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Title	A SEROLOGICAL SURVEY OF ANTIBODIES TO LEPTOSPIRA INTERROGANS SEROVAR HARDJO IN CATTLE OF HOKKAIDO, AND A STUDY ON ATTACHMENT OF LEPTOSPIRAS TO CULTURED CELLS
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A SEROLOGICAL SURVEY OF ANTIBODIES TO *LEPTOSPIRA INTERROGANS*  
SEROVAR  
*HARDJO* IN CATTLE OF HOKKAIDO, AND A STUDY ON ATTACHMENT OF  
LEPTOSPIRAS TO CULTURED CELLS

Mayumi TSUCHIMOTO

*Department of Hygiene and Microbiology  
Faculty of Veterinary Medicine  
Hokkaido University, Sapporo, Japan*

1) A serological survey of antibodies to *Leptospira interrogans* serovar *hardjo* in cattle revealed that leptospira infection with *hardjo* already prevailed in Hokkaido in 1977. Ratio of positive reactors was high, especially in Horonobe and Teshio. It was also suggested that cattle are liable to be infected with *hardjo* during grazing. The outbreak of a series of abortions during grazing in Horonobe was considered to be caused by *hardjo* infection, since most of the aborting cows had high titers of serum antibodies to *hardjo*.

2) The attachment of leptospires to cultured cells (mainly MDCK cells) was examined. Among leptospires of *Leptospira interrogans* (pathogenic leptospira), virulent strains attached to cultured cells, while avirulent strains attached poorly to the cells, suggesting that virulence of leptospira may correlated with their ability of attachment to cells. Virulent strains of *interrogans* attached poorly to the cells at 4°C compared with at 30°C. On the other hand, leptospires of *biflexa* (nonpathogenic leptospira) attached to the cells at 4°C as well as at 30°C. Leptospires of *biflexa* attached to glass, but those of *interrogans* did not. These findings suggest that the attachment mechanism of *biflexa* is different from that of *interrogans*.

3) Leptospiricidal activity test was carried out using monoclonal antibodies in the presence of complement. The strains which were sensitive to this activity of antiserum were killed by the monoclonal antibodies which agglutinated them, while those resistant to this activity of the antiserum were not killed by the same monoclonal antibodies. These findings indicate that monoclonal antibodies cannot kill all of the leptospires which are agglutinated by these antibodies.

4) The monoclonal antibodies to *hardjo* of the Sejroe serogroup and *jules* of the Hebdomadis serogroup were prepared in order to obtain serovar-specific antibodies for use in diagnosis. All monoclonal antibodies to *hardjo* were, however, cross-reactive to the members of the Sejroe serogroup, and none of them were specific for *hardjo* in the microscopic agglutination test. Monoclonal antibodies prepared to *jules* were also cross-reactive to the members of the Hebdomadis serogroup, and none of them were specific for *jules*.