MATTHEW J. RYAN VETERINARY HOSPITAL
of the
UNIVERSITY of PENNSYLVANIA

3900 DELANCEY STREET, PHILADELPHIA, PA 19104-6010

APPOINTMENTS 215-898-4680 *EMERGENCIES 215-898-4685*

January 12, 2009

Mrs. Kim Wolff,

Hello! I hope that you and your family are doing well. I just wanted to write a quick note to give you a little information that I have been gathering about Buster and his tumor type. After our discussions, I wanted to review his case in depth and also review several cases of other dogs with chondrosarcomas. I felt as though you would appreciate knowing this information as well. It may help you to understand and accept Buster's unfortunate fate.

I reviewed Buster's pathology reports from his initial biopsy and also from his amputation. The same pathologist examined both samples and both samples were interpreted to be a chondrosarcoma, possibly a parosteal chondrosarcoma. This pathologist is well-published and highly reputable, authoring several veterinary pathology books and also was co-author of a paper from 1994 that characterized 97 cases of chondrosarcoma. I would definitely trust his assessment and interpretation of the samples.

Parosteal chondrosarcomas are tumors of chondroblasts (cells that make cartilage) and originate near the bone (par-osteal meaning "near bone"). These tumors can be difficult to differentiate on histopathology from periosteal osteosarcomas (tumors of bone that originate from the periosteum—nerve lining of bone). Typically, histopathology shows proliferation of both osteoblastic (bone) and chondroblastic (cartilage) cells in the periosteal osteosarcomas, while there is a growth of only chondroblastic tumor cells in the parosteal chondrosarcomas. Upon examining the tissue description of Buster's pathology reports, the cells described are very characteristic of chondroblasts. In humans, parosteal chondrosarcomas are considered to be "indolent" or low grade.

I have included the most recent report of non-nasal chondrosarcomas that has been published. I also included an older report from the human literature as well. I know they are very medical, but you may be able to decipher some of the information from them. I was unable to obtain a copy of the 1994 paper described above, since it is several years old. In these papers, there is a metastatic rate for chondrosarcomas of 15-28% in dogs and about 13.7% in humans. Even though this is small, it is unfortunately still there and metastasis occurs with these tumors.

I also wanted to determine if there was any new information from more recent patients coming into our hospital and see if any new trends could warrant any changes in our therapy recommendations for dogs with chondrosarcomas. I have summarized the information below. I pulled records from dogs diagnosed with chondrosarcomas at our hospital since 2000. Unfortunately, many of the patients do not return to our hospital after their diagnosis, so follow-up information is very sparse.

- 37 patients were diagnosed from 2000-2008
- 12 rib tumors, 7 nasal tumors, 8 with tumors on the head or jaw, 6 with tumors involving a limb, and the rest in other locations
- None of the patients had metastasis at the time of their diagnosis
- Follow-up information for 18 of the patients (no others returned to VHUP) at the last known date of contact listed below

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Patient 1	Recheck 6 months post-diagnosis, no recurrence or metastasis
Patient 2	Recheck 5 months post-diagnosis, no recurrence or metastasis
Patient 3	Died 8 days post-diagnosis, due to fluid around the lungs from rib tumor
Patient 4	Recurrence 4 years post-diagnosis, no evidence of metastasis
Patient 5	Single lung nodule (metastasis) 1 year post-diagnosis, surgically removed Multiple new metastatic nodules another year later
Patient 6	Recurrence 5 years post-diagnosis, surgically removed, no evidence of metastasis
Patient 7	Died due other cancer (heart tumor) 2 years post-diagnosis
Patient 8	Recheck 2 months post-diagnosis, no recurrence or metastasis
Patient 9	Recheck 2 months post-diagnosis, no recurrence or metastasis
Patient 10	Emergency visit 2 years post-diagnosis for other problem, no recurrence or metastasis
Patient 11	Recurrence 1 year post-diagnosis, no evidence of metastasis
Patient 12	Recurrence 6 months post-diagnosis, slow growth over 1.5 years, no evidence of metastasis
Patient 13	Recheck 1 month post-diagnosis, no recurrence or metastasis
Patient 14	Pulmonary metastasis found 1 month post-diagnosis
Patient 15	Pulmonary and lymph node metastasis 25 days post-diagnosis
Patient 16	Recheck 5 months post-diagnosis, no recurrence or metastasis
Patient 17	Pulmonary metastasis found 8 months post-diagnosis
Patient 18	Progressive local disease 3 months post-diagnosis, no evidence of metastasis

- Of these 18 patients, 4 had metastasis (22%). This percentage seems to be very similar to the previous research reports. The timing of the metastatic disease for these patients ranged from 25 days to 1 year after diagnosis.
- The 4 dogs with metastasis had tumors of the mandible (jaw), femoral head (hip), metacarpus (wrist), and rib, so they were all very different locations.

I wanted to gather this information to help me be comfortable with the current recommendations that we have for dogs with chondrosarcoma. There does not seem to be any common findings in age, breed, location of tumor, histopathology, or other information that I examined from the records of those patients with metastatic disease. Unfortunately, we are just unable to predict which patients will have spread of their disease. Since the rate is still very low and these tumors generally do not respond to chemotherapy, we cannot rationally recommend chemotherapy for dogs with chondrosarcomas. Surgery controls the disease in the majority of patients.

This review of cases and literature was very helpful for me, and I thank you and Buster for bringing all of this information to the front of our minds. I hope that this information helps you as well. Buster was one of the unfortunate dogs to have metastatic disease, but he is not alone. He has definitely contributed to my learning and understanding of this tumor. Please let me know if you have any questions. My thoughts are with you and Buster!

Sincerely,

JWiley

Jennifer Wiley, DVM
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