State of Alaska Epidemiology **Bulletin**

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Tularemia

Two women from the same Northwest Alaskan village were hospitalized within one day of each other with symptoms of tularemia after skinning approximately 100 muskrats four days prior to their illness. They skinned the animals without gloves and nicked their hands. One of the women lacerated her hand with her skinning knife. The second patient also reported spilling tissue juice from raw caribou meat onto her hands one day prior to admission.

Case No. 1: A 54-year-old Native woman was hospitalized in Kotzebue on May 26 with a two-day history of deep left arm pain and malaise. One day before admission she developed fever, chills, increasing left arm pain, and pain in her left thumb and left axilla. The patient soaked her thumb, producing a small amount of purulent drainage. Treatment with penicillin, 250 mg BID, was begun by the village health aide, but the patient's symptoms persisted after she had taken four doses. On the day of admission, she had ulcers on her left thumb, an oral temperature of 101.2°F, and chills. Antibiotic therapy was changed to cefazolin (Ancef). Purulent drainage from the patient's thumb was noted on the following day. Further review of her history by an alert Kotzebue physician lead to the diagnosis of tularemia and treatment with streptomycin was begun on 5/30. The patient became afebrile on 6/1, improved rapidly thereafter, and was discharged on 6/3.

Case No. 2: A 41-year-old Native woman was hospitalized on May 27 with a one-day history of sores on both hands, muscle aches, abdominal pain, diarrhea, chills, and joint pains. She had been seen by her village health aide three days earlier with complaints of headache and abdominal pain. On admission she was diaphoretic, weak, and had a temperature of 103°F. She had bilateral axillary adenopathy and red papules on two fingers. She had a tender 4 x 5 cm area of induration and erythema on the medial aspect of her right arm. She was treated with cefazolin, antipyretics, and analgesics. Review of her history with consultants at the Alaska Native Medical Center suggested the diagnosis of tularemia; accordingly, her antibiotic therapy was changed to streptomycin. She recovered promptly and was discharged on 6/3. Acute and convalescent sera showed a greater than four-fold rise in antibody titers against F. tularensis antigens (1:40 to 1:640).

Muskrats are commonly infected with Francisella tularensis, the causative agent of tularemia. In addition, rabbits, hares, and voles are usual hosts. The organism has also been found in foxes, bears, beavers, and squirrels. Transmission occurs through inoculation of the skin, conjunctival sac, or oropharyngeal mucosa with blood or tissue while handling infected animals. Skinning of these animals is often cited as a risk factor for tularemia. Bites from infected ticks or flies may also transmit the disease. Inhalation of infectious material may lead to pneumonic disease.

Since 1972, 13 cases of tularemia have been reported in Alaska. All were adults; 10 (77%) were male, 11 (85%) were non-Native. Cases have occurred in Fairbanks (6), Anchorage (3), Noorvik (2), Tok (1), and Trapper's Creek (1).

The diagnosis of tularemia should be considered in any individual presenting with hand ulcers, fever, regional lymphadenopathy, muscle aches, and a history of skinning wild animals. Acute and convalescent sera should be obtained for testing.

Streptomycin is the drug of choice; gentamicin and tobramycin have been reported to be effective. The tetracyclines and chloramphenicol are effective when continued until temperature is normal for 4-5 days, but relapses are reported to occur more often. Virulent streptomycin-resistant organisms have been described.

Use of rubber gloves when skinning wild animals and thorough cooking of wild meat are effective preventive measures.

All suspected cases of tularemia should be reported to the Section of Epidemiology so that an epidemiologic investigation can be promptly initiated.

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