Study to describe vaginal cells of female dogs as a contribution to objective cycle diagnostic.

6. Summary

The goal of this treatise was to study the possibility to differ vaginal cells by means of a data pool. The question was: is it possible to find clearly able to be defined distinctive characteristics of the different vaginal cells by means of measurable characteristics such as dimension of cells, surface of cells, gray scale value in cellular body and nuclei or the dimension of nuclei? Are overlapped dimensional interval in literature to be restricted more exactly in this data pool?

This study is a first test to measure vaginal cells with a cell measurement program and to find measurable distinctive characteristics between individual classes.

Vaginal smear of 76 female dogs from patient possession of the Veterinary Hospital of Reproduction of Freie Universität Berlin (Standort Mitte) were made available. Vaginal smears were took in the frame of the cycle diagnostic and included the complete course of the cycle. Hundred cells of the group of basal, parabasal, intermedial cells, superficial cells with intact nuclei, superficial cells with pycnotical nuclei and anuclear cells were took according to histological criteria and entered in the computer by means of video camera and evaluated by a computer program. Maximally ten cells per smear of at least ten smears per kind of cell were recorded, partly, two kinds of cells of one smear were considered. Every individual cell was measured the same way: designation of surface in µm², gray value profile of cell body and nuclei (average value and standard divergence), size statement in pixel and average extension of cell body and nuclei in µm.

Methods free of dispersion were applied to analyse the data: the variance analyse according to Kruskal Wallis test free of dispersion to compare the different kinds of cells and in case of significant results, a pairwise comparison according to Dunn test with Holm correction was done for every characteristic. In the results, it was spoken about the difference in the kinds of cells when the corresponding test p was $< 0,05$. All statements were only referred to certain data in this pool. The possibility of an application on the whole vaginal cells was not examined.

The goal of the study was to find criteria for a clear classification of different vaginal cells.

Following results were got:

1. All kinds of cells are at least to be differed from the other kinds of cells in this pool with a characteristic.
2. The characteristic "surface" has got the most pairwise difference in this study. Only the parabasal cells cannot be differed from the intermedial cells and the superficial cells with pycnotical nuclei from the anuclear cells by means of this characteristic. The parabasal cells differ in five further characteristics from the intermedier cells the way that a differentiation between these both kinds of cells is possible by a connected inquiry of one of these characteristics. The superficial cells with pycnotical nuclei differ in characteristic from the "average gray scale value in cell body" from the anuclear cells the way that also here, a differentiation between both kinds of cells is possible by means of a connection.
3. From all examined characteristics here, none is suitable as a single differentiation of characteristic.
4. Comparing sizes of these cells with the values in litterature results to a tight size interval for this data pool. Nevertheless, the size as unique characteristic of differentiation, also in this population of cells is not enough.