BARTONELLOSIS- EMERGING INFECTION AN ZOONOTIC DISEASES

KEYWORDS
Carrion’s disease, B. Bacilliformis, cat scratch disease, B. Henselae, trench fever, B. Quintana

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ABSTRACT
Bartonella bacteria cause several diseases in humans. It is a group of emerging infectious diseases caused by bacteria belonging to the Bartonella genus. Bartonella includes at least 22 named species of bacteria that are mainly transmitted by carriers (vectors), including fleas, lice, or sandflies. The three most common are cat scratch disease, caused by B. henselae; trench fever, caused by B. quintana; and Carrion’s disease, caused by B. bacilliformis.

INTRODUCTION
Bartonellosis is a group of emerging infectious diseases caused by bacteria belonging to the Bartonella genus. Both domestic and wild animals can be infected with Bartonella species (Bartonella spp) by these vectors. Among the Bartonella spp, at least 14 have been implicated in diseases that can be transmitted from animals to people (zoonotic disease). Of these zoonotic species, several may be transmitted to humans by companion animals (dogs and cats), typically through a bite or scratch.

Human diseases that have been identified to be caused by one of the Bartonella spp bacteria include

- Carrion’s disease, caused by B. bacilliformis
- Cat scratch disease caused by B. henselae;
- Trench fever caused by B. Quintana

THE TRANSMISSION OF BARTONELLA BACTERIA CAUSES
Bartonella bacteria invade erythrocytes and the lining of the blood vessels (endothelial cells), where the organism proliferates. Inside the erythrocytes, it is protected from the host’s primary and secondary immune response, thus explaining bacterial persistence that can occur in some cases.

Cat scratch disease (CSD), Bartonella henselae

- It occurs frequently in children under 15
- Spreads from the scratches of domestic or feral cats, particularly kittens
- Cats can harbor infected fleas that carry Bartonella bacteria. These bacteria can be transmitted from a cat to a person during a scratch.
- Stray cats may be more likely than pets to carry Bartonella.
- Cat scratch disease caused by B. henselae infection occurs in approximately 1 per 10,000 persons.
- Occur more frequently in males than females with a ratio of 3:2

SIGNS AND SYMPTOMS

- Fever
- Enlarged, tender lymph nodes that develop 1–3 weeks after exposure
- A papule or pustule at the inoculation site
- Rarely, unusual manifestations such as eye infections, severe muscle pain, or encephalitis may occur.

Other symptoms of cat-scratch disease may include aching and overall discomfort (malaise), fatigue, headache, and in some patients, fever. Less common symptoms in-
Trench fever is transmitted by the human body louse. Because of its association with body louse infestations, trench fever is most commonly associated with

- Homeless populations or
- Areas of high population density and
- Poor sanitation.

Trench fever received its name during World War I, when many soldiers fighting in the European trenches harbored infected body lice and became infected with the disease.

Trench fever has a worldwide distribution; cases have been reported from Europe, North America, Africa, and China.

TREATMENT:

- For adults and children > 45.5 kg: 500 mg on day 1, followed by 250 mg for 4 days
- For children ≤ 45.5 kg: 10 mg/kg on day 1, followed by 5 mg/kg for 4 days

A number of other antibiotics are effective against Bartonella infections, including penicillins, tetracyclines, cephalosporins, and aminoglycosides. Since aminoglycosides are bactericidal, they are typically used as first-line treatment for Bartonella infections other than CSD. Often, with serious infections, more than one antibiotic is used.

Trench fever, Carrión's disease, and endocarditis due to Bartonella spp. are serious infections that require antibiotic treatment. Health care providers should consult with an expert in infectious diseases regarding treatment options.
PREVENTION

CAT SCRATCH DISEASE (CSD), BARTONELLA HENSELAE

- Avoid rough play with cats, particularly strays and kittens, to prevent scratches. This is especially important for immunocompromised individuals. Wash hands promptly after handling cats.
- Treat cats for fleas using fipronil and other spot-on treatments. Check with your veterinarian. Permethrin should not be used on cats.
- Use a flea collar or similar topical preventive on dogs (fipronil, methoprene, imidocloprid, or permethrin), especially if you have both cats and dogs in your household.
- Keep cats indoors and away from stray cats.
- Immunocompromised individuals should avoid owning cats less than one year of age.

TRENCH FEVER, BARTONELLA QUINTANA

- Avoid exposure to human body lice. Body lice are typically associated with conditions of crowding and limited access to proper personal hygiene.

CARRIÓN’S DISEASE, BARTONELLA BACILLIFORMIS

- Use repellents, and protective clothing to avoid sand fly bites in areas where Carrión’s disease is common (South America). If possible, limit outdoor activities at dawn and dusk, when sand flies are most active.

Other complications

- Bacillary angiomatosis (caused by B. henselae or B. quintana) and bacillary peliosis (caused by B. henselae) occur primarily in immunocompromised people, such as those with advanced HIV infection.
- Bacillary angiomatosis may present as lesions in the skin, subcutaneous tissue, bone, or other organs.
- Bacillary peliosis causes vascular lesions in the liver and spleen.

SUBACUTE ENDOCARDITIS Many Bartonella species can cause subacute endocarditis (infection of the heart valves), which is often culture negative.

RELATED DISORDERS

Certain features of the following disorders may be similar to those of bartonellosis:

Adenitis (Bacterial, Fungal, Pyogenic, and Tuberculous) is an inflammatory disease characterized by lymphadenopathy. Differential diagnosis may be accomplished through skin testing and/or microscopic examination of the involved lymph nodes.

Atypical mycobacterial infections are caused by nontuberculous mycobacteria, but can be very difficult to distinguish from tuberculosis. Lymphadenopathy is caused by nontuberculous mycobacteria, surgical removal and examination (biopsy) of involved tissue may be necessary for diagnosis.

REFERENCE