D-6057
[1-3]

CASE REPORT Agricultural Science Digest, Volume Issue : ()

Dystocia due to Twin Pregnancy in HF Crossbred Cattle- A Case Report

Jagmohan Rajput[1], Madhu Shivhare[2], Nitin Kumar Bajaj[2], Pawan Maheswari[1], Akanksha Pandey[1], Atul Singh Parihar[3]

10.18805/ag.D-6057

ABSTRACT

Background: Freemartinism is one of the most commonly found intersex conditions in cattle, although it may also occur in small ruminants. The freemartin phenotype appears in a dizygotic twin pregnancy where one twin is a male and the other is a female. Due to precocious anastomoses between the placental vascular systems of the two fetuses, masculinising molecules reach the female twin and disrupt the normal sexual differentiation. In cattle, this condition is observed in 90 to 97% of twin pregnancies. A freemartin is, by definition, a genetically female fetus masculinised in the presence of a male co-twin, giving rise to a sterile heifer.

Methods: A HF crossbred cow of 2nd parity was presented at Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Mhow (M.P) with the history of difficulty in calving, uterine contraction since last night, restlessness, uterine fluid discharge from vagina and swollen vulva. Per vaginal examination revealed presence of two fetuses in the uterus one being in anterior while other being in posterior presentation.

Result: Dystocia was resolved by manual intervention per vaginum resulting in birth of one male and one female calf. The male calf was strong and active, while the female calf was weak as compare to male.

Key words: Dystocia, Free martin, HF crossbred.

INTRODUCTION

Freemartinism is a type of intersexuality observed in cattle that occurs when there is anastomosis of chorio-allantoic sacs of dizygotic twins (male and female fetuses) resulting in a shared blood supply between the fetuses. Freemartinism condition is observed in 90 to 97% of twin pregnancies (Esteves *et al.,* 2012). This allows the exchange of cellular and humoral elements which can lead to calves that are blood cell chimeras. Freemartin are sterile female cattle born exhibiting characteristics of both sexes. Genital tract defects with varying severity can be observed in freemartins, suppression and disorganization of the ovary or originating a rudimentary or a testis-like gonad depleted of germ cells is commonly observed. The uterine horns may be hypoplastic or cord-like structure suspended in the broad ligament. Anatomic continuity between the uterus and the vagina is frequently absent a nd the existence of rudimentary vesicular glands is typical. The external genitalia commonly present enlarged clitoris, small vulva and a prominent, tuft of hair at ventral commissure of vulva. As a rule, heifers born twin to a bull have to be considered sterile and should be identified as early as possible to cull them from replacement stock. Despite its limitations, freemartinism can be diagnosed by physical examination, as karyotyping or blood typing is very expensive.

Case history and observations

A HF crossbred cow of 2nd parity was presented in the veterinary clinical complex, college of veterinary science and animal husbandry Mhow (M.P) with the history of difficulty in calving, contraction of uterus since last night, restlessness, discharge from vagina, swollen and oedematous vulva. It was also noted that the animal appeared dull and depressed, standing with frequent weak straining. On per vaginal examination, it was found that the cervix was fully dilated, with the vaginal passage appearing dry and oedematous with twining. Two feotus were present in anterior and posterior presentation.

Treatment and discussion

Posterior epidural anesthesia (2% Lignocaine, 7 ml) was performed. Carboxymethyl cellulose (CMC) was used as lubricant and was infused using pump. Hand was inserted

[1]Department Veterinary Medicine, College of Veterinary Science and Animal Husbandry, Mhow-453 446, Madhya Pradesh, India.
[2]Department Veterinary Gynaecology and Obstetrics, College of Veterinary Science and Animal Husbandry, Mhow-453 446, Madhya Pradesh, India.
[3]Department Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Mhow-453 446, Madhya Pradesh, India.

Corresponding Author: Madhu Shivhare, Department Veterinary Gynaecology and Obstetrics, College of Veterinary Science and Animal Husbandry, Mhow-453 446, Madhya Pradesh, India.
Email: drmadhushivhare@gmail.com

How to cite this article: Rajput, J., Shivhare, M., Bajaj, N.K., Maheswari, P., Pandey, A. and Parihar, A.S. (2024). Dystocia due to Twin Pregnancy in Hf Crossbred Cattle- A Case Report. Agricultural Science Digest. doi: 10.18805/ag.D-6057.

Submitted: 13-05-2024 **Accepted:** 13-08-2024 **Online:** 09-10-2024

Fig 1: Correction of dystocia with manual manipulation of foetuses.

per vaginum and both the forelimbs of the easily approachable foetus in anterior presentation, dorso-sacral position were tied with slip knot and the head was guided with the hand with application of force in downward and posterior direction. The first live foetus (male foetus) was successfully removed. The foetus was attended and taken care. The second foetus which was in posterior presentation (female foetus) was removed easily as compared to first foetus by traction. On physical examination the male calf (Fig 1A) was completely healthy having normal reproductive organs. But the female calf was not normal which was having unusual reproductive organ. The second foetus (female foetus) was freemartin (Fig 1B).

Supportive treatment was given in the form of fluid therapy (3 litre DNS, 4 litre Ringer's lactate and 400 ml calcium borogluconate-25 slow iv and 200 ml subcutaneously in the neck region). Antibiotic ceftifur sodium @1.1 mg per kg body wt. was administered once daily for 3 days by deeply intramuscular route. Inj. meloxicam @.5mg per kg body wt., Inj. chlorphernamine mealate @3 mg kg body weight. and Inj. tonophosphan 15ml intra muscularly at alternate day once for 3 shots were also given. Bolus oriprim-U were inserted in uterus (2 boli each in each uterine horn) after fetus removal. Powder replanta 50 gms BD was given orally for 5 days. The dam recovered successfully and both the calves born with assistance were also healthy.

The *freemartin* condition may be diagnosed on the basis of physical examination of suspected animals, as well as by serologic or cytogenetic testing. Cytogenetic testing techniques are more expensive and not always well accepted by the farmer, which often considers it an un necessary expense.

Prevalence of the freemartin syndrome in cattle population is directly dependent of the prevalence of twinning within the population (Esteves *et al*., 2012 , Das *et al*., 2016). Although congenital, *freemartinism* is not a heritable defect and consequently does not directly respond to negative selection. However, twining seems to have some genetic background and it has been found to present different incidence among breeds. Additionally, twinning incidence may vary with men-imposed artificial selection, either by culling or by intentionally use cows with higher twinning rates (Gregory *et al*., 1997), or even as consequence of multiple non sexed embryo transfer, where the deposition of two or more embryos is currently performed (Padula, 2005). Multiple pregnancies are strongly affected by age and parity, but only slightly influenced by season.

In cattle, twinning trend has a genetic background that has been associated to hormonal regulation in favour of double ovulations. However, the genetic determinant on the basis of twinning seems to have small importance when compared to environmental or management-associated factors, particularly in dairy cows. In fact, in dairy animals, in particular in high milk producing cows, it has long been proven that the increase of twin calvings occurs due to the hormonal and metabolic disturbances in the energy balance early in the post-partum period (Esteves *et al*., 2012). With increased incidence of twin births in cow it is reasonably expectable a small increase in the occurrence of freemartins at the farm levels.

CONCLUSION

The present paper is one of the most commonly found intersex conditions in cattle, although it may also occur in small ruminants. The freemartin phenotype appears in a dizygotic twin pregnancy where one twin is a male and the other is a female.

Conflict of interest

The authors declare no conflict of interest.

REFERENCES

Das, S., Majumdar, S. and Debbarma C. (2017). Dystocia due to dicephalus monster calf and its surgical management in a crossbred Holstein heifer -A case report. Indian Journal of Animal Research. 52(3): 474-476.

Esteves, A., Båge, R. and Carreira Payan, R. (2012). Freemartinism in cattle *In:* Ruminants: Anatomy, Behaviour and Diseases, Nova Science Publisher, Hauppauge, New York: 99-120.

Gregory, K.E., Bennett, G.L., Van Vleck, L.D., Echternkamp, S.E. and Cundiff, L.V. (1997). Genetic an environmental parameters for ovulation rate, twinning rate and weight traits in a cattle population selected for twinning. Journal of Animal Science. 75: 1213-1222.

Padula, A.M. (2005). The freemartinism syndrome: an update. Animal Reproduction Science. 87: 93-109.