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MORBIDITY AND MORTALITY WEEKLY REPORT

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## Outbreak of Trichinellosis Associated with Eating Cougar Jerky — Idaho, 1995

On March 3, 1995, the Idaho Department of Health and Welfare received a report from the North Central District Health Department (NCDHD) of trichinellosis in a man residing in Idaho County, Idaho (1994 population: 14,938). This report summarizes the epidemiologic and laboratory investigations of this index case and the related outbreak by NCDHD, the U.S. Department of Agriculture (USDA), and CDC.

During the second week of January, the index patient shot and killed a cougar (*Felis concolor*) near Elk City, Idaho. During January 15–18, he prepared jerky from the cougar meat by first soaking the meat in a brine solution made from table salt, then smoking the meat; however, he later reported the smoker never became more than warm. During the next 4 weeks, he distributed the meat to 14 other persons, all of whom ate the meat within days to 1 month after receipt.

On January 26, the man had onset of illness characterized by fever, myalgia, arthralgia, facial swelling, and fatigue. On examination by his physician, his total white blood cell count was 8500/mm<sup>3</sup> (normal: 5000–10,000/mm<sup>3</sup>) with 48% eosinophils, 32% segmented neutrophils, 17% lymphocytes, and 3% monocytes. Based on these findings, trichinellosis was suspected, and he was referred to an infectious disease consultant.

Samples of cougar jerky examined at the Sacred Heart Medical Center Department of Laboratory Medicine in Spokane, Washington, on February 22 contained *Trichinella* larvae. Examination of a muscle biopsy obtained from the patient on February 23 revealed granulomatous myositis with eosinophils. Serum obtained March 9 tested positive for *Trichinella* antibody by bentonite flocculation (1:160) and enzyme-linked immunosorbent assay (ELISA) (3.707) at CDC. *Trichinella* larvae were identified in specimens of jerky and fresh frozen cougar muscle submitted to the USDA in March. Polymerase chain reaction was performed on live larvae recovered from the fresh frozen tissue, and results were consistent with the sylvatic genotypes *T. nativa* and *Trichinella* T6.

During March 3–April 10, NCDHD interviewed the 14 persons who had received jerky. A case of trichinellosis was defined as 1) a *Trichinella*-positive muscle biopsy or positive serologic test for trichinellosis in a patient with eosinophilia, fever, myalgia, and/or periorbital edema; or 2) either a positive serologic test for trichinellosis or eosinophilia, fever, myalgia, and/or periorbital edema in a person who had eaten the cougar jerky. Based on these criteria, nine additional cases were identified. Manifestations

*Trichinellosis* — Continued

among the 10 cases included myalgia (seven), fever (six), rash (three), weakness (three), and arthralgia (two). Seven of these persons were men; case-patients ranged in age from 25 to 52 years.

The index patient and seven others were treated with mebendazole. Persons who had received the jerky were educated by NCDHD on trichinellosis prevention.

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**Editorial Note:** Since trichinellosis was designated a reportable condition in 1947, the number of cases reported annually by state health departments has declined from an average of 400 cases per year in the late 1940s to 32 cases in 1994 (1,2). The proportion of cases associated with eating contaminated commercial pork has been declining since 1975, most likely because of laws prohibiting feeding offal to hogs, the increased use of home freezers, and the practice of thoroughly cooking pork (2).

*Trichinella* species are found in virtually all warm-blooded animals. As domestic swine-associated cases have decreased, the proportion of cases associated with eating wild game has increased, and cases have resulted from consumption of bear, wild boar, and walrus (3–5). This report is the first to document cougar as the source of trichinellosis in the United States. In this investigation, viable larvae were recovered from meat that had been frozen. Although most species of *Trichinella* are killed by freezing, results of the genomic DNA amplification performed at USDA suggest that the cougar isolate was either *T. nativa* or *Trichinella* T6, both freeze-resistant strains that have not been previously reported in Idaho.

To ensure that *Trichinella* are destroyed, meat should be thoroughly cooked. A temperature of 170 F (77 C) exceeds the thermal death point of the trichinae and usually is achieved if the meat is cooked until the color changes from pink or red to gray. Some brine solutions used for preparing jerky also may kill *Trichinella*; however, curing temperature and total duration of time at this temperature are important determinants in this process (6). Physicians should be aware of the continued presence of *Trichinella* sp. in commercial pork and wild game in the United States and should consider the diagnosis in any patient with an illness compatible with trichinosis and whose dietary preferences pose a risk for infection (2).

*References*

1. Schantz PM. *Trichinosis* in the United States, 1947–1981. *Food Technol* 1983;37:83–6.
2. CDC. *Trichinella spiralis* infection—United States, 1990. *MMWR* 1991;40:57–60.
3. Bailey TM, Schantz PM. Trends in the incidence and transmission patterns of human trichinosis in the United States, 1982–1986. *Rev Infect Dis* 1990;12:5–11.
4. MacLean JD, Viallet J, Law C, et al. Trichinosis in the Canadian arctic: report of five outbreaks and a new clinical syndrome. *J Infect Dis* 1989;160:513–20.
5. Woodard TL. An outbreak of trichinosis traced to Alaskan black bear meat. *Alaska Medicine* 1988;30:41–4.
6. Zimmerman WJ. Salt cure and drying time and temperature on viability of *Trichinella spiralis* in dry cured hams. *J Food Sci* 1971;36:58–65.