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Fecalith Impaction in an 11-Year-Old Part-Arab Stallion

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Abstract: An 11 year old part-arab stallion horse was presented with intermittent bouts of colic, severe abrasions around the eyes, point of the hip and limbs. The stallion had tachycardia (110 beats min^{-1}), tachypnea (40 cycles min^{-1}). Blood samples obtained for haematologic and serum biochemistry analysis showed a PCV of 45% and a TPP of 7.5 g dL^{-1}. The peritoneal fluid analysis revealed a clear fluid with mild elevation of total protein. History had it that fecal production decreased and the feces were often hard and dry, two days before presentation. Previously also frantic effort was made by the owner to administer analgesic and mineral oil without consulting a veterinarian. The early treatment involved intravenous administration of an analgesic, a balanced electrolyte solution and a saline cathartic. The colic was refractory to pain and there was deterioration of the cardiovascular variables which indicates the need for surgery. The horse died two hours after it was presented. At necropsy a fecalith was observed in the right dorsal colon with a resultant obstruction and rupture of the colon. The post mortem findings, where severe pulmonary congestion involving the various lung lobes especially the apical and cardiac lobe, gastrophilus larvae in the stomach, chicken fat clot around the chordae tendinae of the heart. There was fecalith which ruptured the right dorsal colon and led to peritonitis. The aim of this case report is to show that a large number of horses like this must have suffered abuse in the hand of owners as a result of unauthorized medications, while other cases of this nature have gone undetected and undocumented which would have formed a basis for developing a preventive measure and enforcing animal welfare regulations in the equine industry in Nigeria.

Key words: Foreign body, pain, peritonitis, right dorsal colon, impaction, fecalith, part-arab stallion

INTRODUCTION

Impaction in the large colon is most commonly seen, but in recent years a number of reports have indicated that fibrous foreign bodies may impact within the small colon and produce an obstruction (De-Groot, 1972; Getty *et al*., 1976; Boles and Kohn, 1977).

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This is a problem that is most common in young (Blikslager and Jones, 2004; Rose and Hodgson, 1993) horses because of their less discriminating eating habit (Rose and Hodgson, 1993). Ingestion of rope, baling twine, straw bedding, shavings, plastic and feed bags are common causes. These materials combine with ingesta and often results in obstruction of the gastrointestinal tract, typically in the transverse or descending colon (Blikslager and Jones, 2004). Because of the reduction in luminal size at the beginning of the small colon, obstruction at more proximal site is common. Fecaliths are common in ponies, miniature horses and foals (McClure *et al*., 1992). Older horses with poor dentition also may be predisposed to fecalith because of the inability to masticate fibrous feed material fully (Blikslager and Jones, 2004). Fecalith commonly cause obstruction in the descending colon and may cause tenesmus (Gay *et al*., 1979). Other clinical signs are similar to those of enterolithiasis. Abdominal radiography may be useful in smaller patients to identify the obstruction, especially if gas distention around the foreign or fecalith provides contrast. The horse usually requires surgical treatment (Blikslager and Jones, 2004).

CASE HISTORY

Animal Profile and History

An 11-year-old part Arab stallion weighing 314 kg was presented to the Equine Town Ambulatory Unit of the Veterinary Teaching Hospital, Ahmadu Bello University, Zaria on 9th of June 2008, with a chief complaint of restlessness and rolling on the floor at intervals. History revealed that the fecal production decreased 2 days before presentation and that frantic effort was made previously to administer analgesic and mineral oil by the owner yet there was no improvement. The abdomen was distended; there was inappetence with a moderate abdominal pain initially which progressively became more severe. The horse was said to be fed on wheat bran and hay and water was not given ad lib. The horse came from an open house facility where horses are kept in an open area, tethered outside where they possibly could have access to abnormal dietary material without sufficient exercise.

Physical Examination

On physical examination the temperature was 38.8°C, pulse rate was 110 beats min^{-1} and respiratory rate was 40 cycles min^{-1}. The mucous membrane was congested. There was Intermittent bout of colic. The pain became severe with a visual analogue scale of 10 (worst pain). This include, trembling, restlessness, grunting, stomping, rolling, tachycardia, tachypnea and inappetance. The capillary refill time was 2 sec, the mucous membranes was fair and the duration of skin tent was 3 sec while the dehydration was assessed to be 6%. Severe abrasions around the eyes, point of the hip and limbs were observed. There was altered sound on auscultation of the dorsal and ventral abdomen on both sides of the flank region. The colic was refractory to pain and there was deterioration of cardiovascular variables. A hard mass at the right flank half-way between the lower and upper flank was palpated. There was hard and fecal material evacuated from the rectum.

Laboratory Evaluation

The blood sample was taken through the jugular vein for clinical pathology analysis. The hematocrit and total protein was 45% and 7.5 g dL^{-1}, respectively. Abdominocentesis result was 10,000 μL of nucleated cells.

Case Management

Saline cathartic (Magnesium sulphate) at 0.1 mg kg^{-1} in 4 L was administered orally. Xylazine (VDM Arendonk Belgium) administered at 0.3 mg kg^{-1} and isotonic fluid also was administered at 10 mL kg^{-1}.

RESULTS

The respond to medical therapy was poor, evident by refractory pain, a progressive distention of the abdomen and deterioration of the cardiovascular variables which was an indication for surgery. But the horse died shortly before surgery was carried out. The postmortem findings, where severe pulmonary congestion involving the various lung lobes especially the apical and cardiac lobe, chicken fat clot around the chordae tendinae. There was rupture of the right dorsal colon with area of necrosis around the two ruptured areas (Fig. 1). The fecalith length was 11 cm while the breadth was 7 cm, with rough edges (Fig. 2).

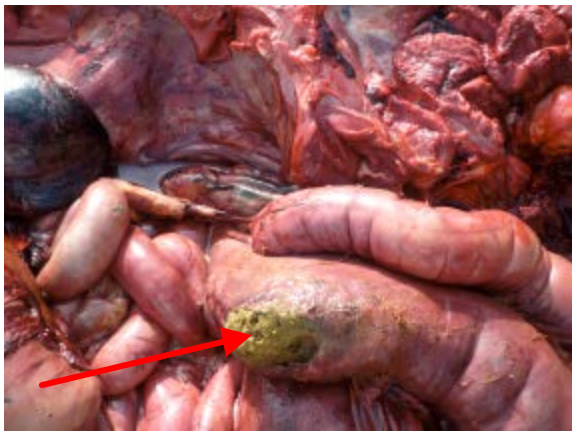

Fig. 1: Foreign body *in situ,* which ruptured and led to peritonitis

Fig. 2: Foreign body after removal from colon

There was peritonitis, evident by the presence of intestinal content and fibrin in the abdominal cavity. Also gastrophilus larvae were seen on the glandular surface of the stomach.

DISCUSSION

Fecalith is said to be a common finding in young horses mostly less than 3 years-old, however, it occur in older horses with poor dentition because of inability to masticate fibrous material fully (Gay *et al*., 1979). It is likely a common finding in Nigeria probably because of abnormal behavior pattern seen in horses confined where horses develop an indiscriminate eating habit like wood chewing, ingestion of pieces of rope and wood shaving when fed on grains (Mshelia *et al*., 2010).Wood chewing horses tend to exhibit a desire for roughage or cellulose as do animals that eat their bedding. By nature, horses spend much of their time grazing and if this activity is curtailed, such as when stabled they likely to pick other materials to consume (Rowe, 2004). Also De-Groot (1972) recorded the occurrence of impaction as late as 5 years after the last possible exposure to the material causing the impaction. It is obvious that ingested foreign materials may remain within the large colon for considerable periods before passing further to produce obstruction as seen in this case.

Conceivably, ingestion of foreign materials, insufficient exercise and access to water might have predispose the horse to foreign body and fecalith impaction (Gay *et al*., 1979).

The obstruction occurred at the right dorsal colon in this case, however, it could occur at the beginning of the small colon where there is reduction in luminal size of the colon (Rose and Hodgson, 1993).

The hematocrit and Total Plasma Protein (TPP) changes seen in this case has a clinical significance, because PCV between 40-45% and TPP value of 7.5-8.5 g dL^{-1} calls for administration of intravenous isotonic fluid. (Rose and Hodgson, 1993).Whereby, the PCV value of 45% and TPP value of 7.5 g dL^{-1} was obtained in this case but the horse died before the result was released. Though 3 L of 5% dextrose was administered intravenous despite restlessness demonstrated prior to its death.

The moderate abdominal pain initially, which progressively became severe could have been as a result of the pressure exerted on the wall of the colon which subsequently ruptured, leading to peritonitis (Dickson, 2004). The bowel leakage (Fig. 1) in this case could have resulted in contamination of the peritoneum with large numbers of many bacteria, where a high mortality is associated with contamination from the lower bowel because of the numbers of aerobic and anaerobic bacteria present (Ahrenholz and Simmons, 1982).

The obstructing was irregular in shape (Fig. 2) which appeared to predispose to lodgement in the sacculations of the colon. Devitalization and predisposition to rupture are common occurrence in this type of obstruction (Boles and Kohn, 1977).

Treatment with magnesium sulphate was instituted initially because foreign body impaction is difficult to distinguish from food impaction.

Diagnosis was based on the history of abdominal pain, physical examination finding (e.g., lesion palpable per rectum) and response to management. Specific diagnosis may not have been possible in the field condition we found ourselves without carrying out surgery or at postmortem like in this case.

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