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Citation	Japanese Journal of Veterinary Research, 36(2), 171-171
Issue Date	1988-05-20
Doc URL	http://hdl.handle.net/2115/3115
Type	bulletin (article)
File Information	KJ00002377099.pdf



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MEMBRANE PROTEINS AND LIPIDS OF ERYTHROCYTES IN DOGS
WITH CHRONIC ANEMIA INDUCED BY *BABESIA GIBSONI*

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We analyzed the erythrocyte membranes from dogs splenectomized after infection with *Babesia gibsoni*. After the splenectomy, the dogs showed moderate or severe anemia and had a constant parasitemia (0.5 to 1.0%) for a long period (at least 15 to 18 months). Blood was obtained from the anemic dogs at 15 to 18 months after the splenectomy. The erythrocytes having a specific gravity of over 1.100 at 4°C, were obtained by Percoll density-gradient centrifugation of the blood and used for analysis of their membrane protein and lipid compositions. Sodium dodecyl sulfate (SDS)-polyacrylamide gel electrophoresis of the membrane proteins from the anemic dogs showed a markedly reduced level of band 4.1a. In contrast, erythrocyte membrane proteins from normal dogs (both of intact and splenectomized dogs) had almost equal levels of band 4.1a and 4.1b. The concentrations of both cholesterol and phospholipids in the erythrocyte membranes from the anemic dogs were higher than those from normal dogs. In addition, the mean corpuscular volume (MCV) of the erythrocytes from the anemic dogs was also increased as compared to that from normal dogs.

These results indicate that the characteristics of the membrane and cell volume of the erythrocytes of anemic dogs are very similar to those of reticulocytes. The results suggest that such erythrocytes in the anemic dogs may be easily hemolyzed due to their membrane abnormalities. This may be a cause of anemia in dogs infected with *B. gibsoni*.