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Incidence of phthirapteran infestation upon the dogs of Dehra Dun

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ABSTRACT

Two species of biting louse, *Heterodax spiniger* (Enderlein) and *Triphlebotus* (De Geer) have been recorded from 19.51 and 4.35% of the dogs examined in eight different localities of Dehra Dun. *H. spiniger* has been found mostly on back, belly, shoulder, neck and vulva, in this order of decreasing frequency and to much lesser extent on other parts of body. *T. canis* infestation has been found to be very low. In addition, the incidence of infestation by the dog tick *Rhipicephalus sanguineus* and dog flea *Ctenocephalides canis* has also been recorded.

Key word : biting louse, *H. spiniger*, *T. canis*, *C. canis*

INTRODUCTION

Phthiraptera is a group of economically important insects infesting birds and mammals. They spend their entire life span on the body of their host. They do not only affect the health and productivity of their hosts but can also be source of reservoir and transmission of infectious agents among them. Stieve (1971) and Marshall (1931) have excellently reviewed the work done on Phthiraptera while discussing the ecology of ectoparasitic insects. The phthirapterans occurring on dogs have been rarely studied. Crystal (1949) made a valiant attempt to provide description according to life history stages of *Trichodectes canis*, a dog louse. Ains (1973), while mentioning the distribution and seasonal dynamics of a dog tick and a dog fly, made certain observations related to *H. spiniger*. He has simply recorded the incidence of infestation by *H. spiniger* on dogs of Nile Valley and Delta of Egypt. Bouvier (1945) and Agawwal et al. (1982) have studied the feeding habits of *Trichodectes canis* and *H. spiniger* on civet. From these few papers, the literature relating to phthirapteran ectoparasites of dog is entirely lacking. Keeping in view the veterinary importance of these parasites and also the lacunae in the field an attempt is being made to study the ecology of phthirapteran ectoparasites occurring on dogs of Dehra Dun region. This preliminary report is an outcome of first twentyfour months work relating to incidence of Phthirapterans on dogs of Ris'ikesh.

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MATERIAL AND METHODS

The results of this paper are based on field observations. The alive infested dogs were subjected to critical examination by naked eye. Use of hand lens and light source proved fruitful. In order to study the distribution of lice, the body of host was arbitrarily divided into 10 regions. The number of lice in every region was recorded by five point system used by Craufurd-Benson (1941) for cattle lice. It gave us an idea about the regional distribution of lice because the actual data relating to population dynamics can not be produced without sacrificing the host.

OBSERVATIONS

A total number of 205 dogs (street dogs as well as pets) examined in eight different localities of Dehra Dun to record the incidence of phthirapteran infestation. Two species of Mallophaga (sens. Lat. Phthiraptera) viz. *Heterodoxus spiniger* Enderlein and *Trichodectes canis* De Geer, have been collected. Any anopluran species has not been recorded. In addition, the dog tick, *Rhizocephalus sanguineus* and dog flea *Ctenocephalides canis* have been found present on the dogs of this region. Their incidence of infestation has also been recorded.

Out of the 205 dogs examined during the period September 1987 to August 1989 in as many as eight different localities of Dehra Dun, 40 have been found infested with *Heterodoxus spiniger* (19.5% incidence of infestation). This species has been recorded from most of the localities except two (Table I). On the other hand, *Trichodectes canis* has been collected from only nine of the examined dogs (4.39% incidence of infestation). It has been recovered from only three localities. However, a tick, *Rhizocephalus sanguineus* has been found present upon as many as 86 dogs (41.95% incidence of infestation). It has been recorded from most of the localities of Dehra Dun. Similarly, the dog flea, *Ctenocephalides canis* has been collected from 30.73% of the dogs examined in different parts of Dehra Dun.

It has been found that the younger dogs were more frequently infested with phthirapterans than the older ones. Any sex related difference concerning phthirapteran infestation has not been recorded as the incidence of infestation on male dogs was similar to that of females. However, health related differences have been noted. Poorly maintained dogs and the street dogs have been found to be more susceptible to phthirapteran infestation. *T. canis* occurs upon the dogs having very poor skin condition.

To record the distribution of lice, the body of host was arbitrarily divided into 10 regions i. e. Head, neck, shoulders, back, belly, forearm, vulva, backarm, tail and anus. The different regions of dog body were examined and the population of lice in each area assessed by eye, using a hand lens and light source. By experience, it became possible to assess the density of any population in one of five categories.

Table I : Incidence of infestation by lice, tick and flea upon the dogs of different localities of Dehra Dun.

Localities of Dehradun dogs examined	Number of dogs	Number of dogs infested with			
		<i>Heterodoxus spiniger</i>	<i>Trichodectes canis</i>	<i>Rhizocephalus sanguineus</i>	<i>Ctenocephalides canis</i>
Rishikesh	44	19	04	21	16
Doiwala	24	04	03	06	09
Rani Pokhari	28	02	—	16	12
Bhaniyawala Dehra Dun	16	—	—	03	03
Proper	42	11	02	17	11
Sahaspur	18	02	—	12	03
Vikas Nagar	16	—	—	06	02
Mussoorie	17	02	—	05	07
Total	205	40	09	86	63
Incidence of Infestation		19.5%	4.39%	41.95%	30.73%

Table II : Regional Distribution of *H. spiniger* on the body of 16 female host

Dog No	Head	Neck	Shoulders	Back	Belly	Forearm	Vulva	Backarm	Tail	Anus	TOTAL Points
1	1	1	2	3	2	1	1	1	1	-	13
2	-	2	2	3	4	1	1	1	1	-	15
3	2	2	2	3	3	-	2	-	-	1	15
4	1	3	3	3	3	-	2	-	-	1	16
5	1	1	3	3	2	1	1	1	1	-	14
6	1	2	2	4	4	1	2	1	1	-	18
7	1	2	2	4	3	-	2	-	-	-	14
8	2	2	3	5	4	1	3	2	1	-	23
9	2	2	4	4	5	2	2	1	1	-	23
10	1	3	3	3	3	-	2	-	1	1	17
11	-	1	2	3	3	1	2	1	1	-	14
12	1	2	2	2	3	1	1	1	-	1	14
13	1	2	2	4	2	-	-	-	-	-	11
14	1	2	1	3	4	1	2	1	1	-	16
15	2	3	3	4	2	1	-	-	-	-	15
16	-	2	3	2	4	1	2	1	-	-	15
Total	17	32	39	53	51	12	25	11	9	4	253 points

(VI 1; L = 2; M = 3; H = 4; VH = 5)

(a) very light infestation — one point, (b) Light infestation — two points, (c) moderate infestation — three points, (d) Heavy infestation — four points, (e) Very heavy infestation — five points. The results of such studies have been presented in Table II.

It is evident from Table II that *H. spiniger* is found more concentrated on back, belly, shoulder, neck and vulva in this order of decreasing frequency and to a much lesser extent on other surface areas viz head, forearm, backarm, tail and anus.

The presence and number of eggs observed were not used as an indication of the severity of lice, as the egg shells of *H. spiniger* will remain attached to hairs for a considerable time after eggs have hatched, and the apparently unhatched eggs may actually be sterile eggs of considerable age.

T. canis found mostly on the area of injury. It was also found on head and neck to a lesser extent. But they were recovered mostly in groups. As only 71 specimens could be collected from only 9 hosts. Hence, at present it is not possible to give the figures of regional distribution in a tabulated form (as done in case of *H. spiniger*).

DISCUSSION

It is the first report dealing with incidence of phthirapteran infestation upon the dogs of India. Earlier Amin (1973) has made an attempt to record the incidence of infestation by *H. spiniger* in Nile valley and Delta of Egypt. In Egypt, Amin has recorded only 5% infestation by *H. spiniger* whereas in Dehra Dun incidence of infestation was found to be 19.5%. Amin (1973) did not record *T. canis* from Egypt. In Dehra Dun *H. spiniger* is more prevalent on dogs (22.5%) than *T. canis*. The regional distribution of *H. spiniger* on the body of dog is being reported for the first time. *H. spiniger* preferably occurs on back, belly, vulva, shoulder and neck in this order of decreasing frequency. *T. canis* being exclusively haematophagous in nature is habitually found near wounds present on the body (either made by dogs in order to get rid of lice or due to any other reason). It may be one reason for the low infestation by this phthirapteran species on healthy dogs. The present report also furnishes information relating to incidence of a dog tick and a dog flea upon the dogs of Dehra Dun. The incidence of *Rhizicephalus sanguineus* and *Ctenocephalides canis* has been found to be higher than that of phthiraterans.

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