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Micromelia in a Lakhimi breed male calf: A case report

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Abstract

The present case study reports a rare Osteo-congenital anomaly in Lakhimi breed male calf in Lakhimpur district of Assam, India. The cow was at her third parity and the parturition was normal and at time. The calf was born with micromelia and was unable to stand on its feet. Despite of utmost care with bottle feeding (colostrum), there was a progressive loss of its condition. The calf succumbed to death after 36 hours of parturition. Postmortem examination showed the presence of normal scapulae with hypoplastic humerus and insubstantial carpus-manus. The exact etiology was unspecified.

Keywords: Anomaly, calf, Lakhimi breed, micromelia, osteo-congenital

Introduction

Foetal development are the consequence of a multifarious series of well-orchestrated events. When properly consummated, the outcome is a healthy neonate. Defects in any sequential phases of development may be followed by congenital or developmental defects in the neonates. These kind of defects reported in all breeds of cattle with varying incidence and are of fiscal importance (Mathan *et al.*, 2013) [8].

In bovine species, varied kinds of osteo-developmental and osteo-congenital defects are known to be occurred and comprises a significant portion of the bone pathologies resulting in a functional as well as morphological imperfections. The term Micromelia is most often used to describe a condition characterized by aberrantly small and defectively developed extremities (Parés-Casanova, 2017) [3]. Such congenital anomalies are frequently encountered in both cross-bred as well as in non-descriptive calves and considered often as unfavorable for operative treatments (Janmeda, 2014 and Aydin *et al.*, 2020) [1, 7].

Highlight

- Micromelia was detected in a Lakhimi breed calf.
- No sign of dystocia at parturition.
- After 36 hours of parturition, the calf died despite the best care and supervision.
- The scapulae were found to be normal, along with a hypoplastic humerus and a thin carpus-manus.
- The exact etiology was unspecified.

Case History

The case was attended at a village farm in Rangpura village of Lakhimpur district of Assam, India. According to the owner, the Lakhimi cow was about five years and six months old and was in her third parity and on full gestation period during parturition. The cattle had a normal parturition with retention of placenta (ROP) which was later removed and treated accordingly. Additionally, the case history also revealed that, the livestock rearers of that village mostly adopted natural service for their livestock and maintained a semi-intensive method of rearing system. Furthermore, there was no such history reported in that area.

Case Description

It was noticed that the calf was alive and was normal in all physiological parameters at birth. On physical examination, it was found that the fore limbs of the calf were significantly shortened in size, both in length and width and were non-functional (Fig. 1 & 2). Though, no deformation of the hoof was seen; the calf was unable to stand on its feet and could not gulp on its own. Even with proper care and management, the condition of the calf got deteriorated; which was probably due to other congenital fault or metabolic malfunctioning. The calf died after 36 hours of its birth.

Postmortem examination showed the presence of normal scapulae with hypoplastic humerus and insubstantial carpus-

manus. However, all the internal organs were apparently appear to be normal i.e. no abnormalities were detected.

Table 1: Calf Description (Weight and Length)

Measurement	Calf weight (Kg)	Fore legs (cm)	Hind legs (cm)	Heart girth (cm)	Top line (cm)	Tail (cm)
Male calf	16	43	53	62	60	15



Fig 1: Significantly shortened forelimbs



Fig 2: Non-functional forelimbs

Discussion

Deformities of the extremities or portions of them can take many different forms, from the absence of a single structure to the partial or total absence of the limbs (Lallo *et al.*, 2001) [2]. In the present case, the Lakhimi calf was born with abnormal sized forelimbs and weight (table 1). These findings were in contrary with the finding of Kayastha *et al.* (2011) [5] in the indigenous cattle of Assam. Moreover, there was no history of such cases reported previously or thereafter in any livestock in that area. The exact etiology etiologies of many such defects are unstipulated; some of them are thought to be congenital. It may be considered that, various etiological factors could be associated *viz* environmental, inherited, nutritional, inbreeding, infectious diseases, teratogenic chemicals and toxic effects of any kind that cow would be exposed during the early stages of organogenesis of the foetus (Hussein, 2010 and ; Gholap *et al.*, 2014) [6, 4].

Conclusion

Evaluation of the aforementioned etiological factors should be taken into consideration to prevent these types of congenital defects in order to lessen the expected economic loss.

To the best of authors' knowledge, this is the first micromelia case reported in Lakhimi breed in Lakhimpur district of Assam.

Conflict of Interest: Authors have no conflict of interest in this study.

Author's Contribution: BB and PS: Attained the case and did the treatment procedures; NA and KJD: Diagnosis part and reference for the treatment; AS, SSP and SB: Participated in draft and revision of the manuscript.

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