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Clinical Article

GASTRIC HABRONEMIASIS IN A MARE - CASE REPORT

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SUMMARY

Habronemiasis is a worldwide infection of domestic and wild equids. The incidence of *Draschia megastoma* is currently considered as a rare incidence. This report is an incidental finding of *D. megastoma* in the nodules on glandular mucosa of stomach of a mare. A five-year-old chestnut coloured thoroughbred mare was presented for postmortem examination with the history of colic. Post mortem examination revealed 1800 torsion of upper part of duodenum. Stomach revealed two greyish nodules on the glandular mucosa. Microscopic examination revealed the presence of cut sections of numerous *D. megastoma* worms with granulomatous lesion.

Keywords: *Draschia megastoma*, Equine, Gastric nodule, Habronemiasis, Pathology

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Habronemiasis is a gastrointestinal nematode infection which affects the domestic and wild equids. The adult stage of this parasite may cause either gastric form or cutaneous form or mucocutaneous form or pulmonary form or erratic form of infection in affected horses depending upon the site of deposition of larvae by the flies (Pugh *et al.*, 2014). The infection is maintained by the flies (Musca and Stomoxys) as an intermediate host. Out of 12 identified species of Habronema parasite, *H. majus*, *H. muscae* and *Draschia megastoma* (former *H. megastoma*) are the only detected species in domestic (horses, donkeys, mules) and wild equids (zebras) (Barlaam *et al.*, 2020). Adult parasites of all three species live in fundic portion of the stomach wall or at pyloric wall or freely on the mucosal surface of the margo plicatus (Al-Mokaddem *et al.*, 2015). This habronemiasis causes great economic losses, if it affects race horses as it will hinder the performance potential of horses and affect the aesthetic sense. The pathogenic nematode larvae are transmitted by flies (house fly, face fly and stable fly) and are deposited on various parts of the animal body like lips, skin, eye, nostrils and genital mucosa (Schuster *et al.*, 2010). The present paper reports on the occurrence of habronemiasis (*D. megastoma*) in a horse, which is considered as a rare parasite (Rehbein, 2013).

A 5-year-old 600 kg chestnut coloured thorough bred mare was brought for post mortem examination with the clinical signs of colic for 4 hours before death. Post mortem examination revealed the animal was having fair body condition. Multifocal bruises were observed on the right-side orbit, shoulder and fetlock joint. Haemorrhages were observed subcutaneously on the right-side shoulder region. Multifocal petechiae noticed on the epicardium and chordae tendinae. Lungs were congested and revealed multifocal raised pale areas. Peritoneal cavity contained about 100 mL of serosanguineous fluid. Spleen revealed multifocal petechial haemorrhages on its surface. Stomach contained light yellow-coloured contents mixed with fibrous materials. Numerous, light white coloured worms (7-10 mm) were adherent to the gastric mucosa. Two greyish white coloured nodules measuring about 2×2×1 cm and 5×3×2 cm were seen on the glandular mucosa of stomach (Fig. 1). Upon incision, they were greyish white in colour (Fig. 2) and revealed linear tracts. Upper part of duodenum revealed twisting on its longitudinal axis of 1800. The duodenum in and around affected portion revealed congestion and haemorrhages. Intestine contained greyish red contents. Mucosa of colon revealed haemorrhages. Worms were collected and identified as *Draschia megastoma* as per the morphological features described by Soulsby (1982). The stomach was collected in 10% neutral buffered formalin for histopathological examination. Paraffin embedded tissue section was cut to 4-6 µm thick and stained by Haematoxylin and Eosin (Bancroft and Gamble, 2008).

Microscopic examination of the nodules on the glandular mucosa of stomach revealed multifocal, moderate, degeneration and necrosis of the mucosal epithelium and gastric glands. Blood vessels in and around this area revealed congestion. Mild to moderate perivascular infiltration was observed around few blood vessels. Eosinophilic infiltration was observed in between the gastric glands. Submucosa revealed congestion and multifocal mild to moderate mononuclear cell and eosinophilic infiltration. Multiple cut sections of Draschia

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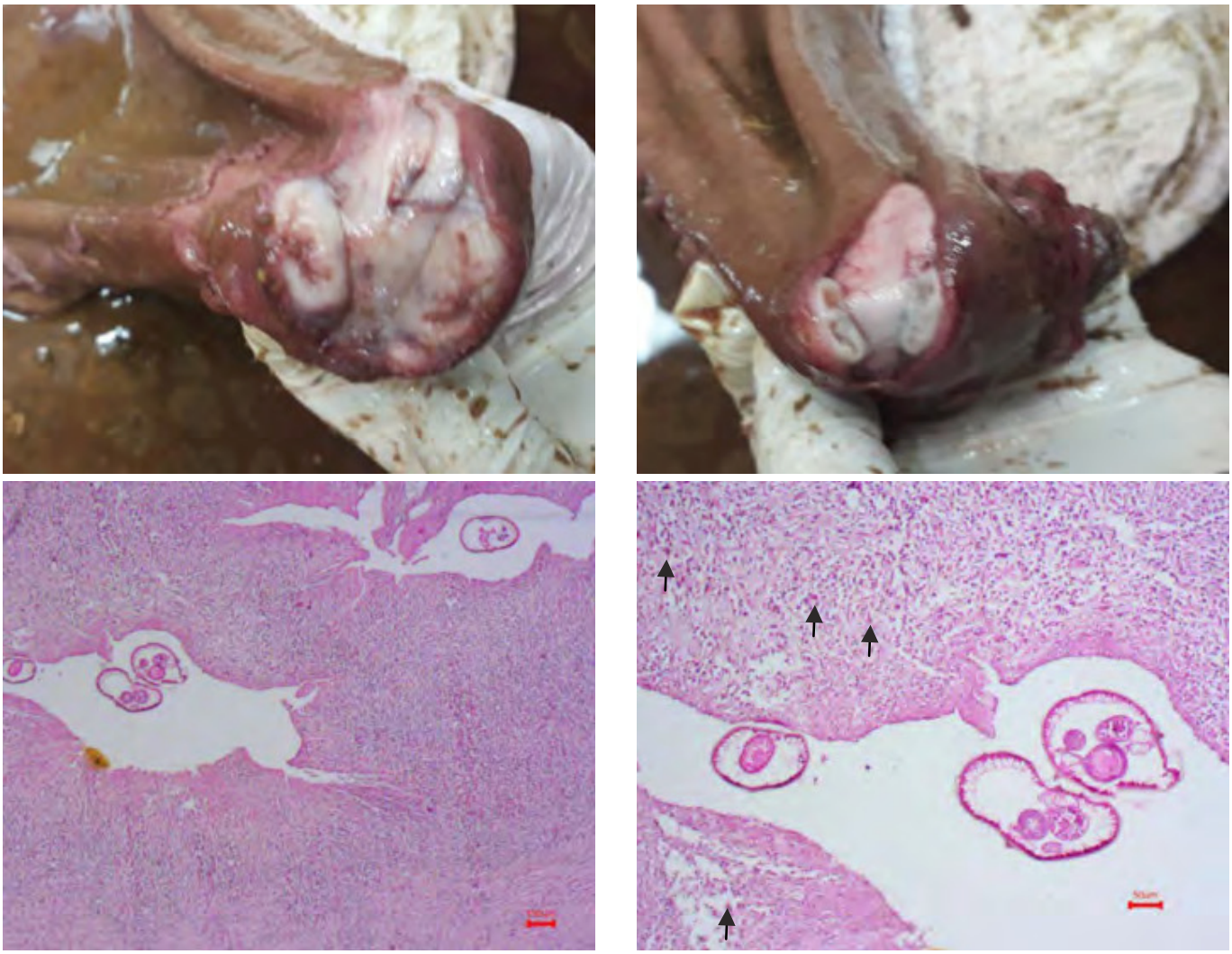

Figures 1 to 4. **(1)** Two greyish white coloured nodules on the glandular mucosa of stomach; **(2)** Cut section of the nodules revealed linear tracts; **(3)** Stomach – Glandular mucosa – Multiple cut sections of *Draschia megastoma* worms and showing granulomatous lesion. H&E×40; **(4)** Stomach – Glandular mucosa –Eosinophilic infiltration (Arrow) around the worms. H&E×100

megastoma worms were seen (Fig. 3 and 4) and surrounded by necrosis with mononuclear cell infiltration, predominantly lymphocytes, plasma cells and macrophages and are walled off by fibrous tissue (multifocal granulomatous lesion). Eosinophilic infiltration was also observed around the blood vessels. Muscularis layer revealed congestion and mononuclear cell infiltration. The present histopathological finding is in agreement with earlier reports of Nadalian *et al.* (1997) and Amininajafi *et al.* (2016).

The incidence of infection is highly correlated with the prevalent seasonal trends of fly population which act as intermediate hosts. Habronemiasis is prevalent throughout the world but is more common in tropical and subtropical regions (Giangaspero and Traversa, 2017). The occurrence of this case report is during April – May which is the period of peak fly population in tropical humid areas. This case of habronemiasis in a mare was in accordance with Kaur et al. (2018) who reported that female animals were more susceptible to gastrointestinal parasites especially strangles infection when compared to males.

Clinical manifestations and severity of infection depends upon the stage of development of parasite and also area of deposition of larvae by flies on the horse body surface. Adult parasites exhibit both mechanical irritation and toxic effect. Habronema species infection is restricted to the gastric glands of the stomach. Presence of parasite affects the secretory function of the stomach and also causes structural abnormality like atrophy. Clinical signs like anorexia, emaciation, digestive disturbances and colic were observed. *Draschia megastoma* infection leads to nodules or masses on the gastric region of stomach and thereby affecting digestion and also at pyloric region which affect the peristaltic movement of ingesta. Sometimes it may lead to acute haemorrhage, ulcers on the stomach wall leading to postprandial colic or peritonitis

and death of the animal (Soulsby, 1982). This parasitic worm leads to granulomatous lesion with central caseous necrosis and surrounded by severe eosinophilic infiltration and infiltration of lymphocytes, plasma cells and macrophages (Barlaam *et al.*, 2020). The present case has also revealed granulomatous lesions with eosinophilic and mononuclear cell infiltration. The present report of gastric habronemiasis could be due to fly infestation in the stable followed by the occurrence of adult parasites in the gastric mucosa caused eosinophilic gastritis.

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