SHORT COMMUNICATION

Clinico-Therapeutic Management of Parascariasis in Foals

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Abstract

The present study of clinico-therapeutics management of parascariasis in foals was carried out amongst the foals presented from different villages of Bhavnagar districts. A total of 12 foals were selected based on the clinical finding and confirmatory diagnosis of the presence of *Parascaris* spp. worm eggs in faecal smear by sedimentation methods. Clinical findings revealed roughened hair coat, loose consistency of faeces, undigested feed particles in faeces, weight loss, weakness and loss of skin elasticity. Haematological findings revealed significantly decreased haemoglobin, pack cell volume, total erythrocyte count and total leukocyte counts. All the 12 foals were successfully treated with Fenbendazole @ 7.5 mg/kg once in a day for five days along with supportive therapy.

Key words: Clinical findings, Haematology, Fenbendazole, Foal, Round worms.

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Introduction

In India, horse is an important draught animal which plays an important role in agricultural and road network of rural and urban locations. It is income-generating animals for resource limited owners (Getachew *et al*. 2014; Bizuayehu and Bedada, 2018). They are also used in traditional ceremonies, riding, racing, patrolling by defense force and research (Idoko *et al*., 2021; Alaba *et al*., 2022). Due to its utility, horses are facing so many health care and managemental disorders including stress (Tateo *et al*., 2012; Padalino, 2015). Horses are known to suffer from various endoparasites, of which helminths infections are of great importance (Scala *et al.*, 2021). A nematode infection is remaining one of the major threats in adult as well as young horses (Hautala *et al*., 2019).

The horse round worms, parascariasis is one of the most important nematodal diseases world-wide in young horses caused by *Parascaris* spp. worm (Martin *et al*., 2024; Scala *et al.*, 2021). A single affected foal is sufficient to contaminate environment by laying up to 50 million eggs per day and cause disease (Clayton, 1986). Laid eggs can survive in pastures and boxes (waterer and feeder) at least a year of time, and eggs containing infective L_2 larvae are main source of infection by contaminated food and water (Reinemeyer and Nielsen, 2017). After ingestion, larvae can migrate tracheo-esophageal route via liver and the affected foals may show clinical signs like severe illness, lose faeces, rough hair coat, colic, weight loss etc. The larvae migration may cause lesions in intestine, liver, lung, bronchial and hepatic lymph nodes, coughing and nasal discharge (Clayton, 1986; Jasim *et al*., 2024). Diagnosis of *Parascaris* spp. is primarily conducted by sedimentation methods of faecal examination (Soulsby, 1982). Nowadays, anthelmintics resistance is becoming a major problems and fenbendazole is effective in treating ascarid infections (Bowman, 2009). Auxiliary climatic condition and lack of awareness about deworming are responsible for the parasitism (Saeed *et al*., 2019). Therefore, the main aim of this study was to examine faecal smear for *Parascaris* spp. worm infestation in foals, correlate with clinical findings, haematological alterations and treat the affected foals with fenbendazole to check its efficacy.

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Materials and Methods

In present investigation, 12 *Parascaris* spp. affected and 10 parasites free control foals faecal and blood samples were studied for haematological alterations. The foals were included from different villages of Bhavnagar district in Gujarat. Clinical examination was performed according to Constable *et al*. (2016) and Jasim *et al*. (2024), and findings of each foal were recorded. Five grams of faecal sample was collected from each foal directly from rectum and stored in a close plastic container and labeled. The faecal samples were examined within 24 h by sedimentation methods and prepared faecal smear were examined under 10X of microscope as per methods described by Devkota *et al*. (2021). The eggs of *Parascaris* spp. were identified based on

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morphological characteristics described by Soulsby (1982).

For haematology, 1 mL blood sample was also collected aseptically into sterile anticoagulant (EDTA) @ 1 mg/mL) vacutainer from all foals. The samples were subjected for determination of haemoglobin, packed cell volume, total erythrocyte count and total leukocyte count as per methods described by Jain (1983).

Following confirmation of parascariasis in foals based on the clinical signs and faecal smear examinations, the affected foals were treated with Fenbendazole (Panacur® 150 mg vet) @ 7.5 mg/kg once in days for five consecutive dose. All affected foals were also treated with Inj. Intavita-H @ 2 mL deep IM once, Inj. Tribivet @ 2 mL IM once for 3 days, Inj. Synkomet @ 3 mL, IM once, powder Minfa gold @ 25 gm PO once for 30 days and liquid Livotas @ 15 mL, PO for 30 days. Faecal sample were again collected after 15th days of fenbendazole treatment in the affected foals for detection of parasitic eggs, if any.

The haematogical data were statistically analysed using unpaired 't' test as described by Snedecor and Cochran (1994) and significance of mean difference was tested at $p<0.05$.

Results and Discussion

Microscopic/Coprological examination of faecal smear of affected foals showed presence of thick, pitted albuminous layer of *Parascaris* spp. eggs in all 12 cases. The most typical clinical signs of *Parascaris* spp. worm infestation in foals were rough hair coat, undigested feed particles in faeces, loose consistency of faeces, weight loss with normal intake feeding, weakness, loss of skin elasticity, coughing and nasal discharge (Table 1). Similar findings were also recorded earlier by Constable *et al*. (2016) and Jasim *et al*. (2024).

Table 1: Clinical signs of *Parascaris* spp. worm infested foals (n=12)

Clinical signs	Frequency
Roughened hair coat	100% (12/12)
Undigested feed particles in faeces	92% (11/12)
Loose consistency of faeces	75% (09/12)
Weight loss with normal intake feeding	58% (7/12)
Weakness	25% (03/12)
Loss of skin elasticity	17% (02/12)
Nasal discharge/coughing	8% (01/12)

The mean (± SE) values of haemoglobin, packed cell volume and total erythrocyte count of *Parascaris* spp. worm infested foals were non-significantly ($p>0.05$) lower and that of total leukocyte count was higher than apparently healthy foals. Similar findings have been reported by Salem *et al*. (2015).

Treatment results revealed that early intervention using fenbendazole for five consecutive days in combination with multivitamin and liver tonic was efficient for parasitic cure. After a five days treatment of fenbendazole, foals were recovered with normal bound faece; reduce indigestible feed particles in faeces and nasal discharges ceased. After 15 days, faecal examinations did not evidence parasite's ova and also improved hair coat. Fenbendazole is most effective against immature form of *Parascaris* spp. in the intestine (Constable *et al*., 2016; Das *et al*., 2025).

In horse husbandry, Parascariasis is a parasitic infection that causes major health and management concern in young horses (Jasim *et al*., 2024). The major risk of infection is ingestion of larvated eggs in especially hot and humid environment with poor hygienic condition (Constable *et al*., 2016; Scala *et al*., 2021). A most common clinical signs in present study, rough hair coat and undigested feed particles in faeces with loose consistency of faeces strongly indicated a heavy *Parascaris* spp. infection that might have disturbed normal digestive function and poor nutrient absorption as recorded earlier by Cribb *et al*. (2006) and Jasim *et al*. (2024). Similar to our finding, Srihakim and Swerczek, (1978) noted that L_3 larval migration of this parasite exhibited coughing and nasal discharges. The L_3 larvae penetrate the jejunum wall, travel to the liver via portal veins/lymph and heart to the pulmonary vein, enter alveoli and forward move towards the bronchioles and trachea. Migratory larvae induced coughing reflex come to the pharynx, swallowed back down and return to the gastrointestinal tract to mature (Jasim *et al*., 2024). The faecal sedimentation approach, as described by Soulsby (1982) was employed for the diagnosis of *Parascaris* spp infection.

Craig *et al*. (2007) and Lyons *et al*. (2008) reported resistance of *P. equorum* to pyrantel tartrate, pyrantel pamoate and ivermectin. In present study, fenbendazole was very efficient at 7.5 mg/kg PO against *Parascaris* infection. Fenbendazole is having an ovicidal action but pyrantel tartrate, pyrantel pamoate and ivermectin anthelmintics do not have. Reinemeyer *et al*. (2010) reported that a five consecutive dose regimen of fenbendazole provide larvicidal action against *Parascaris equorum* infection and also effective migrating and luminal stages of parasite. Hence, the proper anthelmintics dose regimen can control parascariasis in foals.

In conclusion, parascariasis can be diagnosed by faecal examination, haematology and characteristic clinical signs. In addition, the early treatment using five doses of fenbendazole with supportive therapy is the key of treatment success.

Table 2: The mean ± SE values of a haematological alteration of apparently healthy and *Parascaris* positive foals.

Haematological Parameters	Healthy foals (n=10)	Parascaris positive foals (n=12)	P value
Haemoglobin (gm/dL)	10.20 ± 0.28	9.6 ± 0.32	0.178
Pack cell volume (%)	34.84 ± 1.45	32.17 ± 0.94	0.143
Total erythrocyte count ($x10^6/\mu L$)	8.11 ± 0.51	7.97 ± 0.34	0.822
Total leucocytes count ($x10^3/\mu L$)	9.68 ± 0.35	10.74 ± 0.90	0.292

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