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REVIEW

of the doctoral dissertation entitled "The usefulness of determinations of selected hormones, immunological, iron-dependent and oxidative stress markers in female dogs with pyometra and during recovery" by Anna Wdowiak.

Canine pyometra is an infection of uterus and is one of the most frequently occurring reproductive disease in female dogs. And if not treated it can result in animal death. For this reason, quick and accurate diagnosis of this disease is of main importance. However, by now diagnosis of pyometra is mainly based on general symptomatology and clinical history of the bitch as more expensive diagnostic methods, e.g. ultrasound, are not always available especially in small veterinary clinics. For this reason, there is a need of the reliable biomarkers that could help to diagnose and to evaluate the course of the treatment. Furthermore, in the current scientific literature, the importance of the use of non-invasive samples, as saliva, is studied for different diseases diagnosis and evaluation. Therefore, the dissertation performed by A. Wdowiak deals with a currently highly relevant topic in practice and it is both scientifically and practically important.

A. Wdowiak studied the behavior of a number of biomarkers related to inflammation, Fe-metabolism, sex hormones and oxidative stress in serum and saliva in bitches with pyometra and after ovariohysterectomy, the treatment of election in this disease. Furthermore, the same analytes were evaluated in the group of healthy dogs undergoing same procedures. The number of included animals (n=40) is adequate and,



thus, results are representative and valid. The study was performed in Faculty of Veterinary Medicine of University of Life Science in Lublin, Poland.

The dissertation presents all the mandatory chapters, which clearly and specifically define the purpose of the work, formulate in an adequate and interesting way the tasks, highlight the scientific novelty of the work, revise the scientific literature about topic, the research methods used, the results obtained, and the discussion including the reliability of the results and relation to the reported data by other researchers. The dissertation has formulated nine main conclusions. The work also contains a list of references from 204 literature sources and a summary. It is illustrated with 31 figures and 2 tables that correspond to the content of the dissertation. The data presented indicates that A. Wdowiak is able to analyze scientific literature, set goals and appropriate methods to achieve, analyze, present and discuss the obtained results and draw conclusions.

Observed minor inaccuracies in the dissertation:

- The figures and the tables in the pages 163-169 do not present titles nor numeration.
- The figures representing correlation data are in Polish, while the rest of the manuscript is in English.

Questions:

- Which of the studied biomarkers would you prefer for pyometra diagnosis? And for treatment monitoring? Would you prefer one or a panel?
- Would you consider to use saliva as a substitute in cases of suspicious of pyometra in the clinical setting?

The comments made about the inaccuracies in the dissertation are of discussion and editorial nature, they are easily corrected and do not undermine the value of the scientific work.



In summary, Anna Wdowiak doctoral dissertation "The usefulness of determinations of selected hormones, immunological, iron-dependent and oxidative stress markers in female dogs with pyometra and during recovery", can be considered to be relevant and has a high scientific and practical value. The doctoral candidate deserves to be awarded a PhD in veterinary medicine.

A handwritten signature in blue ink, appearing to read "J. D. Garcia Martinez", with a large circular flourish around the end of the signature.

J. D. Garcia Martinez

Murcia, 6th of May, 2019