EXPRESSION OF VARIOUS ANTIGENS IN CHICKENS WITH MAREK'S DISEASE TRANSPLANTABLE TUMORS

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To understand the host immune responses of chickens inoculated with transplantable Marek's disease (MD) lymphoblastoid cell line (MDCC-MSB1-clo. 18) cells that beared progressive or regressive tumors, I carried out histochemical examinations for the presence of various antigens related to MDV and MD tumors.

In chickens inoculated with 10^6 cells (regressor), the tumor volume reached a maximum at 1 week post-inoculation (PI), and the tumors regressed rapidly thereafter. In chickens inoculated with 10^8 cells (progressor), however, the tumors continued to develop logartithmically.

In both groups of chickens, viral antigens in the feather follicles were detected at 2 weeks PI and persisted during the experimental period. Therefore, chickens inoculated with MSB1 cells might be infected with MDV.

Infiltration of heterophils into regressing tumors and infiltration of lymphocytes into progressing tumors were evident. It has been reported that granulocytes have non-specific cytotoxicity and lymphocytes have specific cytotoxicity against the surface antigens of tumor cells. These results indicated that MD tumors regressed by nonspecific cellular reactions.

Tumor-related antigens (MD tumor associated surface antigen: MATSA and chicken fetal antigen:CFA) and virus-related antigens were observed on cells of lymphoid organs (spleen, bursa of Fabricius and thymus) in both groups of chickens 5 to 7 days PI. The number of antigen-positive cells was larger in progressor chickens than in regressor chickens. In regressor chickens the antigens became undetectable thereafter, except for the viral antigens in feather follicles. In progressor chickens, however, the number of positive cells decreased transiently and increased again 4 weeks PI. Significant suppression of the mitogen responses of spleen cells was observed in progressor chickens when compared with regressor chikens, indicating the suppression of T-cell response.

Consequently, chickens inoculated with MD line cells might be infected with MDV, and non-specific immune mechanisms that are different from anti-viral immunity seem to play an important role in the process of tumor regression. Furthermore, in chickens inoculated with larger numbers of cells, tumors seemed to develop because of the immunosuppressive state of the host.