

Case Report

Gastrointestinal impaction by *Parascaris equorum* in a Thoroughbred foal in Jeju, Korea

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A weanling Thoroughbred foal was admitted to Equine Hospital, Korea Racing Association with signs of colic. On admission the foal was sweating profusely, appeared anxious and exhibiting signs suggestive of abdominal pain. Clinical examination revealed: tachycardia (90 beats/min), tachypnea (50 breaths/min) and congested and slightly cyanotic mucous membranes. No intestinal sounds were auscultated in all 4 abdominal quadrants. Rectal palpation identified concurrent cecum and large colon impactions. Treatment consisted of intravenous administration of a balanced electrolyte solution, nasogastric siphonage and administration of analgesics. Nasogastric reflux contained ascarids. This treatment failed to alleviate the signs of colic. The foal died 3 hours later following discharge because the owner didn't want laparotomy because of economic constraints. Prior to admission this foal had not received any prophylactic anthelmintic treatment. In necropsy, there were masses of ascarids accumulation in the stomach, small intestine and large intestine. The outcome of this report is to describe the first diagnosed case of gastrointestinal impaction by *P. equorum* in a Thoroughbred foal in South Korea and indicates the importance of regular anthelmintic treatment.

Key words: impaction, *Parascaris equorum*, Thoroughbred foal

Ascariasis is classically associated with lethargy, inappetence, coughing, nasal discharge and decreased weight gain. The prevalence of ascariasis in foals less than 1 year old is 31-61%; however, most of these infections are subclinical [1]. *Parascaris equorum* is a common and

ubiquitous parasite that persists for many years in stables and on pasture in spite of good hygiene and anthelmintic control programs. Foals are usually infected early in life [5]. Young horses susceptible to ascarid infection are at risk, particularly immediately after anthelmintic administration [2]. Some foals die as a result of intestinal impaction or rupture [5].

To our knowledge, there is no data reporting clinical cases of intestinal impaction by *P. equorum* in South Korea. The purpose of this report was to describe the first diagnosed case of gastrointestinal impaction by *P. equorum* in a Thoroughbred foal in Jeju, South Korea.

Clinical findings, therapy and course of condition: A weanling Thoroughbred foal was admitted to Equine Hospital, Korea Racing Association with signs of colic. On admission the foal was sweating profusely, appeared anxious and exhibiting signs suggestive of abdominal pain. Clinical examination revealed: tachycardia (90 beats/min), tachypnea (50 breaths/min) and congested and slightly cyanotic mucous membranes. No intestinal sounds were auscultated in all 4 abdominal quadrants. Rectal palpation identified concurrent cecum and large colon impactions. Treatment consisted of intravenous administration of a balanced electrolyte solution, nasogastric intubation and siphonage and administration of analgesics. Mineral oil was administered after gastric reflux had ceased. Nasogastric reflux contained ascarids. This treatment failed to alleviate the signs of colic. The foal died 3 hours later following discharge because the owner didn't want laparotomy because of economic constraints. Prior to admission this foal had not received any prophylactic anthelmintic treatment.

Pathological findings: A necropsy was performed. The carcass showed poor body condition. Gastrointestinal contents were bloody and there were a little ingesta. There were masses of ascarids accumulate in the stomach, small intestine and large intestine (Fig. 1, 2). Margin of the liver was dull. The spleen was atrophic. The lung showed doughy

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Fig. 1. The ascarid mass in the stomach.



Fig. 2. The ascarid mass in the small intestine.

consistently. The trachea was filled with foam which extended into the smaller airways. The mucosa of the trachea was congested and ecchymotic hemorrhagic in appearance. Both kidneys were swollen. The remainder of the gross necropsy was unremarkable.

Although infection with ascarids is common in horses under 1 year of age, ascarid impactions are a relatively uncommon cause of colic in horses. Foals are usually infected during the first few days of life and the gastrointestinal phase of the parasite begins 14–17 days following infection. The prepatent period of *P. equorum* is 72–110 days; therefore, clinical signs of gastrointestinal tract disease would be expected from approximately 3–4 months onward, as the worms increase in number and size. Exposed and nonexposed horses older than 6 months of age develop an age-dependent immunity. Older horses are more likely to develop pulmonary and hepatic signs rather than gastrointestinal tract signs [5]. Heavy infestation of *P.*

equorum in foals, weanlings and yearlings can lead to small intestinal impaction, particularly after the administration of a high efficacy anthelmintic such as ivermectin, piperazine or an organophosphate. These non-benzimidazole drugs inhibit neuromuscular transmission and paralyze the ascarids, thereby promoting impaction [4]. Rupture of the ascarid cuticle following organophosphate administration reportedly causes the release of antigenic fluid that produces hypomotility when it is absorbed [3]. In one study, 54% of horses were dewormed 1–5 days prior to the onset of colic signs [6]. Controversy exists regarding the optimal deworming regimen to prevent impaction in foals with heavy worm burdens [6]. In this case, the new farm manager changed the policy of anthelmintic treatment due to financial constraints. So anthelmintics had not been administered and shock was thought to result from a heavy worm burden throughout the entire gastrointestinal tract.

Ascarid infections are reported to occur most commonly in the duodenum and proximal jejunum and they may be throughout the entire gastrointestinal tract [6] like this case.

Ascarid impactions are treated medically with intestinal lubricants and analgesics if the obstruction is incomplete. If a medical approach to relieve the obstruction is not successful or if the obstruction becomes complete, surgical intervention is necessary. In most cases surgical intervention requiring multiple enterotomies is necessary and the prognosis is guarded [2]. In this case, the economic constraints by the owner prevented from performing laparotomy and limited therapeutic options.

Conclusively, the outcome of this report is to describe the first diagnosed case of gastrointestinal impaction by *P. equorum* in a Thoroughbred foal in South Korea and indicate the importance of regular anthelmintic treatment.

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