

# Advanced Equine Theriogenology

by

Darcy Smith and William B. Ley

## Twin Management in Mares

Twinning in mares is an undesirable condition and is common in all breeds of horses, especially the Thoroughbreds. If one twin is not eliminated (or reduced) at an early stage of gestation the usual outcome is late-term abortion. Many complications arise with late-term abortions or delivery of twins including dystocia, retained placenta, delayed uterine involution, metritis, and death of one or both twins. Therefore, it is important that an early diagnosis of twins be made which is best done by transrectal ultrasound examination at 14-16 days of gestation.

Almost all twins are dizygotic, they arise from double ovulations. Double ovulations may be synchronous, occurring within one day of each other or asynchronous, more than one day apart. When more than one oocyte is fertilized with a synchronous ovulation twin conceptuses of similar size are produced. An asynchronous ovulation with double fertilization produces twin conceptuses that may vary in size up to several millimeters. Around day 16-17 of gestation the conceptuses fix as unilateral or bilateral twins. Approximately 99% of unilateral twins that differ in diameter by 4 mm or more will naturally reduce to one embryo by day 40, but if they are fixed bilaterally 99% will stay as twins. About 73% of unilateral twins that are same size will naturally reduce by day 40.<sup>3</sup> Virtually all same size bilaterally fixed twins will stay as twins.

Treatment of twin pregnancy depends on fixation pattern and stage of gestation. On day 16, at the initial pregnancy exam, bilateral twins are easily treated by manual crushing of one vesicle transrectally.<sup>4</sup> The location and size of both yolk sacs are identified in the uterus by ultrasound, and the smaller of the two is crushed between the thumb and fingers. The uterus is then scanned again to verify that the yolk sac has been ruptured. Administration of one dose of flunixin meglumine and one week of Regumate after manual reduction of one twin is suggested because the reduction will cause a release of  $\text{PGF}_{2\alpha}$  which causes the corpus luteum to lyse and may result in abortion of the other embryo.<sup>4</sup> Another source suggests that administration of these drugs does not improve the success of manual reduction but does not harm the mare or future fertility either.<sup>2</sup> Unilateral fixed twins are more difficult to manually crush and will likely result

in disruption of both embryos. Embryos that have not yet undergone fixation may be gently separated and one manipulated to the tip of the uterine horn and crushed.<sup>4</sup> If unilaterally fixed embryos are present after day 17, the best approach is to wait a few days and evaluate the success of natural reduction.<sup>2</sup> By day 25 the majority of unilateral twins will be reduced to a single embryo, or will be undergoing visible signs of reduction. If both embryos have a heartbeat, treatment options are limited to induced abortion with a prostaglandin, nonintervention, or allantoecentesis. If there is no visible signs of embryo reduction by day 33 abortion can be accomplished before endometrial cups are functional, so the mare can be mated on the next cycle. Endometrial cups become functional between day 36-38 of gestation. If endometrial cups are functional at the time of abortion return to estrus may be delayed until after day 120.<sup>4</sup> Between 40 and 50 days of gestation transvaginal ultrasonographically guided allantoecentesis has been performed with good success rates. For pregnancies greater than 60 days and up to 140 days, transabdominal ultrasonographically guided fetal cardiac puncture and injection of potassium chloride has been successful in some mares. Another alternative for managing fetal twins is the use of exogenous progesterone. This has shown to prevent abortion during middle to late gestation. Mares may give birth to a full-term foal and a mummified fetus.

Twinning is a common cause of abortion in the mare and perinatal mortality. Thus, early diagnosis and careful monitoring is essential. This combined with reduction of one twin before formation of endometrial cups will maximize the mare's reproductive potential and give the owner the best possible economic return.

#### Works Cited

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