

Twinning from a Simmental Cow-Case Report

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ABSTRACT

A 5 year old Simmental cow was presented with a primary problem of difficult in parturition (Dystocia). This was the second calving for the cow. One foetal hind limb was seen protruding from the vulva and three limbs were palpated in the cervix on vaginal exploration. Vulval discharges were observed visually. A caesareotomy was performed on the standing animal from the left flank which led to the exteriorisation of live male twin calves. To our knowledge this is the first reported case of twinning in the Simmental cow in Zambia.

Keywords: Twinning, Dystocia, Caesareotomy, breed, Dairy

Generally, *Bos taurus* females are considered as monovular. However, the incidence of multiple ovulations and thus twinning are increasing under certain conditions. Although during the 1970s and 1980s some studies sought to increase the twinning rate to improve milk production and progeny per cow, most authors today would agree that twin births are not desirable in dairy herds (López-gatius *et al.*, 2017). The negative effects of twinning in dairy cattle cause economic losses in the dairy enterprise through negative effects on cows calving twins as well as calves born as twins, cows that calve twins are at a greater risk for a lot of periparturient reproductive and metabolic disorders and incidences of abortion, stillbirth, neonatal calf mortality and reduced birth weight are greater among twins compared to singletons (López-gatius *et al.*, 2017; Hossein-Zadeh 2010).

Twinning has multiple causative factors and thus can be termed as a complex trait and empirical evidence supports a role for both genetic and environmental risk factors in cattle (Fricke, 2001). Sitali *et al.* (2014), stated that dystocia caused by foetal monsters or twinning can be relieved by foetotomy or caesarean operation depending on its state. Bell & Roberts (2007), proposed that high milk production increases steroid metabolism due to increased blood flow to the digestive tract and liver. The subsequent metabolism of the steroid oestradiol slows down the natural decline in follicle stimulating hormone; this means that follicles have more time to undergo physiological changes before they ovulate.

RESULTS AND DISCUSSION

A five year old Simmental cow was due for

parturition on the 3rd of March, 2016 at a farm in Palabana area, located in Chongwe district of Lusaka Province in Zambia. The cow was from a herd size of 62, comprising of 2 Holstein Friesian Bulls, 5 Simmental cows and 55 Holstein Friesian cows kept semi-intensively. The cow was observed to be straining un-fruitfully for 12 hours. The farmer observed a protruding limb and some bloody discharges from the vulva and was thus prompted to call a Veterinarian for assistance. The Veterinarian assessed the cows' status upon arrival and found that the animal was alert and had all its vital parameters within their normal ranges. However, one foetal hind-limb and bloody discharges were seen by the veterinarian on general examination as reported by the farmer. Rectal and vaginal exploration revealed that the foetuses could only be exteriorised via foetotomy or caesareotomy due to extreme mal-posture and oversize. A Caesareotomy was performed on the standing animal from the left flank which led to the observed finding of a twin pregnancy. Live twin calves were exteriorised and later dried using wheat bran. Nasal discharges were removed and calves were finally assessed for normality. This was the only case of twinning observed at the farm. The process of exteriorisation of calves is shown in the figures below.

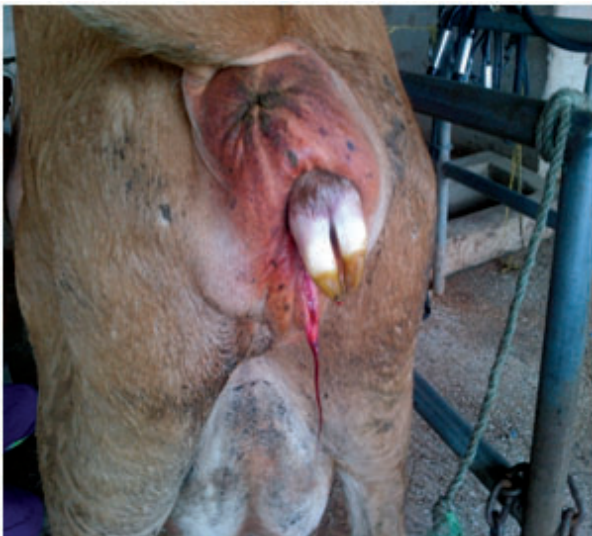


Fig. 1: Note the protruding limb and bloody discharges



Fig. 2: Surgical site preparation and infusion of lignocaine



Fig. 3: Note Calves being exteriorised



Fig. 4: Calves being dried with wheat bran



Fig. 5: The Twin calves on grass bedding

The present finding of twinning in the Simmental cow is evidence enough that twinning occurs in this breed of cattle. The present findings are in agreement with that of Fitzgerald *et al.* (2014), who reported that the Holstein-Friesian (HF), Simmental, Hereford and Choralais breeds of cattle had greater likelihood of multiple ovulations and hence increasing the chances of twin pregnancies in these breeds. Fitzgerald† *et al.* (2014) and Johansson, Lindhe, and Pirchner, (1974) confirmed that either monozygous or dizygous twinning is affected by breed. In a study conducted by Breuel *et al.* (1991), it was found that breed had an effect on the super ovulatory response in the beef cows studied due to the differences in response to the dosage of follicle stimulating hormone. These findings signify the importance of proper breed selection if traits for multiple ovulations are to be minimised in the dairy enterprise so as to minimise losses due to complications that both the dam and calves have as a result of twinning.

Several studies done have shown that HF cows had higher incidences of twinning compared to other breeds probably due to the hereditary nature of this trait in the breed and the higher volumes of milk produced by the breed type compared to other breeds (Johanson *et al.*, 2001). Since the farm is comprised of the Simmental and HF breeds, it can therefore be suggested that, crossing of the two breed types should be

discouraged in order to avoid the increase in the incidences of twinning in their crosses due to the twinning traits that might be acquired from both parents. However, this hypothesis should be elucidated in future studies. Furthermore, Esteves, Båge, and Payan-carreira (2012), reported that the Simmental and the HF breeds had higher percentages of twin calves compared to other breeds.

CONCLUSION

The observation that twinning has increased in the dairy cattle population over time suggest a concurrent change in one or more of the causative factors. Currently, dairy farmers and their consultants are ill prepared to make sound-management decisions to mitigate the negative impacts that twinning has caused on their operations due to lack of applied scientific data on management strategies for periparturient dairy cows carrying twin foetuses. Therefore, it is vital that factors responsible for twinning are clearly understood for the future development strategies so as to manage twinning in dairy operations in order to achieve optimal production.

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