

Haemoproteus Infection in Backyard Poultry Birds

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Received: April 23, 2019; Published: May 27, 2019

Abstract

Backyard poultry birds are said to be resistant against many infections. During a cross sectional investigation of a backyard poultry flock at Mahasamund district of Chhattisgarh the blood samples from twenty birds were collected and haematology was done. On examination of blood smear one of the sample revealed presence of pleomorphic gametocytes of a haemoproteozoan parasite, *Haemoproteus saccharovi* infecting the erythrocytes. This cross sectional study revealed the occurrence of 1.25% in backyard flocks. The finding is very rare in backyard birds.

Keywords: Backyard; Poultry; *Haemoproteus*; Protozoa; Gamonts

Introduction

Poultry farming is gaining pace day by day. Backyard poultry farming is intended to uplift the socio economic status of many stakeholders in rural community. Kumar and Kumar [1] demonstrated higher immunocompetence status of Aseel; native chicken than those reported for most of the other poultry species. Various haemoproteozoan parasites affect birds. Organisms classified within the genus *Haemoproteus* (Protozoa: Apicomplexa, Haemorphorina) have a cosmopolitan distribution with greater than 100 species identified from host birds representing many of the avian families [2]. *Haemoproteus* infections are characterised by schizogony (merogony) in visceral endothelial cells, gametocyte development in circulating erythrocytes, presence of pigment in granules in infected erythrocytes, and transmission by various biting dipterans of the families Hippoboscidae and Ceratopogonidae. Infections occur throughout the temperate and tropical areas of New and Old world wherever vector and avian hosts coexist [3]. Reports on occurrence of *Haemoproteus saccharovi* in backyard poultry birds are scanty in the available literature, therefore the present communication is intended to put forth a report of *Haemoproteus saccharovi* infection in backyard poultry flock.

Materials and Methods

During a cross sectional investigation of a backyard flock (80) from Mahasamund district of Chhattisgarh, India jugular blood samples from twenty randomly selected birds were collected asep-

tically in previously marked heparinised vials. Thin blood smears were also prepared in duplicate. The haematology was done as per the standard procedures [4].

Results and Discussion

Haematologies of the birds were within normal range except in a bird marked 12 which showed lowered values of haemoglobin (12.2 gm %) and packed cell volume (36%). All the blood smears were thoroughly screened after routine staining with Leishman's stain and Giemsa staining method. The thin blood smear from the same sample number 12 also revealed presence of pleomorphic gametocytes of *Haemoproteus* spp. within many erythrocytes. Morphologically macrogametocytes were halteridial, circumnuclear and discosomal beside the nucleated erythrocytes (Figure 1). The morphology of the macrogametocytes was as per Clark, *et al.* [5] and pointed towards *Haemoproteus saccharovi*. The results showed the occurrence of 1.25% in the said flock of backyard poultry. These findings are in close agreement with those of Gicic and Arslan [6]. On the other hand, Youssefi, *et al.* [3] observed only one gametocyte in infected red blood cells of *Columba livia*. They also reported that in only 1.94% (2 out of 103 samples they seen) more than five erythrocytes were observed to be infected with gametocytes of *H. columbae*.

The macrogametocytes of *Haemoproteus* spp could be divided into five morphological categories according to body shape, name-

ly: microhalteridial, halteridial, circumnuclear, rhabdosomal and discosomal. Classically, the gametocytes of *Haemoproteus* spp are halteridial; that is elongated and curved, often around the host erythrocyte's nucleus. However, the predominant form of the gametocytes varies between species [7]. Gicic and Arslan [6] described the close proximity of pigeons with domestic fowl. It is well documented that blood parasites of fowl, whether domestic or not, are not host specific. Therefore, pigeons can be reservoirs for a number of parasitic infections and may transmit blood parasites to domestic fowl. *Haemoproteus columbae* and *H. saccharovi*, distributed worldwide, are also present in chickens and doves.

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Volume 3 Issue 6 June 2019

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Figure 1: Typical halter shaped macrogametocytes of *Haemoproteus saccharovi* beside the nucleated erythrocytes.

Thus the present findings in backyard birds appear to be very severe as more than five erythrocytes were infected with the *Haemoproteus saccharovi*. The findings also indicate the susceptibility of indigenous birds to the haemoproteozoan parasite. Moreover, detailed studies need to be conducted for throwing more light on the adverse effects due to haemoproteozoan infection in backyard birds.

Conclusion

A rare finding of *Haemoproteus saccharovi* in backyard bird has been reported.

Bibliography

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