

HELMINTHIC INFESTATIONS IN SLAUGHTERED SHEEP AND GOATS OF DISTRICT GANDERBAL, KASHMIR

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ABSTRACT

The aim of the study was to compare a prevalence of infections with flukes, tape worms and nematodes parasitizing gastrointestinal tract in small ruminants from various regions of District Ganderbal Kashmir. Visceral examinations from 284 sheep and 318 goats indicated a marked variation in the level of parasitism in livestock raised in different geographic areas. It was found that the prevalence gastrointestinal helminthic infections were higher in goats than in sheep. The most common prevalent nematodes were *Haemonchus* (82%), *Trichuris* (74%), *Nematodirus* (60%), *Trichostrongylus* (58%), *Chabertia* (52%), *Strongyloides* (42%), *Oesophagostomum* (46%). Among the cestodes were *Moneiza* (48%), *Avitellina* (42%), *Thysenezia* (28%) reported. Among the trematodes *Faciola* (60%), *Dicrociliium* (52%), *Paramphistomum* (46%) were most prevalent. The study indicates the prevalence of gastrointestinal helminthic infections varies in different seasons and in different age groups.

KEY WORDS: Cestodes, Goats, Nematodes, Prevalence, Sheep, Trematodes

INTRODUCTION

The sheep plays a significant role in national economy and rural socioeconomic conditions in the country. The overall development of the rural hilly areas could not be achieved by neglecting the development of the agricultural commodities like sheep and goats. Helminths play an important role in decreasing the sheep and goats production in the world. Goats and sheep have numerous gastrointestinal helminth parasites, many of which are shared by both species. Compared to sheep, which develop a strong natural immunity around 12 months of age, goats acquire a lower level immunity to gastrointestinal parasites. This can result in goats having greater populations of adult parasites with high egg output (Macaldowie *et al.*, 2003). The prevalence of gastrointestinal nematode infection is very high (Lone *et al.*, 2011). The principal aim of this work was to investigate the prevalence of gastrointestinal helminth parasites of goats and sheep in District Ganderbal Kashmir and to identify species diversity of gastrointestinal helminthes in sheep and goats.

MATERIAL AND METHODS

Viscera of 284 sheep and 318 goats were collected from different slaughter houses of District Ganderbal. The viscera were thoroughly examined and the Trematodes and Cestode parasites were first washed with physiological saline and fixed in Cornoy's fixative then kept in 70% alcohol preservation. The Nematode parasites were fixed in hot 70% alcohol and preserved in 70% alcohol ad glycerin. The nematodes were then cleared in Lactophenol and identified with reference to the literature (Soulsby, 1982). Likewise trematodes and cestodes were processed for permanent mounts in DPX and identified.

RESULTS

Of the total 284 sheep and 318 goats viscera were examined during the present study, 182 (64.08%) sheep and 266 (83.64%) goats were found to be positive for one or more genera of Nematodes, Trematodes and Cestodes. The most common helminth parasites encountered were summarized in table 1 and the results were found similar in visceral and faecal examinations. Nematodes were found most prevalent in both the species of small ruminants comprising the prevalence of *Haemonchus* (82%), *Trichuris* (74%), *Nematodirus* (60%), *Trichostrongylus* (58%), *Chabertia* (52%), *Strongyloides* (42%), *Oesophagostomum* (46%). Among the cestodes were *Moneiza* (48%), *Avitellina* (42%), *Thysenezia* (28%) reported. Among the trematodes *Faciola* (60%), *Dicrociliium* (52%), *Paramphistomum* (46%) were found most prevalent.

The age wise prevalence of helminthic parasites is presented in Table 2. The most infected age group was 0-1 years in both sheep and goats in which percentage of infection was 94.73% and 97.77% in sheep and goats respectively. The least percentage of helminthic infection was found in older age group (29.41% and 51.28% in sheep and goats respectively). While as the intensity of helminthic infection was greater in older age groups revealed by high worm load in adults. The seasonal prevalence of helminthic infection in sheep and goat is depicted in Table- 3. There was a gradual increase in the prevalence rate from spring to summer with a maximum infection during summer season and the lowest prevalence in winter season. There was a significant effect of season on prevalence of helminthic infection.

Table- 1.Prevalence of helminthic infections in sheep and goats

Parasite	Location	Prevalence (%) in Goats	Prevalence (%) in Sheep	Overall Prevalence (%)
<i>Haemonchus</i>	Abomasum	48.45	33.55	82.00
<i>Trichuris</i>	Large intestine	41.80	32.20	74.00
<i>Nematodirus</i>	Small intestine	32.40	27.60	60.00
<i>Trichostrongylus</i>	Abomasum	32.60	25.40	58.00
<i>Chabertia</i>	Large intestine	28.00	24.00	52.00
<i>Strongyloides</i>	Small intestine	20.45	21.55	42.00
<i>Oesophagostomum</i>	Large intestine	26.00	20.00	46.00
<i>Moneizia</i>	Small intestine	18.90	29.10	48.00
<i>Avitellina</i>	Small intestine	24.25	17.75	42.00
<i>Thysaneizia</i>	Small intestine	17.85	10.15	28.00
<i>Faciola</i>	Liver	30.65	29.35	60.00
<i>Dicrociliun</i>	Small intestine	32.00	20.00	52.00
<i>Paramphistomum</i>	Stomach	22.45	23.55	46.00

Table- 2. Age wise distribution of GI helminth parasites in sheep and goats

Age group	Sheep		Goats	
	No. Examined	Positive (%)	No. Examined	Positive (%)
0-1	38	36 (94.73)	45	44 (97.77)
1-2	32	29 (90.62)	42	40 (95.23)
2-3	36	31 (86.11)	37	34 (91.90)
3-4	40	28 (70.00)	38	32 (84.10)
4-5	30	18 (60.00)	40	32 (80.00)
5-6	38	21 (55.26)	39	27 (69.23)
6-7	36	12 (33.33)	38	22 (57.89)
7-8	34	10 (29.41)	39	20 (51.28)
Total	284	182 (64.08)	318	251 (78.93)

Table- 3. Seasonal prevalence of helminth infection in sheep and goats

Host	Spring		Summer		Autumn		Winter	
	No. Ex.	+ve (%)						
Sheep	66	40(60.60)	82	74(90.24)	78	51(65.38)	58	18(31.03)
Goats	74	65(87.83)	84	80(95.23)	88	80(90.90)	72	38(52.77)

DISCUSSION

It is well understood fact that epidemiology forms the foundation on which the edifice of control of parasitic diseases can be constructed. The present study indicates that the infection with gastrointestinal helminthes is a frequent phenomenon among the small ruminants of Kashmir Valley as earlier reported by several workers (Dhar *et al.*, 1982; Makhdoomi *et al.*, 1995; Tariq *et al.*, 2008). The high prevalence of helminthic infections observed in present study was same (Pandit *et al.*, 2003; Al-Saeed *et al.*, 1990; Motahar-Hussain *et al.*, 2000; Dhana laksmi *et al.*, 2001). In the present study nematode infection were shown to be in higher prevalence followed by trematodes and cestodes. Similar type of results has been indicated by the works conducted by Vlasoff *et al.*, (2001).

The heavy infection recorded from April onwards is due to favorable conditions for the development of larvae in the host and environment also the availability of intermediate host (Ogunsuri and Eysker, 1979). High rain fall in spring also helps in providing suitable molarities of salt present in soil, which is an important factor for ecdysis (Soulsby, 1982). The low level of helminth infection reported in adult sheep is because of the in development of the significant immune capability. Following the elimination of the major part of their worm burden when they are 11-12 months of age, sheep tend to remain relatively resistant to serious reinfection, however, they require constant exposure to some level of infection to maintain their resistant status (Dhana laksmi *et al.*, 2001). The present observations may initially be of great help to understand the epidemiology of the GI nematodes in sheep of Kashmir Valley and will certainly be of potential significance planning pasture and grazing management and other prophylactic strategies for sheep and goats from the area studied. In conclusion, various gastrointestinal parasites have been found in goats. Regular control measures should be practiced to reduce the parasitic burdens in the affected areas.

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