

TICK-BORNE DISEASE IN CALIFORNIA



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There are several established, and several newly emerging tick-borne diseases in California. While most of these diseases are rare, some can be severe and potentially fatal. It is important for you to familiarize yourself with the following symptoms and contact your physician should you suspect a tick-borne disease.

LYME DISEASE

Lyme disease is a bacteria disease and is the #1 tick-born disease in California. There are an average of 200 cases of Lyme disease reported in California each year.

INCUBATION PERIOD

3-30 days (7-9 days average)

SYMPTOMS

Acute stage

- ▶ slowly, enlarging red rash (about the size of a half dollar or larger) occurs in 60-80% of adults, less in children.
- ▶ flu-like symptoms

Chronic Stage

- ▶ months to years later
- ▶ migratory pain in joints, tendons, muscles &

Diagnosis is by physician observation of typical rash or blood test. Treatment is with antibiotics. The tick vector in California is *Ixodes pacificus*, also known as the Western Black-legged Tick.

RELAPSING FEVER

This tick-borne bacterial disease occurs in California, with 0-22 cases reported each year. It is commonly found in coniferous (evergreen / pine) forest areas above 4,000 feet elevation. Increased incidence is observed in the summer months when vacationers open cabins and disturb the rodent reservoirs and the ticks.

Although this disease can be fatal if untreated, fatalities have been rare. Diagnosis is by blood tests, with antibiotics as treatment. This bacteria is known to exist along the Sierra-Nevada Range, in San Benito County, in the San Gabriel Mountains in Los Angeles and in the San Bernardino Mountains.

INCUBATION PERIOD

5-15 days

SYMPTOMS

- ▶ periods of fever lasting 2-9 days, alternating with no fever for 2-4 days
- ▶ # of relapses varies from 1-10 days or more

One group of cases was found to have originated in a sandy cave in Stanislaus County. Tick vectors in California are *Ornithodoros hermsi*. Related species cause only an occasional problem at lower elevations.

TULAREMIA

Tularemia is a rare bacterial disease in California, with 0-16 cases reported each year. This disease can be contracted while handling infested animals, especially rabbits. Transmission can also occur by inhalation of aerosolized organisms, ingestions of contaminated meat or water, and the bites of infected mammals, deer flies, or mosquitoes.

INCUBATION PERIOD

2-10 days

SYMPTOMS

- ▶ painless ulcer, often on the hands, or at the site of the tick bite
- ▶ swelling of the regional lymph nodes
- ▶ chills and fever
- ▶ loss of appetite
- ▶ weakness

The fatality rate is 5-20% if untreated. Diagnosis is by blood tests. Treatment is with antibiotics. The tick vector in California is *Dermacentor andersoni* (Rocky Mountain Wood Tick), and *Dermacentor variabilis* (The American Dog Tick).

ROCKY MOUNTAIN SPOTTED FEVER

This tick-borne rickettsia disease is rare in California, with 0-7 cases reported each year.

INCUBATION PERIOD

3-14 days

SYMPTOMS

- ▶ sudden onset
- ▶ moderate to high fever for 2-3 days
- ▶ around third day of fever, reddish-purple spots on extremities, including palms & soles, spreading to most of the body.

COLORADO TICK FEVER

Because most patients usually recover within 2 weeks without treatment, Colorado Tick Fever is rarely diagnosed in California. This tick-borne viral disease is found in mountainous regions above 4,000 feet elevation.

INCUBATION PERIOD

4-5 days

SYMPTOMS

- ▶ sudden, high fever lasting 1-3 days, returning in 1-2 days

No specific drug is used to treat Colorado Tick Fever. Diagnosis is by blood tests. This virus is known to occur in northeastern California (primarily Alpine, El Dorado, Lassen, Modoc, Mono, Nevada, Placer, Plumas, Shasta, Sierra, and Siskiyou counties). Tick vectors in California include *Dermacentor occidentalis* (the

Pacific Coast Tick) and *Dermacentor andersoni* (The Rocky Mountain Wood Tick).

HUMAN BABESIOSIS

Although rare in California, the protozoan disease, Human Babesiosis, can be severe and sometimes fatal.

INCUBATION PERIOD

1-12 months reported;
too few cases to determine precise range

SYMPTOMS

- ▶ fever
- ▶ fatigue
- ▶ chills

- ▶ headache
- ▶ nausea
- ▶ weakness lasting from several days to a few months

Diagnosis is by blood test. Treatment is with anti-malaria medication. The vector in California has not yet been identified, although all related human babesiosis cases to date are believed to be tick transmitted.

EHRlichiosis (HME AND HGE)

Both forms of Ehrlichiosis, Human Monocytic Ehrlichiosis (HME) and Human Granulocytic Ehrlichiosis (HGE) are caused by rickettsia-like organisms and are rare in California. The first known case of HGE in the western United States occurred in 1994. In 1995, the confirmation of two cases of HME in California represented the first cases contracted in the western United States.

INCUBATION PERIOD

0-35 days HME

1-30 HGE

SYMPTOMS

- | | |
|------------|---------------|
| ▶ chills | ▶ muscle pain |
| ▶ fever | ▶ nausea |
| ▶ headache | ▶ weakness |

Serious illness is rare with HME, while HGE is characterized as a moderate to severe disease. Diagnosis is by blood test and treatment is with antibiotics. The tick vector for both HME and HGE in California is unconfirmed at this time.

HUMAN GRANULOCYTIC ANAPLASMOSIS **(HGA)**

Human Granulocytic Anaplasmosis (HGA) is an uncommon infection in California and is caused by a bacteria that infects the white blood cells of its hosts.

People get HGA when they are bitten by Western Black-legged ticks infected with HGA bacteria. Ticks become infected with HGA bacteria when they bite an infected wild rodent.

INCUBATION PERIOD

5-10 days reported

SYMPTOMS

- | | |
|------------|---------------|
| ▶ fever | ▶ muscle pain |
| ▶ headache | ▶ nausea |

HGA can be successfully treated with antibiotics. People with HGA generally begin to feel better within one to two days of starting antibiotic treatment.

TICK PARALYSIS

This tick-borne disease is caused by the salivary toxins of the tick and may occur when a tick is attached for 2-7 days.

INCUBATION PERIOD

0-35 days

SYMPTOMS

- ▶ irritability
- ▶ loss of appetite
- ▶ weakness
- ▶ paralysis

Paralysis begins a day after the other symptoms, beginning in the legs and feet, followed by difficulty in walking. The paralysis moves to the arms and hands, and eventually into the back and respiratory muscles. Diagnosis is made by finding an embedded tick, usually on the scalp. Recovery usually occurs within 24-48 hours after tick removal. Fatalities have been reported, though rare. Children under 2 years old are most susceptible. Although many tick species are capable of causing Tick Paralysis, the tick vectors in California are *Dermacentor andersoni* (the Rocky Mountain Wood Tick), and *Dermacentor variabilis* (the American Dog Tick).

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