

Vibriosis of Cattle

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VIBRIO FETUS is an infection of the reproductive organs of cattle. It causes infertility and abortion.

The causative organism, *Vibrio fetus*, is transmitted at the time of coitus. Most infected bulls will remain carriers indefinitely unless they are treated successfully. Some chronic carrier cows retain infection throughout pregnancy and after calving. One case in a herd can be enough to perpetuate the disease and infect clean bulls.

The clinical findings and breeding records of a herd are helpful, but one cannot rely on them to diagnose vibriosis or to differentiate it from trichomoniasis and other conditions that cause infertility in cattle. The clinician must use laboratory methods for a diagnosis.

An infected bull might be considered a poor breeder because of his high number of services to settle a cow. Otherwise no clinical abnormalities are observed. His semen may appear to be of normal quality. The prepuce is considered to be the common site of infection.

When *Vibrio fetus* enters a herd, cows of all ages are susceptible. While 15 to 45 percent may conceive at first mating, other animals repeatedly return to service and conception may be delayed 3 to 6 months. In other herds, conception may be delayed 12 months or longer. A delayed oestrous cycle of 25 to 60 days, or perhaps more than 100 days, may follow the first service to an infected bull, but a delayed interval might follow any service. Later in the course of the disease, the fertility of cows which have already encountered the infection will be fairly satisfactory. Only the cows that have not been served previously by an infected bull and the heifers present a problem. Difficulties from each succeeding group

of heifers may continue as long as an infected bull is used for service.

Some cows that conceive at first service or at a later mating remain infected for an indefinite period during gestation. Abortion, when it occurs, is generally during early pregnancy, but it rarely exceeds 3 to 5 percent of the cases. Cows that abort usually recover spontaneously and conceive when they are bred again.

Information from breeding records may indicate whether infection is present in a herd. If it is not possible or desirable to obtain samples from all individuals in a herd, the records may be used to select bulls with low fertility rates and the repeat-breeder cows, which should be examined.

SEVERAL PROCEDURES may be used to diagnose vibriosis. The cultural isolation of the causative organism from the reproductive tracts of cattle is the only reliable method to detect infected individuals. In this procedure, however, *V. fetus*, which is the pathogenic type of *Vibrio*, must be differentiated from a nonpathogenic type of *Vibrio* commonly found in the genitals of cattle.

Three methods may be used to isolate the organism from bulls: Breeding suspected bulls to virgin heifers, followed by culturing the vaginal mucus (mucus from cervicovaginal juncture) 10 to 30 days after service; culturing semen collected in the artificial vagina; and culturing samples from the prepuce.

Cultural isolation from cows may be used to diagnose infection in individual cases or to study the extent of infection in a herd. The organism is found most frequently in mucus from the cervicovaginal juncture. It is also occasionally isolated from uterine samples.

When abortion occurs in infected herds *V. fetus* may be isolated from both the fetus and the afterbirth. It has been isolated from all parts of the fetus, but contents of the abomasum and rumen are generally collected for microscopical demonstration and cultural isolation.

For cultural isolation of *Vibrio*, care should be taken to obtain samples free from contamination, and specimens of all types should be sent to the laboratory as soon as possible.

THE BLOOD AGGLUTINATION TEST is of limited value in both males and females. For diagnostic purposes it is much inferior to the vaginal mucus agglutination test.

The vaginal mucus agglutination test may be used for a herd diagnosis. Mucus may be collected by any method that provides clean samples and does not involve the risk of transmission of infection from cow to cow. The main methods employed are the use of either tampons or glass or metal tubes. The appearance of vaginal agglutinins generally occurs about 5 weeks after infection. The titer becomes lowered in chronic cases and may disappear eventually. Specimens taken during oestrous usually give negative results, although the tests may be positive at other times in the oestrous cycle.

IN PREVENTION AND CONTROL several alternatives are available for combating vibriosis in cattle.

If facilities are available, a clean herd made up of virgin heifers and sexually immature bulls may be separated from the infected herd and maintained as a clean unit. It can be kept clean by adding only known vibriosis-free animals. While establishing a clean herd, the infected animals may be maintained in a separate unit, which may breed satisfactorily after the cows become immune from an attack of vibriosis.

Artificial insemination may be used in infected herds. Semen should be obtained from bulls free of *Vibrio fetus*.

Semen treated with antibiotics from known infected bulls, however, has been used to restore the conception rate to a satisfactory level. The best way to treat the semen to prevent any possible spread of *V. fetus* has not been established. Satisfactory results have been obtained by diluting semen to 1 to 30 or more and warming the diluter containing the antibiotics to the temperature of the semen (near body temperature) for its addition. After mixing, the diluted semen was cooled to storage temperature, at which it was held for at least 5 hours before use.

ANY TREATMENT for vibriosis should be considered as experimental—there are no established medicaments or procedures, but cows and bulls have been treated successfully.

It is seldom practical to treat cows, because most individuals recover spontaneously. On followup examinations of treated cases, the infection may be missed. Cows thought to be cured therefore can reinfect bulls bred to them. It is much more practical to use either artificial insemination on infected cows or to breed them to infected herd sires until it becomes possible to dispose of them.

It is more practical to treat bulls, but the procedure is laborious and expensive and should be confined to valuable individuals. Infected animals may be detected by cultural isolation of the organism (by methods described earlier). The tests also may be used to determine the success or failure of the treatment. Semen for artificial insemination may be collected from males during the process of treatment and the testing period following treatment.

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