

Nomenclature and Pathology of *Mycobacterium microti*

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DESCRIPTION

Well described form of tuberculosis was found in more than 20% of 4,309 voles (*Microtus agrestis*) collected between 1936 and 1942 from a variety of locations across the United Kingdom in 1946. In the same study, tuberculosis was found in over 10% of 223 bank voles (*Clethrionomys glareolus*, now known as *Myodes glareolus*), over 2% of 175 wood mice (*Apodemus sylvaticus*), and 1.5% of 550 shrews (*Sorex araneus*). Acid-fast bacteria were found in every case, whether in a stained smear or in culture. The lymph glands draining the intestinal tract were the most commonly infected site in voles with only one observed site of infection; the lungs were a primary site in 11% of animals. The author also describes a second type of disease pathology, an infiltration of subcutaneous tissue with a white gritty substance containing acid-fast bacteria; in these animals, the skin frequently ulcerates over these masses, and the lungs, liver, and spleen are infected. Transmission of organisms was demonstrated in both wild-caught infected voles and experimentally infected voles kept together with laboratory-bred animals. Infected voles can live for up to 52 weeks, and the author discusses how widespread tuberculosis can be without causing obvious symptoms. Although we cannot be certain that all of the organisms described in the 1946 manuscript are *Mycobacterium microti*, the distinct cellular morphology when viewed microscopically supports this identification.

For 61 isolates, the pathology of *Mycobacterium microti* strains isolated from cats was available. The majority of the infected cats

were domestic house cats with an average age of 8.3 years (range, 3 to 16 years), 26 males and 24 females (the sex was not stated for 11 cats). Thirty-one cases of skin lesions and superficial lymph nodes of the head, as well as two cases of gingivitis, were reported. The superficial lymph nodes or skin of the limbs and tail were involved in eight cases, three of which were located at the tail base. Six more cases involved superficial lymph nodes or neck and torso skin. The lesions in the remaining 14 cases indicated more generalised disease, with lesions involving a combination of lung, liver, spleen, and mesenteric lymph nodes, occasionally with concurrent skin and lymph node lesions.

Pathology seen in *Mycobacterium microti*-infected alpacas (n=6), llamas, pony, and giant otter all involved generalised disease, according to data available. Four of the seven badgers infected with *Mycobacterium microti* had visible lesions, two had no visible lesions, and one case had no data. The five bovine samples came from skin test reactor cattle, two of which had visible lesions at postmortem examination. The cattle from which *Mycobacterium microti* strains were isolated were geographically dispersed and were identified after a short interval skin test (after a confirmed *Mycobacterium bovis* breakdown; n=2), a routine herd test, a premovement test, and a check test. The author reports on a number of studies using live strains of the vole *Bacillus* as a vaccine in guinea pigs, cattle, and humans, and suggests that the vole *Bacillus* does not cause progressive disease in these animals unless given in large doses. Wells discovered organism was later given the name "*Mycobacterium microti*".

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