ABSTRACTS

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EXPERIMENTAL STUDY OF THE POST-PARTUM INVOLUTING GENITAL TRACT OF THE BITCH. PART II: GROSS ANATOMICAL AND HISTOLOGICAL FEATURES

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Objective of the work. The aim of this study was to describe the gross-anatomical and histological features of the normal post-partum involution of the genital tract of the bitch, after normal whelping.

Materials and methods. We used nine primiparous Beagle-breed bitches, which had whelped normally, and we monitored them for up to three months later. Ovario-hysterectomy was carried out to one of the experimental animals on each of D7, D21, D28, D35, D42, D56, D70 and to two animals on D84 (days after whelping), for a detailed examination of the ovaries and the uterus. Dimensions of the ovaries were measured. Number and diameter of corpora albae on each ovary were determined after performing a longitudinal section. The appearance of the uterus was recorded. Length of uterine horns (from the apex to the bifurcation) was measured. Diameter of uterine horns was measured at placental sites and interplacental areas. The uterus was dissected and a sterile swab was used to sample its content, for bacteriological examination by using conventional techniques. The placental sites and interplacental sites were assessed and their dimensions (length, height) were measured. Tissue samples were collected and processed with haematoxylin-eosin stain for histological examination and morphometric analysis. They were also prepared for ultrastructural examination by using scanning electron microscope. Differences in findings throughout the study were detected with the Wilcoxon Signed Rank test.

Gross anatomical findings. No significant changes were seen in the dimensions of the ovaries from D7 to D84. Corpora albae were evenly distributed in the left and right ovaries of the animals: in total 32 and 30, respectively. Their size was 4 mm on D7, 3.5 mm on D35 and <2 mm on D84. Externally, the uterus was pink, with longitudinal folds and mild vascularization; the horns were symmetrical and laterally oblate; the placental sites were evident externally even up to D84. The length of the uterine horns was approximately the same at all time-points. Median diameter of the uterine horns was 2.60 cm (same for placental sites and interplacental areas) on D7; it was 1.70 - 1.20 cm on D35 and 0.95 - 0.70 cm on D84 (at placental sites - interplacental areas, respectively) (p<0.1). There was small amount of discharge inside the uterus of four bitches (D21, D28, D35 and D42). The placental sites were initially of dark green to grey colour, whilst later they were dark brown to black. Their length was 8-10 mm up to D35 and 3-5 mm on D84; their height was 3-4 mm up to D35 and 1-2 mm on D84. The interplacental areas were white to pink colour with mild longitudinal wrinkles thereon. Their length was 8-10 mm; their height (uterine wall thickness) was 6 mm on D7, 2.5 mm on D35 and 1.5 mm on D84 (p<0.1). Arcanobacterium pyogenes was isolated from one uterus (D7).

Histological findings. Simple columnar epithelium was evident in the interplacental endometrium of all animals studied. In general, the diameter of uterine blood vessels was smaller at later time-points. Myometrium height was 460 μm on D7 and 200 μm on D84. Median diameter of the uterine glands' transverse sections was 79 μm on D7, 53 μm on D56 and 52 μm on D84 (p>0.05). Median height of glandular epithelial cells was 6.6 μm on D7,
7.6 μm on D56 and 7.2 μm on D84 (p>0.05). Soon after whelping, there was no inflammatory cellular infiltration in the inner (circular) layer of the myometrium; on D28, there was some cellular infiltration (macrophages, plasma cells); at later time-points, this became extensive throughout the layer. Trophoblast-like cells were consistently observed at the placental sites and on the surface of the interplacental areas.

**Discussion and conclusions.** In general, detailed descriptions of the normal *post-partum* involution of the genital tract of the bitch, are lacking. Our findings indicate that normal involution of the genital tract in the bitch can last up to three months. Lack of significance in size change of uterine glands and epithelial cells in D7 and D84, suggests a slow involution process. Consistent observation of trophoblast-like cells lends further support to the hypothesis. Continuous presence of spark placental sites, even at three months after whelping, indicates this to be a normal feature of canine uterine involution. The findings, coupled with clinical, bacteriological and cytopathological evidence (Part I of the present study), also provide baseline results for further studies into *post-partum* diseases.