ABSTRACTS

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Identification of ovarian remnant tissue in the bitch after incomplete ovariectomy or ovariohysterectomy

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OBJECTIVES AND METHODS: Surgical removal is a common and effective method to avoid overpopulation in domestic animals. Except for the risk of accidentally ligating the ureter, surgery related complications regarding anaesthesia, intraabdominal hemorrhage, suture dehiscence, disturbed wound healing and infection, are the same as for any other abdominal surgery (1). A long-term complication of gonadectomy in the bitch is the so called ovarian remnant syndrome (ORS) which is characterized by a variety of clinical signs such as oestrous behaviour, pseudocyesis, or endometriitis-pyometra due to the presence of functional residual ovarian tissue (2,3,4,5). Diagnostic approach to confirm ovarian remnant tissue relies on its functional status (6). Therefore vaginoscopy and vaginal cytology as well as determination of the blood serum progesterone concentration are the methods of choice to identify ovarian tissue in the follicular and luteal phase, respectively, whereas bitches with an ovarian remnant in the stage of endocrine inactivity cannot be distinguished from castrated dogs using these methods. The aim of the present study was to establish a diagnostic test for detection of ovarian remnant tissue by analyzing the estrogen concentrations in blood serum before and after intravenous injection of the GnRH-analogue buserelin (Receptal®). Nine intact genitally healthy bitches and seven castrated bitches served as controls for 22 patient dogs with suspicion of ovarian remnant tissue. The intact bitches were examined in defined stages of the oestrus cycle (day 24-26, day 69-72 and day 120-143 after ovulation) while a single examination was performed in each of the castrates and patients. Diagnostic procedures included vaginoscopy, vaginal cytology and sonography. Additionally blood samples were collected before and 30, 60, 90, and 120 minutes after injection of the GnRH-analogue buserelin (Receptal®, 0.12µg/kg body weight) and the concentrations of estrogens (E) and progesterone (P₄) were measured in blood serum.

RESULTS: In all nine intact bitches E-concentrations were above the detection limit of 6.0 pg/ml before and/or after GnRH administration in all examined stages of the oestrous cycle. In contrast the E-levels of the castrated bitches were ≤ 6 pg/ml throughout the test period. In ten of the 22 patients with suspected ovarian remnant tissue no E-increase above 6 pg/ml could be observed. In the remaining 12 bitches elevated E-concentrations were found either before or the latest after GnRH-administration, indicating the presence of ovarian tissue. Ten of these bitches showed signs of oestrus due to active ovarian remnant tissue, which therefore could be undoubtedly diagnosed by means of vaginoscopic and cytological findings. In cases with ovarian remnants in luteal phase an accordingly high P₄ concentration measured before GnRH injection gave a clear diagnostic hint. In the remaining two bitches with an inactive ovarian remnant the GnRH stimulation test led to the final diagnosis.

CONCLUSIONS: The results of the present study demonstrate that in the majority of cases ovarian remnant tissue can be diagnosed by means of clinical and cytological findings possibly added by the blood P₄ concentration. Intravenous injection of the GnRH-analogue buserelin at a dosage of 0.12µg/kg body weight was demonstrated to reliably stimulate E-secretion – but not P₄ secretion - in cases with an inactive ovarian remnant, which could be undoubtedly distinguished from completely castrated dogs.