

In recent study, the seroprevalence of BLV in dairy cattle was more than 50 percents in Korea. However, only limited results were reported on the pathological findings of lymphoma.

A histopathological study was conducted on the bovine lymphoma caused by BLV infection. Lymphoma samples were obtained from two sources: necropsied cattle submitted for disease diagnosis and from slaughtered cattle. A diagnosis of lymphoma was based on PCR test results and on histopathological evaluation. A total of 30 lymphoma cases were classified according to the National Cancer Institute Working Formulation. All lymphoma cases were in female Holstein-Friesian dairy cattle aged 4 years or older. No affected Korean native cattle (Hanwoo) were found in the study.

Tumors consisted of fairly uniform sheet of closely packed lymphocytes without architectural arrangement. Diffuse large cell type comprised 25 cases. The remainder consisted of 3 diffuse mixed types and 2 immunoblastic types. Follicular-type lymphoma was not detected. The mitotic index of tumor cells was on average 2.5/high power field (400x). Nuclear cleavage was detected in 53% of cases. Multi-nucleated cells were scattered among tumor cells in 30% of cases. However, all of them did not fulfill all requirements of Reed-Sternberg cell which was found in the human Hodgkin's disease. The multi-nucleated cell was considered nothing more than a peculiar deviation of uncontrolled neoplastic proliferation.

We conclude that the most common histological cell type of bovine lymphoma in Korea was a diffuse large type with

multi-nucleated cells and nuclear cleavage.

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## **P#7**

### **Observation of Lymphocyte Nuclear Pocket in Cattle Infected with Bovine Leukemia Virus**

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Smith and O'Hara studied LNP in humans. After this report in humans, typical LNP type structures were observed in bovine leukosis cases in 1964 by Knocke. We have attempted to make statistical comparison of LNP incidence in BLV negative cattle with BLV positive cattle. Cows under study were naturally BLV infected or non-infected Holstein-Friesian cattle reared in Chungnam Province, Chugbuk Province, and Gyeonggi Province of Korea. All examined cattle were over three years old. Blood was from the 98 heads in total. Presence of LNPs in the peripheral blood lymphocytes was observed with transmissible electronmicroscope (Hitachi 5700).

Profiles of LNP were predominantly of the ring or loop types that extended from the

usual contour of nuclei and enclosed cytoplasmic materials. Pockets were made by evagination from the nuclei that partially surround bits of cytoplasm. The membranes of the pockets were of relatively uniform structure and consisted of 2 sheet of typical double-layered nuclear envelope. This envelope was composed of two inner nuclear membranes and two outer membranes. The entire structure of pocket membrane was about 61-72nm wide. The LNP positive percent in cattle according to the separated group is different as follows. Leukemic group was the highest to 70% among 4 groups. The LNP positive was 23%, 43%, and 6% in aleukemic, suspect, and BLV seronegative groups, respectively.

The membranes of LNP were relatively uniform structure composed of 4-layers. More LNPs were detected in the BLV seropositive cows compared with seronegative cows, further more in leukemic cows than nonleukemic cows among BLV-seropositive cows. Consequently, the prevalence of LNP considered as one of the positive markers of BLV infection.

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## **P#8**

### **Electronmicroscopic Study of Bovine Leukemia Virus of Cattle**

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Many studies have been performed on the bovine leukemia virus (BLV) since bovine leukosis had been reported in 1968 in Korea. However, there was no report on the ultrastructural examination of BLV. An attempt to detect C-type viral particles in the cultured peripheral blood lymphocytes of Holstein-Friesian dairy cattle, was made to determine whether in vitro viral expression might be used as a reliable method to identify the cow which is likely to transmit BLV

In transmissible electronmicroscopic (TEM) examination, the virus particles were found predominantly outside of the lymphocytes even though a few particles were also observed within the membrane bound cytoplasmic vacuoles. All of them were C-type particles consisting of a central, electron-dense core separated by a clear area from a limiting envelope with a unit membrane structure. Virus particles were easily detected in the lymphocyte which was cultured with medium supplemented with either T-lymphocyte mitogen (concanavalin A) or B-lymphocyte mitogen (lipopolysaccharide). Identical viral particles, although fewer, were also consistently present in the lymphocytes cultured with medium which was containing foetal bovine serum (FBS) only and which was containing neither FBS or mitogen. By contrast, no virus particle was detected in extensive examination of lymphocytes before