Incidence of Helminthic Infection in captive Carnivores of Sidhharth Municipal Zoo, Aurangabad, Maharashtra

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Introduction

In nature, practically no animal is free from parasitic infection. Looking into captive animals coming from wild is more vulnerable to parasitic infection. Confined areas in zoo enclosure makes captive animals more prone to different parasitic infection. Despite proper attention to feeding, water and maintenance of hygiene in captivity, it is impossible to completely eliminate parasites (Parsani *et al.,* 2001).

In the present study, efforts were made to record the incidence of helminthic infection in various captive carnivores of Sidhharth Municipal Zoo, Aurangabad.

Material and Methods

Qualitative examinations of 18 freshly voided fecal samples from different carnivores were done by using direct and floatation method as per the techniques described by Thienpout (1929) and Georgi (1985). Samples were collected at random from two foxes, one jackal, two hyena, four each (Royal Bengal and White tiger), two lion, two leopards and a bear. The samples were examined for presence of ova of different helminthics.

The severity of parasitic infection in carnivores was assessed by quantitative examination of fecal samples by estimating eggs per gram (EPG) using Stoll's technique. The level of severity were graded into three categories viz; below 500, between 500 to 1000 and more than 1000.

Result and Discussion

Out of 18 samples of different carnivora processed, 7 (43.75%) were found positive for mixed infection. Of which, 4(57.14%) had cestodes, 2(28.57%) had nematodes and 1(14.28%) showed trematodes. Among endoparasitic infection, 6 carnivores (85.71%) were found to have mono infection with one species of parasites while one (14.28%) found positive for more than one species of parasites (mixed/multiple infection) (Table 1).

In the present study, two foxes, one lion out of two were found positive for *Dipyllobothrium* spp. while one leopard out of two were found positive for mixed infection of *Dipyllobothrium* spp. and *Spirometra* spp. One Jackal was found positive for *Ancylostomum* spp. while one tiger was found positive for *Paragonimus* spp. infection. Gaur *et al* (1979), Chauhan *et al* (1973) have found *Ancylostomum* infection in captive carnivore that was kept in unhygienic condition in enclosures. Patel *et al* (2003) had found 80.06% and 18.94% of nematode and cestode infection in different carnivore species in zoos of Gujarat respectively. Heavy *Dipyllobothrium* and *Paragonimus* infection has been reported by Varathrajan and Pythal (1999).

Severity of endoparasite load in carnivore was measured by EPG level. Three species; fox (2), lion (1) and Bear (1) has EPG level well below 500 whereas 3 other species; jackal (1), tiger (1) and leopard (1) has level between 500 and 1000. No species was found to have level more than 1000 (Table 2). Level above 500 and below 1000 was considered as severe infection and requires immediate treatment. EPG level detection in various species of carnivore has not been attempted or cited. In order to measure the severity of parasitic infection, EPG level is must and will be helpful in knowing the amount of infection animal is suffering from.

Table 1. Species and parasite wise infection in captive carnivores

Name of Animal (Carnivore)	No. of Sample	No. of positive	Type of endoparasitic infection		
			Cestode	Nematode	Trematode
Fox	02	02	*Dipyllobothrium* spp.	-	-
Jackal	01	01	-	*Ancylostomum* spp.	-
Hyena	02	00	-	-	-
Tiger (White)	04	00	-	-	-
Tiger (Bengal)	04	01	-	-	Paragonimus spp.
Lion	02	01	*Dipyllobothrium* spp.	-	-
Leopard	02	01	*Dipyllobothrium* spp and *Spirometra* spp.	-	-

Table 2. Species wise EPG level in captive carnivores

Name of Animal (Carnivore)	No. of positive	EPG Level		
		< 500	> 500 but less than 1000	> 1000
Fox	02	400 300	-	-
Jackal	01	-	700	-
Hyena	00	-	-	-
Tiger (White)	00	-	-	-
Tiger (Bengal)	01	-	600	-
Lion	01	400	-	-
Leopard	01	-	700	-
Bear	01	300	-	-

Conclusion

In comparison to domestic animals, captive animals do not show any alarming signs of parasitic disease (Parsani *et al.,* 2001). Parasitism especially endoparasitic infection produces ill effects like weakness, emaciation and predisposes the animal for various potential pathogens.

Therefore it is important to prevent parasitic diseases by employing effective control measures and prevent recurrences of infection. On this line, a long term study is essential covering all season to know the implication of parasitism.

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Announcement:

Tails to Trails: a Reptile and Amphibian workshops from 4th to 9th June 2012

Madras Crocodile Bank Trust/ Centre for Herpetology and Agumbe Rainforest Research Station

We are pleased to inform that Madras Crocodile Bank Trust/ Centre for Herpetology and Agumbe Rainforest Research Station is organizing a Reptile and Amphibian workshop from 4th to 9th June 2012.

To elaborate on the program at Madras Crocodile Bank, one will be working closely with the team of experts to understand the working of a specialized reptile zoo and its intricate role in reptile conservation. Croc Bank is an ideal open classroom setting to observe and learn about behaviours that are very often difficult to see in the wild. You will get an opportunity to work closely with crocodilians, snakes and turtles. The physical and physiological needs of these animals, is primary to their care and maintenance in captivity. Basically one will see what it takes to keep thousands of reptiles 'under one roof'. We will also head out one morning with the legendary Irula Snake catchers and experience their tracking skills first hand.

Agumbe Rainforest Research Station gives you an opportunity to escape from the city and get in tune with the natural world…..sleep to the sounds of frogs and wake up to the singing of the whistling thrush. Here we learn about forest ecology, research techniques in the field and look for the denizens in the various habitats like forests, paddy fields, waterfalls and streams. This will be done by extensive surveys during the day and nights. All activities are aimed at an experience that will allow for understanding contexts and developing skills. Information handouts will be provided. The workshop will ensure an experience for one and all that is unique.

The duration of this program will be 6 days (including the travel time from Madras to Agumbe and back to Madras). The cost of this 6 day program is Rs 15,000/-person all inclusive (program fee, accommodation, food and travel to and from Agumbe).

Tails to Trails starts at *Madras Crocodile Bank Trust* (MCBT) which has over 2,500 reptiles of different taxa. Select enclosures are wired to record all the basic environmental parameters to facilitate studies on the biology of the reptiles here and to observe ad document behavior and social interactions, many of which are rarely, if ever, seen in the wild. These fascinating educational sessions will be conducted on the taxonomy and biology of reptiles and amphibians, aided by entertaining presentations.

Highlights during the workshop will be:
- ✦ Reptile biology and taxonomy
- ✦ Captive management of these magnificent reptiles
- ✦ Discussions and interaction with experienced experts and hands on activities
- ✦ Walk with the legendary Irula tribe, marveling at their unparalleled tracking skills as you look for snakes.

After spending 3 days at MCBT, we then head to Agumbe Rain forest Research Station (ARRS), nestled in the Western Ghats of South India. This is a prime habitat for several interesting species ranging from gliding frogs to draco and Malabar pit vipers to the King cobra. The forest around ARRS allows for observation of arboreal mammals and is also a bird watcher's paradise. At ARRS the focus will be on field research within sights in to basic field craft and analytical skills.

Highlights during the workshop will be:
- ✦ Field survey techniques for reptiles
- ✦ The importance of radio telemetry and camera trapping in research
- ✦ Observation of nocturnal behaviour and documenting nocturnal animals
- ✦ Understanding stream ecosystems, use of microhabitat and spatial preference

We do hope you will join us in this journey of discovery and learning! Please request for a registration form by emailing **Programs@madrascrocodilebank.org or call +91 9840542337 OR +91 9445980950**