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MORPHOLOGICAL STUDY ON MINUTE VIRUS OF CANINES (MVC)-INFECTED CULTURED CELLS AND APPLICATION OF *IN SITU* HYBRIDIZATION AS A DIAGNOSTIC METHOD IN THE LABORATORY

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Minute virus of canines (MVC) was first isolated in 1967 in the U. S. A. and has been considered to be one of the etiologic agents responsible for enteritis and sudden deaths in pups. MVC is known to propagate only in the Walter Reed canine cell (WRCC) line. In this study, morphological characteristics of WRCC infected with MVC were examined, and compared with those of other types of parvoviruses. In addition, immunofluorescence (IF) and *in situ* hybridization (ISH) procedures were employed to establish reliable methods for diagnosis of MVC infection in the laboratory.

Cytopathic effects and formation of intranuclear inclusion bodies were observed in hematoxylin and eosin-stained infected cells. There were some types of inclusions completely filling the nucleus or having obvious halos between them and the nuclear membrane, and showing vacuolar spaces within the inclusions.

Ultrastructurally, these inclusions were of two types: in the first type, virus particles were distributed diffusely in the nuclei and replaced the chromatin granules. In the second type, chromatin granules were aggregated in the center of the nuclei and virus particles were present in the halos or the vacuolar spaces within the aggregated chromatin granules. By IF. specific fluorescence was recognized diffusely in the nuclei and focally in the halos or in the vacuoles within the aggregated chromatin granules.

In these inclusions, there were immature viral particles with low electron density, and mature viral ones with high electron density. These findings were similar to structures of cells infected with other types of parvoviruses.

Using ISH, viral DNA was detected as early as 12 hours postifection (PI), while the viral antigen was found at and after 24 hours PI by IF. These findings indicated that both methods are available for diagnosing MVC infection. Furthermore, ISH showed higher sensitivity than IF to detect the virus infection.