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Author(s)	KIMIJIMA, Tetsuo
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HISTOLOGICAL AND IMMUNOHISTOCHEMICAL STUDY
ON THE LYMPHOID TISSUES AND IMMUNOGLOBULIN-CONTAINING CELLS
IN THE CHICKEN OVIDUCT

Tetsuo KIMIJIMA

*Department of Veterinary Anatomy
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan*

The distribution of lymphoid tissues and immunoglobulin (Ig: IgA, IgG or IgM)-containing cells in the oviducal wall of the laying hen was studied histologically and immunohistochemically.

Lymphocyte accumulations were occasionally noted to be located mainly in the middle infundibulum, the boundary region between the magnum and the isthmus, the isthmus, the uterus and the transitional area from the uterus to the vagina. Most of the accumulations were germinal centers surrounded by a thin layer of lymphocytes. Plasma cell infiltrations were detected in the mucosal connective tissue of the oviduct.

The number of IgG-containing cells (cIgG) significantly predominated over that of IgA- or IgM-containing cells (cIgA and cIgM) in the mucosal connective tissue of the magnum and the isthmus. In contrast, cIgG in areas other than the magnum and the isthmus, and cIgA and cIgM in all areas of oviduct were fewer in number and their frequencies seemed to be similar. No definite relationship was noted between the egg position in the oviduct and the number of regional Ig-containing cells.

Localization of Ig was also detected in some superficial epithelial cells (EC) and glandular cells (GIC) of the oviduct. Most of the Ig-containing EC were IgG-containing ciliated cells, and electron-immunoreactive products were associated with the cytoplasmic matrix. A number of IgG-containing EC were found in the infundibulum, the isthmus and the uterus, having no relationship to the position of the egg. IgA- or IgM-containing EC were rare through the oviduct. Three types of numerous Ig-containing GIC were found in the magnum before the passage of the egg. In the isthmus, a number of IgG-containing GIC was found with no relation to the position of the egg, while IgA- or IgM- containing GIC were rarely observed in this area.

The present results suggest that most of the intraluminal IgA and IgM may be derived from the blood, and that IgG may, for the most part, originate from the oviducal local cIgG. It is also suggested that the lymphoid tissues mainly achieve the local immune response in the oviduct, and that the Ig transferred into the mucosal lumen through the EC and GIC may play a role in the local defense system or passive immunity.