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Risks of Contracting Tularemia from Wild Game

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What is tularemia?

Tularemia (also known as rabbit fever or deerfly fever) is an infectious disease in ticks and rabbits that is caused by a bacterium (*Francisella tularensis*). The bacteria that cause tularemia were first discovered near the turn of the century in Tulare County, California (hence the name tularemia). Tularemia occurs throughout North America and in parts of Europe and Asia. There are two common ways that humans can contract tularemia:

- From the bite of an infected tick, deerfly, or mosquito.
- When broken skin (cuts, abrasions) comes into direct contact with an infected rabbit carcass (namely rabbit species of the genus *Sylvilagus*).

Although uncommon, people also may contract tularemia by inhaling contaminated dust or by ingesting contaminated meats or water. Human-to-human transmission of tularemia is uncommon.

What are the clinical features or symptoms of tularemia?

In humans, tularemia may appear in two forms depending on how a patient contracted the disease. The most common form is usually acquired through the bite of an infected tick or from contact with infected rabbits. Patients will develop an ulcer at the site of infection and experience a swelling of the lymph nodes.

The ulcer or lesion may be accompanied by severe fever and flu-like symptoms. Symptoms may persist from 1-14 days, with 3-5 days being most common. Patients with the less common form of tularemia, which occurs mainly after inhalation of bacteria, typically experience sudden chills, fever, weight loss, abdominal pains, tiredness, and headaches. Patients with this form of tularemia may develop an unusual pneumonia that can be fatal.

How is tularemia transmitted to humans through wild game?

Reports of tularemia outbreaks indicate two primary modes of disease transmission. An increase in the number of reported cases in the eastern and midwestern United States during fall and winter coincides with hunting season when hunters are skinning rabbits. In the southwestern and western United States, the incidence of tularemia is highest during summer months due to tick bites.

The risk of contracting tularemia from rabbits is greatest when handling rabbits after the hunt (transporting and skinning). Hunters skinning rabbits are advised to wear protective rubber gloves to reduce the risk of contracting the bacteria that cause tularemia when broken skin (cuts, scratches, open wounds, abrasions) comes into contact with an infected carcass or a live, infected rabbit.

Cook all rabbit meat thoroughly before eating. Bacteria that cause tularemia can live for weeks in water, soil, carcasses, and hides, and for years in frozen rabbit meat.

Other than hunters, who else may be at risk for illness from tularemia?

Approximately 150-300 tularemia cases are reported in the United States annually, with a majority of those from Oklahoma, Missouri, and Alaska. The bacteria *F. tularensis* is a hazard to laboratory staff that work closely with rabbits. As few as 5-10 bacteria can result in disease. Others at risk may include timber industry personnel, outdoor enthusiasts, as well as those who work, play, or live in tick-infested regions during summer months.

As recently as 1984, 20 people from the Crow Creek and Lower Brule Indian reservations in west-central South Dakota were diagnosed with tularemia. Tularemia was spread through these two reservations by dog ticks (*Dermacentor variabilis*) that carried the bacteria.

Treatment of tularemia

Doctors recommend a vaccine for people at high risk of contracting tularemia. The death rate for the rare form of untreated tularemia is about 35%. However, the mortality rate for the more common form of tularemia is only about 1-3% with treatment. If you suspect that you have been infected, seek care from a medical professional immediately. Antibiotics are used in treatment to eliminate the infectious bacteria.

Contacting your health care physician

Diagnosis of tularemia is difficult because the only symptoms of tularemia are also common in other diseases. Patients who provide their physician with a recent history of activities could assist in the diagnosis of tularemia. Information provided in this document should NOT be used as a substitute for seeking professional treatment from your local health care provider if symptoms develop after receiving a tick bite or being exposed to the flesh of a wild animal.

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