

Occurrence of roundworm (*Parascaris equorum*) in horses from small farms based on necropsy*

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ABSTRACT. **Background**. The objective of this study was to evaluate the level of roundworm infection in working horses slaughtered for meat. In these horses anthelmintics had not been used. **Material and methods**. Roundworms were collected post-mortem from small intestines of 83 horses. **Results**. The mean prevalence of roundworm infection was 12% and intensity — 46.7 specimens per horse. Infection was found only in foals; 10 animals were infected (45.4%) among the 22 examined. Due to common occurrence of roundworms (*Parascaris equorum*) in foals this nematode control should focus particularly on regular anthelmintic treatment of young horses, providing proper hygienic conditions for them and checking the infection level by coproscopical methods.

Key words: intensity, *Parascaris equorum*, prevalence.

Introduction

Roundworm (*Parascaris equorum*) is a nematode commonly diagnosed in horses [1–4]. As results from the previous observation, migration of this parasite larvae in the host and large size of its adult forms (female 18–37 cm, male 15–28 cm) may cause serious health problems even death, mainly in young horses due to intestinal obstruction or perforation (Figs 1, 2) [5, 6]. In older horses, infection occurs sub-clinically in connection with acquired immunity to this nematodes.

Parascariosis prevention is problematic, even in such places as horse studs because of high concentration of this nematode eggs in the environment and their strong resistance to many external factors [7, 8]. On the other hand the circumstances favoring infection of horse keeping on small farms are first of all poor conditions and very rare treatment with anty parasitic compounds. Occurrence of roundworm on this type of farms has not been thoroughly known. Moreover, post-mortem studies are very rarely done in Poland.

The objective of this study was to evaluate the level of roundworm infection based on post-mortem investigations in working horses slaughtered for meat.

Material and methods

Post mortem investigation were carried out in 2005 on 83 horses, including 61 adult ones and 22 foals, at a slaughterhouse near Kraków, which exports horse meat to the West European countries. The animals originated from small farms of southern Poland where actually anthelmintics treatment has not been used.

All animals slaughtered on respective days were examined. Small intestines were checked, they were cut alongside, examined carefully and the isolated parasites were conserved in the formaldehyde.

On the basis of obtained results prevalence and intensity of roundworm infection were evaluated.

Results

The roundworm was found in 10 (12%) from among 83 examined horses and the average intensi-

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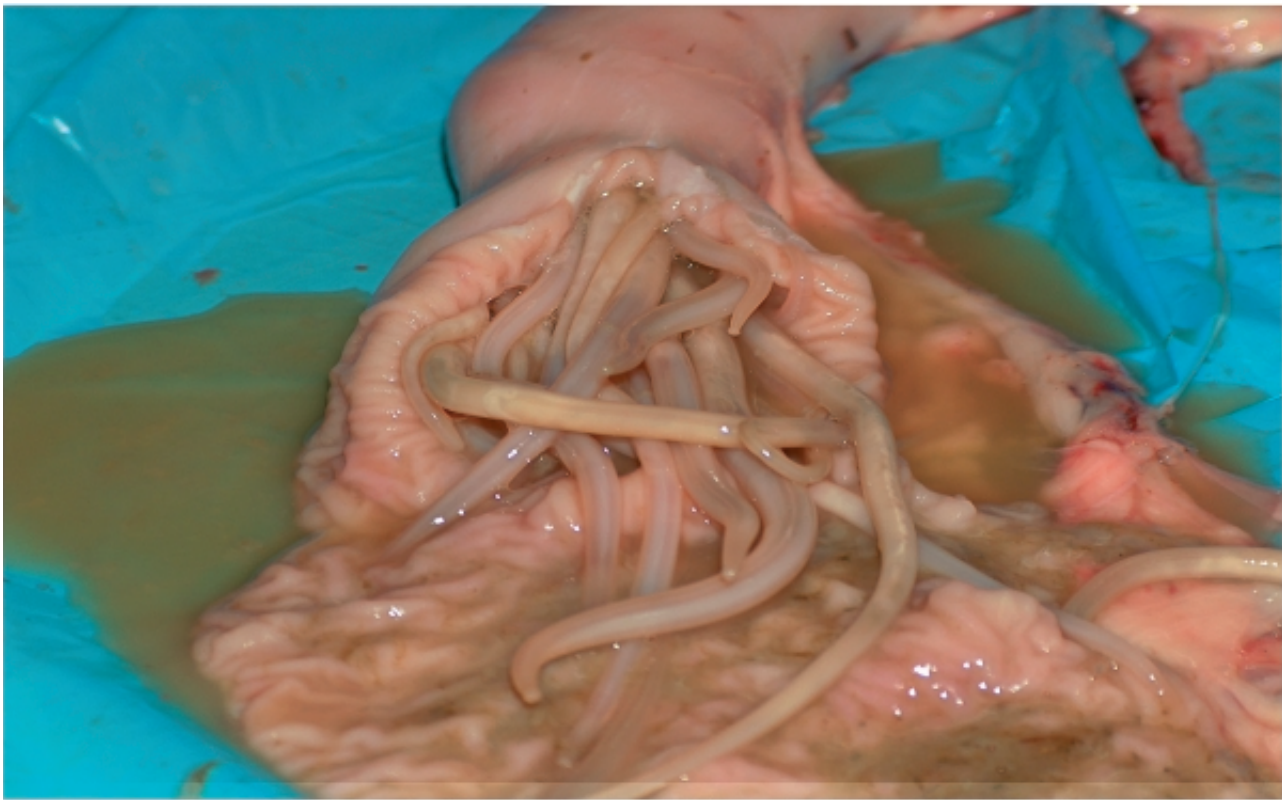

Fig.1. Small intestine of the foal blocked by the roundworms (Department of Zoology and Ecology, Agricultural University of Krakow, 2005)

Fig. 2. Fragment of small intestine of foal heavy infected with the roundworms (Department of Zoology and Ecology, Agricultural University of Krakow, 2005)

Table 1. Results of post mortem investigation of horses kept on the small farms

Month of study	Number of examined horses	Number of infected horses	Prevalence of infection (%)	Number of parasites	Mean intensity of infection
I	10	0	0	0	0
II	12	3	25	20	6.7
III	24	3	12.5	287	95.7
IV	37	4	10.8	160	40
Total	83	10	12.0	467	46.7

Table 2. Occurrence of roundworm in horses of different age

Age of horse	Number of examined horses	Number of infected horses	Prevalence of infection (%)	Mean intensity of infection
Foals	22	10	45.4	46.7
Adult horses	61	0	0	0

ty of infection was 46.7: from 6.7 to 95.7 parasites per horse/per month (Table 1). The roundworm occurred in foals (45.4%), but its presence was not revealed in adult horses (Table 2). Between several and over 200 specimens of mainly mature roundworms and sporadically their larvae were found in individual foals.

Discussion

Post mortem examinations of horses are rarely conducted in Poland. Therefore the level of horse infection with roundworms is determined mainly on the basis of different coproscopical methods. Some earlier investigations carried out by the authors of the presented paper using coproscopical Mc Master method revealed the roundworm infections reaching many percent of the investigated horses from southern Poland. The authors also demonstrated the effect of management system, age and season of the year on the level of this parasite infection [8–10]. Research conducted by other Polish authors revealed the roundworm presence in 15% of adult horses from private farms, from 19.2 to 59% of foals from horse studs (Willis method) [11], in 5.6% of riding horses (McMaster method) [12] in the central Poland and in 22% of horses kept in different management systems (Nilsson method in the authors' own modification) [13] in the east of Poland. Investigations carried out in the eighties in the north of Poland [14] using Fulleborn flotation method revealed low infection level, between 3.1 and 6.2%, in Polish konik (pony) kept on the pastures. Research conducted in recent years by Fulleborn flotation method and McMaster method on the same horse breed demonstrated higher and diversified level of roundworm infection, between 4.65 and 19.22% depending on the acreage of the pastures [15].

In Polish study there are few results of post mortem investigation on slaughtered horses, which as a rule are not subjected to anthelmintics treatment [11, 13, 16]. The results of post mortem study on such horses obtained in this paper revealed lower roundworm infections — 12% (45.5% of the infected foals) in comparison with 26%, i.e. results presented by Gawor [11] or 100% obtained by Gundłach et al [13]. The authors quoted above found the roundworm mainly in adult horses, whereas Gawor [11] identified it also in 3 out 4 examined foals. Mean intensity of infection in foals assessed in the presented investigations was 46.7 specimens per horse. Gawor [11] found similar number of these parasites in foals — 60 and in adult horses — 23, while Gundłach et al [13] identified many more roundworms in adult horses, on average 167 mature parasites and 4.6 of their larvae.

Research conducted outside Poland also revealed common occurrences of the roundworm in horses based on necropsy: between 5 and 15% in Australia [17–18], 28.6% in the Netherlands [19] and 10–46% in the USA [20].

Because the prevalence of roundworm (*Parascaris equorum*) infection was high in the examined foals, this parasite control should focus particularly on regular anthelmintics use for young horses and providing proper hygienic conditions for them during the first months of life. From among the available anti-parasite drugs ivermectine (Eqvalan) and moxidectine (Equest Gel) [21–23] reveal high efficiency in the roundworm control — between 94 and 100%, although some authors have

reported resistance of roundworms to ivermectine [24].

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