

Bartonellosis: Cat Scratch Disease (CSD)

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What is Cat Scratch Disease?

Cat Scratch Disease (CSD), sometimes called Cat Scratch Fever, has been diagnosed in people since the early 1900's. It is caused by an infection with the bacteria called *Bartonella henselae*. Most people who develop CSD have been bitten or scratched by a cat, often during play. It has been estimated that there are over 20,000 cases of CSD in people in the United States each year. Luckily, in most cases recovery is rapid and uneventful, but in some instances there are complications that can become quite serious. Recent research is providing useful new information on CSD, but there are still some important questions left to answer.



What causes CSD?

Cat Scratch Disease in people is caused by *Bartonella henselae*. Other species of *Bartonella* exist, and are thought to be the cause of other diseases in cats, dogs, and wild canids such as coyotes and foxes. Research is continuing to provide new information on the *Bartonella* organism. In this article we will concentrate on *Bartonella henselae* as the cause of Cat Scratch Disease in humans.

What are the symptoms of CSD in people?

Seven to 12 days after being bitten or scratched by a cat, the person usually notices a swelling and then a small abscess or blister at the site of the injury. About one to three weeks after this, the person may develop swollen lymph nodes in the area closest to the injury. The swelling may persist for a few weeks to several months. A person with CSD may also experience flu-like symptoms: fever, headache, fatigue, muscle soreness and poor appetite. Most people recover in just a few weeks. In about 5-15% of cases, other more serious conditions may develop, including heart, eye, brain, intestinal, and skin problems. People with immunocompromised conditions (such as organ transplant patients, those undergoing immunosuppressive treatments for cancer, and people with HIV/AIDS) are more likely than others to have complications from CSD.

How is CSD treated?

Antibiotics may be used to treat CSD, although they usually do not seem to shorten the length of the infection in people with healthy immune systems. For immunocompromised patients, antibiotics are important to prevent secondary infections from starting, and are often continued for several months.

Could my cat be carrying *Bartonella*?

Yes, it is possible for a healthy cat to be a carrier of the CSD organism. Your cat would most likely not show any signs of disease. Kittens are most likely to be infected and, because they are so playful, more likely than older cats to pass the bacteria to people. Because children spend the most time playing with cats, and may tend to play more roughly than adults and therefore get bitten or scratched more often, they are the group most likely to develop CSD.

How does a cat get infected with *Bartonella henselae*?

It is thought that the CSD microorganism is transmitted to cats by fleas. A significant number of *Bartonella* organisms can be found in flea feces. Fleas shed feces on cats, and cats are most likely infected as they scratch or groom themselves, ending up with flea feces (and the *Bartonella* organism) in their mouth and on their claws. Research shows that the highest numbers of cats testing positive for the CSD organism were from warm, humid climates, where fleas thrive. Humans are infected when the organism is transferred from the cat's mouth or claws to a person via a bite or scratch. So far there is no evidence that a bite from an infected flea can give a person CSD.



Ticks have been shown to carry some strains of the *Bartonella* organism in dogs, and could possibly be carriers in cats also, although ticks are usually less of a problem in cats than in dogs.

Does a cat that is a *Bartonella* carrier get sick, also?

The cat involved usually does not show any signs of disease. In a few cases there may be fever, swollen lymph nodes, and muscle pain. If there are signs, they are generally mild and resolve quickly, as is the case in most humans. However, recent studies indicate that there may be a connection between *Bartonella* infection and certain chronic inflammatory conditions in cats (including gingivitis, stomatitis, inflammatory bowel disease, certain eye problems, and some urinary tract abnormalities). More research is needed to clarify this.

Can I have my cat tested for *Bartonella*?

Since most cats carrying the organism do not show any signs of sickness themselves, not many people request testing for their cats. However, people who may be at higher risk for complications from CSD may wish to talk to their veterinarian about

testing for their cat. *Bartonella* testing may also be recommended for cats that develop one of the conditions that may be caused by infection with this organism (as mentioned above). People considering testing for their cats should be aware that there are several tests available for *Bartonella*, and that each test has limitations. Available tests include blood culture, PCR, EIA, IFA, and Western Blot. The *Bartonella* organism does not circulate constantly in the blood, but only intermittently, which can cause difficulty in the interpretation of test results.

Blood culture (growing the *Bartonella* organism from a blood sample) is considered the most reliable test in cats, but because the organism only circulates intermittently, several consecutive cultures are needed to be certain whether the organism is present or not. Polymerase chain reaction (PCR) is a very sensitive DNA test that can detect the presence of *Bartonella* DNA, but because the organism circulates intermittently, PCR may also need to be repeated several times. However, results can usually be obtained more rapidly than with blood culture. Enzyme immunoassay (EIA), Immunofluorescent Antibody (IFA), and Western Blot all test for antibodies to the *Bartonella* organism. The level of antibody present is reported as a number called a 'titer.' For many diseases, a certain titer is considered indicative of exposure to the disease. However, an antibody titer indicative of infection has not yet been established and agreed upon for *Bartonella* in cats. This makes it difficult to interpret these test results. Research is continuing in this area.

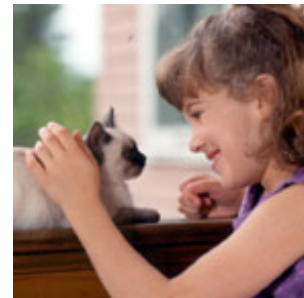
In addition to the complications involved for testing for *Bartonella*, it can be difficult to effectively treat for this organism. Routine use of antibiotics for prevention or treatment is not generally recommended. Because *Bartonella* can circulate intermittently in a cat's bloodstream, it can be difficult to know when treatment has been effective. The organism may seem to have been cleared, only to show up again on later tests. Many different antibiotics have been tried, and so far none have been conclusively shown to fully clear this infection in cats. [Azithromycin](#) is recommended by some investigators. Follow-up testing is needed to be certain the infection has truly been cleared from the cat's system. Rigorous flea control (for both the cat and the environment) is essential, and ticks should also be controlled.

How can I reduce the risk of my cat becoming infected with *Bartonella*?

Because *Bartonella* is transmitted by fleas, and possibly by ticks, the best protection is to keep your cat free of these pests. For more information on this, see the article [Flea Control and Prevention](#).

What can I do to reduce my risk of getting Cat Scratch Disease?

- Keep your cat free of fleas and ticks.
- Avoid rough play with cats, especially kittens.
- Wash any cat bites and scratches immediately with soap and lots of water, and seek medical attention.
- Keep your cat's [nails trimmed](#).
- Do not allow cats to lick open wounds that you may have.
- If you develop an infection where you were scratched or bitten by a cat, or if you develop symptoms including fever, headache, swollen lymph nodes, and fatigue, contact your physician.
- Immunocompromised people considering adopting a cat may wish to choose an adult cat from a flea-controlled environment, and should have the cat tested for *Bartonella* before bringing it home.



Although Cat Scratch Disease is just one of several diseases that people can get from cats, in most cases the risk can be greatly decreased by being informed and by taking a few common-sense precautions. If you have questions, seek the advice of your veterinarian and your physician. For most people, the risk of harm is greatly outweighed by the pleasure and companionship cats provide.