Characterization of antimicrobial multiresistance in pyometra of companion animals in the Lisbon metropolitan area

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Introduction: Pyometra is a common infection of the reproductive tract of unspayed female dogs and cats, characterized by the accumulation of purulent contents in the uterus. In the treatment of pyometra, antibiotics continue to be used inappropriately and indiscriminately, contributing to the development of bacterial resistance. This study aimed to evaluate and characterize the patterns of antimicrobial multiresistance present in the uterine flora of female dogs and cats with pyometra undergoing ovariohysterectomy (OVH).

Material and methods: From September 2024 to February 2025, uterine wall swabs were collected from 38 animals (27 dogs and 11 cats) presented to OVH for treatment of pyometra from two different veterinary hospitals in the Lisbon area, Portugal. Anaerobic and aerobic culture methods were performed. Antimicrobial susceptibility testing and interpretation were performed using the disk diffusion method according to Clinical and Laboratory Standards Institute (CLSI) guidelines.

Results: In this study, 20.3% (n=29/38) of the animals were colonized with *Escherichia coli*, 8 % (n=3/38) with *Enterococcus* spp., 2.6% (n=1/38) with *Proteus* spp., 2.6% (n=1/38) with *Pseudomonas* spp., and 2.6% (n=1/38) with *Staphylococcus* spp. 13.2 % (n= 5/38) showed no bacterial growth. Of the 38 animals, 5 (13.2%) had bacteria with a multidrug resistance profile. Growth of strict anaerobes was not detected.

Conclusion: The results obtained in this study showed that 13.2% of the animals had pyometra with MDR. This shows the importance of routinely performing uterine cultures and corresponding antibiograms to guide medical treatment, as empirical treatment without prior knowledge of the agent and its susceptibility may be counterproductive and contribute to the development and spread of resistance.

Keywords: Ovariohysterectomy, pets, microbiota, antimicrobial resistance.

Acknowledgments: This work was supported by a Project funded by FMV-ULusófona/ILIND (PyOSurgery 2024/2025).