Granulosa cell tumor in a 12 month-old heifer: clinical and endocrine evaluation

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The presentation (premature mammary development), characterization of inhibin levels, and economic viability of ovarian removal gives this report originality and significance. A 12 month-old maiden Holstein heifer was examined, during a herd reproductive evaluation, for a two-month history of progressive mammary gland development. Differential diagnoses included pregnancy, granulosa cell tumor (GCT), or other endocrine imbalances (i.e., exogenous hormones or cystic ovarian disease). Transrectal palpation ruled out pregnancy, but a large mass cranial to the pelvic canal, presumed to be the right ovary, was detected along with an inactive left ovary. A large heteroechochogenic multicocular mass in the right ovary was detected via transrectal ultrasound. Serum concentrations of inhibin, testosterone, and progesterone were 11.55 ng/ml, 61.2 pg/mg, and 0.6 ng/ml, respectively, prior to surgery and returned to physiological values within four days after unilateral ovariectomy. The removed ovary weighed 1.66 kg and the GCT was confirmed histopathologically. Cyclicity resumed within 2 weeks and was confirmed by plasma progesterone assays on samples taken every other week. The heifer conceived on the first artificial insemination at 14 months of age. The mammary gland regressed initially, but at 60 days of pregnancy the heifer developed gangrenous mastitis requiring ablation of the right hind quarter. This is the first report describing changes in inhibin concentrations associated with a bovine GCT. The recrudescence of mammary development may have been due to persistently high progesterone after conception. Genetically valuable heifers with similar abnormalities may be better handled as embryo donors after unilateral ovariectomy.

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