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Research Paper

I LEOCECAL TRICHOBEZOAR IN A FEMALE Llama (Lama glama) IN KENYA

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A three year old female Lama belonging to Chuka University, Kenya was reported to have reduced feed intake, depression, lethargy and preferred to lie down while her group mates were alert, active and feeding well. Clinical examination revealed a rectal temperature of 38.2 °C, respiration rate of 30 breaths per minute and heart rate was 80 beats minute, all of which were within the normal ranges. On auscultation, there were hush lung sounds over the thoracic cavity, absence of gastric movements and tympanic sounds were audible on percussion over the left paralumbar fossa. Tentative differential diagnosis were, gastrointestinal obstruction and indigestion since the lama had been introduced to new concentrate feeds while out of the institution for a local agricultural exhibition. She was treated using laxatives (magnesium sulphate) and antibiotic cover (penicillin and streptomycin) but her health deteriorated and she died four days later. Necropsy examination revealed multifocal abscesses on the mesentery and the intestines, ulceration on the wall of the third gastric compartment (analogous to abomasum in ruminants); fecal pellets covered by thick mucous, and obstructed intestines (around the ileocecal region) by a trichobezoar (hairball). Cases of trichobezoars are commonly recorded in cattle but they are poorly documented in lamas. This case is reported in order to enhance knowledge on lama's gastrointestinal disorders and create need for using advanced diagnostic tools such ultrasonography, radiography, exploratory laparotomy, haematological and biochemical tests when examining gastrointestinal conditions in nonconventional farm animals aimed at deducing to accurate confirmatory diagnosis particularly in developing countries.

Keywords: Lama glama, Ileocecal trichobezoar, Gastrointestinal disorders

INTRODUCTION

Llamas (*Lama glama*) are members of the South American Camelids which historically migrated from North America about 3 million years ago and were first domesticated in Peru, in South America

(Barlough *et al.*, 1997). Currently, lamas are kept in many parts of the world including African countries like Kenya. Lama is kept as a pack animal (for ferrying light load), for meat, wool, companionship for guarding sheep against the

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wild jackals and dogs (Cardeti *et al.*, 2011), and research among other uses. Lamas were introduced to Chuka University in the year 2012, for research on alternative and resilient food animal that can thrive well, reproduce and give products, i.e., meat, milk and wool, under the challenges of harsh climatic conditions, diseases, insufficient and poor quality feed resources that prevail in the tropics. However, there is paucity of knowledge regarding their digestive complications, particularly on the occurrence of trichobezoars. A bezoar is an indigestible mass that may develop within the stomach of humans (Mewa and Sing, 2012), and in the rumen and abomasums of animals and could cause obstruction of the gut if it lodges into a narrow opening. In this particular case, a three year old female lama was reported to have anorexia depression, lethargy and preferred to lie down while her group mates were alert, active and feeding well. General inspection revealed that the lama was of good body condition with no significant findings on the cutaneous system apart from the hair coat which was a bit starchy.

MATERIALS AND METHODS

Clinical Examination

On clinical examination, the Lamas mucous membranes were pale and there was a bad odor emanating from the mouth. The vital parameters, i.e., rectal temperature was 38.2 °C, respiration rate was 30 breaths per minute and the heart rate was 80 beats minute, all of which were within the normal ranges. On auscultation, there were hush lung sounds over the thoracic cavity and absence of gastric movements and tympanic sounds were audible on percussion over the left para lumbar fossa. The tentative diagnosis was gastrointestinal obstruction, indigestion since the

animal had been fed on a new batch of concentrates, or pasteurellosis since she had been brought in from a local agricultural exhibition two days earlier, which is located 70 kilometers from the University. Consequently, the lama was treated with penicillin and streptomycin antibiotics for three days, metabolic stimulants and laxatives (magnesium sulphate), and released to the field so that she could exercise and also feed on the preferred pastures. There was slight improvement after treatment since the animal could pick some feeds but chewed carefully. It was also observed that she discharged very little faeces which were heavily covered with mucus and she resisted exercise. She drunk water but ate very little feed and her body condition deteriorated gradually. On the fourth day, she went completely off feed and died in the following morning.

Necropsy Findings

The lama was found dead in the shed early morning with greenish watery discharge emanating from the nasal and oral cavities flooding the ground (Figure 1). The cadaver was warm, rigor mortis had not set in which indicated that she had died in the early hours of the morning. A blood smear was taken for laboratory examination and it was negative for zoonotic diseases, particularly anthrax. On postmortem examination, the carcass was of fair body condition with significant distribution of subcutaneous fat. The rectum and other large intestines were devoid of faecal material, apart from scanty faecal pellets that were enveloped in thick mucoid material that had eroded from the intestinal mucosa (Figure 2). Gross pathologic findings were numerous localized abscesses along the mesentery and; on both the intestinal and in the third gastric compartment (analogous

Figure 1: Showing Greenish Watery Discharge Emanating from the Nasal and Oral Cavities of the Lama



Figure 2: Showing Fecal Pellets Covered by Thick Mucous



Figure 3: Showing an Obstructed Portion of Intestine



Figure 4: Showing a Trichobezoar (Hairball) Found at Ileocecal Region



to abomasum in ruminants) serosa. At least 5 mesenteric lymph nodes had degenerated into abscesses by caseous lymphadenitis. At roughly around the ileocaecal junction, there was an abscess that had caused adhesion of the intestine to the mesentery in such a way that the intestine was partially occluded. At the same area, there was evidence of an intraluminal structure

that obstructed that portion of the intestine (Figure 3), which on incision it was revealed to be a trichobezoar (hairball) (Figure 4). The wall of the third gastric compartment was found to be ulcerated and bloated with lush greenish watery ingesta (Figure 5). There were no significant findings in all the other organs and tissues examined.

Figure 5: Showing a Bloated and Ulcerated abomasum with Purulent Material on the Wall



DISCUSSION

The major necropsy findings were multifocal abscessation of the mesentery, ulcerated and bloated stomachs; and obstructed intestines by a foreign body (bezoar). A bezoar is an indigestible mass that may develop within the stomach of humans (Mewa and Sing, 2012) and in the rumen and abomasums of animals, especially ruminants. Among the bezoars are trichobezoars (hairballs) which are formed when animals lick and ingest the hair either from their own bodies while grooming or suckling their pen mates (Hargrave and Wichita falls, 1936). Licking is a common behaviour in lammas and could result from itching due to infestation with ectoparasites such as lice or as a resting behavior and can expose these animals to the risk of ingesting the long hair fibers that covers their body. Since they are indigestible, the hair fibres accumulate and due to movements of the stomachs they assume various shapes including ovoid shapes (Figure 4), and then propelled to the intestines whereby they cause intraluminal obstructions. Trichobezoars are also known to cause gastric ulcers and ruminal tympany as was found in this case (Figure 5). Similar observations were made

by Catik *et al.* (2015) in a calf. The ulcers could have resulted from excessive accumulation of gastric acids such as hydrochloric acid and impaired gastric due to complete intestinal obstruction. The small-sized trichobezoars can pass through intestines and discharged through the faeces, but this may have not been possible because the terminal portion of the intestines is usually narrower compared to other sections and has weak peristaltic movements and this could have caused the bezoar to lodge (Silva *et al.*, 2011). The obstructed intestines is likely to have caused accumulation of gases in the intestines and stomachs which pressed on vital blood vessels and air passages resulting in death of the animal due to anoxia and shock. Though many cases of trichobezoars are commonly recorded in young cattle (Abu-Seida and Al-Abbadi, 2014), limited information is available regarding their occurrence in llama. This creates need to consider trichobezoar as a differential diagnosis in any case of an obstructed gastrointestinal tract in llama since many cases are likely to be detected during post mortem.

CONCLUSION

In conclusion, these findings demonstrate that there is need to use advanced diagnostic tools such as ultrasonography and haematological tests when examining gastrointestinal conditions in llama and other farm animals rather than depending on symptomatic/clinical diagnosis in order to deduce to definitive diagnosis particularly in developing countries. 🌐

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