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Prevalence and therapeutic measures of postpartum uterine diseases in achai cattle at livestock research & development station Surezai, Peshawar

Abstract

The study was conducted at Livestock Research & Development Station; Surezai Peshawar. The study was designed to investigate the prevalence of postpartum uterine diseases and to find out the drug of choice to treat the same in Achai cattle. For this study total of 50 Achaiadult pregnant cows having similar physiological status were selected to documents prevalence of postpartum disease and response to different antibiotic. Fresh parturated cows were observed twice daily for postpartum uterine diseases, such as Retained placenta, acute metritis and endometritis upto one month after calving. The cows found positive for any postpartum uterine symptoms were isolated and treated with various antibiotic protocols like Gentamycin sulphate 5 % and Strepto – penicillin. The incidence of retained placenta recorded was 6percent, which iscomparatively lower than other breed of cattle (8%). The incidence of uterine prolapse recorded in the current study was 8%, which is higher as compared to other breeds of cattle (1 -2%). The incidence of endometritis in Achai cattle recorded was 4 %, which is much lower than other breeds of cattle. The use of Gentamycine sulphate 5% intramuscularly proved to be highly efficient for uterine prolapse however its efficacy was found low in cases of Retained Placenta and Endometritis. The intrauterine use of Penbiotic (Strepto-Penicillin 5gm) proved to be more responsive in cases of retained placenta and endometritis however less responsive for prolapse cases. From the finding of the present study it was concluded that Achai is a small dairy breed of Khyber Pakhtunhwa Pakistan, having resistant to uterine diseases (Retained placenta & Endometritis) and Strepto-Penicilline is the drug of choice for its treatment.

Keywords: achai, antibiotic, postpartum, surezai, uterine diseases

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Introduction

Endometritis is a major postpartum disease that affects dairy cattle productivity which isaccompanied by heavy economic losses to the farmer.[1] Microbial infections are highly associated with infertility as they disrupt uterine and ovarian function. Risk factors for endometritis include dystocia, male offspring, twins, stillbirth, abortion, Retained Placenta, metritis, problems with vulval conformation and ketosis.[2–5] Endometritis is characterized by an enlarged uterus and a watery red-brown fluid to viscous off-white purulent uterine discharge, which often has a fetid odor.[6] The decreased fertility is caused by negative effects in the uterus and in the ovary. Uterine diseases cause lesions in the endometrium,[7] disrupt endometrial function,[8] and impair embryo development.[9] Genital prolapse is a major but not very common reproductive disorder in cattle and buffaloes.[9] It is regarded as an emergency condition and should be managed before excessive edema, mucosal trauma, contamination and fatal hemorrhage lead to a grave prognosis.[10] Although a high estrogen level is considered as a prime factor for ante partum vaginal prolapse, the exact etiology of uterine prolapse is still unclear.[11] Hypocalcaemia results in myometrial fatigue and delays cervical involution, both of which could predispose to uterine prolapse.[8] Forced extraction of the fetus has also been incriminated as an etiological factor.[11] These diseases lead to impaired welfare and fertility, and result in economic loss. These diseases have been associated with decreased pregnancy per artificial insemination (AI), extended interval to pregnancy, increased culling, and economic losses.[2,8,12] Achai are small-sized cattle breed found in Khyber Paktunkhwa province and are famous for its high resistant to extreme environmental conditions. The home tract of Achai cattle are district Dir, Swat, Bajaur Agency and extend on the west to adjoining parts of Afghanistan. These cows are suitable for mountainous terrain and can resist cold as well as warm climate. It has a small body and thus needs little feed. It is a dairy and light draught breed that can thrive under scarce fodder availability and can produce adequately under a hilly and sub-hilly subsistence production setup.[13] *Achai* is yet undocumented but well-adapted *cattle* breed of the Hindu Kush Mountains of northern *Pakistan.*[14] Achai cows also have a better reproductive performance than other cattle breeds in Pakistan.[14] Achai cattle have average daily milk yield 2.81±0.12 liter, while lactation period of 263.14 ±24.53 days with total lactation yield of 813.07±113.39 liter. Achai cattle have average puberty age of648.50±54.66 days having 1.43±0.11 services per conception with average service period of 121.40± 17.74 days and average calving interval of 461.89±36.23 days.[15]

Objectives

i. To find out the prevalence of postpartum uterine diseases in Achai cattle at LR&DS Surezai.

ii. To find out the drug of choice for the treatment of postpartum uterine diseases in Achai cattle at LR&DS Surezai.

Material and method

The study was conducted at Livestock Research & Development Station Surezai Peshawar to find out the prevalence of postpartum uterine diseases in Achai cattle.

Selection of animals

For the study 50 adult pregnant Achai cows at Livestock Research & Development Station Surezai, Peshawar was selected for this experiment. The selection of animals was based on similar

physiological status. The pregnant animals were provided proper housing and extra care during last trimester of their pregnancy. The housing was properly ventilated to prevent any discomfort to pregnant animals. The animals were properly fed and water was provided round the clock.

Data collection

Fresh parturated cows were observed for postpartum uterine diseases, such as Retained placenta, Acutemetritis and endometritis up to one month after calving. Various antibiotic protocols like Gentamycin sulphate 5 % Intramuscular (IM) and Pen biotic(Strepto-penicillin)flushing's and as IM were used for the treatment and its efficacy was checked and recorded. The parturated cows were observed individually for a period of one month from the date of parturition to note any abnormal reproductive conditions. The cows found positive for any postpartum uterine symptoms were isolated in individual chambers and treated with antibiotics and results were recorded.

Statistical analyses

Results were calculated by using MS Excel 2010 and analyzed descriptively using SPSS 16.0.

Results and discussion

Retained placenta

Data revealed that the incidence of retained placenta was 06 percent which is low as compared to other breeds of cattle whereas Bellows et al.[16] reported an 8% occurrence of Retained placental membranes in normal parturition which shows superior inherited factors in Achai cows. Goshen and Shpigel,[17] and Konyves et al.[18] have reported that retained placenta causes more than 50 % of the endometritis which also supports the results of the current study that the relation of Retained placenta (RP) with Endometritis which is also 50%. Ahmed et al.[9] demonstrated that cows with RP have a higher chance of contracting uterine infections and the probable reason was that RP act as a good media for bacterial multiplication. A more recent study by Potter et al.[19] found that RP is highly significant risk factor of endometritis, while Han and Kim found a high occurrence of endometritis in dairy herds following cases of RP which they further linked with increased postpartum uterine infections. Similarly, Bakena (1994) showed that RP were associated with over 90% cases of endometritis. The results of the current study (6 % RP) revealed that the incidence of RP is much lower as compared to other cattle breeds showing that Achai cows may have an instinct inherited resistance to the microflora in the uterus.

Uterine prolapse

Table 1 showed the incidence of uterine prolapse in Achai cows. The incidence of prolapse recorded in the current study was much higher (08 percent). Although incidence of prolapse as high as 43% has been reported in buffaloes,[20,] however in cattle it is only 1 to 2%.[21,22] The increase in incidence of prolapse in Achai might be due to insemination with superior sired breed (Jersey) semen in the current cross breeding programme.

Endometritis

Table 1 presented the incidence of Endometritis in Achai Cows. The incidence of Endometritis in Achai cattle recorded was 4 %, which is much lower than other breeds of cattle. Kaikini reported 8.16 % incidence of Endometritis in Hostein X Gir F1 cows, which is much higher than the current study. Moreover, Sheldon et al.[23] has reported the incidence of endometritis in German Black as 17.4 % which is also higher than present findings.

Treatment of uterine prolapse

The use of Gentamycine sulphate 5% intramuscularly proved to be highly efficient for uterine Prolapse however its efficacy was lowered for RP and Endometritis as evident from Table 2. The local use of Penbiotic (Strepto-penicillin 5gm/day) intrauterine proved to be more responsive in cases of retained placenta and Endometritis, however less responsive for prolapse cases. Moreover, the intramuscular use of Penbiotic was less effective than both (Gentamycine and streptopenicilin) treatments. The results are in line with the study of Chenault and Drillich.

Table 1 Incidence of postpartum uterine diseases (retained placenta, prolapsed &endometritis)

Parameters	Positive cases	Negative cases	Total cases	Incidence Rate (Percent)
Retained placenta	3	47	50	6
Prolapsed	4	46	50	8
Endometritis	2	47	50	4

Table 2 Efficacy of different antibiotics on postpartum uterine diseases (retained placenta, prolapsed &endometritis)

Antibiotic used	Parameters		
	Retained placenta	Prolapse	Endometritis
Gentamycine sulphate 5 % per kg live body weight intramuscular injection	++	++++*	+++**
Strepto-penicillin 5gm per kg live body weight Intra-uterine	++++	+++	++++
Strepto-penicillin 5gm per kg live body weight Intramuscular injection	++	++***	++

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Findings and recommendations

Being one of the most important issues of the dairy animals it is important to mention that the care of pregnant animals is required to be practiced in late pregnancy. The animals must not be exposed to harsh conditions to prevent any complication after parturition. Smaller Breeds of cattle should not be inseminated with semen from heavy breeds. It has been observed that Achai are a bit resistant to the uterine diseases as compared to other cattle breeds. The recommended drug of choice for Retained placenta and Endometritis are Strepto-penicillin while for Uterine prolapse is injection Gentamycine Sulphate.

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Conflicts of interest

Author declares there is no conflict of interest.

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