CONDITION

H. pylori

H. pylori is a bacterial infection of the stomach lining that can cause ulcers and raise the risk of stomach cancer.

WHAT IT IS
Long-term stomach infection caused by Helicobacter pylori bacteria

BODY SYSTEM
Digestive system

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

WHAT CAUSES IT
Infection, often acquired during childhood

HOW IT IS DIAGNOSED
Urea breath test, stool antigen test, or stomach biopsy

MAIN TREATMENT
Combination antibiotics, acid suppression, sometimes bismuth

CAN IT BE CURED?
Yes - antibiotics usually clear the infection

IS IT AN EMERGENCY?
Sometimes - vomiting blood or black, tarry stools

LONG-TERM OUTLOOK
Usually excellent after confirmed eradication

Overview

Helicobacter pylori , usually shortened to H. pylori , is a type of bacterium that lives in the stomach lining. The infection often begins during childhood and can remain for many years unless it is treated.

Many people have no symptoms. In others, the infection causes ongoing inflammation of the stomach lining, called gastritis. It can also lead to an ulcer in the stomach or duodenum, the first part of the small intestine.

Over many years, H. pylori can increase the risk of stomach cancer and a rare stomach lymphoma called MALT lymphoma. Most people with the infection do not develop cancer. Clearing the infection reduces future risk, although it may not remove all risk if lasting changes to the stomach lining have already developed.

Because symptoms cannot confirm H. pylori , testing is needed before treatment. After treatment, another test is important to make sure the infection has cleared.

Symptoms

Most people with H. pylori do not know they have it. When symptoms occur, they may come from inflammation or an ulcer rather than directly from the bacteria.

Possible symptoms include:

Ulcer pain may be worse when the stomach is empty, but symptoms do not follow the same pattern in everyone. Indigestion, reflux and upper abdominal pain also have many other possible causes.

Bleeding from an ulcer may cause black, tarry stools, vomiting of blood or vomit that resembles coffee grounds. Slow blood loss can lead to iron-deficiency anaemia, which may cause tiredness, weakness, shortness of breath or pale skin.

- Burning or aching pain in the upper abdomen
- Feeling full sooner than expected when eating
- Bloating, burping or nausea
- Reduced appetite or occasional vomiting

Causes and risk factors

The condition is caused by infection with H. pylori bacteria. Researchers have not established every way it spreads, but transmission is thought to occur through contact with saliva, vomit or stool. Contaminated food or water may also play a part.

The infection is often acquired during childhood. It is more likely to spread where people live closely together or have limited access to clean water and sanitation. Several members of the same household may be infected.

Smoking, stress and spicy foods do not cause H. pylori . They may worsen symptoms for some people, but avoiding them does not clear the infection.

Non-steroidal anti-inflammatory drugs like ibuprofen or naproxen , or NSAIDs, include ibuprofen, naproxen and aspirin. They do not cause H. pylori , but they can independently damage the stomach lining. Having both risk factors can make ulcers and bleeding more likely.

Diagnosis

The preferred non-invasive tests look for an active infection.

A urea breath test measures what happens after you swallow a harmless substance containing urea. H. pylori breaks down urea, producing carbon dioxide that can be detected in your breath.

A stool antigen test looks for proteins from the bacteria in a stool sample. Both breath and stool tests can be used before treatment and later to confirm that treatment worked.

Some medicines can temporarily suppress the bacteria and cause a false-negative result. These include antibiotics like amoxicillin or doxycycline , bismuth, proton pump inhibitors and potassium-competitive acid blockers. You may be told to pause certain medicines before testing. Do not stop a prescribed medicine without following the instructions given for your test.

A blood antibody test can show that your immune system has encountered H. pylori . However, antibodies can remain after the infection has cleared. Blood testing therefore cannot reliably confirm a current infection or show that treatment worked.

An upper endoscopy may be needed if there are warning symptoms, possible bleeding or another reason to inspect 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 other changes.

Treatment and management

Treatment aims to clear the bacteria, allow the stomach lining to heal and reduce the risk of ulcers and other complications.

Treatment usually combines:

The exact combination is chosen according to local antibiotic resistance, previous antibiotic use, allergies and, when available, tests showing which antibiotics are likely to work. Resistance means the bacteria are no longer killed by a particular antibiotic.

It is important to take the full course as directed. Missing doses or stopping early may make treatment less likely to work. If side effects make treatment difficult, contact the prescribing service rather than changing the course yourself.

Common side effects can include nausea, diarrhoea, abdominal discomfort or an unusual taste. Bismuth can temporarily darken the tongue or stools. This is not the same as sticky, tar-like stool caused by bleeding, but seek advice if you are unsure.

A breath or stool test is normally used after treatment to confirm eradication, meaning the bacteria are gone. Testing is generally delayed until at least four weeks after antibiotics have finished. Acid-suppressing medicines may also need to be paused beforehand because they can affect the result.

Symptoms alone cannot show whether treatment worked. Some people feel better even though the infection remains, while others continue to have indigestion after it has cleared.

If the first treatment does not work, another combination can often clear the infection. The next choice usually avoids antibiotics that were already used. Further testing for antibiotic sensitivity may be considered after repeated treatment failure.

- Two or more antibiotics to attack the bacteria
- An acid-suppressing medicine to help treatment work and promote healing
- Sometimes bismuth, which protects the stomach lining and acts against the bacteria

Complications

Long-term inflammation can damage the stomach or duodenal lining and cause a peptic ulcer. An ulcer may bleed, block food leaving the stomach or, rarely, create a hole called a perforation.

Repeated or slow bleeding can cause iron-deficiency anaemia. Some people with otherwise unexplained iron deficiency are tested for H. pylori .

Over time, inflammation may cause thinning of the stomach lining, known as atrophic gastritis. Some cells may also change into a type more like intestinal cells, called intestinal metaplasia. These changes can raise the risk of stomach cancer.

H. pylori is also linked to gastric MALT lymphoma, a rare cancer involving immune tissue in the stomach. Treating the infection can lead to improvement in many early cases, although specialist follow-up is needed.

Most infected people do not develop these complications.

Prevention

There is no vaccine in routine use, and H. pylori cannot always be prevented. The infection is often acquired in childhood without anyone knowing when or how it happened.

Basic hygiene may reduce the spread of infections in general. Wash your hands after using the

toilet and before preparing or eating food. Use safe drinking water and properly prepared food where sanitation is uncertain.

Do not share medicines intended to treat H. pylori . Everyone needs testing and an appropriate treatment plan. In some circumstances, adult household members may be offered testing, especially where repeated infection or stomach cancer risk is a concern.

Living with it and what to expect

For most people, H. pylori is a treatable infection rather than a lifelong condition. The treatment period is short compared with the many years the bacteria may have been present, but taking several medicines can be challenging.

Stomach irritation and ulcer symptoms may take time to settle after the bacteria have cleared. If symptoms continue, it does not automatically mean treatment failed. Reflux, functional indigestion, medicine-related irritation and other digestive conditions can cause similar discomfort.

Reinfection can happen, but a positive result after treatment may also mean the original infection was not fully cleared. A properly timed test of cure helps distinguish ongoing infection from symptoms caused by something else.

If an ulcer was present, acid-suppressing treatment may continue while it heals. Limiting NSAID use may also be advised, particularly after an ulcer or stomach bleed. Do not stop aspirin prescribed for heart or circulation problems without medical guidance.

People with advanced thinning, intestinal metaplasia or other precancerous stomach changes may need longer-term specialist follow-up. This is separate from confirming that the infection itself has cleared.

When to get medical help

Arrange a routine medical appointment if you have persistent or recurring upper abdominal pain, unexplained nausea, early fullness or indigestion. These symptoms have many possible causes, and testing can help guide appropriate care.

Seek prompt medical advice if you have repeated vomiting, difficulty swallowing, unexplained weight loss, worsening pain, anaemia or symptoms that continue after treatment. Contact the prescribing service if side effects prevent you from taking the treatment correctly.

Seek emergency help for:

These signs may indicate major bleeding, a perforated ulcer or a serious allergic reaction.

- Vomiting blood or material resembling coffee grounds
- Black, sticky or tar-like stools
- Sudden, severe abdominal pain, especially with a rigid abdomen
- Fainting, severe weakness, confusion or difficulty breathing
- Swelling of the face or throat after medicine

Common questions

Is H. pylori contagious?

It can spread between people, although the exact route is not always clear. Spread is thought to involve saliva, vomit or stool and often occurs within households during childhood. Casual contact does not mean someone will necessarily become infected.

Can H. pylori be cured completely?

Yes. Combination treatment clears the infection in most people, but no course works every time. A breath or stool test after treatment is needed to confirm that it is gone.

Can H. pylori go away without antibiotics?

It usually remains in the stomach unless it is treated. Diets, supplements and probiotics have not been shown to reliably eradicate it on their own. Some may affect symptoms, but they do not replace proven combination treatment.

Does H. pylori always cause an ulcer?

No. Many people never develop an ulcer or noticeable symptoms. The infection raises ulcer risk by inflaming and weakening the stomach or duodenal lining, especially when other risks such as NSAID use are present.

Does H. pylori mean I will get stomach cancer?

No. Most people with the infection do not develop stomach cancer. However, H. pylori is an important risk factor. Clearing it lowers future risk, particularly before lasting changes develop in the stomach lining.

Can H. pylori come back after treatment?

Yes, although a later positive test may mean either reinfection or failure of the first treatment to clear it. If symptoms return, testing is more useful than assuming the bacteria have returned.

Sources

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