

## **PATHOGENETIC ASPECTS OF PEPTIC ULCER**

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Peptic ulcer is a chronic ulcer that usually involves the distal stomach or proximal duodenum. The ulcer results from digestion of the mucosa by acid gastric juice. Persons who secrete large volumes of acidic gastric juice are prone to ulcers.

The initial event is probably a small, superficial erosion of the gastric or duodenal mucosa. Gastric acid and pepsin begin to digest the deeper tissues, which have been denuded of covering epithelium. Attempts at healing in the presence of continuing digestion eventually lead to considerable scarring at the base of the ulcer. Clinically, ulcers produce pain that is usually relieved by ingestion of food or antacids that neutralize the gastric acid.

*Helicobacter pylori*, the same organism that is associated with chronic gastritis, also plays an important role in the pathogenesis of both gastric and duodenal ulcers. Presumably the organism injures the mucosa and initiates the mucosal erosion that eventually develops into a chronic ulcer. The role of *Helicobacter* in causing a gastric ulcer is understandable, because this is the same organism that causes the mucosal damage leading to chronic gastritis. Its role in causing duodenal ulcers is more difficult to explain because the organism characteristically colonizes gastric mucosa, not duodenal mucosa. Some investigators have speculated that there are small areas of gastric epithelial cells in the duodenum where the organism can grow and damage the duodenal mucosa, making it more susceptible to ulceration. An alternative explanation postulates that the organism does not damage the duodenal mucosa directly, but does so indirectly because the *Helicobacter*-induced gastritis causes the gastric mucosa to secrete excess acid, and it is the hyperacidity that causes the duodenal ulcers. According to this concept, the mucosal damage caused by the gastritis disturbs various functions of gastric mucosal cells that regulate gastric acid secretion and causes the mucosa to secrete excess acid.

Peptic ulcer has complications: hemorrhage, perforation, penetration, malignancy and obstruction. An ulcer may erode completely through the wall of the stomach or duodenum, causing a perforation of the wall through which gastric and duodenal contents leak into the peritoneal cavity, resulting in a generalized inflammation of the peritoneum, the membrane that lines the abdominal cavity and covers the exterior of the abdominal organs (peritonitis). Sometimes the scarring that follows healing of a gastric ulcer may be so severe as to cause obstruction of the outlet of the stomach, called the pylorus, preventing the stomach from emptying properly.