

## NR 507: Week 5 Edapt: Obstructive Gastrointestinal Disorders

Obstructive gastrointestinal disorders like esophageal stricture and appendicitis occur with a tightening or complete blockage of a part of the system. These can be deemed medical emergencies in certain situations, but treatment is also available depending on the severity.

### Pathophysiology of Esophageal Strictures

Which of the following statements best describes the pathophysiology of an esophageal stricture?

- Rapid cell proliferation, leading to the formation of polypoid structures in the esophagus
- Accumulation of mucus and debris in the esophageal lining, obstructing the passage
- Chronic inflammation and development of scar tissue, resulting in the thickening of the esophageal wall
- Excessive production of gastric acid leading to erosion and narrowing of the esophageal lumen

Chronic inflammation and the development of scar tissue are key contributors to the development of esophageal strictures. Prolonged irritation and injury to the esophageal mucosa trigger a reparative response, leading to the formation of scar tissue and thickening of the esophageal wall, ultimately resulting in stricture formation.

Excessive gastric acid may contribute to esophageal injury but does not directly lead to scar tissue formation. Accumulation of mucus and debris may cause obstruction but is not a primary cause of esophageal stricture. Rapid cell proliferation is not a typical feature in the pathophysiology of esophageal strictures.

### Pathophysiology of Appendicitis

Which of the following statements best describes the pathophysiology of appendicitis?

- Abnormal cell growth in the appendix, forming polyps and initiating the inflammatory process
- Chronic autoimmune response targeting the appendix, causing inflammation and swelling
- Impaired blood supply to the appendix, resulting in ischemia and subsequent infection
- Blockage of the appendix by hardened stool, leading to bacterial overgrowth and inflammation

The most common cause of appendicitis is the obstruction of the appendix by a fecalith (hardened stool), leading to a buildup of bacteria, inflammation, and ultimately appendicitis.

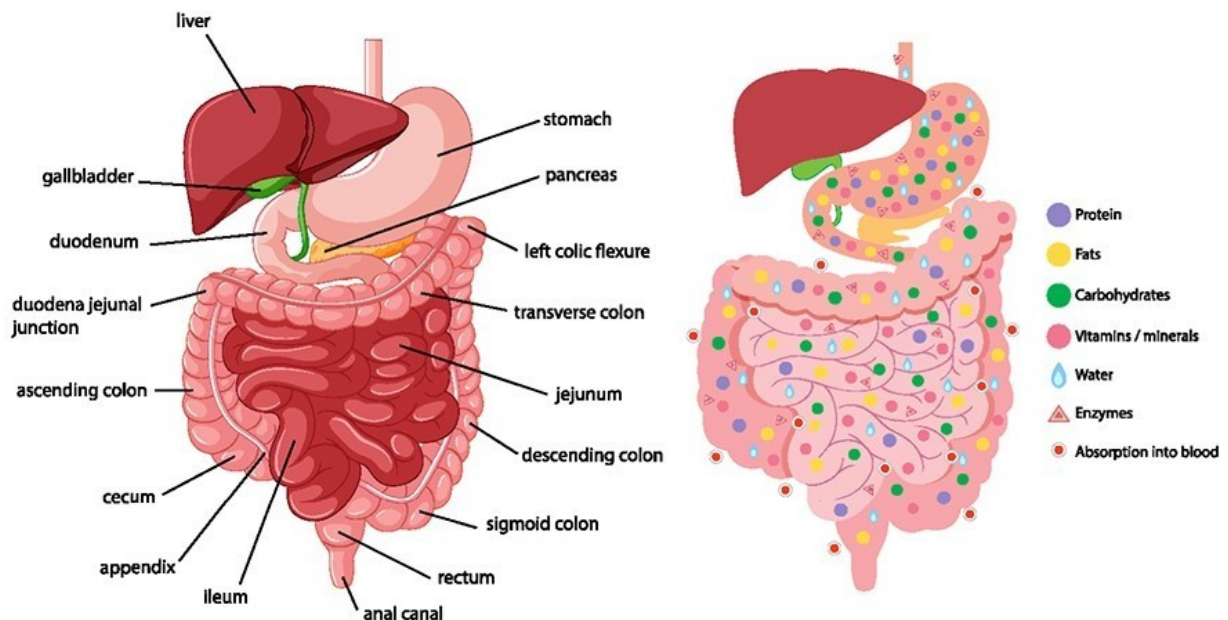
### Gastrointestinal Obstruction Diagnosis

Complete the following sentences by choosing from the list of options.

The nurse practitioner (NP) is evaluating a client with complaints of "food getting stuck when I swallow sometimes" and pain when swallowing. The NP should suspect the client may have  and order a(n)  to confirm a diagnosis.

The symptoms of food getting stuck during swallowing and pain when swallowing are indicative of a potential esophageal stricture, which is a narrowing of the esophagus often caused by inflammation or scarring. The NP should order an endoscopy. Endoscopy is a direct visualization procedure that allows the healthcare provider to examine the esophagus for abnormalities, such as strictures, and obtain biopsies if needed.

## INTERNAL HUMAN DIGESTIVE SYSTEM



### Normal Physiology of the Gastrointestinal System

- **Ingestion:** Ingestion is taking food into the mouth and chewing to break down food into smaller particles.
- **Secretion:** Various glands in the digestive system release digestive juices and enzymes to break down food.
- **Propulsion:** Peristalsis is the coordinated, rhythmic contraction and relaxation of muscles that move food through the digestive tract. Swallowing helps propel food from the mouth to the esophagus, and peristalsis continues this movement through the entire gastrointestinal tract.
- **Digestion:** Mechanical digestion is the physical breakdown of food into smaller particles through chewing in the mouth and mixing in the stomach. Chemical digestion is when enzymes break down complex molecules into simpler forms. For example, amylase breaks down carbohydrates, proteases break down proteins, and lipases break down fats.
- **Absorption:** Nutrient absorption occurs primarily in the small intestine. Nutrients, such as amino acids, fatty acids, glucose, and minerals, are absorbed into the bloodstream.
- **Transport:** Once absorbed, nutrients are transported through the bloodstream to various cells and tissues in the body.
- **Storage and metabolism:** Nutrients not immediately needed are stored, particularly in the liver and adipose tissue. The liver plays a key role in processing nutrients, regulating blood glucose levels, and metabolizing fats.
- **Formation of feces:** Indigestible and unabsorbed materials, along with water and waste products, are formed into feces in the colon. Feces are stored in the rectum until eliminated through the anus during defecation.

- **Regulation:** Hormones and nerve signals regulate the digestive process. Hormones like gastrin, secretin, and cholecystokinin help control digestion, absorption, and the release of digestive juices.

## Pathophysiology of Esophageal Stricture

- **Swallowing:** Swallowing is a complex process that involves the coordinated contraction of muscles in the mouth, pharynx, and esophagus. The voluntary phase starts in the mouth, where the tongue pushes the bolus (chewed food) to the back of the throat.
- **Peristalsis:** Peristalsis is the involuntary rhythmic contraction and relaxation of muscles that propel the food bolus through the esophagus and into the stomach.
- **Lower esophageal sphincter (LES):** The LES is a muscular ring located at the junction between the esophagus and the stomach. Normally, the LES remains contracted to prevent the backflow of stomach contents into the esophagus (reflux). Relaxation of the LES occurs during swallowing to allow the passage of food into the stomach. Sensations such as heartburn or discomfort may occur if the LES does not function properly, leading to gastroesophageal reflux disease (GERD).

Esophageal stricture refers to the narrowing of the esophagus, which can lead to difficulty in swallowing (dysphagia) and other related symptoms. The pathophysiology of esophageal stricture involves the development of scar tissue or other structural changes that result in a reduced diameter of the esophagus.

## Esophageal Stricture Risk Factors

- **Gastroesophageal reflux disease (GERD):** One of the common causes of esophageal stricture is chronic gastroesophageal reflux disease. In GERD, stomach acid and digestive enzymes may repeatedly back up into the lower part of the esophagus, leading to inflammation and irritation. Prolonged inflammation can result in the formation of scar tissue, causing the esophagus to narrow.
- **Esophagitis:** Inflammation of the esophagus can be caused by various factors, including infections (such as Candida or herpes), medications, or autoimmune conditions. Chronic inflammation can lead to the development of fibrous tissue, contributing to esophageal stricture.
- **Ingestion of caustic substances:** Swallowing caustic substances, such as strong acids or bases, can cause severe damage to the esophagus. Healing from the resulting injuries may involve the formation of scar tissue, leading to stricture.
- **Radiation therapy:** Clients who undergo radiation therapy for cancers in the chest or upper abdomen may develop radiation-induced esophageal strictures. Radiation can damage healthy tissue, leading to scarring and narrowing of the esophagus.