Combined Doxorubicin and Cyclophosphamide Chemotherapy for Nonresectable Feline Fibrosarcoma

A retrospective evaluation was performed on 12 cats with nonresectable, histopathologically confirmed fibrosarcomas that were treated with doxorubicin and cyclophosphamide chemotherapy. All of the tumors were located in sites potentially used for vaccination. Six cats had a greater than 50% decrease in gross tumor burden. However, the responses were not durable, with a median response duration of 125 days. All cats developed progressive disease. When animals that received other treatments after doxorubicin-based chemotherapy were eliminated from the analysis, median survival time was significantly longer for cats that responded to chemotherapy compared with the median survival time for nonresponders (242 and 83 days, respectively). These findings may serve as a basis for further evaluating the role of chemotherapy in the treatment of vaccine-associated sarcomas. **J Am Anim Hosp Assoc 2000;36:416–21.**

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Introduction

In 1991, pathologists at the Veterinary Hospital of the University of Pennsylvania (VHUP) reported that the incidence of feline fibrosarcomas diagnosed in their laboratory began to increase around 1987.[1] The distribution of these tumors was in sites typically used for vaccination; specifically, the cervical/interscapular region and the caudal thigh, which differed from the region reported previously (i.e., head, limbs, and flank).[1,2] In addition, the rising incidence corresponded with the introduction of regional mandatory rabies vaccination statutes, the development of rabies vaccines labeled for subcutaneous (SC) administration every three years, and the marketing of killed-virus or subunit vaccines against the feline leukemia virus (FeLV). Subsequent epidemiological studies have supported a causal link between vaccination and sarcoma development.[3,4]

Despite intense investigation, the precise mechanisms by which tumors arise from vaccination sites are unknown. Leading theories center on a chronic inflammatory response leading to neoplastic transformation of resident myofibroblasts.[5] Nevertheless, the sarcomas that develop at sites associated with vaccination are reported to behave more aggressively than sarcomas in other sites. They tend to occur in slightly younger cats, are larger at the time of diagnosis, and are more likely to recur after surgical resection compared with sarcomas arising in areas unassociated with vaccination.[4] They may also have a higher potential to metastasize.[6,7]

Treatment of feline vaccine-associated sarcomas has proven frustrating. In studies published before the recognition of vaccine-associated sarcomas, wide or radical excision of the tumor conferred a more favorable long-term response than conservative resection.[8] More recent reports confirm that aggressive surgery may extend tumor-free and overall survival times in cats with sarcomas occurring at vaccination sites.[6,9] Nevertheless, surgery alone is rarely curative. The addition of radiation therapy to surgery has yielded inconsistent results. In a study of cats with histopathologically confirmed fibrosarcomas treated with radiation therapy followed by surgery, the disease-free interval and overall survival time were prolonged compared to historical controls.[7] In contrast, another retrospective study found no benefit to postoperative radiation therapy compared to surgery alone.[9]

There are no published reports documenting the response of vaccine-

JOURNAL of the American Animal Hospital Association 1