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Short Communication

ASCARID ASSOCIATED IMPACTION COLIC IN AN INDIAN MARWARI HORSE

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SUMMARY

Equine ascariasis, which is caused by *Parascaris* species, is an endoparasitic disease that primarily affects young horses. Despite the enormous number of horses raised in Gujarat especially in North Gujarat, there are currently no reports of extensive clinical studies looking at the diagnosis and management of ascariasis in the area. The current case study intends to document one clinical case of impaction colic associated with *Parascaris* spp. in a foal utilising qualitative and quantitative faecal egg concentration method, as well as the successful therapeutic management.

Keyword: *Parascaris* species, Equine, Ascariasis, Diagnosis, Treatment

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Equine ascariasis is an endoparasitic disease that affects horses of all ages worldwide and is caused by *Parascaris* spp. (Hautala *et al.*, 2019). These parasites are present in upto100% of cases in foals and depending on their severity and stage, they can cause nasal discharge, gastric reflux, increased heart rate, abdominal pain, coughing, a rough or bristly hair coat, slow growth, and occasionally small intestine rupture as a result of a build-up of worms (Crib *et al.*, 2006). Even yet, minor intestine impaction is the major clinical sign of infection with *Parascaris* spp. (Crib *et al.*, 2006). Mature *Parascaris* spp. females are particularly productive even when there is a modest parasite burden, which can lead to high faecal egg counts (FEC) and significant soil and pasture contamination (requiring appropriate treatment) (Di pietro and Todd, 1988). A single sick horse is said to be capable of laying up to 50 million eggs every day (Clayton, 1986). Additionally, eggs from *Parascaris* species can survive outside (in pastures, paddocks, boxes, etc.) for more than a year (Reinemeyer and Neilsen, 2017).

Programmes to control foal ascariasis are based on a year-round, monthly rotational anthelmintic regimen that includes benzimidazole (such as fenbendazole), tetrahydro pyrimidine (such as pyrantel) and macrocyclic lactones (such as ivermectin) and moxidectin). To the best of our knowledge, despite the enormous number of horses (n=0.22 lakhs) raised in Gujarat (20th Livestock Census, 2019), there are no clinical studies addressing the prevalence of ascariasis in horses described in the current literature. Additionally, research that do touch on this topic tend to focus on anthelmintic efficacy studies (Veroneisi *et al.*, 2009). In light of this, the current clinical case study seeks to document the infestation of *Parascaris* spp. in a Marwari horse associated with impaction colic along with its successful therapeutic management.

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A four-month-old Marwari foal with a history of diarrhoea, colic and off-fed for one week was brought to the Veterinary Clinical Complex, College of Veterinary Science & Animal Husbandry, Kamdhenu University, Sardar Krushinagar, Gujarat, India. The animal was not dewormed at the time of presentation. The animal had undergone a physical and clinical checkup followed by parasitological investigation. To check for the existence of any parasite eggs, faecal concentration methods were used. To determine the therapeutic efficacy of the utilised anthelmintic, a quantitative faecal examination using the modified Sahli's approach was also carried out to measure the severity of infection before and after therapy. The following formula was used to determine the anthelmintic efficacy (Rashid *et al.*, 2022):

Effectiveness = 100×(Pre-treatment EPG - post - treated EPG)/Pre-treated EPG

A 2 ml blood sample was also taken in EDTA vail for a haematological study, which was then run through an automated machine to determine the animal's general health state both before and after the therapy.

In the current study, a clinical examination of the foal indicated a temperature of 99.9° F, an increased heart rate of 66 beats per minute, a respiration rate of 35 beats per minute and hyperemic and swollen eye mucous membranes (Fig. 1). When faeces were examined up close, they seemed to be mud-coloured and smelled foul (Fig. 2). Ascariasis was confirmed by faecal floatation and the modified teleman method, which both found eggs of *Parascaris* spp. The egg showed the presence of thick brown shell with thick outer layer. Eggs per gram (EPG) count was found to be 67. Anaemia (5.6 g/dL) with eosinophilia (10%) was detected in the haematological profile of affected foal. Following the diagnosis of ascariasis, the animal was treated with the anthelmintic fenbendazole @ 7.5 mg/kg b.wt. orally continuously for

Fig. 1. Hyperemic and congested mucous membrane of affected foal

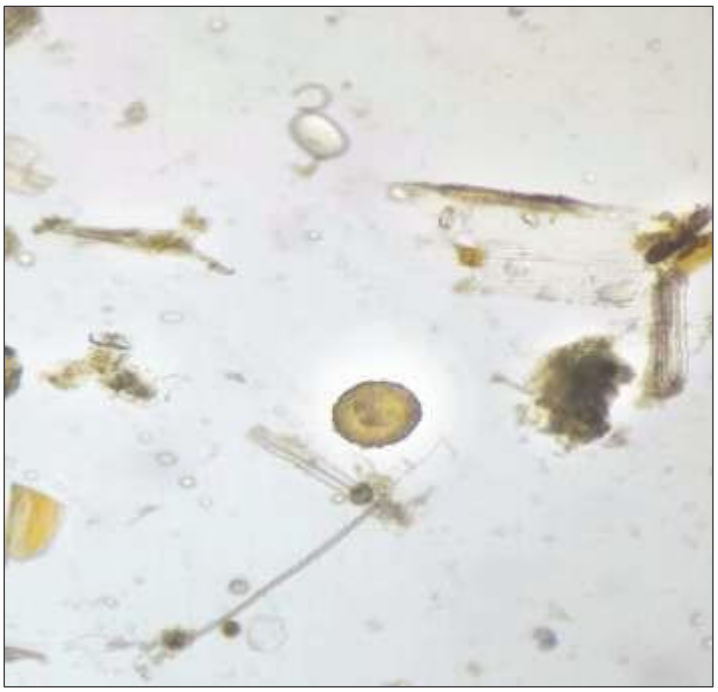

Fig. 2. Yellowish brown thick and rough shelled egg of *Parascaris* spp.

Fig. 3. **(a)** Recovery of *Parascaris* spp. worm (1st days post treatment with fenbendazole); **(b)** Lumps of *Parascaris* worm with typical mud coloured faeces (2nd days post treatment); **(c)** 3rd days post treatment recovery of *Parascaris* spp. worm

Fig. 4. Recovered foal on 15th day of Post-treatment

three days along with supportive fluid therapy, liver extract, vitamin and mineral supplements. Following oral treatment of fenbendazole, a significant amount of adult *Parascaris* spp. worms (diameter: 6-10 cm) were expelled /or recovered constantly from the faeces over the following three days (Fig. 3a, b, c). After a post-treatment period of five days, the animal was stabilised with no clinical signs of colic and abdominal pain. After 15 days of post-treatment, the animal was entirely recovered (Fig. 4). Examination of the faecal sample revealed that they were normal colour and that no parasite eggs had been discharged. When compared to the reference level, the eosinophilia of 10% was significantly reduced to 4% and haemoglobin increased up to 9.5 g/dL with improvement of other haematological parameters (Table 1). Fenbendazole, the drug employed in this study was found to have a 15-day cure rate of 100% for treating ascariasis in horses.

Table 1. Comparison of haematological profile on 0th day, 15th day and normal reference level in equine

Blood parameters	Before treatment (0th day)	After treatment (15th day)	Reference level (Dedar *et al.*, 2015)
TLC ($\times 10^3/\mu l$)	3.6	4.3	4.66-13.62
TEC ($\times 10^6/\mu l$)	4.515	4.9	6.41-12.18
Hb (g/dl)	5.6	9.5	9.8-16
PLt ($\times 10^3/\mu l$)	101	120	109-638
Differential leukocyte count (DLC)			
Neutrophil (%)	48	47.8	38.4-74.4
Eosinophil (%)	10	4.2	0.3-4.0
Basophil (%)	0	0	0.2-2.0
Lymphocyte (%)	49	45	23.2-59.5
Monocyte (%)	1	3	1.8-6.5

In equine practice, parasitic infection compromises a major health and management problem especially in foals. Ascariasis frequently affects young horses. Due to the large age-dependent and active immunity that begins to develop in foals at around six months of age, the foal may be at risk of infection (Scala *et al.*, 2021). Older horses seldom contract *Parascaris* due of the extraordinarily strong immune response to invading worms. Armstrong *et al.* (2014) in their study, found that 58.3% of equine had *Parascaris* infection. Similar to our findings, Kumar *et al.* (2013) found that ascariasis-infected foals exhibited clinical symptoms like diarrhoea, slow development, weakness and anorexia. While it was not present in our case, several researchers also reported intestinal obstruction in foals with Ascariasis infection (Cribb *et al.*, 2006). Clayton (1978) noted a number of clinical signs, including fever, coughing up blood, nasal discharge, colic, thriftiness, and neurological instability. These respiratory symptoms might be brought on by *Parascaris* equorum's migratory phase in the lungs. Intestinal borborgymi sound and enhanced motility brought on by diarrhoea were audible during auscultation. The faecal flotation approach, which Reinemeyer (2009) used, was employed to make the diagnosis of *Parascaris* spp. Significant eosinophilia observed in this present study was in accordance to the result obtained by Salem *et al.* (2015). As eosinophil is considered to the first line of defencse against parasitic infection by lowering number of infectious agent (McEwen, 1992). According to Malan *et al.* (1981), fenbendazole at 7.5 mg/kg PO was extremely efficient against *Parascaris* equorum in the current study. Fenbendazole was used by Lyons *et al.* (2008) to treat *Parascaris* infection in a foal at a dosing rate of 10 mg/kg. Hence, by following a regular rotational anthelmintic deworming regimen, which should begin at 2 months of age and be repeated every 2 months up to 1 year of age which also sums up our current case, ascariasis in foals can be prevented.

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