Evaluation of a sex cord-gonadal stromal tumor arising during pregnancy in a mare

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Beginning in the 2013 breeding season, a 13-year-old Thoroughbred mare was followed reproductively until sale of the mare in 2016. In 2013, one 4.6 x 4 cm follicle was present within the left ovary. The mare was bred. One day later, a presumptive left ovarian hemorrhagic anovulatory follicle (HAF) of 6.8 x 5.2 cm diameter was present on ultrasonography. Fifteen days later, there was no evidence of pregnancy, the HAF was 11 cm and the mare was administered prostaglandin F2alpha. Streptococcal endometritis was managed pre- and post-mating with daily intra-uterine infusion of 2 g of buffered gentamicin, postmating saline uterine lavage, and ceftiofur crystalline free acid 6.6 mg/kg, IM. The mare double ovulated from the right ovary spontaneously, while the HAF remained on the left. At 15 days, an embryonic vesicle was present, the left ovarian 7 cm HAF was fibrin filled, and the right ovary contained corpora lutea. At days 18, 24, 30, 71, and 105, normal pregnancy was observed. At 71 days, the left ovary first appeared multi-cystic (“honeycomb”) suggesting granulosa theca cell tumor (GTCT) and was similar at 105 days. Subsequently, the ovary was beyond reach transrectally. The mare was assessed throughout pregnancy at 71, 105, 201, 269 and 309 days, at 1, 3, 107, and 154 days after foaling, and on subsequent pregnancy on day 276, utilizing anti-Müllerian hormone (AMH), inhibin, testosterone, and progesterone. Anti-Müllerian hormone concentrations were elevated at >3.8 ng/ml in 4/5 specimens obtained during pregnancy, and 2/4 non-gravid. Inhibin was elevated at >0.7 ng/ml in only 2/9 specimens, at 71 and 105 d gestation. Progesterone was normally present in all pregnancy specimens. Testosterone was normally elevated during pregnancy, but was abnormally high at 71 and 105 d gestation, at 720 and 364 pg/ml, respectively, and elevated at >45 pg/ml in 2/4 samples while non-gravid. Postpartum, the left ovary appeared multi-cystic, but normal estrus and spontaneous ovulation from the right ovary was documented. The mare was not re-bred. The left ovary was excised in October, 2014. Histopathological diagnosis was sex cord-gonadal stromal tumor, consistent with a GTCT. Immunohistochemistry showed strong specific staining for AMH on the granulosa derived components of the ovary. The following season (2015), the mare was rebred, double ovulated, managed for recurrent streptococcal endometritis, achieved pregnancy with twin vesicles, one of which was manually reduced, and a normal single pregnancy was followed. At 276 days of gestation, endocrinological parameters were normal. The mare was sold. In the diagnosis of GTCT, AMH provided the most consistently useful result during pregnancy and non-pregnancy in this mare.

Keywords: Horse, anti-Müllerian hormone, ovarian neoplasia, pregnancy