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Some studies about *Theileria* spp. among sheep in Egypt

A thesis Presented by

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Abstract

The present study was carried out to investigate the accurate status of ovine *Theileria* infection in sheep in Giza governorate, Egypt during the period from May 2013 to April 2014. A total of 347 sheep blood samples (240 from different flocks and 107 from different slaughter houses) blood samples collected from both sex and different age groups. Giemsa stained blood smears examination by light microscope showed that 15.56% (54/347) were infected with *Theileria* spp. Statistical analysis using chi-square ($\chi 2$) found no statistical significance among percent of *Theileria* infection in different age, sex, season and animal locations. Also, 86 tissue specimens were collected from slaughtered sheep each sample was divided in to two parts one for preparing impression smears stained with 10% Giemsa and the other part were fixed in 10% neutral buffered formalin, and used for histopathology. Schizont was more prevalent in lymph node impression smears (92.85%) than spleen and lung ones (81.81% and 36.36% respectively). Pathological examination revealed mainly depletion and necrosis of lymphocytes in inspected sheep lymph nodes and spleen. Also, sever destructions in the lung tissue (emphysema, collapse, congestion, pneumonia and infiltration with inflammatory cells) were observed. PCR applied for amplification of a fragment of the 18S ribosomal DNA on 5 positive and 10 negative samples by microscopic examination. 40% (6/15) of examined samples were infected. The PCR products subjected to RFLP assay for differentiation of various *Theileria* spp. By using HpaII restriction fermentase enzyme. The restriction enzyme differentiated *Theileria* spp. to *T. lestoquardi*, *T. ovis* and *T. annulata*. The present study concluded that the pathological alteration in examined organs indicated infection of the inspected sheep with the pathogenic type (*T. lestoquardi*). PCR RFLP is a diagnostic tool enabling direct, highly specific identification of *Theileria* spp. when compared with microscopic examination. Also, *Theileria* spp. that infects sheep in Egypt is polyphyletic origin.

Keywords: Sheep, *Theileria*, PCR RFLP, Egypt.

Dedicated to my

father's soul and my family

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