

Case report

Unusual Fatal Gastric Sand Impaction in an Argentine Polo Pony in Nigeria: A Case Report

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Abstract: Equine colic remains a significant health concern with complex, multifactorial aetiologies. Gastric sand impaction, while less common than large colon sand accumulation, can lead to severe complications including gastric rupture if left untreated. This report documents a case of fatal gastric sand impaction in a 12-year-old Argentine Polo Pony mare from Nigeria. The mare, maintained on ground feeding with hay and commercial concentrate feed, developed progressive colic signs over three days. Despite severe clinical deterioration, including reduced appetite, abdominal discomfort, and frequent rolling, no veterinary examination was pursued. Post-mortem examination revealed a 15 cm gastric rupture with approximately 8 kg of accumulated sand, accompanied by severe peritonitis and gastrointestinal inflammation. This case emphasizes the importance of proper feeding practices, regular veterinary monitoring, and prompt intervention in equine colic cases. It also demonstrates that significant sand accumulation can occur in the equine stomach, not just the large colon, potentially leading to gastric rupture. Immediate veterinary intervention for colic signs and use of elevated feeding systems to prevent fatal sand impaction are recommended.

Keywords: Gastric sand impaction, equine colic, gastric rupture, Argentine Polo Pony, equine critical care

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1. Introduction

Equine colic continues to be one of the most important issues in the entire equine industry, not only because of the morbidity and mortality but also due to great economic loss worldwide [2, 8]. Colic is a broad general term for various gastrointestinal conditions. On the other hand, sand-induced gastrointestinal disease has its own problems in particular geographic areas and management conditions [5].

Historically, sand accumulation has been mainly reported in the large intestine, leading to impaction, irritation of the mucosal lining, and alterations in motility [7]. However, gastric sand impaction, although less frequently reported, generally represents a more serious and life-threatening condition because of the possibility of gastric rupture [3]. The restricted distension capacity of the stomach is further compounded by the inability of horses to vomit upon the severity of gastric impactions.

Management considerations are important in the development of sand-induced gastrointestinal problems. Ground-feeding practices, insufficient pasture, and low-quality feed are all examples of management issues that contribute to increased sand ingestion [6]. Sand consumption may be common in nations like Nigeria due to sandy soil and significantly varying management strategies.

Recent literature has emphasised the need for early identification and management of colic in horses [1, 4]. Clinical manifestations can quickly worsen into significant problems, particularly if there is stomach distention. Understanding its process and the factors that drive it is critical for achieving better therapeutic results.

This case report aims at documenting the clinical course of events and pathological findings in a case of fatal gastric sand impaction in an Argentine Polo Pony in Nigeria. We tend to present this unusual case with the hope that it would add to the growing interest in the field of equine gastro-intestinal medicine and emphasize the need for good management practices and timely veterinary intervention.

2. Case Report

2.1. Patient Information and History

A 12-year-old Argentine Polo Pony mare (600 kg) from Kaduna State, Nigeria, presented with progressive colic signs on August 5, 2024. The horse, used primarily for recreational polo, was kept in a sandy paddock with three other horses. The feeding regimen consisted of grass pasture and hay supplemented with commercial concentrate feed, which was fed directly on the ground. Fresh water was provided *ad libitum*.

2.2. Clinical Progression

The progression of clinical signs occurred over a three-day period. On the first day, the mare presented with reduced appetite and mild signs of abdominal discomfort, though she continued to drink water normally. No vital signs were assessed at this time, establishing a pattern of insufficient monitoring that would continue throughout the case.

By the second day, the clinical picture deteriorated significantly. The mare showed increased signs of discomfort, characterized by frequent pawing at the ground and repeatedly looking at her flanks. The owner noted reduced faecal output, a significant clinical sign that warranted veterinary attention. However, no veterinary examination was pursued at this stage.

The third day marked a severe deterioration in the mare's condition. She made frequent attempts to lie down and roll, accompanied by profuse sweating - classic signs of severe abdominal pain. In response to these concerning signs, the owner administered ketoprofen (2.2 mg/kg IM, Ketofen® 10%, Merial). Despite the severity of clinical signs, no veterinary examination was performed. The mare died approximately six hours after the ketoprofen administration.

2.3. Post-mortem Examination

A complete necropsy was performed within four hours of death, revealing multiple significant findings. External examination showed clear evidence of rolling behaviour, with dirt and abrasions present on the dorsal surfaces of the body. The mare exhibited moderate dehydration, estimated at 8-10% based on skin turgor assessment. No external traumatic injuries were identified beyond the abrasions associated with rolling.

Examination of the abdominal cavity revealed approximately 12 litres of serosanguineous peritoneal fluid. The peritoneal fluid appeared cloudy with a pH of 7.8, and contained visible feed material, indicating gastrointestinal rupture. Diffuse peritoneal inflammation was evident throughout the cavity, consistent with acute peritonitis.

The gastrointestinal tract showed multiple pathological changes, with the most severe findings in the stomach. A 15 cm longitudinal tear was present in the cardiac region (Fig. 1), accompanied by severe gastric distention. The ventral portion of the stomach contained approximately 8 kg of accumulated sand, mixed with partially digested feed material. The gastric mucosa appeared haemorrhagic, particularly in the glandular region, indicating significant inflammation and compromised blood flow prior to rupture.

The small intestine showed moderate gaseous distention and congested mucosa, though notably without evidence of displacement or obstruction. These changes were likely secondary to the primary gastric pathology. The large intestine exhibited significant abnormalities, including caecal distention with gas (Fig. 2) and haemorrhagic areas throughout the caecal and colonic mucosa.

2.4. Diagnosis

Based on the post-mortem findings, the primary diagnosis was gastric rupture secondary to severe gastric sand impaction. Contributing factors include ground feeding practices and delayed veterinary intervention.

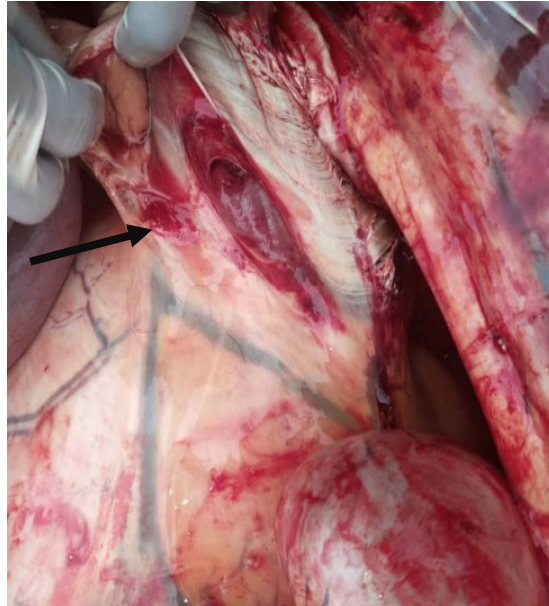


Fig. 1. Ruptured cardia of the stomach (black arrow)

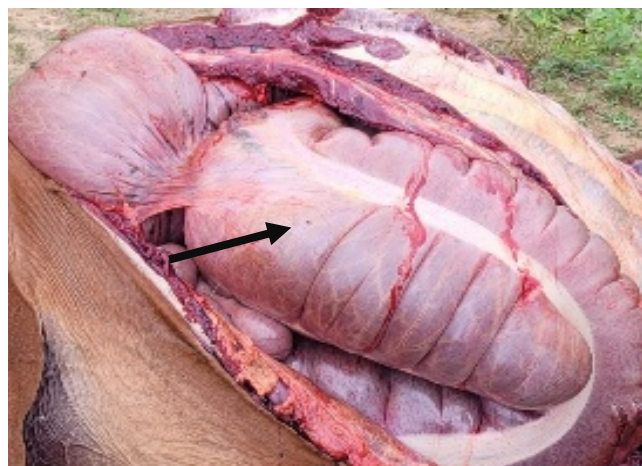


Fig. 2. Engorged caecum due to accumulated gas (black arrow)

3. Discussion

This case of fatal gastric sand impaction provides valuable insights into the consequences of poor management practices in equine care, particularly in regions like Nigeria where environmental and management factors may increase the risk of sand ingestion. The progression from initial clinical signs to gastric rupture over approximately 72 hours aligns with previous reports of equine gastric rupture [1, 3].

The development of gastric sand impaction in this case can be primarily attributed to poor management practices. Ground feeding of concentrate and hay significantly increased the risk of sand ingestion, a practice that has been associated with increased sand accumulation in horses [9].

The absence of regular veterinary monitoring and delayed intervention significantly impacted the case outcome. Early recognition and treatment of sand accumulation can prevent the development of severe complications such as gastric rupture [5]. The administration of ketoprofen without veterinary examination represents a critical missed opportunity for proper intervention. While non-steroidal anti-inflammatory drugs can provide temporary pain relief in colic cases, their use without proper diagnosis may mask deteriorating conditions and delay essential treatment [4].

Of particular interest is the unusual accumulation of 8 kg of sand in the stomach, rather than the more commonly reported large colon impaction. While gastric sand impaction has been reported in the literature, it is relatively rare compared to large colon sand accumulation [9]. This case demonstrates that significant gastric sand impaction can occur and may progress rapidly to fatal complications, emphasizing the need for

veterinarians to consider this possibility when diagnosing horses with colic symptoms, particularly when poor management practices are identified.

The pathophysiology of the gastric rupture likely involved progressive gastric distention from both sand accumulation and gas production, leading to stretching and eventual rupture of the cardiac region. The haemorrhagic changes observed in the gastric mucosa suggest significant inflammation and compromised blood flow preceded the rupture, consistent with findings reported in other cases of severe gastric distention [1, 3].

Limitations of this case study include the lack of ante-mortem clinical data and diagnostic imaging, which could have provided valuable information about the progression of the condition.

4. Conclusion

This case report highlights a fatal instance of gastric sand impaction in a horse, emphasizing the critical need for early veterinary intervention in colic cases and comprehensive preventive measures. The unusual presentation of sand accumulation in the stomach, rather than the typical large colon impaction, expands current understanding of sand-related gastrointestinal disease in horses and suggests that veterinarians should consider gastric sand impaction when diagnosing horses with colic signs. The case underscores the importance of feeding practices and comprehensive health programs to prevent sand ingestion. We recommend immediate veterinary intervention at the first signs of equine colic, along with implementation of elevated feeding systems to prevent sand ingestion, as delayed treatment and ground feeding practices can lead to gastric rupture.

Ethics Statement: Informed consent was obtained from the owner for the publication of this case report and accompanying images. All procedures and examinations were conducted in accordance with relevant guidelines and regulations.

Authors contribution: Conceptualization, P.W.M. and S.A.; investigation, R.E.E. and O.O.A.; writing—original draft preparation, P.W.M.; writing—review and editing, S.A., R.E.E. and O.O.A.; supervision, S.A.; All authors have read and agreed to the published version of the manuscript.

Data Availability Statement: For further information, please contact the corresponding author via email

Conflict of Interest Statement: The authors declare no conflict of interest.

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