CONCURRENT INFECTIONS OF HEMOPROTOZOANS IN PIGEONS AND ITS SUCCESSFUL CONTROL

Haemoproteus columbae, the causative agent of pigeon malaria is a relatively nonpathogenic parasite of adult pigeons but highly pathogenic in pigeon nestlings. It is also known that *Plasmodium* sp. is highly pathogenic to pigeons causing mortality by anaemia (Soulsby, 1982). This communication reports an outbreak of naturally occurring concurrent infections of *Hemoproteus* sp. and *Plasmodium* sp. among adult pigeons in Wayanad, Kerala and its successful control.

Ten pigeons were brought to the District Veterinary Hospital, Kalpetta, Wayanad with symptoms of droopiness, anorexia, weight loss, anaemia and torticollis. The owner had a total of twenty five pigeons out of which eight were showing such symptoms. Visit made to the lofts revealed poor management and housing conditions and heavy infestation with the hippoboscid fly *Pseudolynchia canariensis*, the intermediate host of *Haemoproteus columbae.*

Thin blood smears were prepared from the wing vein of the presented birds and stained with giemsa stain. All the blood smears revealed the presence of halter shaped micro and macrogamonts of *Haemoproteus columbae* as well as schizonts of *Plasmodium* sp. in the erythrocytes (Fig). There was no gross distortion or displacement of host cell nucleus. Postmortem was conducted on one of the birds that died in the hospital. Congestion of liver, kidney and intestine along with hepatomegaly and splenomegaly were the lesions observed.

The ailing birds were treated orally with Chloroquine (Tab.Resochim-Bayer 250mg) @ 5mg/kg body weight. Due to throwing up of the drug repeatedly, it was decided to administer Inj. Chloroquine, at the rate of 5 mg/kg body weight intramuscularly, at four days interval from the second day onwards. A total of three injections were given to the affected birds. After the second injection all the pigeons started showing signs of clinical recovery. After the second injection, blood smears were prepared and examined to assess the parasitaemia. There was considerable reduction in number of gamonts of *H. columbae* and schizonts of *Plasmodium sp.* After the third injection again blood smears were examined, but no schizonts could be detected. Stray macrogamonts were present in the erythrocytes. Birds started to take feed, body condition improved and symptoms disappeared.

Though pigeon malaria is considered nonpathogenic in adult pigeons, the mortality observed in the present case could be attributed to the rupture of megaloschizonts especially in the muscle (Earle *et al.*, 1993).The main clinical symptoms of pigeon malaria are anorexia, anemia and unthriftiness (Soulsby, 1982), while those of *Plasmodium* sp. are ataxia, anaemia and listlessness (Riper *et al* .,1993). In addition to the above symptoms torticollis was noticed in concurrent infections. Ravindran *et al.* (1999) had also reported torticollis in adult pigeons due to single infection with *H.columbae*. The post mortem lesions observed also concur with the previous findings (Desser *et al.*,1993 ; Riper *et al.*,1993). .The stress conditions prevailing in the pigeon lofts along with the abundance of vector were the precipitating factors for the outbreak of concurrent infections. Though chloroquine and primaquine are advised for the treatment of avian malaria caused by *Plasmodium* sp., no known therapy exist for *Haemoproteus* sp. infection (Van Der Heyden, 1996). Ravindran *et al.* (1999) had reported that oral administration of chloroquine was effective for the control of pigeon malaria. However, this communication reveals the efficacy of parenteral administration of chloroquine in controlling concurrent haemoprotozoan infections in pigeons.

Summary

Concurrent infections of pigeon malaria and avian malaria were detected in pigeons by blood smear examination. The affected birds exhibited symptoms of droopiness, anorexia, weight loss, anaemia and torticollis. Pigeon fly infestation due to *Pseudolynchia canariensis*, was also noticed in the lofts. Postmortem examination of a dead bird revealed congestion of liver, kidney and intestine along with hepatomegaly and splenomegaly. Affected birds were treated with parenteral administration of Chloroquine which resulted in complete recovery and clinical cure. The present communication reports a concurrent outbreak of *Haemoproteus* sp. and *Plasmodium* sp. infection in pigeons and its successful control.



Fig. Schizonts of *Plasmodium* sp. and gamonts of *Haemoproteus columbae* in the erythrocytes (arrow)

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