

Whipple's Disease

National Digestive Diseases Information Clearinghouse



U.S. Department
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What is Whipple's disease?

Whipple's disease is a rare bacterial infection primarily affecting the small intestine. It can also affect the heart, lungs, brain, joints, and eyes. Left untreated, Whipple's disease is fatal.

What causes Whipple's disease?

Bacteria called *Tropheryma whipplei* (*T. whipplei*) cause Whipple's disease. *T. whipplei* infection can cause internal sores, also called lesions, and the thickening of tissues. Villi, which are tiny fingerlike projections that line the small intestine, take on an abnormal, clublike appearance. The damaged intestinal lining fails to properly absorb nutrients, causing diarrhea and malnutrition.

Scientists are unsure how *T. whipplei* infects people. One theory is that some people are more vulnerable to Whipple's disease—probably due to genetic factors that influence the body's immune system. This theory is supported by the existence of a relatively high number of asymptomatic carriers—people who have the bacteria in their bodies but don't get sick. Also, the bacteria are more common in the environment—showing up in soil and sewage wastewater—than would be predicted based on the rareness of the disease. And while multiple cases of Whipple's disease have occurred within the same family, no documentation exists of a person-to-person transmission.

Who gets Whipple's disease?

Anyone can get Whipple's disease, but it is more common in middle-aged Caucasian men.

What are the signs and symptoms of Whipple's disease?

Signs and symptoms of Whipple's disease vary widely.

Classic signs and symptoms of Whipple's disease include

- periodic joint pain, with or without inflammation, that may persist for years before the appearance of other symptoms
- chronic diarrhea, with or without blood
- weight loss
- abdominal pain and bloating
- fever
- fatigue
- anemia—a condition in which the blood has a lower-than-normal number of red blood cells

Less common signs and symptoms of Whipple's disease include

- darkening of the skin
- enlarged lymph nodes
- chronic cough
- chest pain

- pericarditis—inflammation of the membrane surrounding the heart
- heart failure

Neurologic symptoms occur in some people diagnosed with Whipple’s disease and can mimic symptoms of almost any other neurologic condition.

Neurologic symptoms of Whipple’s disease include

- vision problems
- dementia
- facial numbness
- headache
- muscle weakness or twitching
- difficulty walking
- memory problems

Symptoms of neurologic, lung, or heart disease occasionally appear without gastrointestinal symptoms.

How is Whipple’s disease diagnosed?

Because Whipple’s disease is rare, the doctor may first try to rule out more common conditions with similar symptoms, including

- inflammatory rheumatic disease
- celiac disease
- various neurologic disorders
- intra-abdominal lymphoma
- *Mycobacterium avium* complex in people with AIDS

Whipple’s disease is diagnosed through a careful evaluation of symptoms, endoscopy, and biopsy with tissue staining. Electron microscopy and polymerase chain reaction (PCR) testing are used to confirm a diagnosis.

Endoscopy will be used to examine the lining of the small intestine. An endoscope—a thin, flexible, lighted tube with a small camera on the tip—is inserted through the mouth and stomach and into the small intestine. The endoscope transmits images taken inside the small intestine to a video monitor where a health care professional can view them.

A biopsy is performed during endoscopy to collect samples of tissue from the lining of the small intestine for examination using periodic acid-Schiff (PAS) staining. PAS is a magenta-colored stain that can reveal *T. whipplei*-infected cells from thinly cut tissues when viewed with a light microscope. Because PAS staining is nonspecific, meaning it can also stain cells infected with other types of bacteria and fungi, many doctors choose to confirm results with a second diagnostic test, such as electron microscopy or PCR testing.

Electron microscopy, which has a much greater resolution than light microscopy, can be used to see *T. whipplei* bacteria inside infected cells in the tissue taken through biopsy. *T. whipplei* have a unique appearance easily identified by experienced laboratories.

PCR testing can detect and identify extremely low levels of bacterial DNA in tissues and body fluids. The presence of *T. whipplei* DNA in cerebrospinal fluid is an indication of neurologic Whipple’s disease. PCR testing for Whipple’s disease is relatively new; therefore, results should be supported by PAS staining or electron microscopy.

How is Whipple’s disease treated?

Whipple’s disease is treated with long-term antibiotics that kill *T. whipplei* bacteria.

Standard therapy for Whipple’s disease involves initial treatment with intravenous (IV)

antibiotics for 2 weeks, followed by daily oral antibiotic treatment for 1 to 2 years. IV antibiotics are delivered through a needle inserted into a vein. IV antibiotics used to treat Whipple's disease include ceftriaxone (Rocephin) and penicillin G (Pfizerpen) plus streptomycin. Trimethoprim/sulfamethoxazole (Septra, Bactrim), a combination oral antibiotic that can enter the cerebrospinal fluid and brain, is commonly used to treat Whipple's disease.

An alternative treatment for Whipple's disease is a combination of doxycycline (Vibramycin) plus the antimalarial drug hydroxychloroquine (Plaquenil) taken for 12 to 18 months. Supporters of this approach recommend that people with neurologic Whipple's disease also take long-term antibiotics that can enter the cerebrospinal fluid and brain, such as sulfamethoxazole.

What is the likely outcome for people with Whipple's disease?

After treatment, the likely outcome for most people with Whipple's disease is good. Most symptoms disappear in about 1 month. Relapse is common, however, highlighting the need to closely watch for a return of symptoms. Endoscopy with small intestinal biopsy followed by PAS staining and electron microscopy or PCR testing should be repeated 1 year after the start of treatment.

People with neurologic Whipple's disease who relapse tend to have much poorer health outcomes, including serious neurologic symptoms and even death; therefore, some scientists argue that all cases of Whipple's disease should be considered neurologic. Relapsing neurologic Whipple's disease is sometimes treated with a combination of antibiotics and weekly injections of interferon gamma (IFN γ)—a substance made by the body that activates the immune system.

Points to Remember

- Whipple's disease is a rare bacterial infection primarily affecting the small intestine. It can also affect the heart, lungs, brain, joints, and eyes.
- Bacteria called *Tropheryma whipplei* (*T. whipplei*) cause Whipple's disease.
- Scientists are unsure how *T. whipplei* infects people.
- Whipple's disease is most common in middle-aged Caucasian men.
- Classic signs and symptoms of Whipple's disease include joint pain, chronic diarrhea, weight loss, abdominal pain and bloating, fever, fatigue, and anemia.
- Neurologic symptoms of Whipple's disease can mimic those of almost any other neurologic condition.
- Whipple's disease is diagnosed through a careful evaluation of symptoms, endoscopy, and biopsy with tissue staining. Electron microscopy and polymerase chain reaction (PCR) testing are used to confirm a diagnosis.
- Whipple's disease is treated with long-term antibiotics that kill *T. whipplei* bacteria.
- After treatment, the likely outcome for most people with Whipple's disease is good.
- People with neurologic Whipple's disease who relapse tend to have much poorer health outcomes, including serious neurologic symptoms and even death.

Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports basic and clinical research into many digestive disorders, including Whipple's disease. NIDDK scientists are learning how *T. whipplei* infects humans by studying interactions between the bacteria and cells of the gastrointestinal tract.

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit www.ClinicalTrials.gov.

For More Information

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Acknowledgments

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts. This publication was reviewed by George T. Fantry, M.D., University of Maryland School of Medicine.

You may also find additional information about this topic by visiting MedlinePlus at www.medlineplus.gov.

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U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
National Institutes of Health

NIH Publication No. 09-4685
August 2009