ABSTRACTS

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THE EFFECT OF THE STAGE OF THE SIMULATED OESTROUS CYCLE AND THE PRESENCE OF UROPATHOGENIC VIRULENCE FACTOR GENES ON THE OCCURRENCE OF *ESCHERICHIA COLI* INDUCED CYSTIC ENDOMETRIAL HYPERPLASIA/PYOMETRA COMPLEX IN THE BITCH

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**Introduction** - Cystic endometrial hyperplasia/pyometra complex (CEH/P) can be induced in ovariectomised bitches during simulated early dioestrus by intra-uterine inoculation of *Escherichia coli* carrying five uropathogenic virulence factor (UVF) genes (1).

**Aims** - The aim of this study was to determine the influence of the presence of UVF genes and the stage of the simulated oestrous cycle on the induction of CEH/P using lower numbers of *E. coli* than used previously (1).

**Materials and Methods** - Ovariectomised Greyhound bitches (n=14) were treated with oestradiol benzoate and megestrol acetate to induce the simulated oestrous and dioestrous stages of the reproductive cycle (2). The bitches were allocated amongst two experiments (Experiment I (n=8); Experiment II (n=6)). Strains of *E. coli* isolated from a clinical case of pyometra (strain P3) and from the faeces of a clinically healthy dog (strain F8) were used to inoculate dogs in this study.

**Results** - Strain P3 had five uropathogenic virulence factor genes (*pap, sfa, hlyA, cnf1 and fim*) as determined by the polymerase chain reaction. These virulence factor genes were absent in the F8 strain. The inocula contained 68 to 100 colony forming units per mL. One mL of P3 (n=5) or F8 (n=3) inoculum was injected directly into the uterus on day 10 of simulated dioestrus (Experiment I). One mL of P3 (n=3) or F8 (n=3) inoculum was injected directly into the uterus on day 4 of simulated oestrus (Experiment II). The bitches were observed daily for general health, and patterns of food and water intake. Post-inoculation, blood samples and vaginal smears were collected every 2 days and ultrasound examination of the reproductive tract was performed every 3 days (n=10) or on the day before euthanasia (n=4). Necropsies were performed 4 days (Experiment II (n=2)) and 14 days (Experiment I (n=8); Experiment II (n=4)) after the inoculation. CEH/P was induced in four of five bitches inoculated with strain P3 and two of three bitches inoculated with strain F8 during simulated dioestrus (P=1). The disease produced by P3 showed earlier and more severe clinical signs than that induced by F8 although there were no significant differences in the histopathological findings of these uteri. CEH/P did not develop in bitches inoculated with either of the strains of *E. coli* during simulated oestrus. The results thus demonstrated that in this model, the stage of the simulated oestrous cycle and not the presence of UVF genes was the important determinant for the induction of CEH/P. Nonetheless, the possession of UVF genes promoted the pathogenicity of *E. coli* in the uterus during simulated early dioestrus by enhancing the severity of the clinical signs of CEH/P.

**References**