

THE EFFECT OF TRANSVAGINAL FOLLICULAR ASPIRATION OF PREMATURE FOLLICLES ON CORPUS LUTEM FORMATION IN MARES

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A reliable method to induce a corpus luteum in recipient mares would be beneficial in embryo transfer programs. It has been suggested that luteal tissue may form following aspiration of mature follicles, but the effects of the size and maturity of follicles were not determined. We hypothesized that aspiration of “premature” follicles (<35 mm) during estrus results in the formation of hormonally functional CL. Initially, premature follicles were grouped as small (<25mm), medium (26-30mm), and large (31-34mm) based upon their size at time of treatment. In order to determine the effect of hormonal maturation, mares were treated with 3000IU hCG (Chorulon, Intervet, Inc. Millsboro, USA, n =10) or saline (n = 11) at 24 hours prior to aspiration. One follicle from each group (small, medium, large) was aspirated in 7 mares, yielding 21 aspirations. All aspirations were performed during estrus using ultrasound guided transvaginal technique. Follicular size and CL formation was monitored daily using transrectal ultrasonography. Serum progesterone concentrations were measured at days -1, 0, 1, 2, 5 and 8 after aspiration. Progesterone concentrations were compared between treatment groups, and ultrasonographic images of CL were compared to serum progesterone concentrations in all mares. Data was analyzed by Kruskal-Wallis One-Way Nonparametric AOV. Significance was set at $p < 0.05$. Follicles >25mm were more likely to form a hormonally active CL (progesterone > 1 ng/mL) than follicles <25 mm (88% vs. 0%; $p < 0.05$). Hormonally active CL formation after aspiration showed no difference between medium and large follicles (100% vs. 80%). Among the 14 aspirated follicles that formed hormonally active CL, progesterone concentrations were > 2ng/mL by day 5 in 11 mares, and > 2ng/mL by day 8 in the remaining 3 mares. Treatment with hCG had no effect on CL formation, or the level of progesterone concentrations. Ultrasonographic appearance of luteal tissue was not correlated to serum progesterone concentrations. These results suggest that a hormonally functional CL can be induced in mares by aspiration of follicles >25 mm. Future studies will determine if the induced CL is functional as a source of progesterone to maintain pregnancy in recipient mares after embryo transfer.

Keywords: transvaginal, aspiration, corpus, luteum, mare