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Brahmanand

Assistant Professor, Department of Veterinary Gynaecology & Obstetrics, Apollo College of Veterinary Medicine, Jaipur, Rajasthan, India

Pratipal Singh Kaurav

Assistant Professor, Department of Veterinary Gynaecology & Obstetrics, Apollo College of Veterinary Medicine, Jaipur, Rajasthan, India

Charan Singh Sharm

Dean, Apollo College of Veterinary Medicine, Jaipur, Rajasthan, India

Corresponding Author

Brahmanand

Assistant Professor, Department of Veterinary Gynaecology & Obstetrics, Apollo College of Veterinary Medicine, Jaipur, Rajasthan, India

Retained placenta in zebu cattle-report of two cases

Brahmanand, Pratipal Singh Kaurav and Charan Singh Sharm

Abstract

Retention of placenta is one of the most common postpartum conditions in farm animals associated with infertility when not treated promptly and adequately. These case reports the clinical management of retained placenta in a zebu cattle which is an economically important disease in the dairy industry.

In this report, two different cases of retention of placenta also called retention of fetal membranes handled at Veterinary Clinical Complex, Apollo College of Veterinary Medicine, Jaipur before few days. In the first case, a 5 year old zebu cattle weighing 300 kg was presented at VCC with the history of calving before 10 days. Physical examination finding revealed foul smelling and brownish discharge from the vulva opening. Small pieces of placenta also expelled through vulva many times a day. Based on the history and clinical signs, this was diagnosed as a case of retained placenta. This was successfully treated with furex bolus, melonex and broad spectrum antibiotic. The second cow weighing 330 kg had a history of calving before 18 hours. This case treated successfully with oxytocin after oestrogen priming of the uterus. The placenta was expelled 8 hours after the oxytocin injection.

Keywords: Retained placenta, vaginal discharge, oxytocin, oestrogen, cow

Introduction

Retained placenta is one of the most common complications occurring in animals following parturition (Roberts, 1986) [18]. Parturition occurs at the end of gestation and can be delineated into three stages (Noakes *et al.*, 2009) [15]. The first culminates into dilation of the cervix. The second stage is expulsion of the foetus while the third stage terminates at the expulsion of placenta. In ruminant, the maternal caruncle fuses with the foetal cotyledon like a 'hand-in-glove' to produce placentome, a functional unit of the placenta (Senger, 2005) [20]. Post-partum period is a crucial transitory phase in bovine life when various physiological, gynecological, and biochemical changes occur. During this period, the animal is exposed to high risk of uterine infections as the anatomical barriers are breached and the genitalia remain open for various days (Goff and Horst, 1997) [10]. Retained fetal membranes are the failure of the entire or partial placenta to be expelled for duration of time that is considered to be longer than normal physiologic limits (Radostits, 2007) [17]. The mechanical actions of uterine contraction during the first and second stages of parturition stimulate compression of the placentomes and begin the separation of the two parts (foetal cotyledons and maternal caruncle), while placenta expulsion from the uterus is effectively completed with further contraction during the third stage (Hafez & Hafez, 2006) [11]. These mechanisms require some time. Therefore, placenta is not said to be retained in cattle until 12 hours after parturition (Jackson, 2004) [12]. The incidence of retained fetal membranes in dairy cattle is 5% to 15% following normal parturition which is higher than beef cattle (Arthur, 1979) [4]. The principle cause of retained placenta in cattle is a disturbance in the loosening process between the fetal cotyledons and the maternal caruncles and it is attributed to many infectious and non-infectious factors (Bretzlaff, 1988) [8]. According to Kahn and Line (2005) [13], the incidence of retained placenta is increased by abortion, dystocia, hypocalcaemia, twin birth, and high environmental temperature, advancing age of the cow, induction of parturition, placentitis and nutritional disturbances. Cows with retained fetal membranes are at an increased risk of metritis, displaced abomasum, and mastitis (Gilbert, 2015) [9]. This case reports the clinical management of a retained placenta in a dairy cow which is an economically important disease in the dairy industry. Prompt diagnosis and treatment helped to prevent the development of endometritis and toxemia which could affect the breeding and fertility of the cattle (Abdullah *et al.*, 2015) [1].

Case Report

Case 1

History

A 5 year old zebu cattle weighing 300 kg was presented at Veterinary Clinical Complex, Apollo College of Veterinary Medicine, Jaipur with the history of calving before 10 days, foul smelling and brownish discharge from the vulva opening. Small pieces of placenta also expelled through vulva many times a day. Owner given some herbal medicines to the animal for three days orally. Feed and water intake was normal. There was no history of deworming and vaccination.

Clinical Examination

The animal was active, bright and responsive. The clinical parameters like temperature, respiration and pulse were normal (Table- 1). Further examination revealed the cow was in good body condition with good hair coat, Brownish discharge and foul smelling present from the vulva opening. Based on the history and clinical signs the case was diagnosed as retained placenta.

Treatment

The therapeutic plan for this case was to remove the retained placenta which may affect the future reproduction status of the cow. A lubricated gloved hand was made into a cone shape and inserted into the rectum to squeeze the uterus to remove the contents from uterus. Due to squeezing and straining by the animal a small piece of the placenta to hang out of the vulva. An attempt made to manually remove the stump by applying gentle traction but failed, So therapeutic treatment was evident. The uterus was lavaged with normal saline using steel made intrauterine catheter which was passed through the vulva into the uterine body. Continuous flushing of normal saline helped to irrigate and flush out all the brownish foul smelling discharges. Four bolus of Furex was inserted two in each uterine horn at alternate day for two days. Meloxicam (3 mg/kg) was administered intramuscularly once a day for 3 days as an anti-inflammatory, anti-pyrexia and analgesic. Broad spectrum antibiotic intacef- Tazo 4.5 gm was also given intramuscularly for 3 days to treat current infections and to prevent secondary bacterial infections.

Progression

The case was followed up for 3 days after treatment and the cow was responded well to the treatment. After day 6 from starting the treatment, there was no discharge and foul smell from vulva. In this case, the prognosis for cow was good.

Case 2

History

A 5 year old zebu cattle weighing 330 kg was presented at Veterinary Clinical Complex, Apollo College of Veterinary Medicine, Jaipur with the history of calving before 18 hours. Placenta not expelled after parturition and its hanging from vulva. Owner given some home made remedies for expulsion of placenta but failed. Deworming done but no history of vaccination.

Clinical Examination

Clinical examination revealed that cow was in good body condition. The hair coat was good and the animal was active, bright and responsive. The basic clinical parameters like temperature, respiration and pulse were taken (Table- 1). The above mentioned clinical parameters was normal. Feed and

water intake was normal. Based on the history and clinical signs, the case was diagnosed as retained placenta.

Treatment

First of all clean the vulvar region and hind portion of the cow with clean water, then wash with kmno₄ solution to remove the dirt and dust. Apply gentle traction on placenta to remove outside but not obtained success. So therapeutic treatment required. The cow was given 10 mg oestrogen (Oestradiol Cypionate) injection intramuscular. This was successively followed by 30 IU oxytocin injection intramuscular. The placenta dropped about 8 hours after the oxytocin injection. Flunixinmeglumine (1.1mg/kg) was administered intramuscularly once a day for 3 days as an anti-inflammatory, anti-pyrexia and analgesic. Broad spectrum long acting oxytetracycline 20mg/kg antibiotic was also given once intramuscularly to treat current infections and to prevent secondary bacterial infections.

Progression

The case was followed up for 3 days after treatment and the cow was responded well to the treatment. In this case, the prognosis for cow was good but there was an increased risk of re-occurrence in subsequent parturition. Nonetheless, the prognosis of the cow fertility will be guarded if endometritis was present (Abdullah *et al.*, 2015)^[1].

Table 1: Clinical parameters of cows treated for ROP

Parameters	Cow 1	Cow 2
Rectal temperature	101.7 ⁰ F	101.3 ⁰ F
Respiratory rate	36cpm	40cpm
Pulse rate	53bpm	58bpm
Heart rate	56bpm	62bpm

Discussion

Retention of placenta in farm animals is a serious post-parturient disorder which occurs in the last phase of parturition. The incidence of ROP in cow is estimated to be 4-16% (Amin *et al.*, 2013)^[3], which is relatively higher than other farm animals (Ayele *et al.*, 2014)^[5]. The 'finger-in-glove' like cotyledon placentation in cow is believed to contribute to the condition (Peter, 2013)^[16]. In case 1, retained placenta will remain within the uterus, where only foul smelling discharge is the only clinical finding. Uncomplicated retained placenta without systemic illness or toxemia is generally not directly harmful to the cow. Manual removal of retained membranes is no longer recommended and is potentially harmful. There is a variety of treatment that has been suggested for retained placenta in cows and this include administering myometrial stimulants with intrauterine and systemic antibiotics. Oxytocin has long been used to expel the placenta after delivery, however it does not reduce the incidence of retained placenta because oxytocin is already being secreted by normal cows at parturition and it helps contract the uterus and expel the placenta that is fully detached. However, if the placenta is not detached from the caruncles oxytocin will not hasten its passage (Miller & Lodge., 1984)^[14]. So, in relation to this case, although the farmer administered oxytocin, the condition still persisted. In case 1, when animal presented to VCC, clinician noticed that animal feeding was proper and there was no toxemia. Brownish discharge was expelled out from uterus after lavage with normal saline. Furex bolus contains urea which play an important role in detachment of

caruncles and cotyledons.

The next line of action is therapeutic treatment of ROP which involves using an ecbolic to initiate contraction of the uterus. The most common drugs of choice in the field are oxytocin and prostaglandins F2 α (Amin *et al.*, 2013) [3]. Oxytocin is a preferred drug especially when detachment has occurred (Miller & Lodge, 1984) [14]. However, there is a prior need for the uterus to be primed with oestrogen before an optimal response to the contractility effect of the oxytocin can be initiated (Bossmar *et al.*, 2007) [7]. Oestrogen is believed to elevate expression of oxytocin receptors in the endometrium (Robinson *et al.*, 2001) [19]. Oxytocin has to bind to oxytocin receptor in order to elicit its effect (Wathes *et al.*, 1999) [22]. The positive response of placenta expulsion observed in case 2 further substantiates this concept.

Another important concern regarding retained placenta is its consequence which may lead to septic metritis (Ball *et al.*, 1984) [6]. Thus, it is important to cover the animal with antibiotics such as broad spectrum antibiotic (oxytetracycline) (Abdullah *et al.*, 2014) [2]. Caution should be taken as the milk from cows treated with oxytetracycline can only be consumed 4 days after the last treatment. As for prevention, cows should be given adequate balanced rations of calcium, phosphorus, vitamin A and E and selenium (Smith, 1990) [21].

Conclusion

This report has shown that retention of placenta is a frequent clinical phenomenon in cattle and is successfully treatable with bolus Furex and oxytocin administration. Although the occurrence of retained fetal membrane doesn't affect the reproductive performance in mild cases, it is better to prevent the condition in animals because there is a chance it may worsen and lead to toxemia and eventually infertility or death of the animal.

References

1. Abdullah FFJ, Chung ELT, Abba Y, Tijjani A, Sadiq MA, Mohammed K, *et al.* Management of clinical case of endometritis in a cow: A case report. *Journal of Veterinary Advance*. 2015;5(4):887-890.
2. Abdullah FFJ, Mohammed K, Abba Y, Adamu L, Osman AY, Tijjani A, *et al.* Retained placenta associated with *Escherichia coli* infection in a dairy cow. *International Journal of Livestock Research*. 2014;4(2):120-125.
3. Amin Rooh UI, GR Bhat, Ahmad A, Partha Sarathi Swain, Arunakumari G. Understanding patho-physiology of retained placenta and its management in cattle: a review. *Veterinary Clinical Science*. 2013;1(1):01-09.
4. Arthur GH. Retention of the afterbirth in cattle: a review and commentary. *Vet Annual*. 1979;19:26-36.
5. Ayele G, Mekibib B, Sheferaw D. Postpartum problem of dairy cows in management of small and medium scale production systems in Wolaita, Sodo, Ethiopia. *African Journal of Agricultural*. 2014;9(36):2775-80.
6. Ball L, Olson JD, Mortimer RG. Bacteriology of the postpartum uterus. *Proceedings of the Annual Meeting of the Society for Theriogenology*, 1984, 164-169.
7. Bossmar T, Osman N, Zilahi E, Haj MAE, Nowotny N, Conlon JM. Expression of the oxytocin gene but not the vasopressin gene in the rat uterus during pregnancy: influence of oestradiol and progesterone. *Journal of Endocrinology*. 2007;193(1):121-126.
8. Bretzlaff K. Physiology and pharmacology of the postpartum cow and retained fetal membranes. *Proceedings of the American Association of Bovine Practitioners*, 1988, 71-76.
9. Gilbert RO. Retained Fetal Membranes in Cows. In: *MSD Veterinary Manual*. URL: <https://www.msddvetmanual.com/reproductive-system/retained-fetal-membranes-in-large-animals/retained-fetal-membranes-in-cows>, 2015. Accessed on 28.06.2020.
10. Goff JP, Horst RL. Physiological changes at parturition and their relationship to metabolic disorders1, 2. *Journal of dairy science*. 1997;80(7):1260-1268.
11. Hafez ESE, Hafez B. *Reproduction in Farm Animals*. 7th ed., Blackwell Publishing Limited. UK. 2006, 261-278.
12. Jackson P. *Handbook of Veterinary Obstetrics*. Saunders, Edinburgh, United Kingdom, 2004, 218-220.
13. Kahn CM, Line S. *The Merck Veterinary Manual* 9th ed. USA, 2005, Merial.
14. Miller BJ, Lodge JR. Postpartum oxytocin treatment for prevention of retained placentas. *Theriogenology*. 1984;22(4):385-388.
15. Noakes DE, Parkinson TJ, England GC. *Veterinary Reproduction and Obstetrics*. 9th ed., Elsevier. China, 2009, 950p.
16. Peter AT. Bovine placenta: a review on morphology, components and defects from terminology and clinical perspectives. *Theriogenology*. 2013;80(7):693-705.
17. Radostits OM, Gay CC, Hinchcliff KW, Constable PD. *Veterinary medicine: a textbook of the disease of cattle, sheep, goats, pigs and horses*, 10th ed., Philadelphia: *Saunders*. 2007, 834-836.
18. Roberts SJ. *Veterinary Obstetrics and Genital Disease*, 3rd ed., North Pomfret: Woodstock, 1986.
19. Robinson RS, Mann GE, Lamming GE, Wathes DC. Expression of oxytocin, oestrogen and progesterone receptors in uterine biopsy samples throughout the oestrous cycle and early pregnancy in cows. *Reproduction*. 2001;122(6):965-979.
20. Senger PL. Pathways to pregnancy and parturition, *Current Conceptions*, 2nd ed., Pullman, WA, 12, 2005, 373.
21. Smith BP. *Large animal internal medicine: disease of horses, cattle, sheep, and goat*. Missouri: Mosby, 1990, 846-848.
22. Wathes DC, Borwick SC, Timmons PM, Leung ST, Thornton S. Oxytocin receptor expression in human term and preterm gestational tissues prior to and following the onset of labour. *J Endocrinology*. 1999;161(1):143-151.