CONDITION

Helicobacter pylori infection

Helicobacter pylori infection is a bacterial infection of the stomach lining that can cause inflammation and ulcers.

WHAT IT IS
Bacterial infection of the stomach lining

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Upper abdominal pain, bloating, nausea, early fullness

WHAT CAUSES IT
Infection with Helicobacter pylori bacteria

HOW IT IS DIAGNOSED
Breath test, stool test, or stomach biopsy

MAIN TREATMENT
Acid suppression combined with antibiotics

CAN IT BE CURED?
Yes, antibiotics can clear the bacteria

IS IT AN EMERGENCY?
Sometimes, with vomiting blood or sudden severe pain

LONG-TERM OUTLOOK
Usually good after successful treatment

Overview

Helicobacter pylori, often shortened to H. pylori , is a type of bacterium that can live in the stomach lining. It causes long-lasting inflammation called gastritis. Many people have no symptoms and do not know they carry it.

The infection matters because it can damage the stomach or the first part of the small intestine, called the duodenum. It is a major cause of peptic ulcers, which are open sores in these areas. Less often, long-term infection contributes to stomach cancer or a rare type of stomach lymphoma.

Finding and treating H. pylori can clear the infection, help ulcers heal, and reduce the chance that ulcers will return. Treatment also lowers the future risk of stomach cancer, although it cannot always reverse changes that have already developed.

Symptoms

Most people with H. pylori infection have no symptoms. When symptoms occur, they often come from stomach inflammation or an ulcer rather than from the bacteria alone.

Possible symptoms include:

Ulcer pain may be worse when your stomach is empty, but this pattern is not reliable. Similar symptoms can come from indigestion, acid reflux, medication side effects, gallstones, or other conditions. Symptoms alone cannot confirm H. pylori infection.

Slow bleeding from an ulcer may cause iron-deficiency anaemia, meaning there are not enough healthy red blood cells because the body has lost iron. This may lead to tiredness, shortness of breath, dizziness, or pale skin.

Black, sticky stools or vomit containing blood can mean active bleeding. These symptoms need urgent assessment.

- Burning, aching, or discomfort in the upper abdomen
- Bloating or frequent belching
- Nausea or occasional vomiting
- Feeling full sooner than expected during a meal
- Reduced appetite
- Unexplained weight loss

Causes and risk factors

The condition is caused by infection with H. pylori bacteria. The bacteria can survive close to the stomach lining despite the stomach's acidic environment. Without treatment, the infection often remains for many years.

The exact route of transmission is not always known. It may spread through contact with saliva, vomit, or stool. Many people appear to acquire it during childhood.

Factors linked with a greater chance of infection include:

These are population-level risk factors, not proof of how any one person became infected. Having H. pylori is not a sign of poor personal hygiene.

Some factors increase the chance that an infected person will develop an ulcer or another complication. These include smoking and using non-steroidal anti-inflammatory drugs like ibuprofen or naproxen , or NSAIDs, such as ibuprofen or naproxen. The bacteria and NSAIDs

can each damage the stomach lining.

- Living with someone who has H. pylori
- Crowded living conditions, especially during childhood
- Limited access to clean water or sanitation
- Growing up in a region where the infection is more common

Diagnosis

Tests for H. pylori look for evidence of an active infection. The most common non-invasive tests are the urea breath test and stool antigen test.

For a urea breath test, you swallow a substance containing urea, a natural chemical. If H. pylori is present, it breaks down the urea and produces carbon dioxide that can be measured in your breath.

A stool antigen test looks for pieces of the bacteria in a stool sample. Both breath and stool testing can also confirm whether treatment successfully cleared the infection.

Acid-suppressing medicines called proton pump inhibitors can make these tests falsely negative. Antibiotics and bismuth-containing medicines can do the same. You may be asked to pause proton pump inhibitors like omeprazole or lansoprazole for about two weeks and avoid antibiotics and bismuth for at least four weeks before testing. Only change prescribed medicine after receiving instructions from the healthcare professional arranging the test.

Blood antibody tests show whether your immune system has encountered H. pylori . Antibodies can remain after the infection is gone, so a blood test may not distinguish a past infection from a current one. It also cannot confirm that treatment worked.

An upper endoscopy may be used if there are warning symptoms or another reason to examine the stomach. During this procedure, a thin flexible camera passes through the mouth into the stomach. Small tissue samples, called biopsies, can be tested for H. pylori and examined for inflammation or abnormal cells.

Treatment and management

A confirmed active infection is treated with a combination of antibiotics and strong acid suppression. Some treatment combinations also include bismuth, which helps protect the stomach lining and works against the bacteria.

More than one antibiotic like amoxicillin or doxycycline is used because a single antibiotic is unlikely to clear the infection. The exact combination and treatment length are chosen according to local antibiotic resistance, medicine allergies, previous antibiotic use, and which treatments are available.

It is important to take the full course as directed. Missed doses can make treatment less likely to work and may encourage antibiotic resistance. Common temporary effects include nausea, diarrhoea, a metallic taste, abdominal discomfort, or dark stools from bismuth. Seek advice rather than stopping treatment on your own if side effects are difficult to manage.

Treatment does not always succeed on the first attempt. This may happen because the bacteria resist one or more antibiotics or because doses were missed. A different combination can usually be used if the infection remains.

Everyone treated for H. pylori should have a test to confirm that it has cleared. This is usually a breath or stool test performed at least four weeks after antibiotics have finished, with acid-suppressing medicines paused beforehand when appropriate. Feeling better does not prove that the bacteria are gone.

If an ulcer is present, acid suppression may continue beyond the antibiotic course to allow healing. People who need regular NSAIDs may require a separate plan to lower their risk of future ulcers.

Complications

Most people with H. pylori do not develop serious complications. Possible complications include:

The International Agency for Research on Cancer classifies H. pylori as a cause of stomach cancer. This does not mean that most infected people will develop cancer. Individual risk is also influenced by the length of infection, bacterial features, smoking, family history, diet, and changes already present in the stomach lining.

Clearing the infection lowers future risk. It may also cause some early MALT lymphomas to shrink, although specialist follow-up is essential in that situation.

- Peptic ulcer: An open sore in the stomach or duodenum
- Ulcer bleeding: Blood loss that may be gradual or sudden
- Perforation: A hole through the stomach or intestinal wall
- Gastric outlet obstruction: Swelling or scarring that blocks food leaving the stomach

- Iron-deficiency anaemia: Low iron caused partly by bleeding or impaired iron absorption
- Stomach cancer: A possible result of long-term inflammation and cell changes
- Gastric MALT lymphoma: A rare cancer affecting immune tissue in the stomach lining

Prevention

There is no vaccine currently available to prevent H. pylori , and there is no guaranteed way to avoid infection.

Measures that may reduce the spread of infections passed through food, water, or contact with stool include washing your hands after using the toilet and before preparing food, using safe drinking water, and following safe food-handling practices.

If someone in your household is diagnosed, a healthcare professional may discuss testing other adult household members. Whether this is offered can reflect local guidance, symptoms, medical history, and access to reliable testing.

After successful treatment, a new infection can occur, but a positive follow-up test more often means the original infection was not fully cleared. Completing treatment and having the recommended test of cure are the most useful steps.

Living with it and what to expect

Treatment usually lasts for a limited period, followed by testing to make sure the infection has cleared. If the first treatment fails, another antibiotic combination may be needed.

Ulcer-related symptoms often improve as the infection clears and the damaged lining heals. Improvement may take time. Some people continue to have upper abdominal discomfort even after a negative follow-up test because indigestion can have other causes.

Once the bacteria have been cleared, they do not remain dormant in the body. Reinfection is possible, but the likelihood is influenced by age, region, household exposure, and living conditions.

Most people do not need lifelong monitoring after successful treatment. Longer follow-up may be recommended for those with a previous bleeding ulcer, stomach cancer, MALT lymphoma, or precancerous stomach changes such as extensive intestinal metaplasia. Intestinal metaplasia means that stomach-lining cells have changed to resemble intestinal cells.

If ongoing symptoms remain after successful treatment, they should be reviewed rather than assumed to be persistent H. pylori . Further care will depend on the symptoms, examination,

medicines, and any previous test results.

When to get medical help

Arrange a routine medical appointment if you have ongoing or recurring upper abdominal pain, nausea, early fullness, unexplained appetite loss, or other persistent indigestion symptoms. Testing may also be appropriate if you have a current or previous peptic ulcer, unexplained iron-deficiency anaemia, or a close family history of stomach cancer.

Seek prompt medical advice if you have difficulty swallowing, repeated vomiting, unexplained weight loss, worsening anaemia symptoms, or symptoms that continue despite treatment.

Get emergency help for:

These signs can occur with major ulcer bleeding or a perforation. Do not wait for a routine appointment.

- Vomiting blood or material that looks like coffee grounds
- Black, sticky stools, especially with weakness or dizziness
- Sudden, severe, or rapidly worsening abdominal pain
- Fainting, confusion, marked weakness, or difficulty breathing
- A rigid or very tender abdomen

Common questions

* Is H. pylori the same as an ulcer? *

No. H. pylori is a bacterial infection. It can cause an ulcer, but many infected people never develop one. Ulcers can also be caused by NSAIDs and other less common conditions.

* Can H. pylori go away without antibiotics? *

The infection usually persists unless it is treated. Symptoms may come and go, but that does not mean the bacteria have disappeared. An active infection is treated with antibiotics plus acid suppression.

* Is H. pylori contagious? *

It can spread between people, although the exact route is often unclear. Spread may occur through contact with saliva, vomit, or stool. Infection is commonly acquired in childhood and may cluster within households.

* Can I have H. pylori with no symptoms? *

Yes. Most infected people have no clear symptoms. Testing is generally considered because of symptoms, an ulcer, certain stomach findings, or another specific medical reason rather than as universal screening.

How do I know whether treatment worked?

You need a follow-up urea breath test, stool antigen test, or sometimes a biopsy-based test. Symptoms alone are not reliable. Testing is generally delayed until at least four weeks after antibiotics are completed.

* Does H. pylori always cause stomach cancer? *

No. Only a minority of infected people develop stomach cancer. Long-term infection raises the risk, but clearing the bacteria lowers it. People who already have significant precancerous stomach changes may still need follow-up after successful treatment.

Sources

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