

THREE CASES OF TULARAEMIA IN SOUTHERN BADEN-WUERTTEMBERG, GERMANY, NOVEMBER 2007

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After contact with a dead rabbit in Baden-Wuerttemberg in southern Germany, three members of a family were infected with tularaemia in late summer 2007. The patients were a forest worker (Patient A) in his twenties, and his parents, both in their fifties.

Tularaemia is very rare in Germany. From 2002 to 2006, between one and five cases were reported annually, with the exception of 2005 with 15 reported cases [1]. In 2007, 19 cases were reported, 11 of them in Baden-Wuerttemberg [2]. In the district in which the three cases occurred, no tularaemia cases had been reported in recent years.

Case description

In late August 2007, a hare was run over by a car driven by patient A and the local forester. The animal was heavily injured and was put down by the forester. Patient A took the dead hare home and skinned it together with his father on the same day. His mother then stored the hare in the freezer.

Three days later, Patient A's father complained of influenza-like symptoms, fever of 39-40°C, headache, and joint pain. On the next day, Patient A and his mother developed the same symptoms, and also experienced dizziness. A fourth family member who had not been at home on the day the hare was skinned did not show any symptoms.

Over the course of the following weeks, the three patients suffered mainly from influenza-like symptoms, and felt increasingly weak. Patient A's mother reported impaired wound healing with regard to a blister on a finger of her right hand (a possible entry site for pathogens) that was caused by a burn and healed only after weeks.

Laboratory investigations by the family doctor returned only unspecific inflammatory serum parameters. X-ray and sonography supplied no evidence pointing towards a diagnosis of tularaemia.

In mid-October, Patient A's father developed swollen lymph nodes in his left axilla and left elbow. The lymph node in his elbow developed an abscess and was extirpated at the university clinic in Ulm, Germany. Patient A and his mother also presented with swollen lymph nodes, the mother in the right axilla and the left elbow, the son in the left axilla. The resulting abscesses were removed at their regional hospital.

The fourth family member works at a medical diagnostic centre. As the influenza-like symptoms in her family persisted for several weeks, she took a serum sample from Patient A's father in mid-October, circa two months after he had skinned the hare, and had it analysed at her work-place. Two weeks later, the centre detected

elevated antibody titres against *Francisella tularensis* in the serum: an IgG titre of 1:2,560 compared to normal values of under 1:40, and an IgM titre of 1:160 compared to a normal of under 1:20, as measured by immunofluorescence test (IFT).

A positive serology for tularaemia is defined as a four-fold or higher increase in specific antibodies to *F. tularensis*. The patients, as well as the hospital in which Patient A and his mother had been treated, were informed immediately of the diagnosis indicative of acute or recent tularaemia.

Laboratory investigation

Three days later, the hospital informed the district public health authorities about a positive diagnosis of tularaemia in a relative of two patients that had been released after lymph node extirpation. At the request of the district public health office, the diagnostic centre sent serum from Patient A's father to the German consultant laboratory for tularaemia in Munich. Tularaemia infection was confirmed for all three family members.

The local veterinary authorities collected the frozen hare from the family's freezer and took it to a veterinary laboratory for analysis. That institute arranged for the transfer of the hare to the German consultant laboratory for tularaemia, where heavy infestation of the hare with *F. tularensis* was confirmed in culture and with molecular techniques.

Treatment

Due to the suspicion of tularaemia, the three patients were treated with antibiotics by their family doctor immediately after the diagnosis by the diagnostic centre. In addition, the family received advice from the local veterinary office on the necessary measures, such as disinfection of the freezer. The local foresters were informed about the possible infestation of the hares in the area.

In January 2008, the district public health office instigated a follow-up laboratory examination of the family, which was performed by the state public health office of Baden-Wuerttemberg with the following result: IFT antibody titres (IgG and IgM) in the serum of the three family members with clinical symptoms had gone down compared to the previous examination (IgG >400 U/ml; IgM >500 U/ml in all three cases). As expected, the daughter's IFT antibody count was normal.

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