

Camelid Brucellosis





Brucellosis is among significant bacterial diseases of Camelids. It is a worldwide zoonotic disease that is recognized as a major cause of heavy economic losses to the livestock industry and poses serious human health hazard. Human infection due to Brucella from camels is known to occur mostly through the consumption of unheated milk.

Etiology

Brucellosis is an infectious bacterial disease caused by the genus Brucella, affecting a number of animal species.

Brucella bacteria are Gram-negative coccobacilli that are non-motile and nonspore-forming. They grow anaerobically and certain strains need a 5% to 10% carbon dioxide atmosphere. Brucella organisms grow slowly, but can be enhanced by using enriched media. The genus Brucella is divided into ten classified species and subdivided into biovars.

The disease in dromedary camels is caused by Brucella abortus and Brucella melitensis.

Clinical Signs:-

Brucellosis is characterized by abortion and to a lesser extent by orchitis and infection of the accessory sex glands in males. Infections may cause stillborn calves, retained placenta and fetal death.

The disease can generally cause significant loss of productivity through late first calving age, long calving interval time, low herd fertility and comparatively low milk production.

Epidemiology:-

Camelid brucellosis has been reported in all camel-rearing countries. The disease is endemic particularly in Mediterranean, Middle East and the Arabian Gulf, parts of Africa, Europe and Latin America. Animals become infected through feed, water, colostrum, contaminated milk and, especially, by licking or sniffing at placentas and aborted fetuses.

Different studies showed that *B. abortus* and *B. melitensis* are the most frequently isolated from milk, aborted fetus and vaginal swabs of diseased camels and the transmission of brucellosis depends on the *Brucella* species being prevalent in other animals sharing their habitat and on husbandry. Camels are not known to be primary hosts of *Brucella*, but they are susceptible to both *B. abortus* and *B. melitensis*. Consequently, the prevalence depends upon the infection rate in primary hosts being in contact with them.

Impact on Human Health:-

Brucellosis is readily transmissible to humans, causing acute febrile illness – undulant fever – which may progress to a more chronic form and can also produce serious complications affecting the musculo–skeletal, cardiovascular, and central nervous systems. Infection is often due to occupational exposure and is essentially acquired by the oral, respiratory, or conjunctival routes. Precautions should be taken to prevent human infection.

Diagnosis:-

Brucella spp could be identified by isolated using plain or selective media by culture from uterine discharges, aborted fetuses, blood, udder secretions or selected tissues, such as lymph nodes and male and female reproductive organs. Polymerase chain reaction (PCR) can provide both a complementary and biotyping method based on specific genomic sequences.

Serological Methods:-

None of the serological brucellosis tests are validated for use in camels yet. However, it was found that a combination of different serological tests can increase diagnostic efficacy in camels. The recommended serological tests are Complement fixation (CF), Rose-Bengal test (RBT), Sero-agglutination test (SAT) and Competitive enzyme-linked immunosorbent assay (c-ELISA).

Prevention and control:-

Brucella has been eradicated in many regions of the world, but in others it is widespread and an economically important disease. Efforts are directed at detection and prevention, because no practical treatment is available.

Dromedaries were successfully vaccinated with *B. abortus* strain S19 and with *B. melitensis* Rev 1 but still Very little is known about the optimal vaccination age in camels and their serological response. Vaccination protocols need to be investigated.

References:-

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