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Prevalence of brucellosis in chronic repeaters associated with endometritis

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Abstract

The present study was undertaken to diagnose the chronic repeaters associated with endometritis along with brucellosis infection in crossbred cows of Jersey and Holstein Friesian. Jersey crossbred cows (n=6) and Holstein Friesian crossbred cows (n=3) presented to the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with previous history of abortion/premature delivery of fetus about an average of one to two years back, since then failed to conceive. All animals were subjected for detailed gynaecological examination followed with white side test and serological analysis for diagnosis of endometritis and brucellosis, respectively. In conclusion, brucellosis suspected cases can be diagnosed at field level using Rose Bengal agglutination test (RBAT) kit. Recommended to cull the *brucella* positive animal from the herd.

Keywords: Brucellosis, crossbred cow, chronic repeaters, RBAT, STAT, white side test

Introduction

Postpartum uterine infections have negative impact on reproductive performance leading to drastic reduction in farm return. Endometritis being one of the major postpartum disorder causing heavy losses to dairy industry. Postpartum sub-clinical endometritis is defined as an endometrial inflammation occurring 21 days or more after parturition without any clinical signs whereas clinical endometritis is indicated by the presence of purulent/mucopurulent discharge^[1].

In pregnant animals *brucella* causes placental lesions and increases the risks of abortion. Brucellosis gains public health importance when the bacteria are transmitted to human via unpasteurized milk, meat, and animal byproducts, from infected animals^[2]. Proper diagnosis is one of the key obstacles for the complete eradication of brucellosis. Although several serological tests such as the Rose Bengal tube test, serum agglutination test, and enzyme-linked immunosorbent assay (ELISA) are used for disease diagnosis in cattle; however, these are often found to be misleading^[3]. A chronic repeater with endometritis with previous history of abortion in their gestation period should be suspected for brucellosis. Immediate attempt should be made to rule out the condition^[3].

Perusal of literature revealed that no systematic studies were carried out on crossbred cows with chronic repeaters and history of abortion or premature delivery of fetus in their previous pregnancy period (suspected for brucellosis). Hence, the present study was carried out with following objectives, i) diagnosis of endometritis in cows by using white side test, ii) diagnosis of *brucella* in cows by using rose bengal agglutination test (RBAT).

Material and Methods

Jersey crossbred cows (n=6) and Holstein Friesian crossbred cows (n=3) presented to the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with previous history of abortion/premature delivery of fetus about one to two years back, since then failed to conceive and treated with different hormonal protocols and intrauterine therapy by local paravet. All animals were examined per rectally to study the status of the uterus and ovaries. Detailed examination of ovaries were done to study the ovarian status using ultrasonography. Cervical mucus was collected from all animals from body of the uterus and horns by sterile sheath and syringes. Discharges was subjected for white side test to rule out endometritis.

Blood sample was collected in clot activators from all cows by jugular venipuncture and serum was separated for subjecting to Rose Bengal agglutination test (RBAT KIT) with standard manufactures protocols. Those serum positive for RBAT, it subjected for standard tube agglutination test (STAT) for further confirmation.

Results and Discussion

The present study recorded endometritis and brucellosis in chronic repeaters of crossbred of Jersey and Holstein Friesian cows of Tirunelveli region.

Per-rectal examination

Among six Jersey crossbred cows four cows showed moderate to severe thickness of uterine horns, whereas two cows with normal texture of uterine horns on per-rectal palpation. Similarly, one Holstein Friesian crossbred cow showed severe thickness of uterine horns, whereas other two HF crossbred cows with normal texture of uterine horns on palpation.

Ultrasonographic examination

Ultrasonography revealed no ovarian pathology in all cows those failed to conceive.

Cervical discharge examination

Mild to moderate cloudiness of cervical discharges was observed. Subjected for white side test and found positive for different degree of endometritis.

Among 9 animals (6 Jersey cross, 3 HF cross) 4 Jersey cross and 1 HF cross had severe form of endometritis, whereas 2 Jersey cross and 2 HF cross had mild degree of endometritis under white side test (Table 1).

Serological analysis

Among 4 Jersey crossbred with severe endometritis, in that 2 Jersey crossbred were found positive for brucellosis under both RBAT (Figure 1) and STAT, whereas one HF cross had severe endometritis and found positive for brucellosis (Table 1).

In clinical surveys, incidence of endometritis has been reported to vary from 2.4 to 20 per cent (Narasima Rao and Sreemannarayana, 1982)^[4] and 4.5 to 25 per cent in bovines. Studies on clinical and sub-clinical endometritis reported the prevalence of these diseases ranging from 18 to 37 per cent (Drillich *et al.* 2005)^[5] and 12 to 94 per cent (Barlund *et al.* 2008)^[1], respectively. Endometritis delays ovarian rebound and uterine involution, increase days open and accordingly extend the calving interval. It not only causes infertility but also results in subfertility even after successful clinical resolution of the disease. In the present study place a record on chronic endometritis associated with brucellosis in crossbred of Jersey and HF. No recent reports was recorded in crossbred cows belonging to Tirunelveli region as a chronic repeaters associated with brucellosis infection. Owner was educated about brucellosis infection and its impact on animals and humans. Advised to cull the affected animal and not to breed.

Table 1: Endometritis and brucellosis in chronic repeaters of crossbred of Jersey and Holstein Friesian cows

No. of chronic repeater cows	Per rectal findings		White side test		Positive reaction on RBAT & STAT
	Normal texture	Severely thickened	Mild to moderate yellow colour	Intense yellow colour	
Jersey Cross (n=6)	2	4	2	4	2
HF cross (n=3)	2	1	2	1	1

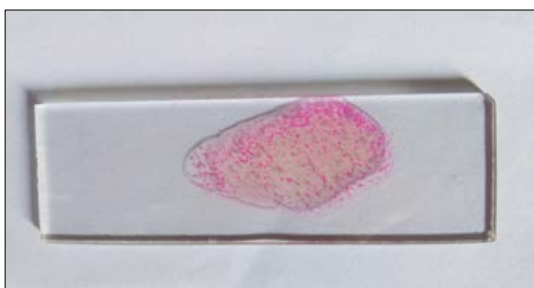


Fig 1: Positive reaction on RBAT

Conclusion

Chronic repeaters should always be examined systematically and subjected for detailed gynaecological examination. Brucellosis suspected cases can be diagnosed at field level by using RBAT kit. Recommended to cull the *brucella* positive animal from the herd.

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