



GALAXYdiagnostics

What is Bartonellosis?

Bartonellosis, (*Bartonella spp* infection) is an infectious disease caused by bacteria in the genus *Bartonella*. Popularly known in the United States as Cat Scratch Disease (CSD) or Trench Fever, *Bartonella spp* bacteria are very difficult to detect in patient samples. Consequently, little has been known until recently about the prevalence or pathogenesis of the disease. Bartonellosis was essentially rediscovered in the 1990's as a cause of endocarditis and fever of unknown origin in HIV patients. Recent medical research suggests that, while potentially life-threatening to immunosuppressed patients, Bartonellosis may also be associated with chronic complaints in immunocompetent patients. Evidence of Bartonellosis animals and humans infection has been documented in many regions of the world.

How do people get Bartonellosis?

The organisms that cause Bartonellosis may be transmitted by the bite of an infected flea, lice, or sandfly and most likely by ticks and biting flies. These bacteria can also be transmitted by the scratch or bite of an infected animal, most often a cat. *Bartonella* DNA have been found in several arthropod vectors in the United States, including cat fleas (*Ctenocephalides felis*) and deer ticks (*Ixodes scapularis*, *Ixodes pacificus*, *Ixodes ricinus*). Cases of human infection following the bite or scratch of wild animals, such as groundhogs, squirrels, and coyotes have also been suspected or documented.

What are the symptoms of Bartonellosis?

Bartonella spp bacteria are responsible for a wide range of symptoms that can include problems in multiple organ systems induced by chronic infection with these bacteria. The early clinical presentation of Bartonellosis is often nonspecific and may resemble many other infectious and non-infectious diseases.

Symptoms of Bartonellosis may include:

- fever
- fatigue
- malaise
- swollen lymph nodes
- joint aches and swelling
- neurological abnormalities
- skin rash or markings

Three important components of the clinical presentation of cat scratch disease are fever, swollen lymph nodes, and a history of a cat bite or scratch. Very similar presentations have been reported following a tick bite, although one or more of these components may not be present when the patient is first seen for medical care. Bartonellosis can range from severe illnesses in immunocompromised to chronic complaints in immune-competent individuals.

Where do most cases of Bartonellosis occur?

Bartonella infections in humans and animals have been documented all over the United States and in countries in all major regions of the world. Geographic evidence suggests that prevalence of *Bartonella* in arthropod vectors, particularly fleas, is higher in warmer climates.

How is Bartonellosis diagnosed?

Bartonellosis is suspected based on a combination of clinical signs and symptoms, however, diagnosis requires highly specialized confirmatory laboratory testing. Detection of *Bartonella spp* bacteria in patient samples is extremely challenging, as these bacteria are immune-evasive and infect patients at exceedingly low levels, thereby requiring the use of amplification techniques for diagnostic detection. IFA serology tests are available for the detection of antibodies for a few species of *Bartonella*. Although highly insensitive, IFA serology tests can provide evidence of exposure. The most effective means of detecting active infection involves the combination of enrichment culture followed by PCR detection of organism specific DNA sequences (BAPGM enrichment culture and PCR). The growing evidence of infection and pathologies related to a broad range of *Bartonella spp* suggests that early detection and verification of the species of infection is important for providing the best patient care.

How is Bartonellosis treated?

A number of different antibiotics have been used to treat *Bartonella spp* infection. Recommendations vary on a case-by-case basis.

Can a person get Bartonellosis more than once?

Based upon experimental challenge studies in cats and the detection of more than one *Bartonella sp.* in some human patients, it is likely that sequential infection with different species and strains occurs in nature.

How can Bartonellosis be prevented?

- Wear protective clothing when outdoors
- Avoid animal bites and scratches. Remove ticks promptly and properly
- Wash bites and scratches immediately
- Use insect controls measures for people and pets
- Avoid direct contact with feral cats and wild animals

Further Reading

Breitschwerdt, E. B., R. G. Maggi, et al. (2010). "Bartonellosis: an emerging infectious disease of zoonotic importance to animals and human beings." *Journal of Veterinary Emergency and Critical Care* 20(1): 8-30.

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<<http://emedicine.medscape.com/article/213169-overview>>