Persistent luteal function and spontaneous lactation in a non-pregnant mare
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An 18-year-old Thoroughbred mare presented in August 2009 for spontaneous lactation of more than 30 d duration. Reproductive evaluation was performed using transrectal palpation and ultrasonography. The cervix was soft, the uterus flaccid without edema, and the ovaries were without palpable abnormality. A hyperechoic structure (presumed corpus luteum) was imaged on the right ovary. Two uterine cysts, 17 mm and 11 mm, were noted near the cervix. There was no evidence of pregnancy. The udder was enlarged, fluid filled, though not inflamed; the expressed fluid was white and watery, consistent with milk. Cloprostenol was administered (375 µg, IM) and on re-evaluation in 7 d, the cervix was relaxed, the uterus possessed grade III edema, and the ovaries were without palpable abnormality. The left ovary was unremarkable, and a 40 mm follicle was present on the right ovary. The uterine cysts were unchanged. Expression of the udder yielded no milk. Lactation recurred in June 2010. Estrous behavior had been noted once during 2010. The cervix was tight, the uterus was moderately toned, the right ovary was unremarkable, and the left ovary contained a 26 mm follicle and a hyperechoic structure (corpus luteum). Uterine cysts were still present. The udder was enlarged and the expressed fluid was watery and white. In an effort to find a cause for the lactation, blood samples were obtained to evaluate plasma hormone concentrations.

Reproductive evaluation and blood samples, collected via jugular venipuncture, were performed every 3 to 4 d for 49 d. Reproductive evaluation consistently demonstrated progesterone influence of the tubular tract: a closed tight cervix and a toned uterus. Throughout the sampling period, a hyperechoic structure was present on the left ovary and all follicles were less than 28 mm. Venous blood was collected into heparinized evacuated tubes, refrigerated until centrifuged, and plasma stored at -20°C until analyzed. The patient was lost to follow-up after the 49 d sampling period. All hormones were measured using radioimmunoassay. The mean ± SD for luteinizing hormone (LH), follicle stimulating hormone (FSH), progesterone and prolactin were 0.71 ± 0.23 ng/mL, 6.72 ± 2.22 ng/mL, 12.81 ± 2.06 ng/mL, and 2.84 ± 1.78 ng/mL, respectively. The concentration of progesterone remained above 10 ng/mL for the entire sampling period.

In a normal cycling mare, progesterone concentrations should remain elevated for approximately 16 days, followed by an interval of baseline (<1 ng/mL) concentrations. This mare maintained her corpus luteum for 49 d, as evidenced by transrectal ultrasound and confirmed by progesterone analysis. Progesterone never declined to baseline levels. The gonadotropin concentrations (FSH and LH) were consistent with diestrus. The cause of prolonged luteal function in this mare is unknown. Previous administration of cloprostenol had resulted in luteolysis. It is speculated that endogenous prostaglandin production was insufficient to induce luteolysis, and that lactation was related to prolonged progesterone exposure combined with the presence of prolactin.

Keywords: Progesterone, equine, lactation, prolactin, persistent corpus luteum