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**Autor:** Baumgärtner, W. / Adami, M.

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(lungs 16%, mammary glands 20%). This results seems to agree with other studies (3, 4). A relatively high number of seropositive animals (25%) did not show lesions in either organ.

With respect to the type and severity of the lesions, the predominance of the H.L.F. over the I.P. was observed in lungs, whereas in the mammary glands this relationship was not noted.

On the other hand, even when occurring in both organs, the lesions did not show the expected proportion in terms of either type or importance.

*Institut für Veterinär-Pathologie, Justus-Liebig-Universität, Giessen, FRG*

### **OCCURRENCE OF CANINE DISTEMPER VIRUS INFECTION IN NON-DOMESTIC CARNIVORES AND DISTRIBUTION OF VIRAL ANTIGEN IN BRAIN TISSUES**

*W. Baumgärtner, M. Adami*

Canine distemper virus (CDV) belongs to the genus Morbillivirus in the Paramyxoviridae family and causes an acute to subacute systemic and/or neurologic disease in dogs and other carnivores throughout the world (1,4,5). Within the order Carnivora are a number of families including Canidae and Mustelidae that have been shown to be susceptible to CDV. As a result of the widespread use of modified-live CDV vaccines the incidence of CDV infection in domestic dogs has dramatically declined. However, isolated epidemic recurrence of CDV infection in dogs and the recent epizootic among harbor seals due to infection with a CDV-like virus raise the question of the importance of wildlife species as a reservoir source for infection (3,6). Surprisingly, little is known about occurrence and details of histological and immunohistological findings in noncanid species (5,7).

Therefore, the purpose of the present study was twofold, (i) to record the seasonal incidence of CDV infection among mustelids originating from the same geographical area and, (ii) to characterize histologically and immunohistologically CDV-associated brain lesions in these animals.

Brain tissues from 41 beech martens (*Martes foina*), 2 pine martens (*Martes martes*) and 3 european polecats (*Mustela putorius*), which were submitted for rabies diagnosis to the Staatliche Institut für Gesundheit und Umwelt, Abteilung Veterinärmedizin, in Saarbrücken over a 12 months period (April 1989–March 1990), were collected. Impression smear preparations were taken from brain tissues for rabies diagnosis and half of each brain was fixed in 10% non-buffered formalin. For histological examination, tissues were embedded in paraffin wax, stained with hematoxylin and eosin (HE) and selected sections with luxol fast blue and cresyl violet. Immunohistological demonstration of CDV antigen was performed as described (2).

Clinically, the mustelids showed abnormal behavior including aggressiveness and lack of fear or they were found dead with no premonitory signs. CDV antigen was demonstrated immunohistolo-

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gically in 18 (39.1%) and rabies virus infection was diagnosed in 5 animals (10.9%). CDV infection in mustelids had a peak incidence in the winter months. Histological lesions in mustelids with CDV infection varied but were in general mild to minimal. Intranuclear and intracytoplasmic inclusion bodies were not observed. Minimal to mild perivascular and/or meningeal mononuclear cell infiltrates were observed in 12 cases. Two animals exhibited single foci of demyelination with or without reactive astrogliosis in the cerebellar white matter or the medulla oblongata. Four cases were without significant microscopic brain lesions. Concurrent brain lesions were caused by toxoplasmosis or cerebral nematodiasis in two cases. Immunohistochemically, CDV antigen was present predominantly in the cerebellar and cerebral grey matter, to a lesser extent in meningeal cells and rarely in the white matter.

Summarized, the present findings show a high incidence of naturally occurring CDV infection in wild mustelids with minimal to mild histological brain lesions. In addition, CDV antigen was prominent in the grey matter and white matter involvement was rarely observed.

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