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Post-mortem Diagnosis of Small Colon Polythene-fecalith Impaction-induced Colic in a 5-year-old Local Stallion (*Equus ferus caballus*)

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ABSTRACT

A necropsy was performed on a 5-year-old local stallion (*Equus ferus caballus*) weighing about 290 kg stabled adjacent to a household waste dump site. The horse was reportedly restless and anorexic with constipation some 72 hours before death. Other signs before death included pyrexia, bruxism, hyperpnoea, congested mucous membranes, and enlarged abdomen. The stallion had hepatomegaly, splenomegaly, and congested lungs with ecchymotic haemorrhage on the coronary fat of the heart. There was congestion of the serosal surface of the anterior one-third of the small intestine with enlarged caecum containing granular semi-solid materials. Also, the small colon was progressively ballooned until it became wholly obstructed by an oval-shaped polythene-fecalith mass weighing about 300 g and at a point about 35 cm to the anal opening. The finding led to a definitive diagnosis of polythene-fecalith impaction of the small colon-induced colic in the horse. This has highlighted the dangers associated with inadequate nutrition, unsanitary stabling of horses and lack of exercise in the pathogenesis of some colic conditions in horses.

Keywords: *Equus ferus caballus*; pathology; polythene-fecalith; small colon impaction

INTRODUCTION

Colic, a disorder of abdominal pain in horses, has become the most frequent cause of emergency treatments and deaths in affected animals (Mohammed *et al*., 2013). Aetiological agents of colic differ but could be due to ischaemia arising from vascular occlusion, increased intestinal inflammation, and irritation or mucosal ulceration, and impaction (Edwards, 2013). Foreign body impaction anywhere along the gastrointestinal tract can arise from decreased water consumption or the ingestion of foreign bodies in malnourished or starving adult horses kept under unsanitary conditions (Daero *et al*., 2009). Bad eating habits often associated with bolting and cribbing can also predispose horses to colic (Carmago, 2021). Small colon impaction does occur in horses due to the ingestion of natural and synthetic non-digestible materials like plastics, polythene, rubbers, roots, and others (Van Wuijckhuise-Sjouke, 1984). However, the ingestion of these natural and synthetic non-digestible materials under any guise is indeed an abnormal behaviour in affected horses (Landsberg, 2019), especially in horses with poor stable conditions that are also not regularly exercised (Carmago, 2021). Findings from the study is necessary for prompt diagnosis of foreign body impaction in horses, which often results in fatalities.

Small colon impaction is very common in ponies, American miniature horses, and Arabian horses than in other breeds of horses (Weese *et al*., 2011), hence the present study. Although there are reports of small colon fecalith impaction in foals in the United States of America, Iran, and Turkey (McClure *et al*., 1992; Dehghani and Bigham, 2007; Nikahval *et al*., 2009), no information on polythene-fecalith impaction of the small colon of horses is readily available in Nigeria based on current literature search. The only documented evidence of fecalith impaction in horses in Nigeria involved fecalith impaction of the right dorsal large colon of part-Arab stallion (Mshelia *et al*., 2010). The present study was aimed at a post-mortem evaluation of a case of small colon foreign body-induced colic in a local stallion.

CASE PRESENTATION

A 5-year-old local stallion (*Equus ferus caballus*) weighing about 290 kg was reportedly restlessness with loss of interest in food and water while failing to defecate or urinate within 72 hours before death. Initial case management was by the stable hands locally but the horse died before veterinary help could reach it. The horse was fed a handful of hay and mineralized salt with ample supply of water while occasionally being tied to a point in the field to forage by itself.

Gross examination of the carcass revealed the presence of bruised bony prominences around the eyes, humeral deltoid, and pelvic coaxial tuberosities with moderately

congested ocular, oral and nasal mucous membranes. There was froth within the bronchi. The highly enlarged and congested lungs had focal ecchymosis (Figure 1) with similar ecchymosis within the coronary fat of the heart. In addition, there was moderate hepatomegaly (Figure 2), splenomegaly, and splenomegaly with blood oozing out of their cut surfaces. The serosa surfaces of the anterior one-third of the small intestine were congested. The caecum was moderately enlarged and had gritty semi-solid content. However, the entirely ballooned colon progressively contained semi-solid fibrous content. This was interrupted by a small zone of watery ingesta before the presence of a completely occluding oval-shaped polythene-fecalith mass that weighed about 300 g some 35 cm to the anus (Figure 3). The part of the small colon adhering to the occluding mass, especially at its thickest part, was grossly discoloured and necrotized (Figure 4). Similarly, the anterior part of the occluding mass was wet with faecal materials, while its posterior part only had mucus coating with an utterly empty colon between the occluding mass and the anal opening devoid of faecal materials (Figure 4).

Figure 1: Photograph of the lung of a 5-year-old local stallion following complete polythene-fecalith impaction of the small colon: Note the congested cranial lobe of the right lung showing ecchymotic haemorrhages.

Figure 2: Photograph of the liver of a 5-year-old local stallion following complete polythene-fecalith impaction of the small colon: Note the enlarged liver with the round edges.

DISCUSSION

The congested mucous membranes, lungs, liver, and the spleen indicated vascular disturbances. The bruise prominent bony tuberosities arose from the observed restlessness characterized by frequent rising and lying down with rolling over by the horse suggestive of pain often associated with colic in horses (Loving, 2016). The accumulated gas, fluid, or ingesta before the obstructed part of the distended small colon might have activated the intestinal wall stretch receptors, and therefore, the observed pain (Radostits Komarov., 2007). The continuous lack of water intake coupled with the accumulating intestinal fluid might have also led to dehydration, and slow cardiovascular collapse with mild acid-base disturbances, shock, and death following the condition's progression (Ross and Hanson, 1992).

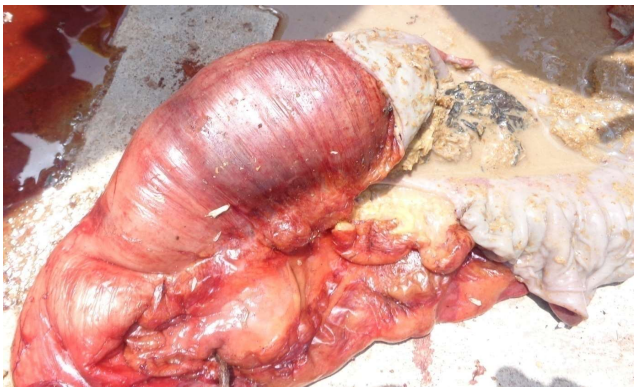

Figure 3: Photograph of the small colon of a 5-year-old local stallion following complete polythene-fecalith impaction of the small colon: Note the swollen and impacted part of the small colon with the ingesta admixed black polythene material extending from the anterior part of the obstructing mass.

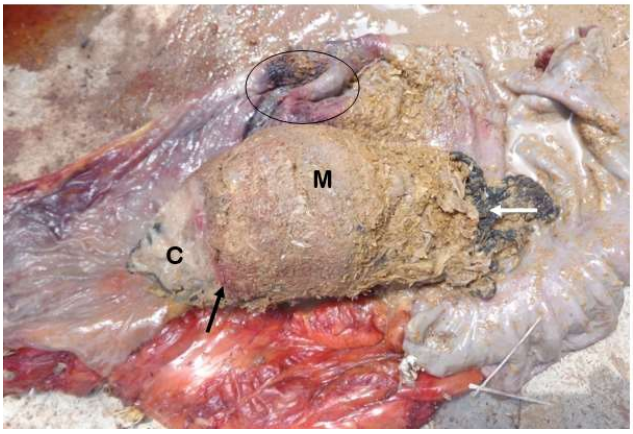

Figure 4: Photograph of the small colon of a 5-year-old local stallion following complete polythene-fecalith impaction of the small colon: Note the oval-shaped polythene-fecalith mass (M) with necrotized small colon mucosa around the thickest part of the mass (circle), blood stain on the occluding mass (arrow), mucous coating of the distal part of the occluding mass (C) and strands of yellow and black polythene materials on the anterior part of the occluding mass (white arrow).

The discoloration of the small colon mucosa bordering the thickest part of the obstructing mass indicated tissue devitalization at that part of the intestine, probably due to pressure necrosis. Although Mshelia *et al*. (2010) have reported fecalith impaction of the right dorsal large colon of a Part-Arab stallion in a horse in Nigeria, the present fecalith impaction occurred in the small colon of a local horse.

The handful feeding of hay with the occasional tying of the horse in the field to forage on available grass could have caused negative energy imbalance that might have predisposed the horse to the consumption of inanimate materials, as earlier reported by Ngoshe (2012). Also, the stabling of the horse near and adjacent to a household waste dump probably predisposed it to the consumption of

the offending polythene. This is because horses are also known to exhibit negative behaviours out of boredom (Farmco, 2024), which in the present case, could have arisen from the lack of regular exercise of the affected horse. The negative behaviour, which could include crib-biting and the consumption of unwanted materials (Landsberg, 2019), as observed in the present case, could also be due to nutritional deficiencies or pica (Foxden Equine, 2024). The findings underscored the pathological consequence of unsanitary stabling of horses, which lacked regular exercise. Besides, our report also documents small colon polythene-fecalith impaction in a local horse.

Conflict of interest

The authors declare no conflict of interest

Author's Contributions

Conceptualization: SEA. Necropsy and interpretation: SEA, JSA, SZT, and SOO. Initial draft: SEA. Vetting and approval: SEA, JSA, SZT, and SOO.

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