

# Leucocytozoon caulleryi自然感染越夏鶏からのシゾントの 検出

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## Detection of Schizonts in Chickens Recovered from Natural Infection with *Leucocytozoon caulleryi*

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In 1982 Hashimoto *et al.* [3] first reported that the schizonts were detected in the liver and spleen of chickens recovered from natural *Leucocytozoon caulleryi* infection in the previous summer. Fujisaki *et al.* [2] also found the schizonts in the liver and spleen of a chicken recovered from experimental infection with *L. caulleryi*.

The present paper deals with the detection of schizonts in chickens which survived natural infection with *L. caulleryi*. The chickens were hatched in April, 1981, and passed the summer in 1981 and 1982. The distribution and number of schizonts were investigated in the organs of chickens. Thirty-nine chickens were examined to detect antibodies against *L. caulleryi* by Ouchterlony gel diffusion test [4]. Fourteen chickens (35.9%) of them were positive for antibodies. Two and three positive chickens were killed by cardiac puncture on November 8, 1982 and February 21, 1983, respectively. Tissue samples were collected from the heart, lung, liver, kidney, spleen, pancreas, esophagus, crop, proventriculus, gizzard, intestine including duodenum, ovary, eye, brain, skeletal muscle, skin, spinal cord, bone marrow, and ischiadic nerve to detect schizonts. The samples were stored at  $-20^{\circ}\text{C}$  until examination. These frozen tissue samples were thawed and then homogenized with the addition of physiological saline solution. One part of the resultant emulsion was diluted five times with saline solution and filtrated through 100 mesh net. The emulsion was centrifuged at 1,500 rpm for 5 min, and then the sediment matter was examined. The whole samples of all the organs except skeletal muscles, skin, spinal cord, bone marrow and ischiadic nerve were examined.

By quantitative examination, schizonts were detected in four of the five chickens. Three and fifteen schizonts were detected in the brain of two chickens, respectively (Fig. 1). Fourteen and two

schizonts were detected in the liver of other two chickens, respectively. No schizont was detected in the spleen of all the chickens. The schizonts detected were ovoid or round, light yellow and surrounded by a defined wall. The size of three schizonts detected in one brain was  $138.3 \times 145.0 \mu\text{m}$  on average, and that of fifteen schizonts in the other brain was  $52.5 \times 56.9 \mu\text{m}$  on average. In the liver, fourteen schizonts from one chicken were  $77.9 \times 87.1 \mu\text{m}$  in average size and two schizonts from the other chicken were  $128.7 \times 138.6 \mu\text{m}$  in average size. The difference in size was observed between schizonts detected in the brain and liver.

Hashimoto *et al.* [3] reported that one schizont each was detected from the liver of one chicken, and from the spleen of another chicken of the same herd of eleven birds. Fujisaki *et al.* [2] detected three and a single schizont in the preparations of crushed liver and spleen, respectively, of a chicken killed 203 days after inoculation with sporozoites. The schizonts were 29 to  $48 \mu\text{m}$  in diameter and smaller than those observed in the present experiments, in which schizonts were detected in the brain in addition to the liver and spleen. Desser *et al.* [1] found released schizonts in the lung and liver of Pekin ducks recovered from infection with *Leucocytozoon simondi*. In the present case, if detected schizonts released ones, merozoites or gametocytes would be also recognized in the blood smear samples as mentioned by Hashimoto *et al.* [3]. However, no merozoites and gametocytes were detected in all the blood smear samples from the same herd of chickens that were positive for antibodies against *L. caulleryi*. The detected schizonts were morphologically similar to those of the 2nd generation. However, it is uncertain whether these schizonts serve as a source of prevalence of *L. caulleryi* infection in the next summer. More detailed studies are needed to clarify the significance of schizonts in the chickens recovered from the infections with *L. caulleryi*.

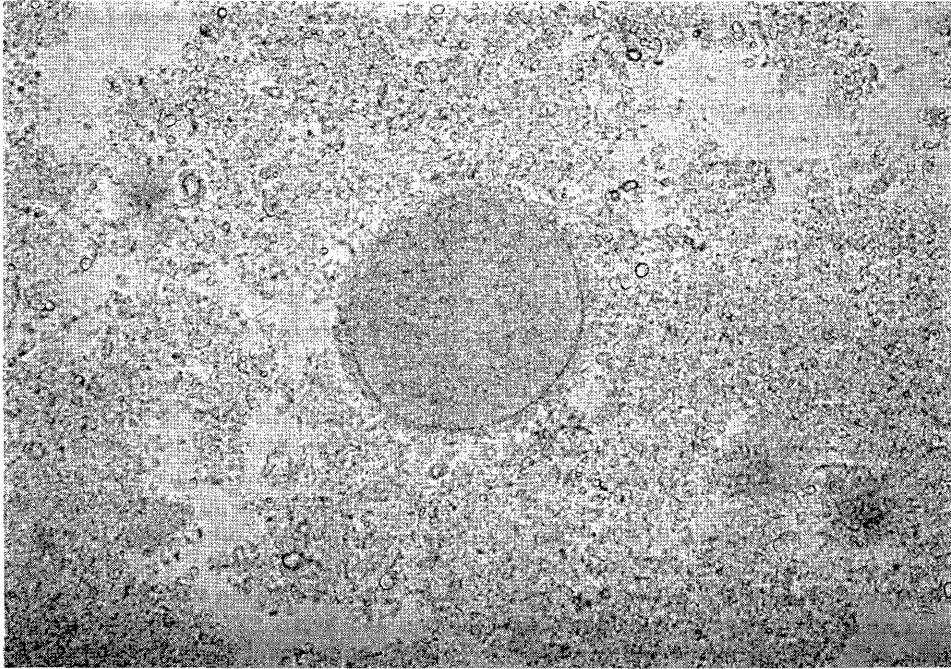


Fig. 1. Schizont detected in the brain.  $\times 50$ .

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#### 要 約

*Leucocytozoon caulleryi* 自然感染越夏鶏からのシizontの検出 (短報) : 井上 勇 (日本大学農獣医学部医動物学研究室)——5羽の*L. caulleryi* 自然感染越夏鶏を用い, schizontの体内分布を調べるため臓器乳剤を作製して鏡検した。その結果, 4羽から検出することができた。すなわち, 2羽の脳からそれぞれ3個, 15個, および肝臓から1羽は14個他の1羽からは2個検出できた。従来から報告されている肝臓, 脾臓のうち脾臓からは検出できなかったが, 今回新たに脳から検出することができた。