

Anatomy, Function and Diseases of Duodenum

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DESCRIPTION

The duodenum is a crucial part of the digestive system. It is the first section of the small intestine and is responsible for the initial breakdown of food after it leaves the stomach. The duodenum is a long, C-shaped tube that is located just below the stomach and above the rest of the small intestine.

Anatomy of the duodenum

The duodenum is approximately 25 cm long and 4 cm wide, and is divided into four sections: Superior, descending, horizontal, and ascending. The superior part of the duodenum is the widest and shortest section and is located at the level of the first lumbar vertebra. The descending part is the longest section and extends from the superior part to the inferior part of the duodenum, which is located at the level of the third lumbar vertebra [1-3]. The horizontal part of the duodenum is located behind the superior mesenteric vessels, while the ascending part is located to the right of the superior mesenteric vessels. The duodenum receives digestive juices from the pancreas and bile from the liver, which helps in the digestion and absorption of fats. The pancreas secretes pancreatic enzymes, which break down proteins, carbohydrates, and fats into smaller molecules [4,5]. Bile is stored in the gallbladder and released into the duodenum when needed. Bile contains bile salts, which emulsify fats and make them easier to digest and absorb [6].

Function of the duodenum

The duodenum plays a crucial role in the digestive system by breaking down food into smaller molecules and facilitating their absorption. When food enters the duodenum, it is mixed with digestive juices from the pancreas and bile from the liver [7]. The digestive juices contain enzymes that break down proteins, carbohydrates, and fats into smaller molecules. The duodenum also plays a role in regulating the pH of the digestive system. The stomach secretes hydrochloric acid, which is necessary for the breakdown of food but can be harmful to the small intestine [8-10]. The duodenum secretes hormones that regulate the

release of hydrochloric acid from the stomach, preventing it from entering the small intestine in excessive amounts [8].

Diseases of the duodenum

Several diseases can affect the duodenum, including:

Duodenal ulcer: A duodenal ulcer is a sore that develops in the lining of the duodenum. The most common cause of duodenal ulcers is a bacterial infection called *Helicobacter pylori*. Other causes include the long-term use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) and excessive alcohol consumption. Symptoms of a duodenal ulcer include abdominal pain, bloating, nausea, and vomiting [9].

Duodenitis: Duodenitis is an inflammation of the duodenum. It can be caused by a bacterial or viral infection, excessive alcohol consumption, or the use of NSAIDs. Symptoms of duodenitis include abdominal pain, bloating, nausea, and vomiting.

Celiac disease: Celiac disease is an autoimmune disorder in which the body attacks the lining of the small intestine when gluten is consumed. Gluten is a protein found in wheat, barley, and rye. The duodenum is the first part of the small intestine, and damage to its lining can cause malabsorption of nutrients. Symptoms of celiac disease include abdominal pain, bloating, diarrhea, and weight loss [10].

Crohn's disease: Crohn's disease is a chronic inflammatory bowel disease that can affect any part of the digestive system, including the duodenum. It causes inflammation, ulcers, and scarring of the digestive tract.

CONCLUSION

The duodenum is a crucial part of the digestive system that plays a role in breaking down food and regulating the pH of the digestive system. It receives digestive juices from the pancreas and bile from the liver, which helps in the digestion and absorption of fats. Several diseases can affect the duodenum, including duodenal ulcer, duodenitis, celiac disease, and Crohn's disease. It is important to maintain a healthy diet and avoid excessive consumption of alcohol and NSAIDs to prevent

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these diseases. If you experience symptoms such as abdominal pain, bloating, nausea, and vomiting, it is important to seek medical attention and get a proper diagnosis and treatment. Overall, the duodenum is a critical component of the digestive system that deserves attention and care for optimal health and well-being.

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