

the arteries and showed reddish fluid rich on the cut surface. Histopathologically, microscopic findings described a monomorphic population of lymphocytes with small amounts of cytoplasm, round nuclei with coarsely granular chromatin, and numerous mitotic figures in samples examined. In the tumor lesion, uniformly round cells invaded and neovascularization observed abundant. Also tumoric masses were enveloped with adjacent fat tissues and collagen tissues. These small sized neoplastic lymphocytes consisted of hyperchromatic and basophilic nucleus with abundant starry sky appearance. Especially, the immunohistochemical phenotype of the tumor cells showed positive reaction for anti-CD3, T-cell lineage. Therefore, morphological diagnosis determined multinodular bovine lymphosarcoma, T-cell origin. No infected signs by viral agent, we would like to report on the critical value of our bovine lymphosarcoma case.

In general, bovine lymphoma (BL) is one of the most common neoplasms in cattle. Compared to enzootic bovine leukosis (EBL) caused by bovine leukemia virus (BLV), however, sporadic bovine leukosis (SBL) rarely diagnosed. It is considered that SBL is not caused by BLV although the exact pathogenesis has not been proposed yet. Until now, previous investigations reported that tumor cells of EBL have proven to be primarily of B-cell lineage. Tumor cells in animals with SBL, however, have been reported to be primarily of T-cell lineage and several differential marker of SBL suggested. Moreover, there was a little pathologic report of the SBL in Korea. Therefore, we suggested that our bovine lymphosarcoma case

might be belonging to sporadic bovine leukosis, T-cell lineage, according to the histopathological analysis. For exact diagnosis as SBL in this case, further studies are needed to various epidemiological and serological analyses to other animal of same farmhouse.

*Corresponding Author : Professor, Kyu Shik Jeong, D.V.M., Ph.D.,

Department of Pathology, College of Veterinary Medicine, Kyungpook National University, 702-701, #1370, Sangyeok-dong, Buk-ku, Daegu City, Republic of Korea
Phone +82+53+950+5975, Fax +82+53+950+5955.
E-mail jeongks@mail.knu.ac.kr

P#42

Expression of MMP-1, 3 in Mast Cells and Macrophages might Contribute to the Resolution of Fibrosis in Carbon Tetrachloride-Induced Cirrhosis of Rat's Liver

Won Il Jeong, Sun Hee Do, Da Hee Jeong, Sang Joon Park, Jae Yong Chung, Il Hwa Hong, Dong Hwan Kim, Mi Ran Ki, Tae Hwan Kim and Kyu Shik Jeong

Department of Veterinary Pathology, College of Veterinary Medicine, Kyungpook National University, Daegu, Republic of Korea

Liver fibrosis results from the imbalance of a matrix deposition and degradation by matrix metalloproteinases (MMPs), and a tissue inhibitor of metalloproteinases (TIMPs).

We examined whether mast cells and macrophages could play a pivotal role MMP-1, MMP-3, MMP-9, TIMP-1 and TIMP-2 in carbon tetrachloride-induced fibrosis/cirrhosis in a rat's liver. Furthermore, we sought to determine what type of cells or what type of MMPs play an important role in liver fibrolysis.

The fibrosis of the liver of rat was induced by carbon tetrachloride for 14 weeks. The MMPs and TIMPs in the livers were examined by histopathology, immunohistochemistry and immunoblotting.

At week 0, the MMP-1 expression was detected only in the mast cells. They increased in proportion to the development of fibrosis and reached a maximal number for liver cirrhosis at week 14. In the first four weeks, the MMP-3 expression was mainly observed in many hepatocytes. At week 8, the macrophages in the fibrous septa expressed MMP3 as well as hepatocytes. Between weeks 12 and 14, only a few macrophages expressed MMP3. MMP-9 was detected in the Kupffer cells and macrophages from week 4, peaked at week 8, and then decreased at cirrhosis. TIMP-1 and -2 progressively increased throughout the experimental periods. The MMP-1 expression in the mast cells, however, did not decrease the degree of liver cirrhosis. At the recovery stage, only the MMP-3 expression of the macrophages increased strongly in the unresolved fibrous septa and MMP-9 sustained the same levels. These immunohistochemical data were in perfect agreement with the results of immunoblotting on the MMP/TIMP expression pattern in liver fibrosis/cirrhosis in recovery.

We showed that MMP-1 and TIMP-1, as well as the TIMP-2 expression increased, while MMP-3 and MMP-9 significantly decreased during the late stages of fibrosis and cirrhosis. During recovery, however, the MMP-3 expression of macrophages increased highly in the unresolved fibrous septa. In addition, we demonstrated that the mast cells might participate in fibrolysis by producing MMP-1 throughout the experiment. Therefore, MMP-1 and MMP-3 in mast cells and macrophages might contribute to the reversal of fibrosis during liver fibrosis and recovery, respectively.

*Corresponding Author : Professor, Kyu Shik Jeong, D.V.M., Ph.D.,

Department of Pathology, College of Veterinary Medicine, Kyungpook National University, 702-701, #1370, Sangyeok-dong, Buk-ku, Daegu City, Republic of Korea

Phone +82+53+950+5975, Fax +82+53+950+5955, E-mail jeongks@mail.knu.ac.kr

P#43

Up Regulation of Metabotropic Glutamate Receptor 3 (mGluR3) in Rat Fibrosis and Cirrhosis Model of Persistent Hypoxia Condition

Sun Hee Do, Won Il Jeong, Hae Sun Yun, Da Hee Jeong, Dong Hwan Kim, Sang Joon Park, Jae Yong Chung, Tae Hwan Kim, Mi Ran Ki and Kyu Shik Jeong

Department of Veterinary Pathology, College of Veterinary Medicine, Kyungpook National University, Daegu, Republic of Korea