

**PRIMARY GASTRIC RUPTURE IN AN ADULT FEMALE WEST AFRICAN DONGOLA HORSE IN NIGERIA: A CASE REPORT.**

Adebiyi, T. K¹.; Akinniyi, O. O^{2*}.; Jarikre, T. A³.; Banwo, O. G².; Ogunro, B. N¹.; Alaka O. O³.; and Jeremiah, O. T².

¹Veterinary Teaching Hospital, University of Ibadan. ²Department of Veterinary Medicine, University of Ibadan. ³Department of Veterinary Pathology, University of Ibadan.

*Corresponding author: Email: olumide.akinniyi@gmail.com; Tel No: + 234 810 165 6719

ABSTRACT

Gastric rupture is a highly fatal condition in horses. There is no report of primary gastric rupture in Nigeria. This case report presents an adult female West African Dongola horse in the Zoological Garden, University of Ibadan, that died as a result of primary gastric rupture. The patient was found dead in the early hours of the day. Post-mortem analysis revealed abdominal distention; a congested and non-collapsed left lung; an enlarged heart with ecchymotic haemorrhages on the epicardium; ingesta (grain) in the abdominal cavity, including the peritoneal wall and serosal surface of the gastrointestinal viscera; a seromuscular and mucosal tear along the greater curvature of the stomach; and a distended and flabby stomach with a rupture site 25cm long. There was also haemorrhage along the rupture margins. A diagnosis of primary gastric rupture due to grain overload was made. Proper monitoring and nutritional management are essential measures to prevent gastric rupture due to grain overload.

Keywords: Gastric rupture, grain overload, horse, West African Dongola

Running title: Primary gastric rupture in a horse.

INTRODUCTION

In horses, the stomach is the most common site of gastrointestinal rupture (Pratt *et al.*, 2003). With a reported prevalence of 1%–8%, stomach rupture is a fatal cause and complication of equine colic (Coffman, 1970; Baker and Ellis, 1981). Gastric rupture is caused by excessive stomach distension from fluid, feed, or gas, as well as perforating gastric ulcers (Dechant and Winfield, 2017). Primary gastric ruptures are caused by direct stomach injuries or overdistension, whereas secondary gastric ruptures are caused by physical or functional intestinal obstructions. Idiopathic gastric rupture is a subcategory of primary gastric rupture with an unknown cause (Winfield and Dechant, 2015; Dechant and Winfield, 2017). Severe discomfort and pain, an elevated heart rate, a distended abdomen, and vomiting are all symptoms of gastric rupture. Pale membranes and cyanosis may occur as a result of stomach compression, which reduces venous return. If a gastric rupture is confirmed, the horse should be euthanized because gastric contents in the abdomen cause septic shock that cannot be adequately reversed with abdominal lavage and stomach defect repair (Blikslager and Wilson, 2006). The majority of stomach ruptures occur along the stomach's greater curvature (Blikslager and Wilson, 2006). To the best of the authors' knowledge, primary gastric rupture in horses has not been reported in Nigeria. We report a case of primary gastric rupture caused by grain overload in an adult female West African Dongola horse.

Case presentation

HISTORY

An adult female West African Dongola horse

stabled at the Zoological Garden, University of Ibadan, was found dead in the early hours of the day. The horse was reported to have been fed excess grain the previous night.

Post-mortem findings

The carcass was in left lateral recumbency, with the abdomen being markedly distended. The left lung was non-collapsed and congested; there were also ecchymotic haemorrhages on the epicardium. The abdominal cavity contained serosanguinous fluid and impacted ingesta (excess grain) (Figure 1), with the peritoneal wall and serosa surface of the oesophagus, stomach, and intestines being hyperaemic, haemorrhagic, and stained with ingesta. *In situ*, there was a long longitudinal seromuscular tear (25 cm long) extending along the greater curvature, and ingesta escaped from a smaller mucosal tear (8 cm long). After evisceration and emptying of the ingesta in the ruptured stomach, the stomach was distended and flabby, and the site of rupture had haemorrhage along the margin (Figure 2). There was no obstruction in the intestine. Based on history and these postmortem findings, a diagnosis of primary gastric rupture due to grain overload was made.



Figure 1: Ingesta in the abdominal cavity (red arrow)



Figure 2: Gastric rupture site (red arrow)

DISCUSSION

In the present case, there was no medical intervention because the patient was suddenly found dead. Gastric rupture is highly fatal; of the 67 cases reported by Winfield and Dechant (2015) and Gonzaga *et al.* (2020), none survived. The horse must have had colic overnight prior to death because the death scene showed depressions on the ground, which must have been due to pawing. Horses with gastric distention, which eventually leads to rupture, present with signs of colic (Dechant and Winfield, 2015). The pain will be unbearable as it approaches the point of rupture. Immediate pain relief could suggest that a rupture has happened (Dechant and Winfield, 2015). The rupture in the present case was caused by grain overload due to the history of being fed excess grains and the presence of ingesta in the abdominal cavity and stomach. The linear seromuscular tear and mucosal tear within the seromuscular tear are indicative of a distention in the stomach prior to the rupture, with the weaker seromuscular layer tearing first and the mucosal layer subsequently. This is consistent with the reports of Brown *et al.* (2007) and Winfield and Dechant (2015). In this case, it is evident that the patient died as a result of the

stomach rupture because haemorrhage along the rupture border distinguishes gastric antemortem rupture from post-mortem rupture (gastromalacia) (Brown *et al.*, 2007). The gastric rupture along the greater curvature in the present case was also observed in all 20 cases of equine rupture reported by Gonzaga *et al.* (2020). It has also been reported that 80–90% of gastric ruptures occur along the greater curvature of the stomach (Todhunter *et al.*, 1986; Kiper *et al.*, 1990; Winfield and Dechant, 2015), with other locations being less commonly involved. It has been concluded that gastric rupture is a highly fatal condition. Proper monitoring and nutritional management are essential measures to prevent gastric rupture due to grain overload.

Conflict of Interest

The authors have no conflict of interest to declare

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