Significance of lymphofollicular lesions observed on the mucosa of the vestibulum vaginae in dogs infected with canine herpesvirus

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The purpose of this study was to elucidate the significance of lymphofollicular lesions which were observed on the mucosa of the vestibulum vaginae in dogs infected with canine herpesvirus (CHV).

Three bitches which were intravenously injected with CHV (Group A) and three dogs which were injected with CHV into the mucosa of the vestibule and one dog as control (Group B), were used respectively.

Papular lesions on the vestibulum vaginae were collected at necropsy and examined by histopathologically, immunohistochemical staining, polymerase chain reaction (PCR) and in situ hybridization (ISH) on praffin embedded sections. Necropsies were carried out at 4 to 9 weeks for Group A, 6 to 8 weeks for Group B respectively, after CHV injection.

On gross examination, papular lesions were found on the vestibular mucosa of the dogs in Group B and histopathologically there were lymphofollicules variable in size. Focal accummlation of lymphocytes straight beneath the epithelium, and diffuse accumulation of lymphocytes, plasma cells and macrophages on the lamina propria mucosae were also observed in both groups of dogs.

On immunohistochemical examination, population of $CD3^-$ lymphocytes were found as two to three times as that of $CD3^+$ lymphocytes in the lymphofollicules. $CD3^+$ lymphocytes were diffusely distributed in the lymphofollicules. CHV specific antigen was negative on the sections examined except for the vestibular mucosa of a dog in Group A which from recovered the virus in vaginal secretions at necropsy.

On PCR examinations, CHV genome was detected from the lymphocytes accumulated focally in the vestibular mucosa, peripheral lymph nodes (retropharyngeal, mesenteric), uterus, ovary and peripheral blood mononuclear cells (PBMC) and trigeminal ganglia respectively for Group A. CHV genome was detected from the lymphofollicules in the vestibular mucosa, trigeminal ganglia, peripheral lymph nodes (retropharyngeal, mesenteric, iliac) and PBMC , but not from the uterus and ovary for Group B.

CHV genome was negative by ISH examination of the lymphofollicules.

These results suggested that: (1) CHV infection is responsible for the formation of the lymphofollicules observed on the vestibulum vaginae of CHV infected dogs, (2) the lymphofollicules may be involved in the immunological response of the vestibular mucosa against CHV.

In addition, from the result that latent infection of CHV in the lymphofollicules was suggested, this lesion may play a significant role for the transgenital infections with CHV of the fetus and neonatal pup.