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TWO CASES OF INFECTION WITH ACID-FAST BACTERIA IN THE OPOSSUM (Didelphis virginiana)

The popularity of the opossum *(Didelphis virginiana)* as an experimental animal appears to be increasing as more investigators become aware of its potential. Krupp and Quillen have discussed the use of this animal in research and related husbandry and health practices (1964, *Laboratory Animal Care, 14,* 189-194), and its care and feeding have been discussed by Crandall (1965, *The Management of Wild Mammals in Captivity,* 21-22). The North American opossum is susceptible to a variety of diseases which are discussed by Barr (1963, *Wildlife Management, 27,* 53-71); among these are Chagas' disease, histoplasmosis, trichophytosis, tularemia, leptospirosis, relapsing fever, murine typhus, and rabies. While tuberculosis has been found in opossums confined in zoos (Francis, 1958, *Tuberculosis in Man and Animals,* 148-149), this disease has not been observed in the wild animal.

This paper describes the lesions seen in two opossums that died during quarantine at the National Institutes of Health Animal Center. Observations at necropsy were consistent with a diagnosis of tuberculosis.

The first case was an opossum received from an animal dealer in Pennsylvania on October 14, 1964. The animal was found dead in its cage on November 6, 1964, and a routine post-mortem examination revealed a large firm mass surrounding and occluding the duodenum, approximately six inches below the pylorus. The duodenum and pyloric regions of the stomach above this mass were extremely hemorrhagic, and peritonitis was observed. Tissues were placed in buffered formalin solution, but no fresh specimen was saved. A diagnosis of tuberculosis was made on the basis of histopathologic examination.

The second animal was found dead on November 17, 1965, in a kennel run that housed one other opossum. The source of this animal is not known specifically because lots from Pennsylvania and Virginia were inadvertently mixed when received. Gross examination revealed tubercles in the spleen, mesenteric lymph nodes, liver, lung, and kidney. Fresh tissues were sent to the Comparative Pathology Section, Division of Research Services, National Institutes of Health, where Runyon Group III organisms were cultured. Subcultures were sent to the National Animal Disease Laboratory, U.S. Department of Agriculture, where the organism was identified as Runyon III by animal inoculation and serological typing, thus confirming the initial report.

In Runyon's discussion of the atypical mycobacteriosis associated with human disease (1960, *Anonymous Mycobacteria in Human Disease,* 3-12), he points out that the highest proportion of these cases in the United States is found in the southeast. However, a study in Cleveland, Ohio by Wolinsky (1960, *Anonymous Mycobacteria in Human Disease,* 45-61) showed the incidence to be 1.9% (16 out of 849 cases of pulmonary mycobacterium infection). Infections associated with these organisms in man are generally pulmonary and not serious, but deaths due to Runyon III have occurred in children.. Crow reported a fatal case which was disseminating with bacilli being isolated from bone marrow, skin, liver and spleen (1961, *Diseases of the Chest,* Vol. XXXIX, No. 4, 372-381). Reports also indicate that contagion does not occur between humans, but Runyon describes a fatal case whose playmate subsequently developed the disease. Each case showed lymphadenopathy with acid-fast bacilli demonstrable both anti- and post-mortem.

The opossum is utilized for food by people in some parts of the United States. The literature does not show that infection with atypical mycobacteria occurs by the intestinal route in the human; how-

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ever, the cases in the two opossums described here showed signs that infection may have occurred by this route. Adequate cooking should be stressed in those geographical areas where this animal is used for food.

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