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Author(s): K. Hirai, S. B. Hitchner and B. W. Calnek

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Correction in Identification of a Coronavirus-like Agent Isolated from Parrots

K. Hirai^a, S. B. Hitchner and B. W. Calnek

Department of Avian and Aquatic Animal Medicine
New York State College of Veterinary Medicine
Cornell University, Ithaca, New York 14853

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During 1979, we published three reports in *Avian Diseases* describing the isolation and characterization of various viral agents from psittacine birds (1,2,3). All were initially isolated in chicken embryos (3). Those that grew in cell culture were subsequently identified as paramyxoviruses, herpesviruses, or orbiviruses (1). One isolate, designated PRT, which grew only in chicken embryos, was identified as a coronavirus based on electron microscopic observations of coronavirus-like particles with club-like projections in sections of liver and spleen of infected embryos and based on physical and chemical properties of the agent (2). In addition to the coronavirus-like particles, there were unidentified electron-dense particles also reported as part of the observations.

At the time of the initial isolation of the various agents from the psittacine birds, all harvested materials were checked for the presence of bacteria, and only those free of contamination were used for subsequent passages. However, at that time, routine examination for the presence of chlamydia was not practiced in this laboratory. Subsequently, when examination for chlamydia in tissues from psittacine birds became a routine procedure, the status of all of the initial isolates made from psittacine birds was checked. It was found that those isolates that had been identified as coronaviruses contained chlamydia, whereas all other isolates were free of the agent.

The "coronavirus-like agent" produced distinctive and easily recognizable lesions on the chorioallantoic membrane of chicken embryos (see reference 3, PRT-1, -2, -3). In the earlier studies, it was noted that the agent passed a 220-nm membrane filter,

^aDepartment of Veterinary Microbiology, Faculty of Agriculture, Gifu University, Gifu, Japan.

although at a greatly reduced titer. Therefore, several attempts were made to eliminate chlamydia from infected embryo suspensions by filtration. However, all filtrates that produced embryonic lesions proved to contain chlamydia, whereas those that were free of chlamydia produced no embryonic lesions. These results raised the suspicion that the lesions we described in infected embryos were due to chlamydia and that the unidentified electron-dense particles in the electron micrographs were chlamydia.

Subsequently, repeated attempts to free early passages of the PRT isolate of chlamydia while still showing the presence of a coronavirus have failed. In view of the coronavirus-like particles seen in the electron microscopic studies, it would appear that initially there may have been a dual infection, but since we have been unable to isolate a pure culture of coronavirus from the embryo-passage materials, we shall have to retract the claim of isolating such a virus from psittacine birds. We still need to determine if the lesions and properties of the agent described were those of chlamydia only or of a mixed culture.

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