Use of behavioral and pharmacological manipulations followed by castration and gamete rescue in securing offspring from a challenging stallion

C.N. Esdorn, B.W. Christensen, S.M. McDonnell, C.J. Scott, G.A. Dujovne
School of Veterinary Medicine, University of California, Davis, CA

A 4-year-old Paint stallion was presented for semen evaluation and phantom training. As a foal, the stallion had sustained a penile laceration and during erection a 10 cm long band of scar tissue was noted along the dorsal aspect of the penis. During initial semen collection attempts using an artificial vagina the stallion showed good arousal and response but did not ejaculate. Differential diagnoses included pain during erection due to scar tissue and decreased sensation to the distal penis.

Subsequent semen collection attempts included administration of imipramine (2mg/kg PO), xylazine (300mg IV), and gonadorelin (100mg SQ), the use of manual and heat stimulation of the penis, and providing a variety of ovariectomized mount and natural estrous stimulus/mount mares. At best only pre-ejaculate fluid was collected. Castration and gamete rescue was elected, resulting in 16,663 million total sperm (total motility = 79%; progressive motility = 69%). Post-thaw total and progressive motility were 71% and 60%, respectively, producing 103 straws with 50 million progressively motile sperm per straw.

Using 150 million progressively motile sperm with the addition of 15% seminal plasma from a fertile stallion, a 9-year-old Paint maiden mare was bred using deep uterine insemination before and after each of two ovulations. The mare was not presented until Day 17 for pregnancy diagnosis, when twin embryonic vesicles were found fixed to the base of contralateral horns. The smaller of the two vesicles was manually reduced. On Day 27, one embryo with a visible heartbeat was documented.

There are many options for semen collection from challenging stallions, including behavioral and pharmacological manipulations. When other modalities are not productive, castration and gamete rescue provide a final option for genetic preservation. In this case, gamete rescue in conjunction with deep uterine insemination techniques resulted in a successful pregnancy, where one would not have been possible otherwise.

References: