

## Fatal post-parturient diarrhoea in a nursing cow transported to Akinyele International Cattle Market, Ibadan, Nigeria: A case report

Adeyemi, I. G.

Department of Veterinary Public Health and Preventive Medicine,

University of Ibadan, Nigeria

isaacadeyemi@yahoo.com



### Abstract

*A pregnant cow of Kuri breed, estimated age of six years old with second calving was transported on land from Maiduguri, Borno state Nigeria. The journey took four days to the Akinyele International Cattle Market. The pregnant cow calved immediately on arrival at the market. A week after calving, the nursing cow was offered for sale and slaughter. The nursing cow and the calf were purchased and put under intensive medical and management care of an experienced cattle stockman in the market. The nursing cow became diarrheic on the second week of arrival at the market. Clinical examination by visual observation revealed projectile watery faeces, stained hindquarter and the pair rectal sterile swab samples were collected. Though the temperature and pulse rate were within the normal range. Standard bacteriological faecal culture of the rectal swab incubated overnight at 37°C in selenith F-broth, Nutrient and blood agars at 37°C for 24 hours were done, revealing heavy mixed growth of Escherichia coli, Klebsiella species and Bacillus species. Identification of colonies were based on morphology, gram staining, cultural and biochemical characteristics. In-vitro Antibiotic sensitivity testing on discrete colonies of bacteria faeces were done, using agar-Disk diffusion method. The E. coli, Klebsiella and Bacillus species were sensitive to ciprofloxacin® (10µg) and pefloxacin® (30µg). Sulfanol® (sulphadimidin) a broad spectrum antibiotic was administered immediately intramuscularly at 333mg in 3ml per 10kg for four days. Defaecation of the nursing cow stopped for two days after treatment. On the third day of the treatment, the faeces became pasty but the cow died overnight despite the good response to therapy.*

**Keywords:** Cattle transportation, diarrheic cow, calf, veterinary care, postnatal stress

### Introduction

Livestock production is largely in the northern part of Nigeria. The cattle transportation to the southern market in Nigeria is mainly by land transportation involving small and big trucks (Adeyemi *et al.*, 2010). However, there is a growing concern that animal welfare conditions in transportation and handling environment have severely degraded and that, this is preventable (Fischer, 1996). Also, transportation stress reduces the effectiveness of the hormone system in cattle (Alonge, 2001; Southern *et al.*, 2006) and has been linked to impairment of rumen function (Galyean *et al.*, 1989). Transportation of slaughter animal

especially by truck must be carried out carefully according to standard specifications because numerous microbial, physical, and/or environmental hazards during transport have the potential to negatively affect not only the health and welfare of the animals, but also the safety and quality of the resulting meats (Alonge, 2001; Karen Schwartzkopf-Genswein and Temple Grandin, 2015). Ill-health conditions occurring as a result of prolonged journey, dehydration, feed deprivation, pregnancy, injuries, and mortality during transportation are not only animal welfare abuse and product quality concerns but as well economic issues to all parties involved in livestock industry

### ***Fatal post-parturient diarrhoea in a nursing cow***

(Speer, *et al.*, 2001). This report shows trends of deplorable slaughter cattle trade involving slaughtering of not only pregnant cows but nursing cows at Akinyele International Cattle Market (AICM)

#### ***Case history of diarrhoea in a nursing cow at Akinyele International Cattle Market, Ibadan***

A nursing cow of Kuri breed, estimated aged of six years old with second calving was reported to be diarrhoeic at AICM, Ibadan. The cow was transported from Maiduguri, Borno state, north western Nigeria for four days to the market without stopping during the journey. The cow calved immediately on arrival at the market. A week after calving, the nursing cow was offered for sale and slaughter. On

ethical considerations and animal welfare protection regulations, the nursing cow and the calf were purchased and put under intensive management in the market. The routine management and the care for the cow and its calf included feeding (*ad libitum*) with fresh *Pennisetum purpureum* and *Panicum maximum*, dry cassava peels, wheat offal, cowpea husk, water and salt lick. The cow was groomed twice a day in the morning (8:30am –9:30am) and evening (5pm – 6:30pm), while the holding space for the cow and the calf was regularly cleaned and disinfected daily with an appropriate disinfectant. Although, the cow was supplied with quality and quantity feed but became diarrhoeic on the second day of purchase.



**Figure 1: The nursing cow and the calf**

***Clinical assessment and parameters***

On examination, the cow was alert, few healed wounds and bruises were around the stomach, thigh, and tail region (transportation injuries). There was decrease skin turgor. Three out of four teat of the mammary gland were functional and

suckled by the calf. The calf was bright, active and readily suckles the dam milk. The heart rate of the nursing cow was 83 beats per minutes, respiratory rate 66 breaths per minutes and rectal temperature of 38 °C, the faeces was projectile, watery and unformed.



**Figure 2: Watery faeces of the cow**

**Laboratory Diagnosis**

***Faecal collection, culture and isolation***

Pair rectal faecal samples were obtained using sterile swabs in sterile test tube containers. The faecal samples containers were covered with Aluminum tin foil and preserved in plastic air-tight cooler with ice cubes. The samples were transported within one hour to the Department of Veterinary Microbiology and Parasitology Laboratory, University of Ibadan for processing. The rectal faecal swabs were incubated

overnight at 37°C in Selenith F-broth while primary culture was done on nutrient and blood agar at 37°C for 24 hours. Distinct colonies were transferred to fresh plates of MacConkey agar and incubated overnight at 37°C. Identification of colonies was based on morphology, gram staining, cultural and biochemical characteristics (Barrow and Feltham, 2003).

**Antibiotic sensitivity testing**

Discrete colonies of identified bacterial species were examined for in-vitro

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antibiotics sensitivity testing using agar-disc diffusion method (Matsen and Barry, 1974). Antibiotics multidisc manufactured by Absteck Biologicals Ltd., Liverpool, UK was used. The disc contained amoxicillin (30 µg), streptomycin (30 µg), chloramphenicol (30 µg), gentamicin (10 µg), pefloxacin (10 µg), septrin (30 µg), ciprofloxacin (10 µg), ofloxacin (30 µg), sparfloxacin (10 µg) and augmentin (30 µg). Antibiotic discs were placed with the help of sterile forceps, pressed gently to ensure firm contact with the media. Agar plates were incubated at 37°C for 18-24 hours. The inhibition zones of different antibiotics were measured in (mm) and results interpreted based on the criteria recommended for Enterobacteriaceae by Clinical and Laboratory Standards Institute (CLSI, 2012). The results were expressed in terms of sensitivity (S) and resistance (R) as proposed for animal pathogens by the institute.

### ***Treatment of the diarrhoeic cow***

The diarrhoeic nursing cow was treated with sulfanor 333mg (Sulphadimidine sodium) at 3 mls per 10 kg for four days as directed by the manufacturer.

### **Results and discussion**

#### ***Microbiological examination and antibiotic sensitivity testing of faecal sample***

The rectal faecal samples yielded heavy mixed growth of *Escherichia coli*, *Klebsiella species* and *Bacillus species*. The antibiotic sensitivity testing showed the three isolated bacteria to be sensitive to ciprofloxacin (10 µg) and pefloxacin (30 µg), indicating appropriate antibiotic treatment for the infectious agents.

#### ***Drug treatment***

The watery faeces stopped about four hours after the first treatment with sulfanor and there was no defaecation for two days. On the third day of the treatment, the faeces of

the cow became pasty, feeding well and also suckling the calf. The body temperature and pulse rate remained normal. In which case, sulfanor has a positive action against the infectious agents for the diarrhoeic syndrome

### ***Prognosis of the diarrhoeic syndrome***

At the overnight the third day of the treatment, the diarrhoeic cow became recumbent and died overnight. Postmortem and other examinations could not be done due to the time of death and lack of facilities. The carcass was disposed by deep burial with cassium hydroxide on the waste disposal ground outside the market. Also, it was observed that no other cattle in the shared location or the orphan calf experienced the diarrhoeic syndrome. The orphan calf was then put under intensive care (isolation pen, bottle-fed with boiled reconstituted peak® powder milk). Livestock trade and industrial processing in Nigeria are still under-develop. This case reported attested to persisting reproduction wastage of slaughtering pregnant or nursing cows with implication of dwindling animal replacement for genetic improvement (Nonga, 2015). The transportation system; majorly road transportation has attendant inadequacies of frequent damages e.g. pot holes etc, over-crowding of livestock in inappropriate vehicular space leading to animal injuries, infections and even death with great economic loss to livestock industry (Karen Schwartzkopf-Genswein and Temple Grandin, 2015) thus increasing poverty of people involved (Adeyemi *et al.*, 2010). Furthermore, the extent of this gross animal welfare abuse observed is necessary to ascertain appropriate and effective control approaches which may be useful for all stakeholder and authorities concern with the improvement of cattle industry in Nigeria (Broom, 1991; European Commission, 2007)

### Conclusion

The study showed that despite the good response of the diarrhoeic nursing cow to the therapeutic treatment, the cow died on the fourth day of treatment may be due to overt transportation stress (Knowles, 1999; Chambers and Grandin, 2001; Adeyemi *et al.*, 2010). The journey was long no resting periods during the journey to the market and in a crowded truck. The practice of selling and slaughtering pregnant cows and heifers, although under prohibition, are still rampant in trade cattle in the market and a gross abuse of animal welfare regulation in Nigeria because it constitutes reproductive waste in cattle population. This unhealthy and socio-economic loss in livestock industrial development in Nigeria is exacerbated by lack of effective control-post operation manned by professionals and also with inappropriate infrastructure and equipment. Thus, this case reported is a revelation of the gaps to be filled by respective government and private authorities to ensure sustainable livestock development especially cattle trade in Nigeria, for the welfare of the people and food security. This work is the first report of inhumane slaughtering of nursing cow which is a degenerating situation of slaughtering pregnant cows and heifers at Akinyele cattle market in Ibadan, Nigeria. The extent of this gross animal welfare abuse is necessary to ascertain appropriate and effective control which may be useful for all the authorities concern with the improvement of cattle industry in Nigeria.

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