



Dystocia due to Pygomelia Calf in Cattle – A Case Report

J Arunpandian¹, N Srivastava^{2*}, M Ganesan¹

¹Veterinary Assistant Surgeon, Department of Animal Husbandry, Tamil Nadu

²Division of Animal Reproduction, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly, Uttar Pradesh-243122, India

ARTICLE INFO

Key Words: Calf, polymelia, dystocia, birth-canal

doi: [10.48165/aru.2023.4.1.4](https://doi.org/10.48165/aru.2023.4.1.4)

ABSTRACT

The veterinarian presented a 5-year-old HF crossbred cow with a full-term pregnancy that caused severe abdominal strain. On per-vaginal examination, the cervix was found to be fully dilated, with palpable multiple limbs of the foetus. After proper lubrication of the birth canal, the foetus was successfully delivered. The veterinarian diagnosed the condition as polymelia of the hind limbs. The postoperative care of the cow included treatment with antibiotics and anti-inflammatory drugs. The cow had an uneventful recovery in about 9–10 days.

Introduction

Pygomelia is a rare congenital anomaly in animals characterised by the presence of one or more supernumerary limbs attached to the pelvic region. Congenital anomalies, classified as lethal, sub-lethal, and non-lethal, are anomalies in structure or function that are present from birth and are quite common in cattle (Leipold et al., 1983). The incidence of individual defects can vary according to breed, age, species, geographic location, season, and other environmental factors (Aiello and Mays, 1998). Newman et al. (1999) opined that these abnormalities are linked to genetic elements (transgenic chromosomes), environmental factors (infections, toxins, management practices, abnormal fertilisation techniques), or a combination of these factors. Murondoti and Busayi (2001) found that polymelia is commonly associated with other innate abnormalities, including polydactyly or the presence of underdeveloped extra bones. In the present case study, the extra limbs of the calf (pygomelia) were a cause of the dystocia.

Case history and clinical observation

A female HF crossbred promipara cow bred naturally, aged five years, was brought to the veterinary hospital in Tenkasi in full term pregnancy. The cow has shown signs of impending calving, such as intense straining and failure of foetal expulsion, for the last 6 h. Observers raised concerns about potential abnormalities due to the presence of an unusual reddish discharge from the vagina. During the vaginal examination, the veterinarian could feel a fully dilated cervix and the additional limbs of the calf positioned posteriorly. Unfortunately, there were no foetal movements felt either per vaginally or per rectally.

Treatment

An attempt was made to assist the birthing process with gentle traction on the calf's limbs, but the calf's hindquarters did not successfully pass through the dam's pelvic outlet. Following the application of ample lubrication to

*Corresponding author.

E-mail address: sangnee15@gmail.com (N Srivastava)

Received 23.10.2023; Accepted 06.12.2023

Copyright © Animal Reproduction Update (<https://acspublisher.com/journals/index.php/aru>)

the birth canal using carboxymethyl cellulose, the lifeless calf was carefully brought out.

The calf displayed a congenital anomaly known as pygomeia. This condition manifested as an additional set of limbs attached to the calf's pelvis, resulting in a total of six legs (Fig. 1). Despite this unique circumstance, the owner declined further investigation into the underlying cause of the condition.

After the successful delivery of the dead foetus, the cow received a course of antibiotics (Enrofloxacin, 5 mg enrofloxacin/kg bw/day/im for 7 days), and to prevent the metritis, the bolus Furex-M was inserted into the uterus for 5 days to prevent infection, and analgesics (Flunixin meglumine, Megludine, 2.2 mg/kg, IM once x five days) to manage pain. Remarkably, the cow recovered without any complications within a span of ten days.



Fig. 1. Calf with pygomeia (Arrow indicate the extra legs attached to the pelvis of the calf)

Discussion

Polymelia is an uncommon inborn anomaly distinguished by the occurrence of an extra limb in various areas of the body. Researchers have categorized this condition into notomelia (attached to the vertebral column), cephalomelia (attached to the head), thoracomelia (attached to the thorax), and pygomeia (attached to the pelvis) based on the specific region of the body (Kim et al., 2001). It is a rare condition and is identified only in some breeds, like Hereford (Johnston, 1985), Brahman (Fourie, 1990), and HF (Nowacka et al., 2007). Polymelia is also reported in other animals like cats (Akbarian et al., 2020), dogs (Daneze et al., 2018), lambs (Eftekhari et al., 2012), and fowl (Hassanzadeh and Rahemi, 2017). Limbs deformities have been documented to occur in 2% to 3.5% of total births in calves, lambs, and foals. In certain investigations, the proportions of congenital anomalies occurring within

the cattle musculoskeletal system were reported to be as high as 24% (Leipold et al., 1983).

These anomalies originated due to disruptions during embryogenesis, making the organogenesis phase the most vulnerable period. These might arise due to the irregular distribution of germ cells within the embryo or abnormal replication of these cells at the initial stages of embryonic development (Akbarian et al., 2020). Rousseaux and Ribble (1988) proposed that polymelia in HF originates from spontaneous or hereditary genetic mutations, incomplete formation of conjoined twins, fetal or maternal exposure to radiation or harmful substances, or maternal traumas that interfere with fetal growth. In Holstein cattle as well as in Mediterranean Italian buffaloes, a study in each species has documented that elevated occurrences of chromosomal damage were reported in animals with polymelia (Nowacka et al., 2007).

Congenital abnormalities can occasionally result in perinatal death, lower maternal productivity, and also diminish the value of affected new-borns. Animals possessing extra limbs and additional digits that are located abnormally can achieve successful survival with regular movement and improved sensory perception through the appropriate surgical intervention (Murondoti and Busayi, 2001). Farm animals born with congenital defects are frequently less favoured by livestock owners and others due to their diminished aesthetic appeal and their noticeable abnormalities.

Conclusion

The present paper reports a rare congenital abnormality (pygomeia) in calf. This study did not include genetic analysis for the unusual pygomeia observed in the HF cross-bred bovine calf, which could have potential significance. Finding specific genes or alleles linked to the appearance of pygomeia (both common and atypical) could help a lot with improving pedigree selection, which includes both female cows and male bulls, to stop these genetic tendencies and encourage successful breeding.

References

- Aiello SE, Mays A. Generalized condition. In: Aiello SE (ed.). *The Merck Veterinary Manual*, 8th ed., Merck, Whitehouse Station, 1998; pp. 425-567.
- Akbarian M, Borhani M, Zabihi N, Azizi F. First report of polymelia in a DSH kitten in Tehran, Iran *J Pharma Pharmacol.* 2020; 8:68-71.

- Daneze E, Brasil F. Polymelia and duplication of the descending colon in a Poodle Dog—A case report. *Veterinarski Arhiv*. 2018; 88: 149-57
- Eftekhari Z; Nourmohammadzadeh F, Jeloudari M, Alighazi N, Mohsenzadeghan A. Supernumerary ectopic limb in lamb: a case report. *Comp Clin Pathol*. 2012; 21:1207–1209.
- Fourie SL. Congenital supernumerary ectopic limbs in a Brahman-cross calf. *J South African Vet Assoc*. 1990; 61:68-7
- Hassanzadeh B, Rahemi A. Polymelia with unhealed navel in an Iranian indigenous young fowl. *Vet Res Forum*. 2017; 8: 85-7.
- Johnston, A. Polymelia in a Hereford-cross calf. *Vet Rec*. 1985; 116:585-586.
- Kim C, Yeo S, Cho G, Lee J, Choi M, Won C, Kim J, Lee S. Polymelia with two extra forelimbs at the right scapular region in a male Korean native calf. *J Vet Med Sci*. 2001;63(10):1161-4. doi: 10.1292/jvms.63.1161.
- Leipold HW, Huston K, Dennis SM. Bovine congenital defects. *Adv Vet Sci Comp Med*. 1983;27:197-271.
- Murondoti A, Busayi RM. Perineomelia, polydactyly and other malformations in a Mashona calf. *Vet Rec*. 2001;148(16):512-3. doi: 10.1136/vr.148.16.512.
- Nowacka J, Urbaniak K, Antosik P, Jaskowski JM, Frackowiak H, Switonski M. Polymelia associated with frequent chromosome breaks in a heifer. *Vet Rec*. 2007;161(8):276-7. doi: 10.1136/vr.161.8.276.
- Rousseaux CG, Ribble CS. Developmental Anomalies in Farm Animals: II. Defining Etiology. *Can Vet J*. 1988;29(1):30-40.