

Surgical Removal of Indigestible Foreign Bodies in Cattle and Economic Losses to Farmers

Fekadu Gutema* and Beksisa Urge

Animal Health Research Program, Holeta Agricultural Research Center, Ethiopian Institute of Agricultural Research, PO Box 31, Holeta, Ethiopia

Abstract

Background: Even though livestock are the main stay of the livelihood of the majority of the human population, the presence of many infectious and non-infectious diseases have resulted in low productivity, stunted growth, and significant loss of economic gain among the producer. Of the non-infectious diseases of livestock, ingestion of indigestible foreign bodies is extremely common especially in developing countries like Ethiopia.

Case presentation: A 2 years old male Jersey Bull (body weight: 215kg) owned by Holeta Agricultural research center was presented to Animal health research and veterinary clinic department with enlarged abdomen, inability to walk, frequent abdominal distention, reduced feed intake, progressive weight loss and dullness. Based on the clinical examination and case history, the Jersey Bull was suspected to have Indigestible foreign body in its rumen. After taking all the necessary preoperative precautionary measures, rumenotomy was conducted and all indigestible foreign body was removed.

Conclusion: After opening the rumen, indigestible foreign materials like plastic bag, rope, curled clothes and others were removed. This indigestible foreign body is known to induce significant negative impact on the wellbeing of the animals and economic gain of the county. Therefore, overall animal health management improvement and provision of good quality feeds are the best way to prevent its occurrence whereas, rumenotomy is the best surgical intervention to handle confirmed case.

Keywords: Indigestible • Jersey • Livestock • Rumenotomy

Introduction

Ethiopia has the largest livestock population in Africa, with 65 million of cattle [1]. The sector supports the livelihood of 85% of rural populations in which 15 to 17% (GDP) and 37 to 87% of household incomes are contributed from the overall livestock sector. This sector also serves as a means of transportation, export commodities, security in times of crop failure, and means of wealth accumulation [2]. However, the presence of many infectious and non-infectious diseases has resulted in low productivity, stunted growth, and finally death of the animals which results in significant economic loss among the producers.

Ingestion of indigestible foreign bodies is a common health related problems of ruminants especially in developing countries, like Ethiopia, which is associated with poor management, and low nutritional statuses. This ingestion of indigestible foreign body is called Pica. Even though it is difficult to determine the exact cause of pica, phosphorus and sodium deficiency with absence of long fiber in cattle diet are the major reason for the ingestion of indigestible foreign bodies [3]. On the other hand, lack of appropriate indigestible waste disposal system as well as free grazing of animals in highly waste-polluted areas seemed to be a major predisposing factor for the existence of indigestible foreign body in the rumen of cattle [4]. According to different study report, plastic bag was the most commonly encountered followed by clothes, metallic

nails, hair balls, and stone in forestomach of cattle's [5]. Hence, the objective of this case report is to share the history, physical diagnosis, clinical and surgical findings and post intervention status of young jersey to the readers and livestock producers [6].

Case Presentation

A 2 years old male jersey bull (body weight: 215 kg) owned by Holeta Agricultural research center was presented to Animal health research and veterinary clinic department with enlarged abdomen, inability to walk, frequent abdominal distention, reduced feed intake, progressive weight loss and dullness. Based on the information gathered from the attendants, this bull has been known for chewing indigestible objects such as plastic bag, clothes and rope etc. Vital sign such as heart rate, respiratory rate, and pulse rate were measure and showed little increment. Based on case history and clinical examination, this jersey bull was suspected to have indigestible foreign body in its rumen.

Materials and Preoperative Patient Preparation

After diagnosing the presence of indigestible foreign body in the rumen of this jersey bull, rumenotomy was found to be the appropriate treatment option. Before proceeding to start operation, important surgical materials such scissors, hemostatic forceps, tissue forceps, scalpel blade, surgical needle holder, gauze, nylon and others were organized and sterilized by steam sterilization to avoid contamination and potential occurrence of wound infection. Then, the patient was properly restrained and the opening site which is 8-10 cm below the transverse process of the lumbar vertebrae (left paralumbar fossa) was washed with water, soap and savlon. After washing, the hair was shaved with surgical blade from the site of opening which later washed with water, soap and savlon for the second time. Then, the opening site was smeared with iodine to minimize microbial load and latter locally infiltrated with Lidocaine injection BP (Asence pharma private limited) to desensitize and conduct the operation without disturbance due to pain reflux from the patient.

*Address for Correspondence: Fekadu Gutema, Animal Health Research Program, Holeta Agricultural Research Center, Ethiopian Institute of Agricultural Research, PO Box 31, Holeta, Ethiopia. Tel: +251932153584, E-mail: fikadu881@gmail.com

Copyright: © 2022 Gutema F, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Date of Submission: 01 June, 2022, Manuscript No. jvst-22-56464; **Editor assigned:** 03 June, 2022, PreQC No. P-56464; **Reviewed:** 17 June, 2022, QC No. Q-56464; **Revised:** 22 June, 2022, Manuscript No. R-56464; **Published:** 30 June, 2022, DOI: 10.37421/2157-7579.2022.13.133

Surgical procedure

Even though, operation room is mandatory to conduct rumenotomy, this case was handled on the open field in the farm compound due to the absence of the aforementioned facilities. After the iodine tincture get dry, fine incision was made to the skin with sterile surgical blade on the left flank region below the lumbar transverse process. After dissection of the skin from the subcutaneous tissue, the incision was continued chronologically through the external and internal abdominal oblique, transverse abdominal muscle, and peritoneum [7]. Then the rumen was explored, slightly taken up and stay suture was made to each margin of incision site to avoid back movement of the rumen when conducting the operation [8]. Then the rumen was opened with great care to avoid influx of rumen fluid into the peritoneum which is with high bacterial load and can induce peritonitis.

After opening the rumen, indigestible foreign materials like plastic bag, rope, curled clothes and others were removed as can be seen from (Figure 1). Bleeding during the procedure was managed by using sterile gauze and hemostatic forceps. Then, the rumen and surrounding area were rinsed with sterile isotonic saline solution and was closed by two-layer Cushing suture pattern using sterile absorbable Chromic catgut (Shandong Sinorgmed Co.Ltd) and returned back to its normal position. Then, the peritoneum and muscles were closed by simple continuous suture using sterile Chromic catgut. After suturing the subcutaneous fascia by simple continuous suturing pattern, the skin was closed by interrupted horizontal mattress using sterile nylon. Finally, the area was cleaned properly and rinsed with iodine tincture and the patient taken to recovery room.

Post-operative management and the outcome

After completion of the operation, the patient was provided with 5% dextrose solution through jugular vein by using infusion set. Additionally, 5 ml Dihydrostreptomycin sulphate was administered through IM q24 h for 5-consecutive days of post operation. The wound was also periodically cleaned and wound spray applied for three consecutive days and later as required to avoid the possible occurrence of complicated wound infection. Besides, the patient was provided with good quality feeds and water to facilitate fast wound healing. The skin suture was removed after 15 days of post operation and the wound was completely heal after one month. Finally, the bull become healthy and active as it can be seen from Figure 2 (Gutema and Urge, 2021b)

The main predisposing factors for the ingestion of indigestible foreign bodies are nutritional deficiencies, environmental contamination, poor feeding management and others. The detrimental effects of ingesting indigestible foreign body are stunted growth, reduced feed intake, poor nutrient absorption, poor weight gain, suboptimal production, internal injury and death following the blockade of lower digestive tract.

This non-infectious ill health in cattle can significantly affect the national economic gain from the livestock sector through under production and stunted growth of the patient, treatment cost, death and unintended culling of productive animals. In Jordan an estimated loss of \$25 million in ruminant productivity and health associated with plastic impaction was reported (Magaji and Adekiya, 2021). In Ethiopia, despite multiple study reports regarding



Figure 1. Surgical intervention to remove indigestible foreign bodies from the rumen of male jersey Bull. A) Restraining and preoperative preparation of the surgical site, B) Removal of indigestible foreign body, C) The removed indigestible foreign body.



Figure 2. Health bull after removal of foreign body through surgical intervention.

ingestion of indigestible foreign body by cattle and other livestock, there is no clearly indicated economic loss due to this complication at the national level. This is a clearly visible and researchable gaps which needs due attention to quantify the level economic loss.

Discussion and Conclusion

Ingestion of indigestible foreign body is the major health related problem in cattle with significant negative impact on the wellbeing of the animals and economic gain of the county. Since this ill health mainly induce blockade of digestive system, rumenotomy is the best option to handle the case. Overall, collaborative preventive action schemes involving professionals, environmentalist, producers and respective stakeholders are needed.

The case history and physical examinations indicated that improper harnessing and padding followed by overloading and overworking were the most cause of back sore wound of donkey. Improper harness was identified as the major cause of injury in donkeys. Most probably due to carried materials on the back lower heat exchange and physiologically to overcome the heat donkeys excrete sweat. The excreted sweat moist the hair and skin and carried materials polish with the wetted skin result in damage of the skin as well as underlining muscles based on the type of carried materials and how long donkeys under work.

Declarations

I declare that, there is no conflict of interest.

References

1. Mekuriaw, Zeleke and Lacey Harris-Coble. "Ethiopia's livestock systems: Overview and areas of inquiry." (2021).
2. Rass, Nikola. "Policies and strategies to address the vulnerability of pastoralists in sub-Saharan Africa." Rome: FAO, Pro-poor Livestock Policy Initiative (PPLPI) Working Paper Series 37 (2006).
3. Firyal, S. "Pica (depraved appetite; allotrophagia) in domestic animals and man." *Pakistan Vet J* 27 (2007): 208.
4. Magaji, J.Y., and O.A. Adekiya. "Comparative Analysis of the effects of indiscriminate wastes disposal on ruminants slaughtered in Gwagwalada and Minna Abattoirs, In Nigeria." *Eur J Animal Health* 2 (2021): 1-14.
5. Bwatota, S. F., M. Makungu, and H. E. Nonga. "Occurrences of indigestible foreign bodies in cattle slaughtered at Morogoro Municipal Slaughterhouse, Tanzania." *J Vet Med* 2018 (2018).
6. Negash, Seifu, Desie Sheferaw, and Berhanu Sibhat. "A postmortem study on indigestible foreign bodies in the rumen and reticulum of ruminants, eastern Ethiopia." *Onderstepoort J Vet Res* 82 (2015): 1-5.

7. Fesseha, Haben. "Rumenotomy due to Metallic Foreign Bodies in Rumen of Adult Dairy Cow." *Biomed J Scientific & Tech Res* 27 (2020): 20824-20827.
8. Sheferaw, Desie, Fikreysus Gebru, Metenyelesh Asrat, Dawit Tesfaye, and Etana Debela. "Ingestion of indigestible foreign materials by free grazing ruminants in Amhara Region, Ethiopia." *Tropical Ani Health and Prod* 46 (2014): 247-250.

How to cite this article: Gutema, Fekadu and Beksisa Urge. "Surgical Removal of Indigestible Foreign Bodies in Cattle and Economic Losses to Farmers." *J Vet Sci Techno* 13 (2022): 133.