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Risk factors associated with mammary tumors in shelter dogs

Recently, the numbers of euthanasia in animal shelters have been declining due to spay/neuter programs and affordable veterinary care offered by shelters and low-cost wellness clinics. However, dogs with visible healthy issues including mammary tumors, have higher rates of owner relinquishment and euthanasia in shelters. In an effort to reduce these numbers, animal shelters should have the ability to offer, free of charge, programs that provide treatment for certain medical conditions that will benefit animal outcome and quality of life. Mammary gland tumor (MGTs) is the most prevalent neoplasm in adult, intact female dogs. The incidence of canine MGTs is decreasing in regions where ovariohysterectomy is performed at an early age. In contrast, the majority of adult female dogs that enter the shelters are sexually intact and the incidence of the MGTs is expected to be high. Canine MGTs can progress from benign to malignant with time and should be surgically removed promptly. It is likely that sexually intact adult female dogs that enter animal shelters are more subjected to prolonged exposure of sexual hormones, which may represent a unique population of dogs with MGTs. The proposed research will determine the prevalence and clinical characteristics of dogs with MGTs that enter shelters in order to add epidemiological information to the current literature. Applying the results of this study to shelter protocols will optimize diagnostic and treatment approaches and reduce euthanasia rate for dogs with MGTs, resulting in efficient shelter operations and improved welfare.

The first phase of this research will be conducted at Alachua County Animal Services in Gainesville/Fl or at Miami-Dade Animal Services in Dora/Fl. The student will be responsible for analyzing shelter data during the summer of 2021 to determine the prevalence of MGTs. All dogs that are housed in the shelter during this period and that have been clinically diagnosed with MGTs by the shelter's veterinarian will be reassessed by the student for clinical staging. A complete physical exam will be performed to assess clinical staging. Clinical staging will follow the World Health Organization staging system for mammary tumors in dogs. The staging will include primary tumor evaluation, the size of each tumor, the number of mammary tumors, presence of tumor ulceration and inflammation, attachment to underlying tissues and location are going to be recorded. The largest tumor is going to be considered for clinical staging. The axillary and the inguinal lymph nodes are going to be palpated during physical examination and cytology will be performed in the presence of lymph node enlargement and/or fixation. The investigation for distant metastasis, including thoracic x-rays and abdominal ultrasound are only going to be performed in cases where lymph node metastasis is confirmed with FNA. The student will establish guidelines for diagnosis and treatment for these patients according to the mastectomy type and clinical staging. Simple, regional, unilateral or bilateral mastectomy that are able to promote an efficient local control will be elected depending on the dog clinical staging. The extension of mastectomy will be based on tumor size, but conditions like number and location of tumors, ulceration and inflammation, in addition to lymphatic drainage will also impact this therapeutic decision. One-step surgical procedures will be attempted in order to reduce hospitalization time and cost, long hospitalization time can be prohibitive in shelter medicine patients. The data summary will be presented by the student in August 2021 at the National Symposium.