

For Feline Mammary Tumors, Time Counts

Mammary neoplasia accounts for 17% of feline tumors; most are adenomas or adenocarcinomas. Causes may be related to estrogen and progesterone fluctuations; early spaying can reduce risk for development. Tumors may be discrete and mobile, attached to subjacent tissues, or ulcerated or cystic. Draining lymph nodes may be enlarged. The ratio of malignant to benign tumors is at least 4:1, so any mammary tumor should be considered potentially malignant. Tumor grade cannot be distinguished based on gross appearance; complete staging is recommended, including palpation and aspiration of draining lymph nodes and 3-view chest radiography. Paraneoplastic conditions and retroviral infections are not associated with mammary neoplasia in cats.

Surgical resection is the mainstay of treatment; tumor cells readily spread beyond

the primary site, so complete excision should include en bloc resection of the tumor, attached skin and fascia, and associated drainage pathways. Studies mapping lymphatic drainage patterns may be used as guidelines. Adjunctive chemotherapy with doxorubicin or doxorubicin with cyclophosphamide or meloxicam has been evaluated with mixed results. Immunomodulators and small molecule inhibitors are in early phases of investigation. Prognosis is guarded because of high prevalence of local recurrence or metastasis; average time between detection and death is 10–12 months. Prognostic factors for better survival time include smaller tumor size (<3 cm), lower clinical stage, aggressive surgical treatment, favorable histopathological grade, and low mitotic index. Early diagnosis is critical for optimal disease-free interval.

■ Commentary

As the review mentioned, unanswered questions still exist regarding the risk factors and optimal treatment for this tumor type. Some questions, such as survival benefits of adjuvant chemotherapy, have not yet been fully addressed by existing studies; meanwhile, much of the baseline literature on this disease is several decades old, when fewer cats were spayed and it was more common for masses to be diagnosed later in the course of the disease. This study posed, nonetheless, a useful summary of what we do (or do not) know about how best to address feline mammary masses.—*Suzanne Shelly Waltman, DVM, DACVIM (Oncology)*

■ ■ Source

Mammary tumors in the cat: Size matters, so early intervention saves lives. Morris J. *J FELINE MED SURG* 15:391-400, 2013.

Ascorbic Acid in the Critical Canine

Hyperascorbemia, or high concentrations of ascorbic acid, is a physiologic consequence of certain forms of critical illness. Plasma ascorbic acid concentrations decrease over time in certain human critical illnesses, whereas in critically ill cats concentrations increase. Like cats, dogs can synthesize ascorbic acid, but it has been hypothesized that critically ill dogs develop hypoascorbemia, possibly from increased use and excretion relative to production. Because ascorbic acid supplementation decreases duration of intensive care hospitalization and risk for multiple-organ failure in critically ill humans, it may be beneficial as an antioxidant and antiinflammatory agent in critically ill dogs.

To evaluate the need for ascorbic acid supplementation, plasma ascorbic acid levels were measured in 2 groups of critically ill dogs with systemic inflammatory response syndrome: 16 had measurements taken on days 1 and 2 of hospitalization; 20 had measurements taken on days 1, 2, and 3. There were 13 healthy controls. Both groups of ill dogs had higher plasma ascorbic acid levels on days 1 through 3 when compared with healthy dogs. Dogs may have an upregulation of ascorbic acid synthesis during

critical illness or a more efficient ascorbic acid recycling system. Supplementation during critical illness may not be necessary.

■ Commentary

The study characterized endogenous vitamin C levels in dogs with systemic inflammatory response syndrome during the first days of hospitalization but did not statistically correlate vitamin C levels with changes in clinical parameters. However, it is not known if supplementation with vitamin C IV at different doses contributes to shorter, less expensive hospitalization or fewer adverse events than do conventional medications. Holistic practitioners have commonly used high-dose IV vitamin C therapy with success in critically ill patients, but this practice is not well described. Further studies are warranted, as this well tolerated antioxidant could provide adjunctive or alternative therapy, especially when aggressive or salvage therapy is employed.—*Heather Troyer, DVM, DABVP, CVA*

■ ■ Source

Hyperascorbemia in dogs admitted to a teaching hospital intensive care unit. Groth E, Honaker A, Osterbur K, et al. *J SMALL ANIM PRACT* 53:652-656, 2012.