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Clinical management of septic metritis due to abortion and subsequent successful conception in a cross bred Jersey cow

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Abstract

A Cross bred Jersey cow was presented to Obstetrics unit of Veterinary Clinical Complex, Orathanadu with the history of abortion at 7 months of pregnancy and it was aborted 9 days back; and the animal showing sero sanguinous vaginal discharge since 3 days. On clinical examination the animal was dull and depressed with rectal temperature of 39.8°C. On vaginal examination, two finger dilatation of cervix with foul smelling sero sanguineous discharge was noticed. From the observations the case was diagnosed as Septic metritis. Hence the animal was treated by parental administration of Inj. Normal saline (1000 ml), Inj. RL (1000 ml), Inj. Detrose 25% (1000 ml) Inj. Procaine penicillin (20,000 /kg), Chlorpheniramine maleate (0.5 mg/kg), Meloxicam (0.5 mg/kg), Inj. Tribivet (20 ml) and intrauterine administration of povidone iodine 20 ml solution diluted with normal saline 50ml and mixed with Metronidazole 120ml. Treatment was continued for five days and the animal had an uneventful recovery. After two months the animal was brought to Gynaecology unit of Veterinary Clinical Complex, Orathanadu with the history of animal showing signs of mucus discharge, bellowing sound and mounting behaviour. On external observation and rectal examination all signs are positive for estrum. Stage of estrum, uterus and follicular status were assessed by Ultrasonography. Because the animal was treated for Septic metritis previously, White side test was performed and revealed negative. Then the animal was inseminated on two consecutive days and GnRH (Gynarich-5ml) was administered on first day of insemination intramuscularly. Pregnancy was confirmed by ultrasound and rectal examination at 33days and 47 days respectively after insemination.

Keywords: Septic metritis due, abortion, Jersey cow

Introduction

Metritis is inflammation of the wall of the uterus. It is a postpartum infection and the inflammation of the uterus consisting of both the endometrial and the muscular layer. Most of the cases occurred during the first 10-14-days of delivery and sometimes it is referred as toxic puerperal metritis or pelvic inflammatory disease (PID). It is characterized by an enlarged uterus containing a watery red-brown fluid to viscous off-white purulent uterine discharge, which often has a fetid odor or unpleasant smell. Clinically metritis and endometritis can be diagnosed based on clinical symptoms, manage mental history during parturition, detecting vaginal discharge with the aid of speculum or gloved hands and cytological examinations give information about their diagnosis. Inflammation of uterus occurred after entry of bacteria during or immediately after parturition, coitus or while carrying out artificial insemination. Severity and persistence of infection of uterus depends on the degree of contamination, weak uterine defense mechanism and presence of substrates for the growth of the microbes such as devitalized tissues are the factors for the occurrence of uterine diseases (Arundhat *et al.*, 2015) [1]. Pathogenic microbial infections of uterus that cause uterine disease are common in modern dairy cattle after parturition and lead to decreased productivity and sub-fertility from metritis and endometritis (Iain and Sian *et al.*, 2017) [8]. The most prominent abnormality observed in clinical metritis and endometritis are the yellowish mucopurulent discharged from the vulva opening. Pyrexia, systemic illness, dull, depressed with pale mucous membrane. Upon rectal examination the uterus having a doughy consistency and around the ovaries, the corpus luteum persistently can be palpated. Decreased milk yield, in appetite and increases infertility in dairy cows animals indicates uterine diseases (Negasee, 2020) [10].

Case history and clinical observation

A Cross bred Jersey cow was presented to Obstetrics unit of Veterinary Clinical Complex, Orathanadu with the history of abortion at 7 months of pregnancy and it was aborted 9 days back; and the animal showing sero sanguinous vaginal discharge in the past 3 days. On clinical examination the animal was dull and depressed with rectal temperature of 40.8 °C, pulse rate of 69 and respiratory rate of 22. On vaginal examination, two finger dilatation of cervix with foul smelling sero sanguineous discharge was noticed. From the observations the case was diagnosed as Septic metritis.

Treatment and Discussion

Vaginal examination was performed under low caudal anaesthesia with 2 per cent Lignocaine. On rectal examination the uterus was enlarged and accumulated sero sanguineous fluids oozes out through vagina. Hence uterine fluids were removed by using uterine catheter followed by Intrauterine administration of povidone iodine 20 ml solution diluted with normal saline 50ml and mixed with Metronidazole 120 ml. Parental administration of Inj. Normal saline (1000 ml), Inj. RL (1000 ml), Inj. Detrose 25% (1000 ml) Inj. Procaine penicillin (20,000 /kg), Chlorpheniramine maleate (0.5mg /kg), Meloxicam (0.5 mg /kg), Inj. Tribivet (20 ml) Treatment was continued for five days and the animal had an uneventful recovery. After two months the animal was brought to Gynaecology unit of Veterinary Clinical Complex, Orathanadu with the history of animal showing signs of mucus discharge, bellowing sound and mounting behaviour. On external observation and rectal examination all signs are positive for estrum. Stage of estrum, uterus and follicular status were assessed by Ultrasonography. Because the animal was treated for Septic metritis previously, White side test was performed and revealed negative. Then the animal was inseminated on two consecutive days and GnRH (Gynarich-5ml) was administered on first day of insemination intramuscularly. Pregnancy was confirmed by ultrasound and rectal examination at 33 days and 47 days respectively after insemination.

Metritis is defined as inflammation of both the endometrial and muscular layers of the uterus. Septic metritis following parturition occur with or without retention of fetal membranes and is observed within 1 to 10 days. Causative agent of septic metritis is similar to retention of fetal membranes. Puerperal metritis usually occurs within Day 10 postpartum and is defined as an acute systemic illness caused by an infection of the uterus (Sheldon *et al.*, 2006) [15]. Important characteristic of puerperal metritis is rectal temperature greater than 39.5 °C within 21 days after calving. Retained placenta, fetal maceration or difficult calvings are predisposing factors for occurrence of puerperal metritis (Foldi *et al.*, 2006; Chapwanya, 2008) [7, 4]. In severe cases the affected animal shows anorexia, reduced milk yield, dullness, cold extremities, increased heartbeat, apparent dehydration, depression and sometimes animal may finally collapse (Bilal *et al.*, 2018) [3]. Sharma *et al.* (1993) have reported that around 18-40 per cent of dairy animals in India are culled due to infertility. Drillich *et al.* (2006) [6]; Benzaquen *et al.* (2007) [2] have reported that about 18.5% to 21% of dairy animals are affected by metritis with signs of systemic illness such as pyrexia. Kumari *et al.* (2016) [9] have reported in crossbred and Zebu cattle an incidence of metritis around 22.56% and 10.32% respectively.

In India, a clear estimate on the losses associated with uterine

infection is not available but, a significant amount of economic losses can be minimised by proper management, proper diagnosis and timely treatment of uterine infections. The extra expenses due to uterine disease result from infertility, increased culling rate, losses from milk production, and the cost of treatment. A decline by 15 per cent and 12 per cent in milk production has been reported from cattle and buffaloes respectively due to uterine infections (Bilal *et al.*, 2018) [3]. Drillich *et al.* (2001) [5] have reported about €292 economic cost for a single case of metritis. Due to reproductive parameters alone, an estimated loss of \$2.5 to \$3 per cow per day has been reported from compromised reproductive efficiency beyond 100 days postpartum.

Several infectious agents such as virus, bacteria, protozoa, and fungus are accountable for cattle abortion. Abortion is also caused by non-infectious included toxic substances, nutritional, metabolic, and physical insults. Some of the infectious agents, such as *Brucella abortus*, *Coxiella burnetii*, *Leptospira*, and *Listeria monocytogenes* that are responsible for abortion in cattle have also zoonosis implication. Among the infectious causes of abortion, *Brucella* infection is one of the foremost causes of abortion in cattle.

The main focus of postpartum follow up should be to have early detection of post-partum diseases by regular and frequent monitoring and observations rather than to diagnose when it becomes clinical, which is more costly to treat and takes a long time to recover. Based on rectal temperature and visual signs (dull, depressed and alert) decision for further rectal or vaginal evaluation is to be taken accordingly. A well-established therapeutic protocol can be framed based on the outcome/finding of these evaluation criteria. Monitoring of body temperature and behaviour of animal are currently in practice in addressing retained fetal membranes and metritis in dairy cows. The uterine diseases can be managed by intrauterine wash, systemic antibiotics, and hormones. In more severe cases other symptomatic therapies like anti-inflammatory agents and intravenous fluid therapy is also advocated. Treatment of metritis and other uterine diseases, different intrauterine therapies like antiseptics, antibiotics and immune modulators are infused into the uterus to eliminate the bacterial infection, stimulate the normal uterine defense mechanism, or to increase the blood flow to the uterus. The most routinely used intrauterine therapy is the infusion of iodine solution in water or saline. Penicillin is one of the most preferred antibiotics for postpartum metritis and endometritis because it penetrates all the layers of the uterus, and most of the bacteria penetrating the endometrium leading septicemia are responsive to penicillin (Negasee, 2020) [10]. NSAIDS along with broad spectrum antibiotics has been found to be more efficacious when deemed necessary based on evaluation criteria (Bilal *et al.*, 2018) [3].



Rectl examination for Intrauterine administration



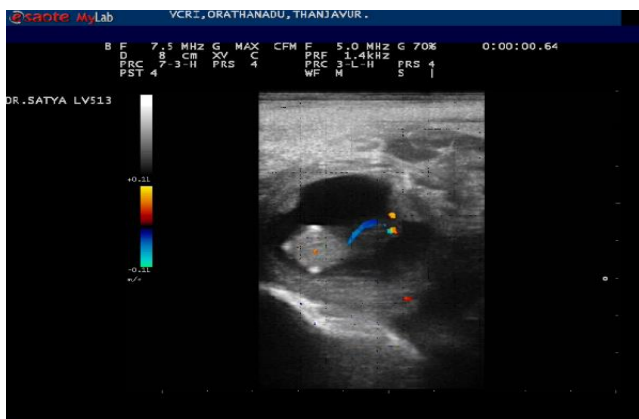
Aborted foetus



Removal of uterine contents by uterine catheter



Ultrasonography at day 33



Ultrasonography at day 47

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