

BOVINE VIRAL DIARRHEA VIRUS IN SEMEN FROM A BULL WITH PERSISTENT TESTICULAR INFECTION WAS NOT TRANSMITTED VIA NATURAL BREEDING

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Bovine viral diarrhea virus (BVDV) is an economically significant reproductive pathogen that can be shed in the semen of infected bulls. The objective of this research was to evaluate the potential for transmission via natural breeding of BVDV in semen of a bull with a persistent testicular infection secondary to acute infection. After experimental intranasal inoculation with BVDV, 10 of 23 seronegative, post-pubertal bulls developed a persistent testicular infection. Five months and 21 days after acute infection, virus persisted within the testicular tissue of a bull as determined by detection of BVDV in semen using reverse transcription-nested PCR (RT-nPCR) and detection of BVDV in testicular biopsies using immunohistochemistry and RT-nPCR. This bull was pasture mated with five seronegative, breeding age heifers that were commingled with six seronegative steers. After a nine-week breeding season, the bull and steers were separated from the bred heifers. Virus could be detected by RT-nPCR and quantitative RT-PCR in semen collected weekly during the nine-week breeding season. While all five heifers became pregnant, no animals became infected with BVDV as indicated by lack of viremia and seroconversion. Results indicate that while BVDV may persist for several months after acute infection in an immunoprivileged site of testicular tissue, viral transmission does not commonly occur during natural breeding of seronegative cows. Further research is needed to assess the effect of persistent testicular infection on fertility and evaluate the potential for transmission of BVDV from persistent testicular infections via artificial insemination and in vitro fertilization.

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