

Difference Between Gastritis and Duodenal Ulcer

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Key Difference – Gastritis vs Duodenal Ulcer

Gastritis has nowadays become a household term, indicating how commonly it is seen among the general population. In a pathological sense, it can be defined as the inflammation of the gastric mucosa. Duodenal ulcers can be considered as one type of [lesions](#) that appear in gastritis or in the [peptic ulcer](#) disease whose aetiopathogenesis is similar to that of gastritis. Thus, the key difference between gastritis and duodenal ulcer is that **gastritis is a disease whereas duodenal ulcers are one variety of lesions that occur as a result of gastritis.**

What is Gastritis?

The inflammation of the gastric mucosa is known as gastritis. Common symptoms associated with this condition include,

- Epigastric pain
- Discomfort
- Nausea and vomiting

These symptoms are collectively called dyspeptic symptoms.

It can be categorized into two categories as acute gastritis and chronic gastritis depending on the duration of the symptoms. In the acute form of gastritis, the aforementioned symptoms are severe but last for a short duration of time. In chronic gastritis, the symptoms are relatively less severe but more persistent.

Acute Gastritis

Causes

- NSAIDs and aspirin cause gastritis by inhibiting the prostaglandin synthesis
- Alcohol
- Strong acidic or basic compounds can also give rise to gastritis by damaging the parietal cells of the gastric mucosa
- Severe physiological stress in conditions such as intracranial lesions, [sepsis](#), and multiple trauma

Morphology

In mild cases, the symptoms are usually minimal, and the occurrence of [ulcers](#) is rare. Microscopically the lamina propria looks edematous and erythematous. Although the number of inflammatory cells present is low, the presence of ulcers can exaggerate their infiltration.

Acute Gastric Ulcers

Acute gastric ulcers are a complication of severe acute gastritis. Due to the effect of gastric acidity, the overlying mucosa can get damaged, resulting in the formation of erosions. The mucosa tries to repair the damage by producing a fibrin plug to cover the basement membrane, thus preventing further damage to the gastric wall. Ulceration is due to the failure of these repair mechanisms to repair the damages effectively and efficiently.

Causes of Acute Gastric Ulcers

- NSAIDS
- In patients who are under a severe physiological stress, the exaggerated vagal stimulation increases the production of gastric acids. In addition, the mucosal barrier is compromised by the underlying disease further increasing the likelihood of ulceration.

Complications

- Bleeding (Sometimes because of profuse bleeding, blood transfusion is required to prevent hypovolemic shock).
- The perforation of the gastric wall can give rise to peritonitis and internal [hemorrhages](#).
- The removal of underlying pathology often results in the complete resolution of these ulcers

Chronic Gastritis

Causes

- *Helicobacter pylori* infection
- Autoimmune gastritis
- Radiation injury
- Chronic bile reflux
- Systemic diseases such as amyloidosis and Crohn's disease

Chronic *Helicobacter pylori* Infection

Helicobacter pylori is a spiral motile bacterium that colonizes just underneath the gastric mucosa. It withstands the gastric acidity by producing the urease enzyme which cleaves urea in the mucus layer to release ammonia that neutralizes the acidity of gastric juices.

Their ability to produce chronic gastric inflammation and epithelial damage is linked to the virulent genes CAG A and VAC A.

Helicobacter pylori is considered as a carcinogenic bacterium because of its close association with gastric carcinoma and lymphoma.

Complications of Chronic *Helicobacter pylori* Infection

- Chronic atrophic gastritis
- Gastric [carcinoma](#)
- [Lymphoma](#)

Infection is usually confined to the antrum. But in heavy infection, the organism can be found throughout the gastric mucosa giving rise to pan gastritis. *Helicobacter pylori* can cause duodenal ulcers whose pathogenesis will be discussed in the latter part of this article.

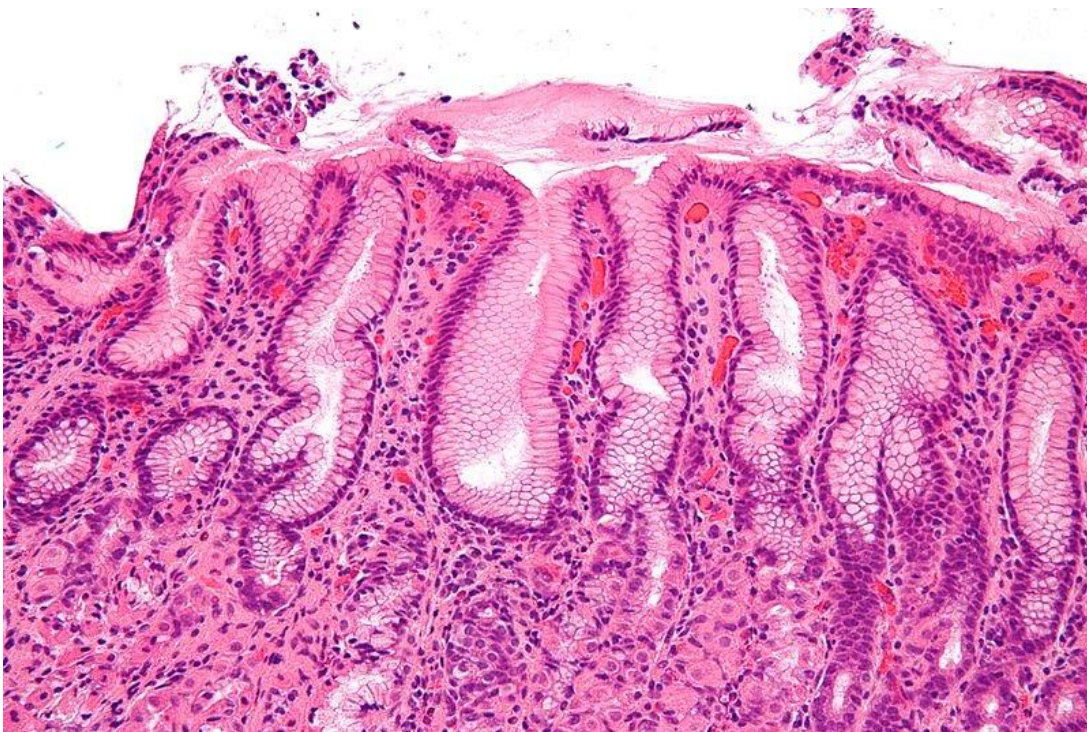


Figure 01: Helicobacter pylori gastritis

Diagnosis

Diagnosis is by demonstrating the presence of the organism in the gastric mucosa

Noninvasive methods

- Urea breath test
- Anti *pylori* IgG in the serum
- Stool *pylori* antigen test

Invasive methods

These methods demonstrate the presence of organisms in the endoscopic biopsy samples.

- Histology
- Urease test on biopsy materials

Treatment of *H.pylori* Infection

- Proton pump inhibitor b.d. + Clarithromycin 500mg b.d. + amoxicillin 1g b.d. for 7days
- Proton pump inhibitor b.d. + Clarithromycin 500mg b.d. + metronidazole 400 mg for 7 days

Autoimmune Gastritis

Unlike the *H.pylori* gastritis, autoimmune gastritis does not affect the antrum.

What are Duodenal Ulcers?

Duodenal ulcers are due to the peptic ulcer disease which is characterized by the occurrence of ulcers in the gastrointestinal tract due to the gastric acid-induced cellular injury. This condition most commonly affects the first part of the duodenum and the antrum of the stomach.

Aetiopathogenesis

- Peptic ulcer disease (PUD) is due to the imbalance between gastric acidity and the mucosal defense mechanisms.
- Almost all the duodenal ulcers that occur in association with PUD are due to the *Helicobacter pylori*

Causes

- *Helicobacter pylori*
- NSAIDS
- Zollinger Ellison syndrome
- Smoking
- High-dose steroid therapy
- [COPD](#) and alcoholic [cirrhosis](#)
- Stress
- Hypercalcemic status

Morphology of Duodenal Ulcers occurring in PUD

- Commonly located in the first part of duodenum
- Usually solitary, round and sharply punched out ulcers with a clean base
- In Zollinger Ellison syndrome multiple ulcers occur in the entire duodenum. These ulcers sometimes extend onto the jejunum also.

Malignant ulcers are extremely rare in the first part of the duodenum. Therefore duodenal ulcers in the first part of duodenum rarely undergo biopsies.

Complications

- Perforation and hemorrhage
- Malignant transformation is extremely rare.

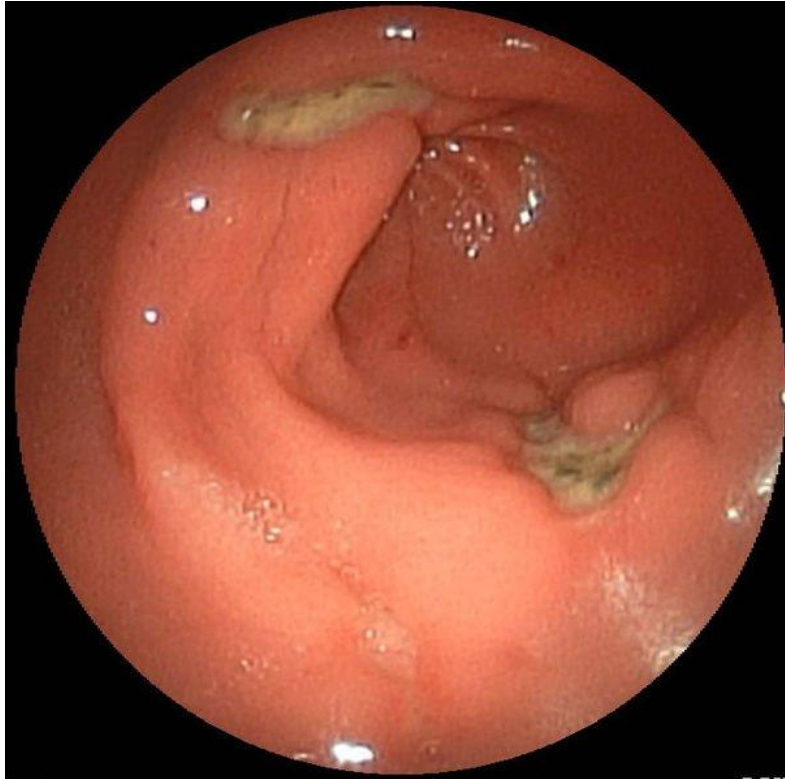


Figure 02: Gastric Ulcer Antrum

What are the similarities between Gastritis and Duodenal Ulcers?

- *Helicobacter pylori* infection is a cause of both conditions

What is the difference between Gastritis and Duodenal Ulcers?

Gastritis vs Duodenal Ulcers	
The inflammation of the gastric mucosa is known as gastritis.	Duodenal ulcers are caused by peptic ulcer disease characterized by the occurrence of ulcers in the gastrointestinal tract due to the gastric acid-induced cellular injury.
Type	
This is a disease.	This is one type of lesions that occur in gastritis or PUD.

Duodenum

The lesions mostly appear in the stomach.

Lesions appear in the duodenum.

Summary – Gastritis vs Duodenal Ulcer

Gastritis and duodenal ulcers are two inter-related pathological conditions that occur in the gastrointestinal tract due to the imbalance between the acidity of the gastric content and the mucosal defense mechanisms. In gastritis, the gastric mucosa gets inflamed, and these inflammatory processes give rise to lesions such as ulcers in the antrum of the stomach or the duodenum. This is the basic difference between gastritis and duodenal ulcer.

Reference:

1. Kumar, Vinay, Stanley Leonard Robbins, Ramzi S. Cotran, Abul K. Abbas, and Nelson Fausto. Robbins and Cotran pathologic basis of disease. 9th ed. Philadelphia, Pa: Elsevier Saunders, 2010. Print.

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