

Article

Epizootiology of Gastrointestinal Strongylosis in Horses in Selected Districts of The Samarkand Region

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Abstract: This article focuses on the study of gastrointestinal helminth infections in horses. Currently, drastic changes in the bio-ecological environment are contributing to the widespread occurrence of parasitic and infectious diseases across various regions. The article presents a brief overview of the history of research, pathogen biology, diagnostic methods, and prevalence rates regarding *Alfortia*, *Delafondia*, *Oxyuris*, *Strongyloides*, *Strongylus*, and *Parascaris* infections—diseases caused by parasites inhabiting the equine digestive system.

Keywords: Helminth Ovoscopy, Helminth Larvoscopy, Alfortiosis, Delafondiosis, Oxyuriasis, Strongyloidosis, Strongylosis, Parascaridosis

Introduction

Relevance of The Topic

The study of various infectious, non-communicable, and parasitic diseases in horses is currently of significant theoretical and practical importance. An analysis of the literature and research findings indicates that, in Uzbekistan, preventive measures aimed at controlling equine strongylid infections are insufficient, representing a pressing issue for veterinary science and practice.

State of Research

A review of the literature reveals that the first written scientific accounts regarding equine helminth infections appeared in 1814. Sources of particular interest for this topic include data published in 1957 concerning worms and helminths of equine internal organs [1], as well as Egorov's 1864 data on the equine helminth fauna. Between the 1930s and 1950s, specialists conducted a series of scientific studies on equine diseases in the Central Asian republics, particularly in Turkmenistan, Kyrgyzstan, and Kazakhstan. The findings were documented in various publications [2].

Materials and Methods

Based on the cited literature, data are presented regarding the number of helminth species identified in horses and the prevalence of infection. Furthermore, studies conducted in various republics of the former Soviet Union have addressed the helminth fauna of horses, as well as specific taxonomic groups of helminths, including representatives of various families and genera.

In particular, the literature provides information on the helminth fauna of horses in Armenia and the distribution of members of the family Strongylidae Baird, 1853 [3].

In the territory of the former Turkestan—now Uzbekistan—representatives of the family Ascarididae (Baird, 1853) were identified in 49 out of 175 horses (28%) examined at a stud farm in Tashkent [4]. Studies conducted at the Moscow Hippodrome revealed *Parascaris* infection in 47.8% of the 541 horses stabled there [5].

Results

An analysis of research by various authors indicates that, prior to 1931, the helminth fauna of horses comprised 95 species. When V. S. Ershov examined five horses in Tashkent and three in Barnaul using the TGYA method, 48 helminth species were identified, 46 of which were nematodes. The number of nematodes found ranged from one or two to 214,112 specimens [6]; [7].

An analysis of the cited literature shows that the bulk of early research on equine helminths was conducted between 1870 and 1930 and focused primarily on documenting the helminth fauna. Most studies carried out in the 1930s and 1940s addressed equine helminth infections and their prevalence across various regions. Research conducted after 1940 placed particular emphasis on the epizootiology of these infections.

In addition to data on helminth species composition and prevalence, these scientific works present information on factors influencing the epizootiology of helminth infections. They examine geographical and climatic conditions, horse husbandry and feeding practices, and the ways in which horses are utilized, as well as the impact of other factors on the spread of helminth infections and the seasonal dynamics of infestation.

Study of the prevalence and species composition of gastrointestinal strongyloidosis among horses in certain districts of the Samarkand region.

Research objective

Determination of the epizootological status of gastrointestinal strongyloidosis in horses across various bio-ecological zones of the Samarkand region.

Subject and location of the study

The study was conducted on 78 horses of various ages kept on farms in the Payaryk, Akdarya, Pastdargom, Urgut, and Taylak districts of the Samarkand region.

Research methods

The study employed epizootological, clinical, and helminthoscopic (including helminth-larvoscopy) methods.

Research results

The study was carried out using the aforementioned methods on 78 horses of various ages kept on farms in five irrigated districts of the Samarkand region: Payaryk, Akdarya, Pastdargom, Urgut, and Taylak, see Table 1.

Table 1. Helminth infection in horses in certain districts of the Samarkand region (based on helminthoscopic and helminth-larvoscopic examinations)

Study areas		Number of people who turned around	<i>Alfortia edentates</i>		<i>Delofandia vulgaris</i>		<i>Trichonema avlodi</i>		<i>Strongyloides westeri</i>		<i>Strongylus equinus</i>		<i>Oxyuris equi</i>		<i>Parascaris equi</i>	
			I.E.		I.E.		I.E.		I.E.		I.E.		I.E.		I.E.	
			B	%	B	%	B	%	B	%	B	%	B	%	B	%
			беаде	%	беаде	%	беаде	%	беаде	%	беаде	%	беаде	%	беаде	%
Irrigated biocenosis																
1	Foot	22	2	9,1	2	9,1	8	36,4	9	40,9	13	59,1	2	9,1	8	36,4
4	Oqdaryo	12	1	8,3	1	8,3	5	41,7	6	50,0	7	58,3	1	8,3	5	41,7
6	Pastdargom	17	1	5,9	1	5,9	7	41,2	8	47,1	8	47,1	2	11,8	8	47,1
7	Urgut	15	2	13,3	1	6,7	7	46,7	9	60,0	9	60,0	1	6,7	7	46,7
8	Toyloq	12	1	8,3	1	8,3	5	41,7	5	41,7	7	58,3	1	8,3	5	41,7
	Total	78	7	9,0	6	7,7	32	41,0	37	47,4	44	56,4	7	9,0	33	42,3

An analysis of the data presented in the table revealed that among the 22 horses examined in the Payarik district, **Alfortia edentata** eggs were found in 2 animals (prevalence: 9.1%); **Delafondia vulgaris** in 2 animals (9.1%); members of the genus **Trichonema** in 8 animals (36.4%); **Strongyloides westeri** in 9 animals (40.9%); **Strongylus equinus** in 13 animals (59.1%); **Oxyuris equi** in 2 animals (9.1%); and **Parascaris equi** in 8 animals (36.4%).

A similar analysis of data from other districts in the region yielded the following figures. In the Akdarya district, a total of 12 horses were examined, and the prevalence rates for the respective infections were: 1 (8.3%); 1 (8.3%); 5 (41.7%); 6 (50.0%); 7 (58.3%); 1 (8.3%); 5 (41.7%).

In the Pastdargam district, a total of 17 horses were examined, with prevalence rates of: 1 (5.9%); 1 (5.9%); 7 (41.1%); 8 (47.1%); 6 (47.1%); 2 (11.8%); 8 (47.1%).

In the Urgut district, a total of 15 horses were examined, with prevalence rates of: 2 (13.3%); 1 (6.7%); 7 (46.7%); 9 (60.0%); 9 (60.0%); 1 (6.7%); 7 (46.7%).

In the Tailok district, a total of 12 horses were examined, and the incidence of strongyloidosis was 1 (8.3%); 1 (8.3%); 5 (41.7%); 5 (41.7%); 7 (58.3%); 1 (8.3%); 5 (41.7%).

A total of 78 horses were examined in the region; the average incidence of strongyloidosis among them was 7 (9.0%); 6 (7.7%); 32 (41.0%); 37 (47.0%); 44 (56.4%); 7 (9.0%); 33 (42.3%).

An analysis of the results by district reveals an uneven distribution of gastrointestinal strongyloidosis in horses. In all districts where the study was conducted, **Alfortia** infection, **Delafondia** infection, and oxyuriasis occurred relatively infrequently (infection index 5.9–13.3%), whereas **Trichonema** infection, strongyloidosis, and parascarisidosis occurred relatively frequently (infection index 36.4–60.0%). Regional analysis showed infection indices of 7.7–9.0% and 41.0–56.4%, respectively.[8][9]

It was determined that **Delafondia** infection (7.7%) was the least common of the gastrointestinal strongyloidoses in horses, while strongyloidosis (60.0%) was the most common. Studies have shown that equine gastrointestinal strongyloidosis involves geohelminths—nematodes whose life cycle includes a stage in the external environment—and that the prevalence of infection is directly linked to bio-ecological environmental factors.[10]

The study identified helminth eggs and larvae belonging to the families Strongyloididae, Strongylidae, Trichonematidae, Oxyuridae, and Ascarididae (Class Nematoda Rudolphi, 1808).

It is well known among specialists that larvae from the Strongylidae family—which cause diseases such as alfortiosis, delafondiosis, and strongylosis—can lead to serious conditions. For instance, *Delafondia* larvae migrate from small blood vessels into larger arteries, where they lodge. They form a thrombus within the artery; inside this clot, the larvae develop for up to six months, molting and shedding their cuticle before detaching from the fibrin clot, now encased in a newly formed membrane. Carried passively by the arterial bloodstream, they travel to the intestinal arteries—frequently those supplying the cecum and large intestine. This process results in the development of intestinal aneurysms in the cecum and ileum caused by *Delafondia* larvae. Subsequently, the larvae exit the blood vessels and migrate to the intestinal walls, where they reside for 3–4 weeks, forming parasitic nodules. Alphartiasis larvae develop within the horse's body for 5–6 months; during the migration phase, pathological symptoms emerge due to the biological interaction between the peritoneum and the large intestine. In the process, they exert a toxic effect on the animal's tissues and organs, leading to the formation of a hematoma. They transport various pathogenic microbes and viruses into this hematoma, thereby creating conditions conducive to infection. In horses, the disease manifests in acute and chronic forms, while in young foals, it presents in aseptic or septic forms; peritonitis (inflammation of the peritoneum) develops, and the animal succumbs to anemia and cachexia.[11]

Discussion

Larvae of strongyloid-type helminths enter the animal's digestive tract via feed and water. There, they hatch and migrate through the intestinal mucosa and between the intestinal layers toward the pancreas. They reside there for over eight months, developing into male and female helminths measuring 4–5 cm in length. Subsequently, they return to the large intestine, causing inflammation of the pancreas and peritoneum.[12][13][14]

Larvae of the Trichonematidae family penetrate the mucosa of the large intestine (the region between the cecum and the rectum) and invade the intestinal wall, forming red or dark-brown nodules the size of a millet or mung bean. Upon reaching a length of 5–10 mm, they re-penetrate the intestinal wall, enter the intestinal lumen, and mature into adult trichonemes.[15]

Adult helminths belonging to the families Strongylidae and Trichonematidae (suborder Strongylata) parasitize the large intestine (cecum and rectum) of animals; growing to lengths of 0.5–5 cm, they cause general strongylidosis.

Conclusion

Our study established that gastrointestinal strongylid infections in horses are widespread in the districts of the Samarkand region, involving representatives of the families Strongyloididae, Strongylidae, Trichonematidae, Oxyuridae, and Ascarididae.

The analysis revealed that, among these gastrointestinal strongylid infections, *Alfortia* infection, *Delafondia* infection, and oxyuriasis occur relatively infrequently, whereas trichonemiasis, strongyloidosis, and parascaridosis are more common.

REFERENCES

- [1] N. K. Andreeva, "Development of ostertagiosis (trichostrongylid infections) in ruminants," Proceedings of the Kazakh Branch of the All-Union Academy of Agricultural Sciences, vol. 8, pp. 473–487, 1957.
- [2] N. V. Andreevskii, "On internal worms and helminths in horses," in The New Complete Methodical Medical Guide for Horses, Cattle, and Other Animals, 1st ed., vol. 1, part 2. Moscow, Russian Empire, 1793, pp. 485–499.
- [3] F. M. Artyushkov and V. I. Gorozhanin, "Helminth diseases in military horses," vol. 11, pp. 54–56, 1928.
- [4] Egorov, "Indicators of helminth infection in horses," Horse Breeding and Hunting Journal, no. 2, pp. 135–140, 1864.

- [5] V. S. Ershov, "Helminthological investigations conducted in the summer of 1930 at the Tashkent State Stud Farm," *Proceedings of the Central Asian Scientific Research Veterinary Institute*, vol. 1, no. 2, pp. 62–78, Tashkent, 1933.
- [6] V. S. Ershov, "On the helminth fauna of a horse necropsied in Omutninsk," in *Proceedings of the 57th Scientific and Geographical Expedition in the Former Vyatka Governorate*. Vyatka: Veterinary Department of Vyatka, 1932, pp. 19–22.
- [7] K. Saito, "Major endoparasites of farm animals in Japan: Horses," in *Proceedings of the International Regional Conference of Asian Countries on Animal Parasitic Diseases*, 1959, pp. 216–223.
- [8] L. M. Kokolova, L. Yu. Gavrilieva, Z. K. Ivanova, et al., "Prevalence of helminth infections in herd-kept horses in the Republic of Sakha (Yakutia)," *Russian Journal of Parasitology*, no. 3, pp. 30–33, 2014.
- [9] M. Kh. Lutfullin, R. R. Gallyautdinova, and L. R. Aminova, "Prevalence of gastrointestinal strongylatosis in small ruminants," in *Proceedings of the 9th International Scientific and Practical Conference of Students, Postgraduates, and Young Scientists: Agro-Industrial Complex: Future Perspectives*, 2018, pp. 263–265.
- [10] V. Levshin, "On worms and helminths in horses: Remedies for helminth infections," in *The Complete Economic Book on Domestic Management for Urban and Rural Residents, Households, and Housewives*, vol. 3, part 1. Moscow, 1814, pp. 141–196.
- [11] R. R. Timerbaeva, "Prevalence of intestinal nematode infections in horses in the Republic of Tatarstan," in *Proceedings of the Scientific Conference 'Theory and Practice of Combating Parasitic Diseases'*, issue 14, 2013, pp. 394–395.
- [12] R. R. Timerbaeva, M. A. Kolosova, and R. K. Sulaimanov, "Major helminth infections in horses in selected districts of the Republic of Tatarstan," *Scientific Notes of the Kazan State Academy of Veterinary Medicine named after N. E. Bauman*, vol. 226, no. 2, p. 155, 2016. [Online]. Available: <https://elibrary.ru/contents.asp?id=34242251>
- [13] N. P. Popov, "Contribution to the study of the strongylid fauna of horses in the USSR," *Proceedings of the State Institute of Experimental Veterinary Medicine*, Moscow, pp. 31–52, 1928.
- [14] N. P. Popov, "Towards the identification of the helminthological status of horses in the USSR," *Bulletin of Modern Veterinary Medicine*, no. 5, pp. 141–142, Moscow, 1927.
- [15] R. C. T. Sutton, "The prevalence and epidemiology of equine gastrointestinal parasites," *Veterinary Parasitology*, vol. 85, no. 2–3, pp. 123–135, 1999.