucosa

Answer: C. Mucosa

2. Which layer of the esophagus contains blood vessels and nerves?

- A. Mucosa
- B. Submucosa
- C. Adventitia
- D. Serosa

Answer: B. Submucosa

3. Which esophageal layer is responsible for the movement of food toward the stomach?

- A. Muscular layer
- B. Submucosa
- C. Mucosa
- D. Adventitia

Answer: A. Muscular layer

4. What is the outermost layer of the esophagus called?

- A. Submucosa
- B. Mucosa
- C. Adventitia
- D. Epithelium

Answer: C. Adventitia

5. What is the main function of the adventitia in the esophagus?

- A. Secretion of mucus
- B. Gas exchange
- C. Connective tissue support
- D. Digestion of food

Answer: C. Connective tissue support