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Citation	Japanese Journal of Veterinary Research, 26(1-2), 25-25
Issue Date	1978-04
Doc URL	https://hdl.handle.net/2115/2129
Type	departmental bulletin paper
File Information	KJ00003407843.pdf



PATHOLOGICAL STUDIES ON EXPERIMENTAL PSEUDOMONAS INFECTION IN MINK

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Light and electron microscopic observations were conducted in order to clarify the pathogenesis of experimental *Pseudomonas* infection in mink. A challenge exposure was made by instilling the inoculum (*Pseudomonas aeruginosa*, No. 5, serotype 8) into the nostrils of 19 7-month-old female Sapphire mink. The mink were divided into 3 groups according to the condition of the disease: A) initial; B) fatal; and C) surviving cases.

1) In group A marked congestion and thickening of the alveolar walls with mild infiltration of leukocytes were observed in the lungs 3 hours after inoculation. Perivascular cuffing in the small arteries and veins and focal desquamative alveolitis were noted occasionally. Fifteen hours after inoculation acute catarrhal bronchiolitis was observed.

2) In group B relatively intact, hemorrhagic and pneumonic areas were discernible. In the pneumonic areas, acute hemorrhagic fibrino-purulent and necrotic pneumonia was noted. Numerous bacterial colonies were found throughout the pneumonic lesions. Significantly, massive bacillary accumulation around the walls of the arteries and veins (*Pseudomonas vasculitis*) was found. Electron microscopy demonstrated that *Pseudomonas vasculitis* occurred centripetally from the invaded perivascular tissues.

3) In group C thickening of the alveolar walls, perivascular cuffing consisting of histiocytes, lymphocytes and plasma cells, and focal desquamative alveolitis were observed frequently.

4) In the extrapulmonary lesions, acute purulent lymphadenitis including bacterial invasion was observed frequently in the bronchial lymph nodes in group B. Rare bacterial emboli in the liver and spleen in some mink of group B, and a renal abscess in one mink of group C were also found.

5) An immunofluorescent antigen of *P. aeruginosa* was detected in some of the alveolar macrophages of group A and in all of the lungs of group B; however, the lungs of group C were negative. *P. aeruginosa* was recovered from the visceral organs of all group B mink, but not from the group C ones.