

Comparision of Neospora caninum Experimental Infection in Pigeons and Chickens Embryonated Eggs

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Abstract : Neospora caninum is protozoan parasite which can cause a serious disease in dogs and cattle. It has been shown that birds may be a permissive intermediate host for N. caninum since parasite DNA has been detected in tissues from birds. It is showed that embryonated chicken egg can be used as an animal model for experimental infection. The aim of present study was to compare experimental infection of Neospora in chicken and pigeons embryonated eggs. An infection with N. caninum Nc1 isolate was conducted in chicken and pigeons embryonated eggs to evaluate LD50. After calculation of LD50, 2LD50 of tachyzoites were injected to eggs. Macroscopic changes of each embryo were noticed and to investigate the parasite distribution in tissues immunohistochemistry (IHC) and molecular methods were used. In the present study, histopathological changes were considered and sections to those used for histopathological examination including heart, liver, brain and chorioallantoic (CA) membrane were subjected to IHC, too. For PCR procedure, primer pair Np21/Np6 was used for amplification of the Nc5 gene. Pigeon's embryo showed more macroscopic changes than chicken embryo. A hemorrhage of the CA was the main grass lesion. All the infected tissues had histopathological changes. Microscopic examination of tissues revealed acute neosporosis due to hemorrhage, necrosis and infiltration of mononuclear inflammatory cells. Based on IHC and molecular results, the parasite aggregation in the heart was more predominant than in the other tissues. These results reinforce that there is genetic susceptibility to N. caninum in pigeons embryonated eggs like chickens embryonated eggs and provide new insights to research an inexpensive and available animal model for N. caninum.

Keywords : immunohistochemistry, Neospora caninum, PCR, pigeon embryonated egg

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