Sudden infertility of a stallion collected with a commercial artificial vagina

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Importance

Sudden infertility in stallions from one breeding season to the other may occur due to age, trauma, or disease. However, when semen collection is performed with a consistent protocol and equipment, sudden infertility is not expected. In this case semen collection and processing were performed using the same protocol as the previous 18 years. A new artificial vagina (AV) was assigned to the stallion without any decrease in semen quality and quantity when examined immediately following collection, but no pregnancies resulted from breedings.

Diagnostic approach and treatment

A 23 year old Tennessee Walking Horse stallion with a history of normal fertility during the previous breeding season was presented for sudden infertility. No pregnancies resulted when mares were artificially inseminated (AI) with extended fresh semen collected with a commercial AV. A complete breeding soundness examination revealed no abnormalities consistent with infertility. Evaluation of concentration, motility and morphology of the semen immediately following collection was within normal limits and sufficient to produce pregnancy (concentration 150-190 M/ml, motility 50-70%, morphology 60-71%). Subsequent evaluation of fresh and chilled extended semen was performed at 5-15 minute intervals following collection. The motility of collected samples decreased rapidly and reached 0% within an hour of collection. Multiple variables were individually adjusted in attempts to identify potential spermatotoxins. Improving temperature control of collected samples, use of various extenders, removal of the seminal plasma and AV were all investigated.

Result and discussion

The rubber of a specific new AV used solely for this stallion at the beginning of this breeding season was determined to be the cause of sperm death. Semen collection was performed with a liner in the AV and resulted in 60% motility when chilled semen was evaluated 48 hours following collection. Additionally, the same AV was used without a liner to collect other stallions and resulted in motility decreasing to 0% within an hour.

Stallions are usually collected with a commercial AV when semen is to be used for AI. Artificial vaginas are generally cleaned according to the manufacturer’s indications, but disposable liners are rarely used when the AV is allocated to a particular stallion for the breeding season. Changes in the material used to make a new AV can be detrimental and go unnoticed until multiple mares are diagnosed to be not pregnant.

Keywords: Semen, stallion, artificial vagina, infertility, mares.