Management of twin pregnancies by umbilical and fetal oscillation in the mare

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While the use of ultrasonography has reduced twin pregnancies as a major cause of abortion in the mare, diagnosis of twins past the mobility stage still occurs and requires special management techniques. After cessation of the mobility phase, and prior to day 60, options for twin management include ultrasound-guided manual manipulation (ablation or membrane damage), transvaginal fetal puncture (TVFP) and fetal termination by oscillation. Both manual manipulation and TVFP are not always effective and may be difficult or require special equipment. Fetal termination by oscillation, which either alters umbilical blood flow or dislocates the fetus from the umbilicus, is possible between days 45 and 50 of gestation. This stage of gestation is suitable for management by fetal oscillation due to the length of the umbilicus, and was presented as a practice tip at the AAEP Convention in 2013 by this group. It has been performed successfully in cases of unilateral and bilateral cornuate pregnancy fixation. The oscillation technique, without fetal dislocation, utilizes transrectal ultrasonography to image each fetus and monitor heart rate along with umbilical blood flow. Once the fetus to be manipulated is identified and isolated, the linear rectal probe is positioned to allow 0.5 to 2 oscillations per second. Alterations in blood flow can be observed as decreased rate or frequency of blood flow or complete cessation of blood flow. Disruption of fetal blood flow can occur during the first manipulation attempt but may require multiple sessions. The other fetus should be continually monitored throughout the procedure to ensure no negative effects of the oscillation have occurred. The present case series describes the outcome of five 45-50 day gestation twin pregnancies referred to Goulburn Valley Equine Hospital for management from 2014 to 2017.

Unilateral fixation was present in one case while the remaining four pregnancies were fixed bilaterally. Termination of a specific fetus was determined based on uterine position or fetal size. The number of sessions required to alter umbilical blood flow ranged from one to four. The procedure was deemed successful when a heartbeat or umbilical blood flow could no longer be visualized with color flow Doppler ultrasonography. All five cases were discharged with a single viable pregnancy. Normal foals were delivered in 4/5 of the cases described with the fifth mare due to foal in November 2017. No complications were reported during the procedure or throughout gestation. Our rationale for presenting this case series is to provide more information for veterinarians on an effective, noninvasive, management technique for twin pregnancies between 45 and 50 days of gestation.

Keywords: Horse, mare, twin management, post-fixation twins, oscillation