CULTIVATION OF *TOXOPLASMA GONDII* TACHYZOITES IN DUCK EMBRYOS

Toxoplasma gondii, being an intracellular parasite is hidden from view during the major part of its life cycle. This causes difficulties in its detection and study. Anwar and Oureshi (1954) and Lund *et al.* (1963) detected macroscopic yellowish white raised lesions on the chorio allantoic membrane and amniotic membrane of avian embryos upon inoculation of *T. gondii* tachyzoites.The occurrence of tachyzoites and cysts in the kidney, bone marrow, brain, heart, liver, intestine and blood cells has also been reported by Abbas (1967) and Galuzo *et al.* (1969).The present paper explores the possibilities of using embryonated duck eggs as an alternative to Swiss-albino mice for the cultivation and biological study of Toxoplasma in the laboratory.

The present study was conducted by inoculating *T. gondii* tachyzoites into duck eggs by a) Chorio allantoic (CAM) method and b) Yolk sac method

Approximately 0.05 ml of peritoneal exudates containing $1.5x10^3$ tachyzoites was dropped onto the CAM of 11 to 12 day old embryonated duck eggs. The eggs were incubated at 35-37° C in a horizontal position with the false air cell upwards.

Four to six day old embryonated duck eggs were used for the yolk sac route of cultivation. A dose of 0.01 ml of peritoneal fluid was injected into the embryo using a syringe. The inoculated eggs were then incubated at 36° C in an upright position.

Control eggs were similarly treated with sterile saline by both routes. All the eggs were candled daily in the morning and evening. The embryos that died within 24 h were discarded while those that died after 24 h and those that survived up to seven to nine days were refrigerated for a minimum of 24 h before the CAM and yolk sac were harvested from them and examined for the presence of macroscopic lesion and the organism.

The duck eggs inoculated with *T. gondii* tachyzoites by the CAM route survived up to seven to nine days. Yellowish white pock lesions were detected on the chorio allantoic membrane with generalized congestion. Areas of congestion and hemorrhage were detected on the embryos and on the brain. Toxoplasma tachyzoites were recovered from the liver and intestine of the embryo also. No changes were noted in the control eggs.

Attempts to inoculate the duck embryos by the yolk sac route were unsuccessful. None of the four to six day old embryonated eggs survived the infection for more than three days. No remarkable lesions were identified in the organs.

As reported by Anwar and Oureshi (1954) and Lund *et al.* (1963), yellowish white pock lesions were detected on the CAM of the duck embryos in the present study. It also revealed the extra embryonic occurrence of the organisms in the liver and intestines of the embryos corroborating the findings of Abbas (1967) and Galuzo *et al.* (1969). Conclusively it is found that embryonated duck eggs above 10 days could be utilized for the maintenance and biological study of *T. gondii.*

Summary

Attempts made to cultivate *T. gondii* tachyzoites in the embryonated duck eggs by the CAM route were successful. Pathological lesions like yellowish white pock lesions, congestion and hemorrhage were observed on the CAM and brain of the embryos. Organisms were detected in the liver and intestine of the inoculated embryos.

References

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