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Conceptual Paper

"Strongylus Vulgaris"- A Cause of Colic in Horses

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Abstract

Colic is a general term referring to abdominal pain or cramps, this term is so broad that there can be series of underlying conditions related to abdominal pain and discomfort , Colic is relatively common in case of Equine, with studies showing 8-12% of equine family are diagnosed with colic every year and hence its important to be aware of which type of colic is animal suffering from. In equine majorly digestion takes place in large intestine and therefore having complex and complicated digestive system in comparing to ruminants which predispose them to varieties of colic such as Gas, spasmodic, Impaction, Displacement, torsion, strangulations hence sometimes misdiagnosis may occur when infestation of parasite called "Strongylus vulgaris'" Jumps in.

Keywords: Abdominal Cramps; Equine; Infestation; Strongylus Vulgaris

Introduction

Strongylus vulgaris (Figure 1) belongs to the group of large strongyles (strongylidae) and is one of the three strongylus species infecting equine. The other two are S.edantus and S.equinus, Resistance has not been associated with clinical syndromes, Resistance has not yet been established to any of available antihelmintic drugs, which is probably main reason it can be managed in horses.

In some regions S.vulgaris occurrence and abundance are seasonal , infection can be acquired over course of grazing season therefore adult egg shelling may take place in this season which may lead to parasitic infestation.

Figure 1: Courtesy – Chegg.in.

Figure 2: Courtesy – Bimeda equine

Pathogenesis

The infective larvae of S. vulgaris burrows into mucosa and it travels along mesentric arteries usually along intima and reaches anterior mesentric artery where it settles at this place endothelium is damaged and thrombus is formed, Thrombus gets colonized with plenty of larvae and forms canalized thrombus and causes weakening called as aneurysm. Due to replacement of elastic tissue into fibrous tissue it will not contract and dilate hence it occurs

mostly in right branch of anterior mesentric artery which supplies blood to colon of large intestine therefore due to obstruction in blood supply peristaltic movement decreases and may lead to impaction which will result in gas formation which ultimately results in colic.

Clinical signs

Strongylus vulgaris associated disease is usually a non-strangulating instestinal infarction presenting peritonitis and accompanied by clinical findings like fever, hyperemic mucous membranes, slightly elevated heart rate, no or mild pain, negative gastric reflux, sore mass palpable on rectal examination. Clinical laboratory findings includes increased Serum Amyloid a and fibrinogen concentrations, decreased plasma concentration, leukopenia, increased lactate in plasma and peritoneal fluid.

Figure 3: Verminous endarteritis courtesy – MSD manual.

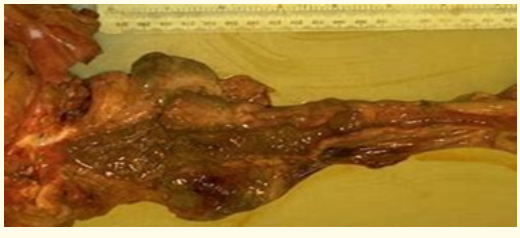

Figure 4: Infarction of ant. Mesentric artery leading to impaction.

Diagnosis

Diagnosis of the presence of S.vulgaris is based on the detection of egg in feces using a flotation technique . The eggs of S. vulgaris cannot be differentiated microscopically from another strongylus species, its very complex and difficult even at time of postmortem.

Treatment

There are several medications approved in India but only three of them are used to kill larvae of strongylus vulgaris i.e., Ivermectin at normal therapeutic levels I.e., oral paste - 0.2 mg/kg and 136.5mg/syringe or febendazole at higher doses for 5 days I.e., 10mg/kg; all treatment requires close veterinary supervision hence there is no chance of resistance to antihelmintic drugs in case of strongylus vulgaris. Medical treatment is generally not successful once intestinal infarction is diagnosed hence surgical correction should be done, this should include

- Removal of adherence of colon if present.
- Resection of infarcted intestinal tissue.

Pain management

It includes nasogastric intubation, flunixin meglumin, alpha 2 agonists, xylazine and detomidine, opioids, spasmolytic agents, lidocaine as a prokinetic drug.

Post surgical care

Provision of analgesia to relieve pain i.e. flunixin meglumine 1.1-2.2 mg/kg; IM/IV or ketoprofen 3 mg/kg or phenylbutazone 2.2-4.4 mg/kg ; IM/IV or Meloxicam 0.2 mg/kg Fluid therapy included to prevent shock , intestinal lubricants and antibiotic i.e. ceftriaxone injection because of ischemic injury to lumen and entry of bacteria and toxin to blood may cause endotoxaemia – Penicillin + Streptomycin + Metronidazole + tetanus toxoid for prevention of tetanus which is usually seen in horses due