PATHOGENESIS OF MAREK'S DISEASE INDUCED BY INHALATION AND CONTACT EXPOSURES

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In order to clarify the pathogenesis of the initial changes in the respiratory infection of Marek's disease virus (MDV), chronological observations were conducted pathomorphologically.

As an infectious source, feather shafts were collected from diseased birds inoculated with a JM-strain of MDV, and were dried and minced as a powder. After inhalation exposure by the feather materials, the inhalated chickens (4 days of age) were placed in the same room as the birds infected with MDV. The investigated materials consisted of 40 chickens in the inhalation group and contact exposures, and 13 chickens in the normal control group. A total 53 chickens were examined.

The results were as follows: 1) On day 2～10 post exposure, focal pneumonia (foreign-body type) was frequently observed (11/18). 2) On day 5～10 post exposure, marked lymphoreticular cell hyperplasia was seen in the lymphoid tissues (bursa of Fabricius and coecal tonsils etc.) (4/9), instead of the development of "initial cytolytic lesions." On day 7 post exposure, a small lymphoma was found in the lungs (T_{II}-type lesion). 3) From the 14th day on, fluorescent antigens and intranuclear and cytoplasmic inclusion bodies were found in the feather follicle epithelium (FFE). 4) In the exposure group, characteristic MD lesions were found in 42.5% (17/40) (T_{II}-type 6, R-type 9, T_{II}+R-type 2). 5) Electron microscopically, on day 14 post exposure in the FFE, cytolytic changes were restricted to the epithelial cells under the stratum corneum. Some of the cytoplasmic inclusion bodies had already been exposed, due to the loss of corneous layers. The release of the cell-free virus in the surface of the FFE was suggested. 6) On day 45 or 48 post exposure, the cytolytic changes extended to the basal layer. Cytoplasmic inclusion bodies became larger and more numerous. Mature virus particles were found in large numbers, however, virus particles were not found in the basal layer. Regeneration of the FFE was seen occasionally.