ABSTRACTS

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Urinary Incontinence in a bitch during estrus: A case study

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OBJECTIVE AND METHODS: This clinical case study demonstrates that urethral sphincter mechanism incompetence (USMI), commonly referred to as “spay incontinence,” can occur during peak elevations in estrogen, LH, and recent peaks in FSH suggesting that the abnormality is not a result in insufficiency of these hormones. A 16 months old FI Newfoundland with a history of urinary incontinence (UI) only during estrus was presented to the Veterinary Teaching Hospital. UI had developed during her previous estrus, beginning during late proestrus and ceasing around the onset of diestrus (metestrus). The bitch presented for UI workup during her second estrus at approximately day 14 after onset of bloody vaginal discharge.

RESULTS: On presentation, the bitch was healthy and in normal body condition. No evidence of urinary incontinence was evident on physical examination, and the owner had not noted urine on the floor or in the bitch’s bedding that morning. The frequency and volume of urine leakage seemed to be decreasing at the time of presentation which was approximately 7 days after initial signs of UI. The stage of estrous was determined to be late estrus by vaginal cytology in conjunction with a serum progesterone concentration measured by RIA of >20 ng/ml (>60 nmol/L). Urethral Pressure Profile (UPP) showed a maximum urethral closure pressure (MUCP) of 37 cm/H2O. As the problem seemed to be resolving on its own, no further evaluation was done and no medications were dispensed. UPP was repeated 3 months later during anestrus prior to the onset of the next estrus; signs of UI were not present at this time. The stage of estrus was determined by vaginal cytology and history of prior estrus; MUCP was 38 cm/H2O. A final UPP was done during the subsequent estrus when UI first developed. Cytology was consistent with estrus and RIA serum progesterone concentration was 4.0 ng/ml (13 nmol/L); MUCP was 13 cm/H2O. Serial UPPs during different stages of estrous demonstrated that in this bitch MUCP was decreased only around maximum serum estrogen concentrations.

CONCLUSION: Urethral Sphincter Mechanism Incompetence is commonly seen in ovariectomized or ovariohysterectomized bitches at a rate of 4-20% (2). 75-90% of affected dogs respond to phenylpropanalamine (PPA), an alpha-1 adrenoceptor agonist which acts directly at the level of the urethral sphincter to increase contractility. Around 65% of affected dogs respond to low dose estrogen therapy (2), commonly diethylstilbestrol (DES). The mechanism of estrogen therapy is not certain; it may increase alpha-1 receptors, inhibit GnRH, FSH, and LH, or directly increase urethral sphincter tone (2). Recent speculation has been made that it is actually the static elevation of LH and presence of LH receptors on the urethra which is responsible for USMI (3). Treatment with GnRH analogs showed some promise in treating USMI in one report (3) but was not supported in a second experiment (4). Management of USMI using a commercially available vaccine to induce anti-GnRH antibodies shows clinical promise (personal observation). The case presented here demonstrates that USMI is not the result of hormone insufficiency as UI developed during peak elevations in estrogen, LH, and recent peaks in FSH. Further, this case clinically substantiates an observation that MUCP decreases during estrus (1). Further investigation into the effects of GnRH and LH on USMI are indicated.