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Clinical management of retention of fetal membranes in Murrah buffalo

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Abstract

Retention of Fetal Membranes (RFM), one of the most common postpartum conditions in farm animals, can result in infertility and a host of other problems if it is not properly and promptly treated. A six-year-old Murrah buffalo was presented to Referral Veterinary Polyclinic, ICAR-IVRI, Bareilly, Uttar Pradesh and it was reported that a 500 kg Murrah buffalo in her third parity gave birth normally, however the placenta did not emerge until 27 hours after calving. This was successfully treated by an intramuscular injection of 40 IU of oxytocin and repeated after 4 hours again. The placenta took six hours to pass following the oxytocin injection. After a month of follow-up, no other issues with that buffalo were found, and the conflict was fully resolved in two weeks.

Keywords: Buffalo, calving, murrah, placenta, oxytocin

1. Introduction

Being high milk producers, buffaloes are referred to as "Black gold" since they supply more than half of India's milk production. In terms of decreased fertility, low life time production, longer calving intervals, and higher medication costs in farm animals, various reproductive disorders that impede the exploitation of their production potential and consequently poor reproductive efficiency remain a major economic concern (Sandeep *et al.*, 2019) ^[10]. One of the main postpartum problems in buffaloes that can cause severe endometritis, metritis, pyometra, perimetritis, and ovaritis is retained fetal membranes (Roberts, 1971) ^[9]. In addition to increasing the risk of metritis and infertility and decreasing milk production and quality, the retained placenta, a common multifactorial postpartum reproductive disease, also causes significant financial losses for the dairy industry. The disease manifests as failure to expel fetal membranes within 24 hours of calving. Four well-liked theories attempt to explain the pathophysiology of ROP, which is yet unknown: immunological diseases, chorionic villi malfunction, inflammatory stress, and dysregulation of uterine contractions. Numerous studies have also established a connection between the pathophysiology of ROP and alterations in blood metabolites, cytokines, inflammatory factors, immune factors, and hormones. Nevertheless, using blood markers to understand the intricate pathophysiology of ROP including the nutritional, metabolic, immunological, neurological, and reproductive systems is challenging (Yuqiong *et al.*, 2021) ^[6]. Buffaloes had a placenta retention rate ranging from 10% to 15%. Additionally, large variances (2.89–12.23%) were noted, and the prevalence grew with parity throughout time, peaking at the fifth parity (30%) and being linked to malnourishment (Kunbhar *et al.*, 2011) ^[5]. Moreover, RFM (Retention of Foetal Membranes) has been linked to a higher incidence of mastitis, metritis, endometritis, and ketosis. According to Goshen *et al.* (2006) ^[4], these illnesses may consequently result in lower fertility and possible reductions in milk production. Foetal cotyledons failing to separate from mother caruncles is the main cause of persistent placental membranes. Numerous factors combine to form the various processes involved in placenta evacuation, which start far earlier than actual parturition. Placenta evacuation is influenced by a variety of hormonal and mechanical elements; if any of these don't work, the condition develops and the third stage of labor is extended. Disease development is predisposed by an excess of oestrogen and cortisol combined with an endogenous oxytocin deficiency (Roberts, 1971 and Noakes *et al.*, 2009) ^[9]. Buffaloes have been observed to have a higher incidence rate (1.2–33.8%) than cattle (2.3–

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11.1%). This syndrome is linked to a number of mineral shortages/imbalance (Calcium, Phosphorous, and Iodine), vitamin deficiencies (Vitamin A), uterine inertia, chronic wasting diseases, genital abnormalities, and a number of other infectious causes (Roberts, 1971)^[9].

2. Case History

A pluriparous Murrah buffalo weighing 500 kg calved 2 times as was brought to Referral Veterinary Polyclinic, ICAR-IVRI, Bareilly, UP with the history of calved female calf normally 27 hours before and foetal membrane hanging from the vulva on clinical examination the animal was alert and active with rectal temperature of 101.2° F, heart rate was 60 beats per minute. On per-vaginal examination, the cervix was fully dilated. From the clinical observations the case was diagnosed as Retention of placenta (Fig. 1).

3. Treatments and Discussion

In this instance, the recommended course of treatment involved injecting 40 IU of oxytocin intramuscularly, which was then repeated four hours later. The placenta took six hours to pass following the oxytocin injection and then buffalo was treated with injections of ceftriaxone (10 mg/kg body weight) via intravenous route, injection of chlorpheniramine maleate (0.5 mg/kg) via intramuscular route, and Utrifit liquid (200 ml on the first day and 150 ml on the second and third day) orally. This was done in order to prevent metritis and further septicemia. Intravenous injections of calcium borogluconate (500 ml), Dextrose 25% (1500 ml), normal saline (1500 ml), and Tribivet (15 ml) were used. After the placenta was removed, an intravaginal four-furex bolus was inserted into the uterus. After a month of follow-up, no other issues with that buffalo were found, and the conflict was fully resolved in two weeks. According to Noakes *et al.* (2009)^[7], the effectiveness of treatment for uterine infections is contingent upon several factors, including the removal of uterine fluids, the infectious agents' susceptibility to the treatment, the frequency and concentration of antibiotic administration, and the endometrium's exposure. One factor that makes additional antibiotic therapy successful is uterine evacuation. Antibiotics work better to eradicate the residual illness when fluids are eliminated. The antibiotic need to be effective against the major uterine pathogens and ought to continue to be effective in the uterine environment. However, Ahmed *et al.* (2009)^[1] manually removed the placenta from the majority of the buffaloes that had it retained. By manually removing the retained foetal mass and then administering oxytocin, calcium, and antibiotics both locally and parentally, Channa *et al.* (2006)^[2] discovered a 69.56% fertility rate. The administration of local and systemic antibiotics during manual placental removal is advised since the non-infectious causes of placental retention are complex and challenging to detect, and because the majority of puerperal metritis cases are also linked to mastitis (Dabas *et al.*, 2011)^[3]. Connect the dots between reductions in the prevalence of retained placenta and the care of transition buffalo in terms of feeding and comfort. One strategy to stop this illness from happening is to think about these management goals. Nutritional control during the prepartum period can prevent various peri- and postpartum disorders, and high-producing buffalo contend with substantial physiological and immunological obstacles (Patel *et al.*, 2016)^[8]. The relevance of diet and stress management techniques is further demonstrated by research showing that deficiencies in vitamin E and selenium in buffaloes lower the frequency of RFM and that immune function declines

contribute significantly to the mechanism of placental retention. RFM is a prime example of a disease for which prevention may be simpler and less expensive than treatment. The focus of bovine veterinary medicine is changing from the treatment of disease in individual animals to herd prevention techniques (Patel *et al.*, 2016)^[8].

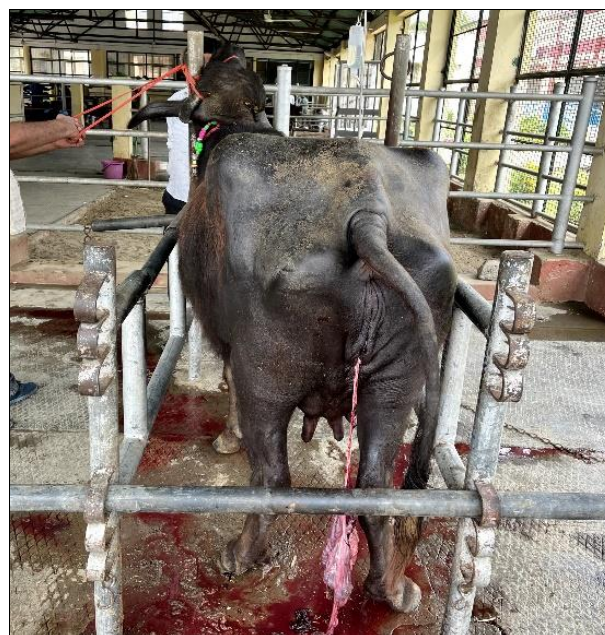


Fig 1: Retention of fetal membrane in Murrah buffalo

4. Conclusion

This study demonstrated the seriousness of ROP in addition to other reproductive illnesses in buffaloes. Retained foetal membranes do not impair an animal's ability to reproduce, but it is still preferable to prevent the condition in animals as it has the potential to deteriorate and result in toxicity, infertility, and ultimately death. Breeding excellent management with regular deworming, immunization, and balanced nutrition helps lower the incidence and severity of ROP. Buffalo comfort, lowering stress after parturition, and cautious dietary control, especially during the transition phase, are all important components of RFM prevention in Buffalo. There are significant differences in the incidence of retained placenta according on the calving season, dam weight, number of parities, sex, weight of born calves, and feeding regimen. The prevention of puerperal disorders can be achieved by taking supplements of vitamin-E and selenium, and treating cases of RFM with the proper antibiotics for three to five days. When it comes to raising buffalo at the village level, farmer awareness is crucial.

5. Conflict of Interest

Not available

6. Financial Support

Not available

7. References

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