

卡氏住白虫裂殖子和配子体的超微结构

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提 要

卡氏住白虫(*Leucocytozoon caulleryi*)的裂殖子和配子体是从天然感染鸡的外周血液、肝、脾及其他内脏组织采取。通过透射电镜观察其超微结构,裂殖子呈圆形或卵圆形,外包有两层膜,外膜较薄,内膜比较厚,内含有一个圆形或卵圆形的核,在核中央有一核仁、核酸糖小体、食物空泡,具有一个管状嵴的线粒体和1~2个脂类包含体。

卡氏住白虫雄性和雌性配子体都具有三层明显的膜,但成熟的配子体仅见到两层膜。雌雄配子体含有细胞核、核仁、核酸糖小体、食物空泡、管状嵴的线粒体、内质网、雄配子体较小而细胞核较大。雌配子体染色较雄配子体深,并含有较发达的内质网。

关键词:卡氏住白虫;裂殖子;配子体;超微结构;鸡

前 言

卡氏住白虫病是华南地区鸡的主要血液原虫病。裂殖子散布在鸡的血液及内脏各器官的组织内,配子体主要寄生在红血球。患鸡贫血、消瘦、下痢,急性病例引起鸡突然咯血,呼吸困难而死亡。

关于住白虫的超微结构的研究,曾有Desser (1970) and Aikawa et al (1970)报道鸭西门氏住白虫的超微结构;Milhous and Solis (1973)描述火鸡住白虫的超微结构;Morii等(1981)报道鸡外周血液内卡氏住白虫裂殖子和配子体的超微结构;陈淑玉(1983)报道沙氏住白虫的超微结构。但卡氏住白虫的超微结构在国内尚未见报道,本文描述天然感染鸡内脏器官组织内的裂殖子和血液内卡氏住白虫配子体的超微结构。

材 料 和 方 法

从广州地区某鸡场选取病鸡带回实验室,经血液抹片检查,发现外周血液内有大量虫体,然后从翅下静脉采血,放在洁净的培养皿内待凝固后,切取3×5毫米的小血块,用4%戊二醛固定。另剖杀病鸡,取肝、脾、肾、心肌等病变部位,切成3×5毫米组织小块,用同样方法固定。将固定好的样本取出,用磷酸缓冲液冲洗,经1%锇酸固定4小时,再用磷酸缓冲液冲洗,然后用酒精梯度脱水,用环氧丙烷置换与618包埋剂逐步渗透及包埋,经瑞典LKB—II超薄切片机切片,切片的厚度为500~600°A,切片用醋

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酸双氧铀和柠檬酸铅双染,用荷兰PhilipEM400型透射电镜观察并摄影。

观察结果

(一) 裂殖子

呈圆形或椭圆形,透视电镜下可见到裂殖子外包有两层膜,外层膜较薄,内膜比较厚,虫体的中央有一个卵圆形或圆形的细胞核,核内分布大量的核酸糖小体,在核的中央有一个圆形或椭圆形的小核仁。在细胞核的附近有一个圆形具有管状嵴的线粒体,此外,在细胞核附近有一个圆形半透明的脂类包含体。见图版,1、2。

(二) 配子体

呈圆形或椭圆形,在透射镜下可见到配子体外包有三层薄膜,但成熟的配子体仅见到两层膜。其内部结构可见到细胞核、核仁、核酸糖小体,脂类包含体、线粒体、内质网等构造。雌配子体细胞质的染色较深,雄配子体较雌配子体小,细胞质染色较淡。见图版,3~6。

讨 论

本文所观察的配子体和裂殖子,均呈圆形或椭圆形。与Moarii (1981)报道的配子体和裂殖子呈不规则形状有所不同,这可能是由于后者标本固定脱水等过程中所引起虫体细胞收缩的结果。此外,本文观察的雌性配子体的内质网比较发达。

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OBSERVATION ON THE ULTRASTRUCTURES OF MEROZOITES
AND GAMETOCYTES OF *LEUCOCYTOZOOM CAULLERYI*

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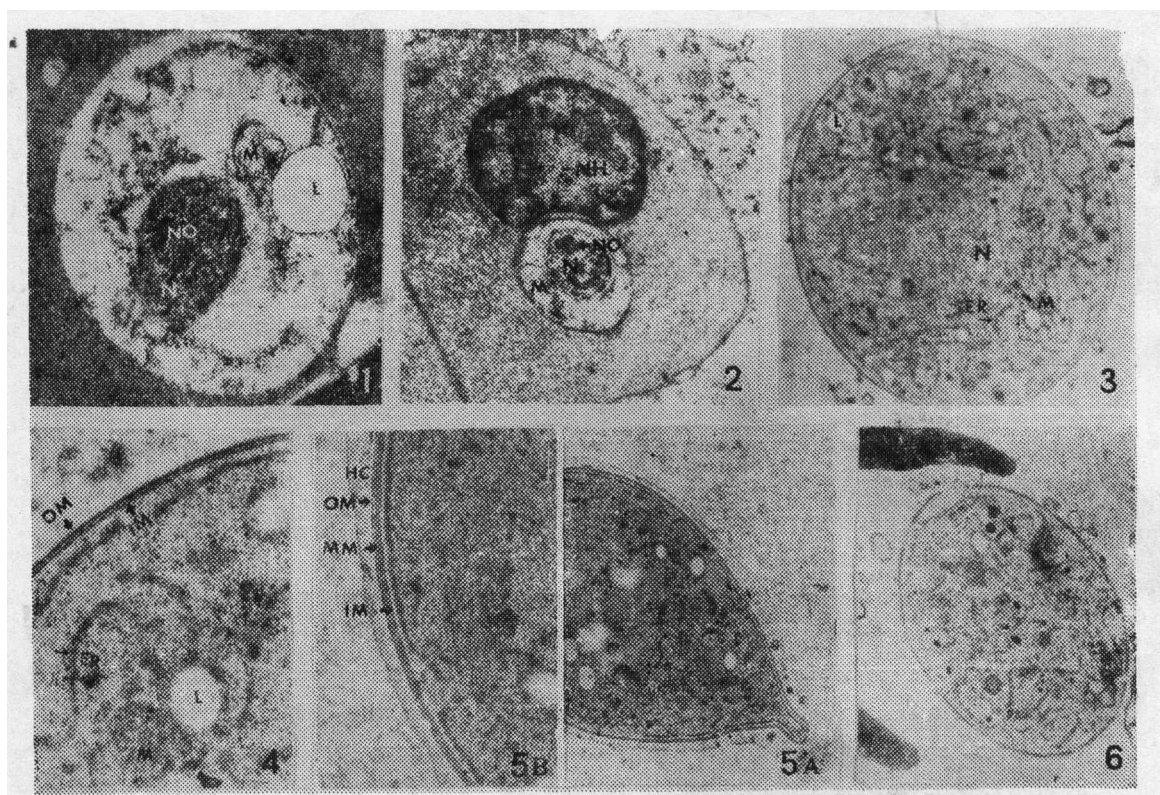
ABSTRACT

The fine structures of merozoites and gametocytes of *Leucocytozoon caulleryi* from peripheral blood, liver, spleen and other tissues of naturally infected chickens were examined under electron microscope.

Results revealed that:

The merozoites of *Leucocytozoon caulleryi* appeared to be round to oval in shape and were surrounded by two clearly marked membranes, i.e. a thin outer and a thick inner membrane. The merozoites possessed a large round to oval nucleus, a small nucleolus, numerous ribosomes, a mitochondria with tubular cristae and 1—2 large lipid inclusions. The micro- and macro-gametocytes were surrounded by 3-layered clearly marked membrane as in *Leucocytozoon sabrazezi* but in the mature gametocytes of *L. caulleryi* only 2-layered membranes were seen. The mature gametocytes were round or elliptical in shape and contained a nucleus, numerous ribosomes, food vacuoles, lipid inclusions and endoplasmic reticulum in the cytoplasm. The microgametocytes were smaller than macrogametocytes and possessed a large nucleus. The macrogametocytes were also easily distinguished from microgametocytes by their dark staining appearance and their well developed endoplasmic reticulum.

Key words: *Leucocytozoon caulleryi*; merozoite; gametocyte ultrastructure; chicken



图版

1. 卡氏住白虫裂殖子, $\times 23000$ 。N—虫体细胞核, NO—核仁, M—线粒体, L—脂类包含体。
2. 卡氏住白虫裂殖子在肝细胞内, $\times 8350$ 。N—虫体细胞核, M—线粒体, NO—核仁, NH—宿主细胞核。
3. 卡氏住白虫雌性配子体, $\times 6450$ 。NP—虫体细胞核, M—线粒体, ER—内质网, L—脂类包含体。
4. 卡氏住白虫膜结构, $\times 23000$ 。OM—外膜, IM—内膜, M—线粒体, L—脂类包含体, ER—内质网。
5. A、卡氏住白虫雌性配子体, $\times 6450$ 。B—配子体膜的放大, $\times 23000$ 。HC—宿主细胞质, OM—外膜, MM—中膜, IM—内膜。
6. 卡氏住白虫雄性配子体, $\times 6450$ 。