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Research Article

PREVALENCE OF ENDOPARASITES IN CAPTIVE PET BIRDS OF KERALA

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ABSTRACT

A study was conducted to identify the common endoparasites that affect the captive pet birds of different pet shops of Kerala. A total of 153 samples were collected from fresh droppings of 15 captive pet bird species mainly Pigeons (n=68), Budgerigars (n=17), African love birds (n=14), Java sparrows (n=9) and Cockatiels (n=9) from different pet shops. Samples were stored in sib covers with 10% formalin. The samples were examined for the evidence of endoparasitism by both direct method and centrifugal sedimentation techniques. The study revealed the presence of helminth eggs in the droppings with a highest percentage prevalence for *Ascaridia* spp. followed by *Syngamus trachea*, Spirurid eggs, *Capillaria* spp. and their mixed infections.

INTRODUCTION

Parasitism is the major problem affecting pet birds in captivity. Birds show clinical signs like anorexia, weight loss, diarrhoea etc in heavy parasitic infections (Alimohammed *et al*.,2011). Other signs include droopiness, fever, ruffled feathers, general weakness, emaciation and finally death. Gastrointestinal parasitism is most frequent in caged birds (Greve,1996).Common parasitic infections in aviary populations include helminths, protozoans and blood parasites (Dorrestein *et al*.,2003) .Hygienic managemental measures play a major role in control of endoparasites. Eventhough anthelmintics are excessively used in pet shops with an aim to bring the parasitic population under control, it seems a failure. Hence the present study aimed in identification of prevalence of helminth species in captive birds and also prevalence of helminths in different bird species to suggest effective treatment protocol and control measure.

MATERIALS AND METHODS

A total of 150 samples from fresh droppings (faecal samples) of captive pet birds were collected from different pet shops of different regions of Kerala. Samples were properly collected in plastic sib covers, labelled and preserved in 10% formalin. After direct examination, samples were processed with centrifugal sedimentation technique at 3000 rotations per minute for 3-5 minutes.

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Helminthic ova were identified using compound microscope under 10x magnification. Results were properly recorded and statistically analysed.

RESULTS

The examination revealed the presence of helminth eggs in the droppings with a highest percentage prevalence for *Ascaridia* spp. followed by *Syngamus trachea*, Spirurid eggs, *Capillaria* spp. and their mixed infection. (Table 1, Fig .1). *Ascaridia* spp., *Syngamus trachea* and Spirurid ova were most prevalent in *Columbia* sp., *Gallus*., *Anas* sp. and *Numida* sp.(Table 2). *Capillaria* spp. were prevalent in *Melopsittacus* sp. whereas *Syngamus trachea* were prevalent in *Agapornis* sp. and *Lonchura* sp. (Table 2).

Statistical studies

Table 1 Prevalence of endoparasites in different parts of Kerala

Species of parasite observed	+	%
Ascaridia sp.	57	37.25
Syngamus trachea	31	20.26
Spirurid ova	30	19.60
Capillaria spp.	21	13.72
Eimeria oocyst	12	7.84
Cestode ova	13	8.49
Mixed infections	51	33.33

Total number of samples =153
+ = Number of positive samples,% =Percentage of positive samples

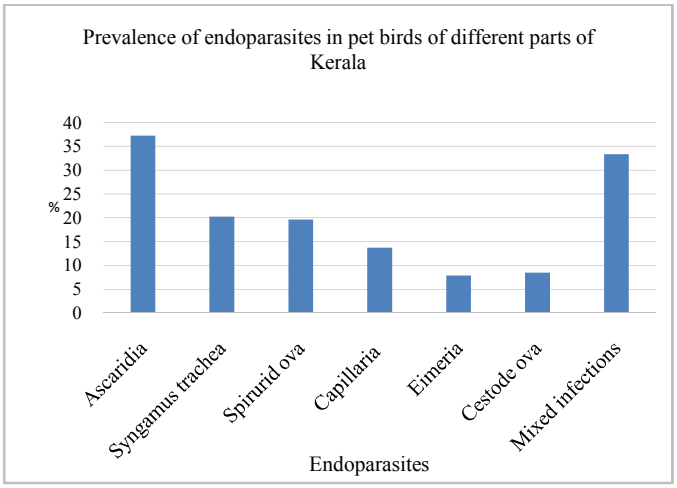

Fig 1 Prevalence of endoparasites in pet birds of different parts of Kerala

Ascarids were found in jungle fowl, turkey, guinea fowls and pigeons and the affected birds showed signs like anorexia, diarrhoea, emaciation, anaemia and death (Kellogg *et al*., 1971).Strongyles were encountered at the rate of 5.5percent in a survey in 63 pet birds and 83 zoo birds (Papini *et al*., 2012).*Capillaria* spp. were prevalent in *Melopsittacus* sp. whereas *Syngamus trachea* were prevalent in *Agapornis* sp. and *Lonchura* sp. (Tully *et al*., 2000) . *Syngamus trachea* resides in the trachea of birds mainly gallinaceous, passerine and anseriform species and these gape worms are transmissible between bird groups as suggested by Fowler(1986) was reflected in our study.

The present study showed the presence of *Eimeria* oocysts in faecal samples of *Columba* spp., *Lonchura* sp. and *Agapornis* sp.

Table 2 Prevalence of endoparasites specific to each pet bird species

Scientific name	Species	Number of birds		Endoparasites						
				Ascaridia	*Syngamus*	Spirurid	*Capillaria*	*Eimeria* oocyst	Cestode ova	Mixed infection
Columba livia	**Pigeon**	N=68	+	39	18	19	12	9	8	36
			%	57.30	26.40	27.90	17.60	13.20	11.70	52.90
***Melopsittacus* sp.**	**Budgerigar**	N=17	+	2	0	2	4	0	1	3
			%	11.76	0	11.76	23.50	0	5.80	6
Agapornis	**Lovebirds**	N=14	+	2	6	0	1	2	1	3
			%	14.20	42.80	0	7.10	14.20	7.10	21.40
Lonchura oryzivora	**Java sparrow**	N=13	+	2	3	3	2	1	0	4
			%	15.30	23.07	23.07	15.30	7.60	0	30.76
Nymphicus hollandicus	**Cockatiel**	N=9	+	0	0	0	1	0	0	0
			%	0	0	0	11.11	0	0	0
***Gallus* spp.**	**Chicken**	N=9	+	2	3	3	1	0	2	0
			%	22.20	33.30	33.30	11.10	0	22.20	22.20
Numida meleagridis	**Guinea fowl**	N=4	+	3	0	0	0	0	1	1
			%	75	0	0	0	0	25	25
Anas platyrhynchos	**Duck**	N=4	+	3	1	0	0	0	0	1
			%	75	25	0	0	0	0	25
Aratinga solstitialis	**Sunconure**	N=4	+	1	0	2	0	0	0	0
			%	25	0	50	0	0	0	0
***Fringilla* spp.**	**Finches**	N=4	+	0	0	0	0	2	0	0
			%	0	0	0	0	50	0	0
Coturnix coturnix	**Quail**	N=1	+	1	0	1	0	0	0	1
			%	100	0	100	0	0	0	100
***Psittacine* spp.**	**Parrot**	N=2	+	0	0	0	0	0	0	0
			%	0	0	0	0	0	0	0
Meleagris gallopavo	**Turkey**	N=2	+	2	0	0	0	0	0	0
			%	100	0	0	0	0	0	0
Stagonopleura guttata	**Diamond sparrow**	N=1	+	0	0	0	0	0	0	0
			%	0	0	0	0	0	0	0
Phasianus colchicus	**Pheasant**	N=1	+	0	0	0	0	0	0	0
			%	0	0	0	0	0	0	0

DISCUSSION

In the present study, *Ascaridia* spp. were the most important endoparsite found in pet bird population which is in agreement with Greve (1996). *Ascaridia* spp., *Syngamus trachea* and Spirurid ova were most prevalent in *Columbia* sp., *Gallus*., *Anas* sp. and *Numida* sp.

According to Burr (1987), numerous coccidiae species were seen in birds and these protozoans infect their small intestine and the oocysts produced were passed through faeces. Mixed infections were commonly encountered as suggested by Tully *et al*. (2000) which included *Ascaridia* spp., *Syngamus trachea*, *Capillaria* sp., spirurid eggs, *Eimeria* oocyst and cestode ova.

The present study suggests that birds without clinical signs can be a source of parasitic infection which can further

develop into a heavy load and can cause severe disease conditions especially in groups in captive conditions. Most of the samples were collected from healthy birds without any changes in normal physical activities, but the results were heavily positive especially in case of pigeons. History of death revealed cases of one or two deaths each day without proper symptoms.

Unhygienic managemental measures are the most noticed cause for parasitism. Overcrowding and accumulation of faecal matter are the most important practices found in various pet shops. Excess moisture retention can be surely a reason for multiplication of carriers. Most of the pet shops in humid climatic areas are a huge source of different endoparasites. This can be due to favourable conditions for multiplication of the carriers of the parasites. Surprisingly, samples collected from pet shops belonging to hot atmospheric conditions showed comparatively less positive samples paving a path for further studies related with climatic conditions and endoparasitism.

Anthelmintics are used in every captive pet shops, eventhough the parasitic load is still maintained suggesting ineffective and inefficient use of medicines. Correct dosage and dose are not ensured properly. Routine deworming measures are not followed. Also, chance of resistance is more due to prolonged use of same spectrum of drug. This can lead to emergance of new varieties of worms which will further be a problem with regards to export and import of birds due to zoonotic importance. Ivermectin (0.2 mg/kg, PO, SC, or IM, repeated in 10–14 days), pyrantel pamoate (4.5 mg/kg, PO, repeated in 10–14 days), or fenbendazole (20–50 mg/kg, PO, repeated in 14 days) are generally effective. In warm climates where exposure via outdoor aviaries is likely, routine deworming (every 6 months) with one of these anthelmintics is often practised suggested by Sharman (2015).

CONCLUSION

The study identified prevalence of most common gastrointestinal helminths and protozoans affecting captive pet birds that includes *Ascaridia* sp*, Syngamus trachea,* Spirurids, Capillaria sp, Eimeria, cestodes and mixed infection. Proper managemental measures should be undertaken to provide them a disease free environment. Thus an effective anthelmintic can be used specifically after screening for endoparasites rather than rough and improper use of anthelmintics. This will surely ensure effective control of endoparasites along with efficient managemental strategies like dry litter facilities, nutrient rich feed and water, proper disposal of droppings, enough space for every bird and finally proper ventilation and cleaning.

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