CONDITION

Typhoid

Typhoid is a potentially serious bacterial infection spread through contaminated food or water.

WHAT IT IS
Body-wide bacterial infection affecting the digestive system

BODY SYSTEM
Digestive system and whole body

MAIN SYMPTOMS
Prolonged fever, headache, weakness, abdominal pain

WHAT CAUSES IT
Infection with Salmonella Typhi bacteria

HOW IT IS DIAGNOSED
Blood culture, sometimes stool or bone marrow culture

MAIN TREATMENT
Antibiotics, fluids, and supportive care

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

IS IT AN EMERGENCY?
Sometimes - confusion, bleeding, or severe abdominal pain

LONG-TERM OUTLOOK
Most people recover with timely effective treatment

Overview

Typhoid is an infection caused by the bacterium Salmonella enterica serotype Typhi, usually shortened to Salmonella Typhi . The bacteria can spread from the intestines into the bloodstream and other parts of the body.

Typhoid spreads through food or water contaminated with human stool. It is most common where sanitation is limited and clean drinking water is not reliably available. People can also become infected during travel to these areas.

Typhoid matters because it can become serious without effective treatment. It may cause intestinal bleeding, a hole in the bowel, confusion, or problems with circulation. Antibiotic-resistant strains can make the infection harder to treat.

Typhoid is different from paratyphoid, which causes a similar illness but is due to related Salmonella Paratyphi bacteria. It is also unrelated to typhus, a different group of infections spread mainly by lice, fleas, or mites.

Symptoms

Symptoms usually develop gradually after infection. The time between exposure and illness can range from several days to several weeks.

Common symptoms include:

Some people develop faint, flat, pink spots on the chest or abdomen. These are sometimes called "rose spots," but many people with typhoid do not have them.

Children may have diarrhoea more often than adults, while adults may be more likely to have constipation. Symptoms overlap with malaria, dengue, other bloodstream infections, and several common viral illnesses. Symptoms alone cannot confirm typhoid.

Without effective treatment, fever and weakness may continue and complications can develop. Even after treatment begins, the fever may take several days to settle.

- A fever that continues for several days and may rise gradually
- Headache and marked tiredness
- Abdominal pain or discomfort
- Loss of appetite
- Constipation or diarrhoea
- Nausea or vomiting
- Muscle aches
- A dry cough, especially early in the illness

Causes and risk factors

Typhoid is caused only by Salmonella Typhi . Humans are its only known source.

An infected person passes the bacteria in stool and, less often, urine. The bacteria can then reach another person's mouth through contaminated food, water, hands, or surfaces. This is known as faecal-oral spread.

Risk is higher with:

A person can spread the bacteria while ill. A small proportion continue carrying and shedding the bacteria after symptoms have gone. This is called chronic carriage. The bacteria often remain in the gallbladder in long-term carriers.

Previous infection does not always provide lasting protection. A person can get typhoid again.

- Travel to or residence in an area where typhoid is common
- Drinking untreated water or ice made from unsafe water
- Eating food prepared with contaminated water
- Eating raw produce that may have been washed in unsafe water
- Poor access to toilets, sewage systems, or handwashing facilities
- Close contact with someone who is shedding the bacteria
- Visiting friends and relatives in places where typhoid is common

Diagnosis

Typhoid is confirmed by finding Salmonella Typhi in a laboratory culture. A culture is a test in which a sample is checked to see whether bacteria grow.

Blood culture is the main test, especially early in the illness. More than one sample may be needed because the bacteria are not present in every blood sample.

Stool cultures may also detect the bacteria. They can be especially useful later in the illness or when checking whether someone is still carrying the infection. Bone marrow culture can be more sensitive, but it is invasive and is not routinely required.

Whenever possible, culture samples are taken before antibiotics like amoxicillin or doxycycline begin. Antibiotics can reduce the chance of finding the bacteria. The laboratory can also test which antibiotics are likely to work, known as susceptibility testing.

Some blood tests look for antibodies rather than the bacteria themselves. Older antibody tests, including the Widal test, do not reliably distinguish current typhoid from previous infection or vaccination. They should not be treated as confirmation when culture testing is available.

Other tests may be used to assess dehydration, inflammation, liver function, anaemia, or possible complications.

Treatment and management

Typhoid is treated with antibiotics. The choice depends on where the infection was probably acquired, local resistance patterns, illness severity, culture results, and individual medical factors.

Antibiotic resistance is an important concern. Some Salmonella Typhi strains resist several commonly used antibiotics, and extensively drug-resistant strains have been reported. Treatment may need to change when laboratory results become available or if the illness is not improving as expected.

Supportive care may include fluids, nutrition, rest, fever relief, and monitoring for complications. People who are very unwell, unable to drink, confused, bleeding, or showing signs of bowel damage may need hospital care. Severe dehydration may require fluids through a vein.

It is important to complete an antibiotic course exactly as prescribed, even if symptoms improve sooner. Stopping early can allow the infection to return and may contribute to resistance.

Fever does not always disappear immediately after treatment starts. However, persistent or worsening fever needs reassessment because it may indicate resistance, a complication, another infection, or an incorrect initial diagnosis.

Some people need follow-up stool cultures after recovery. This is particularly relevant for food handlers, healthcare workers, childcare workers, and people caring for someone who may be more vulnerable to infection. Local public health rules determine when someone can return to certain work or school settings.

Long-term carriage may require further antibiotic treatment. Occasionally, gallbladder disease affects how carriage is managed.

Complications

Complications are more likely when treatment is delayed or the bacteria do not respond to the first antibiotic. They can also occur despite care.

Possible complications include:

Bowel perforation can allow intestinal contents to leak into the abdomen. This causes severe abdominal pain and requires emergency hospital treatment, often including surgery.

Typhoid can return after apparent recovery. This is called relapse and usually causes another fever or a return of the original symptoms. Reinfection from a new exposure is also possible.

A person may feel well but continue carrying the bacteria. Long-term carriage has been linked

with gallbladder problems and requires medical and public health follow-up.

- Bleeding from the intestines
- A hole in the intestinal wall, called bowel perforation
- Infection and inflammation inside the abdomen
- Severe dehydration
- Confusion, reduced alertness, or other brain effects
- Low blood pressure and poor circulation
- Inflammation of the heart, liver, pancreas, or gallbladder
- Infection in bones, joints, or other organs

Prevention

Typhoid is often preventable, but no single measure provides complete protection.

Vaccines can reduce the risk. Available types include typhoid conjugate vaccines, injectable Vi polysaccharide vaccines, and an oral live vaccine. Which vaccines are available and who is advised to receive them differ by country. Protection can decrease over time, and booster advice depends on the vaccine used.

Typhoid vaccines do not prevent every infection. They also do not provide reliable protection against paratyphoid. Food and water precautions remain important after vaccination.

When clean water cannot be assumed:

Someone with typhoid should take particular care with handwashing and should not prepare food for other people until advised that it is safe. Public health teams may arrange testing for close contacts or people in higher-risk occupations.

- Drink sealed bottled water or water that has been properly boiled or treated
- Avoid ice unless it was made with safe water
- Eat food that is thoroughly cooked and served hot
- Peel fruit yourself where possible
- Avoid raw produce that may have been washed in unsafe water
- Wash hands with soap after using the toilet and before eating

Living with it and what to expect

With an effective antibiotic, most people recover. Fever may take several days to fall, and tiredness or reduced appetite can continue for weeks. Returning to normal activity may need to be gradual.

If symptoms do not begin to improve, or if they worsen, further assessment may be needed. The bacteria may resist the antibiotic, a complication may have developed, or another condition may be causing the symptoms.

Relapse can happen after treatment. A new fever, renewed abdominal symptoms, or worsening weakness in the following weeks should be assessed rather than assumed to be part of recovery.

Follow-up differs according to local public health rules and personal circumstances. Some people have stool cultures to confirm that they are no longer shedding the bacteria. Those who continue to carry it may need further treatment and longer monitoring.

Most people do not have permanent health problems after uncomplicated typhoid. Recovery can take longer after severe illness, intestinal complications, or a long hospital stay. Having had typhoid does not guarantee immunity, so future vaccination and food and water precautions may still be relevant.

When to get medical help

Seek prompt medical assessment for a persistent fever after travel to, or residence in, a place where typhoid is common. Mention recent travel, food and water exposures, vaccination, and any antibiotics already taken. Malaria and other serious infections may need to be ruled out.

If you have been diagnosed with typhoid, contact the service caring for you if fever or other symptoms are not improving, return after treatment, or become worse. Routine follow-up may also include culture tests and public health advice about work, school, or food preparation.

Get urgent or emergency help for:

These symptoms can indicate bleeding, bowel perforation, severe dehydration, or problems with circulation.

- Severe or rapidly worsening abdominal pain
- A hard, swollen, or very tender abdomen
- Blood in the stool, black stool, or vomiting blood
- Confusion, extreme drowsiness, collapse, or fainting

- Difficulty breathing
- Very little urine, inability to drink, or other signs of severe dehydration
- Cold or mottled skin with marked weakness or dizziness

Common questions

Is typhoid the same as food poisoning?

Typhoid is caused by a type of Salmonella , but it differs from the more common short-lived Salmonella stomach infection. Typhoid can enter the bloodstream, cause prolonged fever, and affect several organs.

Is typhoid the same as typhus?

No. Typhoid is caused by Salmonella Typhi and spreads through contaminated food or water. Typhus refers to different bacterial infections usually spread by lice, fleas, or mites.

Can I catch typhoid from another person?

Yes, but it usually spreads when bacteria from an infected person's stool contaminate food, water, hands, or surfaces and then enter another person's mouth. It does not usually spread through ordinary breathing, coughing, or casual conversation.

Can typhoid come back after antibiotics?

It can. A relapse may happen if bacteria remain after symptoms improve. A person can also develop a new infection after another exposure. A returning fever needs medical assessment.

Does the typhoid vaccine give complete protection?

No. Vaccination lowers risk but does not prevent every case. Safe food, drinking water, and hand hygiene remain important. Typhoid vaccines also do not reliably protect against paratyphoid.

How long is someone with typhoid contagious?

A person can shed bacteria during illness and after feeling better. Some continue shedding them for a long time without symptoms. Stool cultures and local public health guidance may be used to decide when particular work or activities are safe.

Sources

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