

A CLINICO-PATHOLOGICAL STUDY ON LEUCOCYTOZOONOSIS IN CHICKEN (*GALLUS DOMESTICUS*) IN SRI LANKA

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Leucocytozoon caulleryi is a vector-borne intracellular protozoan parasite of the domestic fowl (*Gallus domesticus*) that causes economic losses to the poultry industry in many Asian countries. In infected birds, the asexual (megaloschizonts) and sexual (gametocytes) stages of the life cycle of this parasite occur within the endothelial cells of tissues and erythrocytes, respectively. In Sri Lanka, Leucocytozoonosis has recently emerged as one of the important diseases causing morbidity and mortality in poultry. However, there is a dearth of information on the clinico-pathological features of the disease under local conditions and these aspects have been studied in the present investigation using infected birds brought to a diagnostic laboratory.

Based on the presence of *L. caulleryi* gametocytes in stained blood smears, 41 infected birds (age; 0.5-18 months) were used for this study. After recording the clinical features, the birds were euthanised and the gross lesions were recorded. The selected tissues were fixed in 10 % buffered formalin and processed for histopathology.

Clinical manifestations of infected birds varied but the salient features included a drop in production (39 %); lethargy, depression and reduced appetite (43.9%); and severe anaemia (31.7 %). Vomiting of blood followed by immediate death was observed occasionally (7.3 %). The main gross lesions included haemorrhages in skeletal muscles (24.4%) and visceral organs (63.4%), enlargement of the spleen (41.5%), degeneration of ovaries (41.5%) and congestion of lungs (14.5%). In four (9.8%) affected birds, the kidneys had ruptured and the abdominal cavity was filled with clotted blood.

On histology, the megaloschizonts were observed either in singles or in groups in the kidneys, liver, lungs, lymphoid organs, heart and skeletal muscles. These megaloschizonts were spherical to oblong in shape with varying dimensions (33.3-146.7 x 22.8-130.4 μm). Numerous merozoites were found within the megaloschizonts and the latter had a well-defined thick wall (6.7-26.7 μm). However, an inflammatory reaction to the megaloschizonts was found to be absent in the liver, kidney, lung or lymphoid organs. In the muscles however, the megaloschizonts were surrounded by a thick layer of connective tissue.

The clinico-pathological findings of *L. caulleryi* infection observed in the present study were generally similar to those recorded by other workers except for death due to acute abdominal haemorrhage in a few cases. Vector-borne haemoprotozoan parasitic diseases are known to exacerbate in immunosuppressive states and therefore future studies need to be focused on epidemiology in order to examine the implications of Leucocytozoonosis in concurrent immunosuppressive infections such as in infectious bursal disease.