

EFFECT OF REPEATED PERFORMANCE OF TRANSVAGINAL
ULTRASOUND-GUIDED FOLLICLE ASPIRATION ON SUBSEQUENT
FERTILITY IN REPRODUCTIVELY SOUND MARES

D.K. Vanderwall, K.J. Hyde, G.L. Woods

Northwest Equine Reproduction Laboratory and Center for Reproductive Biology,
Department of Animal and Veterinary Science University of Idaho, Moscow,
ID 83844-2201, USA

Transvaginal ultrasound-guided follicle aspiration (TVA) is being used increasingly to recover oocytes from both subfertile and fertile mares. In subfertile mares, TVA is used clinically for oocyte transfer, which involves collecting an oocyte(s) from a subfertile mare and then transferring the oocyte to the oviduct of a bred recipient mare. In fertile mares, TVA is used to obtain oocytes for research (e.g., in vitro oocyte maturation) and clinical (e.g., cloning) uses. Despite being minimally invasive, TVA causes fibrosis in the ovarian stroma, and although the fibrosis does not appear to interfere with ovarian function [Equine Vet J 2003;35:575–9], it illustrates the potential for TVA to have adverse effects. For example, because of its proximity to the ovary, it is plausible function of the oviduct could be compromised as a result of the TVA procedure; however, whether such a potentially deleterious effect occurs and its impact (if any) on subsequent fertility is unknown. For subfertile mares, it is relatively inconsequential whether the TVA procedure itself is detrimental to fertility, since preexisting reproductive problems are the underlying reason for performing TVA. In contrast, when performing TVA on fertile mares it is important to know if the procedure alters subsequent fertility, since any loss of fertility would be an extremely undesirable consequence. The objective of this study was to determine if performing TVA repeatedly in reproductively sound mares would adversely affect their subsequent fertility. The study was performed by retrospectively examining the reproductive records of 23 mares that had never undergone TVA and 59 mares that had undergone TVA 1–11 times prior to breeding; for TVA mares, each ovary/TVA session was considered separately. Mares were of mixed breeding, 3–12 years old and weighed 300–500 kg. The TVA procedure had been performed as described [Reprod Fertil Dev 2004;16:675–9]. Fertility was assessed in cycles in which mares were inseminated with fresh or cooled semen from one fertile stallion (same for all mares). The number of times TVA had been previously performed on the side of ovulation was noted and pregnancy status was determined using embryo recovery on Days 6–8 (ovulation = Day 0) or transrectal ultrasonography on Days 12–14. Mares were classified into four groups according to the number of TVA procedures previously performed on the side of ovulation: Group 1, 0 TVAs (control, $n = 23$); Group 2, 1–2 TVAs ($n = 40$); Group 3, 3–4 TVAs ($n = 21$); Group 4, 5–11 TVAs ($n = 13$). There were no differences ($P > 0.10$) in per-cycle pregnancy rates among Groups 1–4 (83%, 90%, 81% and 85%, respectively). These results indicate that repeated performance of TVA (up to 11 times) had no detectable adverse effect on subsequent fertility in reproductively sound mares.

Keywords: Equine; Mare; Transvaginal ultrasound-guided follicle aspiration; Fertility