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DEVELOPMENTAL STUDIES ON EMBRYONIC AND POSTNATAL SPLEENS OF CHICKENS

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Spleens in 4 day-old embryo to 23 week-old chickens were observed using the quantitative histological method, with special reference to the development of the white pulp. The results obtained were as follows.

The developmental process of the spleen in chickens was distinguished into 7 stages: 3 in the embryonic and 4 in the postnatal spleens.

The 1st was the mesenchymal anlage stage, and it was observed in 4 to 6 day-old embryos. The 2nd was the early stage of blood vessel formation and was found in 7 to 15 day-old embryos. This stage was characterized by the formation of trabecular arteries and veins and the appearance of hemocytoblasts. The 3rd was the later stage of blood vessel formation and was found in 16 day-old embryos to hatching day ones. This stage was characterized by the formation of ellipsoids and the conspicuous of granulocytopoiesis. The differentiation of the white pulp could not be detected in the spleens of chick embryos.

The 4th was the stage of the white pulp formation, and it was observed from hatching day to 3 weeks old. Out of four tissue elements of white pulp, the appearance time of perivenous lymphatic tissue was the earliest (2 days after hatching). Periarterial lymphatic tissues, periellipsoidal lymphatic tissue and germinal centers appeared in turn in 4, 6, and 10 day-old chickens, respectively. The plasma cells appeared at 2 days after hatching. The 5th was the stage of the white pulp completion, and it was observed from 4 to 8 weeks old. The relative weight of the white pulp and the number of plasma cells increased remarkably in this stage. The 6th was the stage of the white pulp involution, and it was observed in 8 to 14 weeks old chickens. A remarkable involution of the periellipsoidal lymphatic tissue was noted in this stage. The 7th was the stage of the growth of the red pulp, and it was observed in chickens over 14 weeks old. Though no remarkable changes in white pulp were found, the growth of red pulp was noted in this stage.