CONDITION

# Duodenal ulcer

A duodenal ulcer is an open sore in the first part of the small intestine.

**WHAT IT IS**
Open sore in the first part of the small intestine

**BODY SYSTEM**
Digestive system

**MAIN SYMPTOMS**
Burning upper abdominal pain, nausea, bloating, early fullness

**WHAT CAUSES IT**
H. pylori infection or anti-inflammatory pain medicines

**HOW IT IS DIAGNOSED**
Upper endoscopy and tests for H. pylori

**MAIN TREATMENT**
Acid suppression and treatment of the underlying cause

**CAN IT BE CURED?**
Yes - most heal when the cause is treated

**IS IT AN EMERGENCY?**
Sometimes - vomiting blood, black stools, or sudden severe pain

**LONG-TERM OUTLOOK**
Usually excellent after healing and cause removal

## Overview

A duodenal ulcer is an open sore in the lining of the duodenum, the first part of the small intestine beyond the stomach. It is a type of peptic ulcer; the other main type is a stomach, or gastric, ulcer.

The stomach and duodenum normally have protective linings that limit damage from stomach acid. An ulcer can form when this protection is weakened or acid-related injury increases.

The two main causes are infection with Helicobacter pylori , usually called H. pylori , and regular use of non-steroidal anti-inflammatory drugs like ibuprofen or naproxen , or NSAIDs. These include ibuprofen, naproxen, and aspirin.

Most duodenal ulcers heal with treatment. Treating the cause is important because an ulcer can otherwise return, bleed, block the stomach outlet, or make a hole through the bowel wall.

## Symptoms

The most common symptom is burning, aching, or gnawing pain in the upper abdomen, between the breastbone and belly button.

Pain may occur when the stomach is empty, between meals, or at night. Eating may briefly improve it, but this pattern cannot confirm an ulcer. Symptoms may come and go over days or weeks.

Other possible symptoms include:

Some ulcers cause few symptoms until they bleed. Slow bleeding can cause iron-deficiency anaemia, leading to tiredness, weakness, pale skin, shortness of breath, or light-headedness.

Vomiting blood, passing black and sticky stools, or developing sudden severe abdominal pain can indicate a complication and requires emergency care.

- Indigestion or upper abdominal discomfort
- Bloating, belching, or early fullness
- Nausea and, less often, vomiting
- Reduced appetite

## Causes and risk factors

H. pylori is a major cause of duodenal ulcers. The bacterium can live in the protective mucus covering the stomach and duodenum, causing inflammation and making the lining more vulnerable to acid. Many people carry it without symptoms, and only some develop ulcers.

NSAIDs are the other main cause. They reduce substances that protect the digestive lining. Risk rises with frequent use, higher doses, older age, a previous ulcer, or use of other medicines that increase bleeding risk.

Low-dose aspirin can also contribute, even when prescribed to prevent a heart attack or stroke. Do not stop prescribed aspirin without medical advice, because stopping it may carry serious risks.

Smoking delays healing and increases the chance of recurrence. Heavy alcohol use may irritate the digestive lining and worsen symptoms, although it is not a main direct cause.

Blood thinners and corticosteroids like prednisone or hydrocortisone can increase the seriousness of bleeding, especially when combined with NSAIDs. They do not usually cause an ulcer by themselves.

Spicy food and everyday emotional stress do not usually cause ulcers, although they may worsen symptoms. Severe physical stress from critical illness, major injury, or extensive burns can cause a different type of ulcer in hospital patients.

Rarely, duodenal ulcers result from unusually high acid production, such as in Zollinger-Ellison syndrome.

## Diagnosis

Symptoms alone cannot confirm a duodenal ulcer because upper abdominal pain has many causes. Assessment includes your symptoms, medical history, and use of aspirin, NSAIDs, and other medicines.

An upper gastrointestinal endoscopy can confirm the diagnosis. A thin flexible tube with a camera is passed through the mouth into the stomach and duodenum, usually with sedation. The clinician can view the ulcer, check for bleeding, and take small tissue samples if needed.

Tests for H. pylori include:

Some medicines can make breath, stool, or biopsy tests less accurate. Follow the instructions you receive about whether medicines need to be paused, and do not stop prescribed treatment without checking first.

Blood antibody tests may remain positive after H. pylori has cleared, so they are less useful for confirming successful treatment. Blood tests can check for anaemia or bleeding. If perforation is suspected, urgent imaging such as a CT scan may be needed.

- A urea breath test
- A stool antigen test
- Testing a tissue sample taken during endoscopy

## Treatment and management

Treatment aims to heal the ulcer, reduce acid, and remove the cause.

A proton pump inhibitor, or PPI, is commonly used to lower stomach acid while the lining heals. Other acid-reducing medicines may sometimes be used. Antacids can briefly relieve discomfort but do not treat H. pylori or ongoing NSAID injury.

If H. pylori is present, treatment combines antibiotics like amoxicillin or doxycycline with acid suppression and sometimes bismuth. The regimen depends on factors including allergies,

previous antibiotic use, and local antibiotic resistance. Complete the prescribed course even if symptoms improve early.

A breath or stool test is generally performed later to confirm that the infection has cleared. Antibiotics and acid-suppressing medicines can affect the result, so follow the preparation and timing instructions provided.

If an NSAID contributed, its use should be reviewed. It may be stopped, changed, or combined with protective treatment depending on why it is needed. Do not stop aspirin prescribed for heart or stroke prevention without medical advice.

There is no standard ulcer diet. You may limit foods or drinks that clearly worsen symptoms, but food does not replace treatment.

A bleeding ulcer may need endoscopic treatment to close or seal the bleeding area, along with acid-reducing medicine. If this fails, treatment to block the bleeding blood vessel or surgery may be needed. A perforated ulcer usually requires emergency hospital treatment and often surgery.

Medicines commonly used for this include lansoprazole . Which one suits you, if any, is a decision for you and your doctor.

## Complications

Most treated duodenal ulcers do not cause lasting problems. Possible complications include:

An ulcer is more likely to return if H. pylori remains, NSAID exposure continues, or acid production is unusually high.

- Bleeding: This may slowly cause anaemia or suddenly cause vomiting of blood, black stools, weakness, or collapse.
- Perforation: A hole forms through the duodenal wall, allowing digestive contents to leak into the abdomen.
- Penetration: The ulcer extends into a nearby organ, such as the pancreas, causing persistent or severe pain.
- Obstruction: Swelling or scarring narrows the stomach outlet, causing repeated vomiting, early fullness, and weight loss.

## Prevention

Not every duodenal ulcer can be prevented. There is no routinely used vaccine against H. pylori

. Handwashing and safe food and water practices may reduce spread but cannot guarantee prevention.

Avoid unnecessary NSAID use and do not combine different NSAIDs unless advised. Check labels because some cold, flu, and combination pain products contain an NSAID.

If you need long-term aspirin or an NSAID, ask for a review of your ulcer and bleeding risk. You may need an alternative medicine or acid-protective treatment. Do not change prescribed medicine without discussing why it is needed.

Not smoking supports healing and reduces recurrence. Limiting alcohol may reduce irritation and make worsening symptoms easier to recognise.

## Living with it and what to expect

With effective treatment, many duodenal ulcers heal within several weeks. Pain may improve before healing is complete, so do not stop treatment early unless advised.

If H. pylori is cleared and NSAID injury is avoided, the long-term outlook is usually excellent. Most people can return to their usual activities and diet, without a lifelong bland diet.

An ulcer can return if its cause remains or comes back. Recurrent symptoms may need further testing rather than repeated self-treatment with antacids. Assessment may include a medicine review, repeat H. pylori testing, another endoscopy, or tests for uncommon causes of excess acid.

Some people need longer-term acid suppression, especially if they must continue medicine that raises ulcer risk.

Follow-up may include reviewing symptoms and medicines and confirming that H. pylori treatment worked. A follow-up endoscopy is not routinely needed for every uncomplicated duodenal ulcer, but it may be recommended if symptoms persist, complications occurred, or the diagnosis is uncertain.

## When to get medical help

Call emergency services or go to an emergency department if you have:

These symptoms can indicate major bleeding or perforation.

Seek urgent medical assessment for repeated vomiting, difficulty keeping fluids down, worsening pain, unexplained weight loss, trouble swallowing, or increasing tiredness and shortness of breath.

Arrange a routine appointment if upper abdominal pain keeps returning, wakes you at night, lasts more than a short period, or occurs while you regularly use aspirin or an NSAID. Also seek follow-up if symptoms return after treatment.

- Vomiting of red blood or dark material resembling coffee grounds
- Black, sticky stools, especially with weakness or light-headedness
- Sudden, severe, or rapidly worsening abdominal pain
- A rigid or very tender abdomen
- Fainting, confusion, marked breathlessness, or cold and clammy skin

## Common questions

Is a duodenal ulcer the same as a stomach ulcer?

No. Both are peptic ulcers, but a stomach ulcer forms in the stomach lining, while a duodenal ulcer forms in the first part of the small intestine.

Can stress cause a duodenal ulcer?

Everyday emotional stress is not a main cause. Most duodenal ulcers are related to H. pylori or NSAIDs. Stress may worsen symptoms, while severe physical illness can cause stress-related ulcers in hospital patients.

What foods should I avoid?

No specific diet heals an ulcer. Spicy, acidic, fatty, or caffeinated foods may worsen symptoms for some people but do not usually cause the ulcer. Limit only what clearly bothers you while maintaining a balanced diet.

Can a duodenal ulcer heal by itself?

Symptoms may settle temporarily, but the ulcer or its cause may remain. Treatment improves healing and reduces the risk of bleeding, perforation, and recurrence.

Is a duodenal ulcer cancer?

A typical duodenal ulcer is not cancer. Duodenal cancer is uncommon, but persistent or unusual symptoms still require assessment.

Is a duodenal ulcer contagious?

The ulcer is not contagious. H. pylori can spread between people, probably through contact with saliva, vomit, or stool, but most people exposed to it do not develop an ulcer.

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