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Chapter 1 : Cancer in Domesticated Animals | CancerQuest

Tumors in Domestic Animals, Fifth Edition is a fully revised new edition of the most comprehensive and authoritative reference on veterinary tumor pathology in common domestic animals, now in full color throughout with the most current advances in research and diagnostics.

Only very rare documented exceptions exist, usually involving surgical mishaps. CTVT is transmitted by mating, licking, or other direct contact. In some cases the urethra becomes blocked making it difficult for the affected animal to urinate. The second image below right is a view of CTVT cancer cells as seen in a microscope. If the cancer is located at the mouth and nose, nosebleeds, facial swelling, and nostril discharge are common symptoms. Many human cancers are caused by viruses, including the human papilloma virus HPV , a major cause of cervical cancer. Infection with viruses can lead to changes in normal cells within the infected person and lead to the development of cancer. In this case, the cancer cells themselves are transmitted from animal to animal. Once in the new animal, the tumor can grow and eventually be spread to additional animals. Also, all tumor cells examined so far have a molecular "fingerprint" in their DNA that is absent in normal cells. Specifically, the cancer cells contain a DNA sequence called Line-1 inserted near the oncogene c-myc. The results showed the expected differences between the normal cell DNA, but all tumor DNA samples were very similar despite being from very different dogs. These results indicate that the tumor cells themselves transfer CTVT between animals. This does not happen with CTVT. Upon the initial infection, CTVT begins a state of rapid and intense growth that lasts anywhere from three to nine months and possibly longer in old or weakened dogs. Chemotherapy is often very effective, usually resulting in complete remission. Surgery does not have a similarly high success rate. Aside from domesticated dogs, it is also transmissible to coyotes, foxes, jackals, wolves and immuno-suppressed mice. It is often invasive and metastatic. This type of cancer occurs most commonly in the appendicular skeleton, including the radius and ulna, femur, tibia, scapila, humerus, and paw bones phalanges. The front limbs forelimbs are more likely to be affected than the rear hind limbs. OSA also occurs in the axial skeleton, including the spinal bones, skull, jaw bone mandible , and the vertebrae at the base of the spine sacrum. In rare cases, it can affect extraskeletal tissues, such as muscle. Large animals, weighing from 44 to 88 lbs 20 to 40 kg , are at a higher risk than smaller animals. Affected dogs will often limp to avoid putting weight on the tumor-afflicted bone. They also present with abnormal bone growth and swelling. Large tumor size is associated with poor prognosis. Analgesics such as morphine are used to relieve pain, and most dogs can walk within hours after the surgery. Many dogs are able to adapt to the amputation within one month. Certain conditions can make dogs bad candidates for amputation, including arthritis, obesity, neurological problems and large breed. For this reason, vets will perform limb-sparing surgeries, in which they remove the tumor and leave the surrounding tissue and bone intact. This surgery has a higher rate of post-operation infection and OSA recurrence than amputation. Studies reveal that the most common reason vets are asked to perform limb-sparing surgery is not based on the animals condition. Rather, it is that owners are reluctant to proceed with amputation. This type of therapy can reduce inflammation and heal micro-fractures. Chemotherapy alone has not been shown to extend survival time. OSA-affected dogs treated with surgery and chemotherapy tend to survive longer. The estimated survival time is 6 to 12 months from the time of diagnosis, regardless of the treatment used. The above diagram was found using Creative Commons and can be accessed here.

Chapter 2 : Tumors in Domestic Animals : Donald J. Meuten :

Description. Tumors in Domestic Animals, Fifth Edition is a fully revised new edition of the most comprehensive and authoritative reference on veterinary tumor pathology in common domestic animals, now in full color throughout with the most current advances in research and diagnostics.

Meningiomas are more common in large breed dogs, and frequently occur in dogs older than 10 years. Boxers, Golden Retrievers and Miniature Schnauzers are predisposed to the development of meningiomas. Meningiomas are classified into three types: Symptoms The symptoms associated with brain tumors will usually reflect the location of the tumor within the brain. While the signs associated with brain tumors can often indicate where the problem is located within the brain, they are not specific for what is causing those symptoms. Thus, the symptoms caused by brain tumors can be the same as those caused by other common disorders of the brain, such as brain inflammation encephalitis or stroke. Seizures and behavioral changes are the most common clinical signs of tumors located in the front of the brain, while a loss of equilibrium vertigo is the most frequent symptom of tumors affecting the brainstem. Meningiomas also frequently cause swelling of the brain adjacent to the tumor, which can cause or contribute to symptoms. MRI and pathologic features of canine meningiomas Click or tap the image for a larger version A- Cystic meningioma in the frontal region. B- Basilar meningioma in the brainstem. C- Temporal lobe cerebral convexity meningioma. E- Multiple meningiomas in a dog. F- Biopsy specimen of Grade I meningioma. Diagnosis Definitive diagnosis of any type of brain tumor can only be done following microscopic examination of tumor tissue obtained by biopsy, during surgical removal, or from a post-mortem examination. Given the non-specific nature of the symptoms associated with brain tumors, performing an MRI of the brain is the preferred method of presumptive diagnosis of brain tumors in dogs and cats. Meningiomas have some characteristic features that allow an accurate presumptive diagnosis of meningioma based on abnormalities seen on MRI Figure 1. Meningiomas arise from cells within the lining of the surface of the brain and usually appear along the outer edges of the brain adjacent to the skull, and can form in numerous locations. The different grades of meningiomas cannot be differentiated using current MRI techniques. Treatment There are several methods commonly used to treat brain tumors in dogs, including palliative therapies, surgery, radiation therapy, and chemotherapies. Palliative, or symptomatic, treatments are designed to relieve some of the secondary effects resulting from the presence of the tumor. Frequently used palliative treatments include steroids, which treat brain swelling and inflammation, and anti-convulsant drugs for those animals that are experiencing seizures. The goal of palliative treatment is to make the patient feel better, but these treatments do not usually have any specific or significant anti-cancer effects. Surgical removal of meningiomas is often possible, especially for those tumors located in the forebrain. Radiation therapy using a variety of dose prescriptions and techniques has been used safely and successfully for the treatment of meningiomas. Radiation has been shown to be beneficial if used as a primary treatment in those cases in which surgery is not possible, or in combination with surgery. There have been no large controlled studies clearly demonstrating the benefits of systemically administered chemotherapies to animals with meningiomas. Prognosis Dogs with meningiomas treated exclusively with palliative therapy have been shown to have median survivals in the month range, although longer survivals can be often be noted with tumors located in the front of the brain. Results from studies examining surgical treatment of canine meningiomas are highly variable and heavily dependent on surgeon experience and operative techniques used. However, surgical resection is generally considered beneficial, and has been associated with survivals ranging from approximately 5 to 70 months. Radiation treatments administered to dogs as a sole primary therapy typically result in survival times ranging from months. When radiation treatment is performed in addition to surgical resection, survivals range from months.

Chapter 3 : Donald J. Meuten: Tumors in Domestic Animals (PDF) - ebook download - english

The 4th edition of Tumors in Domestic Animals contains considerable changes from its predecessors: a new edi tor, many new authors, a new publisher, a larger size, more pages, and a few new style features.

Visit our Beautiful Books page and find lovely books for kids, photography lovers and more. Small Animals pets Back cover copy Tumors in Domestic Animals, Fifth Edition builds on its reputation as the most comprehensive and authoritative reference on veterinary tumor pathology in common domestic animals, with a focus on diagnostics, the biologic behavior of animal cancers, and oncogenesis. Updated to include current advances in research and diagnostics, the Fifth Edition also contains hundreds of new full-color images to aid in identification. New sections on relevant clinical pathology and oncology add a new depth of knowledge to this highly acclaimed textbook. Logically organized for ease of use, the chapters divide the subject by body system with an overview of all tumors in each system, allowing readers to quickly locate relevant information. Tumors in Domestic Animals is an essential reference for veterinary oncologists, pathologists, cancer biologists, clinicians, residents, and students interested in veterinary oncology. Key features Now in full color with hundreds of exquisite new images showing diagnostic features, pathogenesis, and techniquesAdds new sections on relevant clinical pathology and oncologyUpdated throughout to include the very latest advances in research and diagnosticsTakes a logical, user-friendly system approachWritten by leading experts on animal tumor pathology show more Table of contents List of Contributors, vi Preface, vii 1 An Overview of Molecular Cancer Pathogenesis, Prognosis, and Diagnosis, 1 John M. Stromberg and Donald J. Fundamentals and Applications in Oncology, 44 Jose A. Ramos]Vara and Luke B. Goldschmidt and Kyle H. Valli, Dorothee Bienzle, Donald J. Meuten, and Keith E. Moore 9 Tumors of Joints, Linden E. Craig and Keith G. Thompson 10 Tumors of Bone, Keith G. Thompson and Keren E. Dittmer 11 Tumors of Muscle, Barry J. Cooper and Beth A. Meuten and Travis L. Rosol and Donald J. Dubielzig 21 Tumors of the Ear, Bradley L. Diagnostic Schemes and Algorithms, Introduction, Mitotic count, Canine melanomas and melanocytic neoplasms, Histologic grading of canine cutaneous mast cell tumors, Prognosis of canine cutaneous mast cell tumors, Canine subcutaneous mast cell tumors, Cytologic grading of canine cutaneous mast cell tumors, Evaluation of regional lymph node metastasis in canine cutaneous mast cell tumors, Canine oral perioral mast cell tumors, Feline cutaneous mast cell tumors, Canine soft tissue mesenchymal tumor sarcoma , Canine soft tissue mesenchymal tumor: This edition contains several new chapters and updates to other chapters. Particularly noteworthy are the new chapters on trimming tissue specimens for submission and immunohistochemistry and updates to chapter 1, the section on lymphoma, and the diagnostic and prognostic algorithms in the appendices. Overall, the information contained in this book reflects the substantial progress made in veterinary oncology during the 15 years since the previous edition was released..

Chapter 4 : Tumors In Domestic Animals, Fourth Edition

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Click on the image to see a larger version. Selected References These references are in PubMed. This may not be the complete list of references from this article. A laboratory model for the study of the immunobiology of osteosarcoma. A virally induced osteosarcoma in rats. A model for immunological studies of human osteosarcoma. J Bone Joint Surg Am. Primary tumors of bone and lung in rats following local deposition of cupric-chelated N-hydroxyacetylaminofluorene. The occurrence of squamous carcinoma and osteosarcoma in young rabbits injected with 90Sr mu-c--kg. Strontiuminduced bone tumors in miniature swine. Growth dynamics of beagle osteosarcomas. Induction of tumors involving bone in beagles fed toxic levels of strontium Studies of FBJ osteosarcoma virus in tissue culture. Biologic characteristics of the "C"-type viruses. J Natl Cancer Inst. The environmental distribution of canine respiratory tract neoplasms. Methodology and description of cases. Cancer morbidity in dogs and cats from Alameda County. Epidemiological analysis of the most prevalent sites and types of canine neoplasia observed in a veterinary hospital. Neoplasia of the boxer dog. Am J Vet Res. Some aspects of the epizootiology of histoplasmosis in two boxer breeding kennels. J Am Vet Med Assoc. Disseminated coccidioidomycosis of the dog. A clinical and radiological study of canine bone neoplasms. A clinicopathologic study of cases. Clin Orthop Relat Res. Primary bone rumors in the dog: Frequency of osteosarcoma among first-degree relatives of St. Skeletal location of radiation-induced and naturally occurring osteosarcomas in man and dog. Results of surgical treatment in 65 dogs with osteosarcoma. Bone infarctions associated with malignant bone tumors in dogs. Malignant fibrous histiocytoma and pleomorphic sarcoma in association with medullary bone infarcts. Osteogenic sarcoma associated with internal fracture fixation in two dogs. Osteosarcoma associated with metallic implants. Report of two cases in dogs. Tumors associated with metallic implants in animals. Sarcoma following a surgically treated fractured tibla; a case report. Hemangioendothelioma of the leg following metallic fixation of the tibia. Amputation and doxorubicin for treatment of canine and feline osteogenic sarcoma. In vitro immune stimulation-inhibition to spontaneous canine tumors of various histologic types. The effect of BCG on in vitro immune reactivity and clinical course in dogs treated surgically for osteosarcoma. Effects of intravenous BCG in normal dogs and in dogs with spontaneous osteosarcoma. Prophylactic X-irradiation of the lung in canine tumours with particular reference to osteosarcoma. Some prognostic and epidemiologic factors in canine osteosarcoma. Osteogenic sarcoma in the pig. Ultrastructure of sheep osteosarcoma. Osteosarcoma in a squirrel monkey. Clinical prognostic factors in osteosarcoma. Osteogenic sarcoma in four siblings. J Bone Joint Surg Br.

Chapter 5 : Jubb Kennedy And Palmer S Pathology Of Domestic Animals Volume 1 | Download PDF EPUB

Diagnosis and treatment has improved immensely since then, and this book presents updated information in a way that is most useful to diagnostic pathologists, residents, veterinarians, and oncologists.

References Tumors of the skeleton require a multimodality approach to therapy. The treatment modalities are surgery, radiation, chemotherapy, and immunotherapy. The application of these forms of therapy depends upon the histologic type of the tumor, as well as its stage of disease and biological behavior. Surgery and radiation therapy are used to control local and regional diseases. Standard radiographs and bone scans provide good approximations as to the proximal spread of the lesion and possible "skip" metastases. Limb salvage procedures are performed only in select patients. Helfand and co-workers attempted limb salvage in canine osteosarcoma. Massive tumor necrosis was present in the surgically resected limb. However, the treatment did not affect overall survival and death by metastasis. Radiation can be used in tumors that are not surgically excisable for technical or medical reasons. Bone tumors of the mandible or maxilla are often irradiated, and results are mixed depending on tumor type. Radiation may be a palliative procedure for primary and metastatic tumors of bone. Chemotherapy uses anticancer or cytotoxic drugs to treat unresectable primary tumors, microscopic disease, and metastatic diseases. Most bone tumors are reasonably resistant to chemotherapeutic agents. Many of the breakthroughs with chemotherapy in humans are not applicable to veterinary oncology because of the high dosages of drugs required and their side-effects. The major limitation of immune modulation is the ineffectiveness of treatment in patients with a large tumor volume. Its potential efficacy is in patients with minimal or microscopic residual tumors. Dogs with long-bone osteosarcoma should not be treated with immunotherapy alone. The accepted sequence of treatment would be amputation and adjuvant chemotherapy followed by immunotherapy. Since the majority of bone tumors in the dog are malignant, they represent a challenge to the veterinary oncologist. Chemotherapy of primary bone tumors, soft tissue tumors invading bone, and metastatic bone tumors is still relatively unsuccessful compared with chemotherapy of lymphomas and soft tissue tumors. Osteosarcoma is the most common bone tumor in humans and animals. Canine osteosarcoma is an excellent animal model for the disease in humans. Review of the literature reveals that osteosarcoma is the only bone tumor that has been treated by modalities other than surgery in significant numbers. Osteosarcoma Classically osteogenic sarcoma has been considered to be one of the cancers most resistant to chemotherapy. Metastatic osteosarcoma responded to various single cytotoxic agents. Doxorubicin hydrochloride Adriamycin was first shown to be effective in evaluable osteosarcoma by Cortes and co-workers in the early s. The most exciting and controversial advance in single-drug treatment of osteosarcoma was the use of high-dose methotrexate with citrovorum rescue by Jaffe 15 and Djerassi 11 in High-dose methotrexate was then used prior to en bloc resection in previously untreated patients. Higher doses are intolerable in dogs because of bone marrow suppression. Combinations of drugs known to be effective as single agents in evaluable tumor have yielded more consistent and higher response rates than single drugs. Combinations of drugs include high-dose methotrexate and doxorubicin or vincristine or cyclophosphamide, and dacarbazine DTIC-Dome plus vincristine and doxorubicin. Aggressive adjuvant chemotherapy following surgery, with or without radiation therapy, has improved the disease-free interval in humans with osteosarcoma. A review of the literature fails to show that advances in the treatment of osteosarcoma in humans apply to the dog. Osteosarcoma remains a fatal disease in the majority of afflicted dogs. Historically, amputation has been the sole treatment; the dogs die of metastatic disease at a median of 18 weeks following surgery. There was no benefit with this treatment. Most dogs that had received the primary irradiation were killed because of pain caused by recurrence. In a subsequent study, 20 dogs were treated with amputation and intravenous BCG. Eleven of the twenty dogs treated lived 6 months or more and seven of these lived over a year. The site or radiographic appearance of the lesion did not affect the results. Although there appeared to be a delay in development of metastasis and prolongation in survival, these studies were not randomized prospective clinical trials. Historical controls were inadequate to evaluate such a study. In Bech-Nielsen conducted another study using BCG as immunotherapy following amputation of the involved limb. The first

six dogs were treated with intradermal BCG following surgery and the next five dogs served as controls. This was not a randomized prospective study. The median survival time of the BCG-treated dogs was 40 weeks compared with a week median survival time in the control group. A cumulative life table method for estimating survival rate showed no effect of BCG on survival. In vitro immune parameters were conducted on these dogs. Serum-blocking activity appeared slightly higher in the control dogs after surgery. However, in vitro immune evaluation has changed significantly since this study. With the many new concepts that have evolved around the clinical application of immunotherapy in cancer patients, these studies are very difficult to interpret. The tumor burden due to microscopic metastasis is probably too high for immunotherapy to affect. Therefore, reduction of the tumor burden with cytotoxic drugs is important. Weiden and co-workers conducted a study of amputation with and without adjuvant immunotherapy. Twelve of these dogs were in prospectively randomized clinical trial with 11 control dogs treated by amputation alone. Disease-free interval and survival were not prolonged by immunotherapy. The major advances in the treatment of osteosarcoma in humans have revolved around the advent of new chemotherapeutic drugs. These advances have not been effectively extrapolated to the treatment of dogs. Henness and co-workers treated 11 dogs with chemotherapy following limb amputation 10 dogs or subtotal resection of the primary lesion 1 dog. Thus, many different protocols were used in these 11 dogs. The drugs used included cyclophosphamide, methotrexate-leucovorin rescue, vincristine, and doxorubicin. Since this was the first report of chemotherapy in canine osteosarcoma, it was important that the drugs be generally well tolerated. The median survival of ten dogs was 6 months, with a median time to metastasis of 3 months. One dog with early-stage disease was still alive at 45 months without evidence of metastasis. One of the most important factors in treating canine osteosarcoma is the advanced stage of disease at the time of diagnosis. The World Health Organization and Veterinary Cancer Society have established a clinical staging system for tumors, including osteosarcoma, in domestic animals Fig. Most dogs at the time of diagnosis of osteosarcoma have advanced local disease stage III with or without associated clinical symptoms. Misdorp and co-workers have found that the size of the tumor at diagnosis is a significant prognostic factor, especially as it relates to the presence of metastasis. Cotter and Parker treated five dogs with osteosarcoma with amputation followed by high-dose methotrexate and leucovorin rescue. Although the dogs tolerated the large doses of methotrexate when accompanied by leucovorin rescue, the disease-free interval and time to metastasis were not altered. The median time to relapse was 4 months. The pattern of metastasis may have been changed by the chemotherapy. In this report two of three dogs given methotrexate for more than 4 months developed bone metastasis. Early metastasis, after two drug cycles, occurred in two dogs. Drug metabolism did not explain the failure of this treatment in dogs. This study has been the most aggressive chemotherapy protocol in canine osteosarcoma to date. It is interesting to note the lack of success with the treatment. Doxorubicin has been shown effective as a single agent in treating disseminated metastatic advanced osteosarcoma in humans. Again there was no significant prolongation of median survival. The disease-free interval was not measured in all of the animals. Researchers at the University of Pennsylvania have concluded a study comparing doxorubicin alone with doxorubicin plus intralymphatic BCG. The dogs in the chemoimmunotherapy group received Chicago-Tice BCG intralymphatically 2 weeks after the first drug treatment. All dogs were examined every 3 weeks and chest radiographs were taken at that time. Dogs were treated sequentially according to the time of presentation. The first 12 dogs were treated with doxorubicin alone. Median survival Or those dogs was 5. The results of Madewell and co-workers, as well as those in our 12 dogs at the University of Pennsylvania, curtailed further entry of dogs into the chemotherapy group. The median survival of this group was 7 months. Although statistical analysis is not available at the time of this writing, there appears to be no significant difference. However, examination of the median time to metastasis for both groups suggests that those dogs receiving doxorubicin plus intralymphatic BCG had a longer median disease-free interval than those animals treated with chemotherapy alone. The disease- or metastasis-free interval is calculated in weeks and starts from the date of amputation to the date of clinical or radiographic evidence of metastasis. In the group of 12 dogs treated with doxorubicin alone, 9 dogs developed metastasis. The median disease-free interval was The other three dogs in that group died suddenly of unknown causes with no radiographic evidence of chest metastasis and no clinical abnormalities. The median survival of those

three dogs was 7 months. In the group of 21 dogs treated with doxorubicin and intralymphatic BCG, 18 died of metastasis. The median disease-free interval was 22 weeks. The other three dogs died suddenly.

Chapter 6 : Brain Tumors: Canine Meningiomas

Other common types of cancer found in dogs include cancer of the mouth, lymphoma, testicular, and abdominal tumors.2 Osteosarcoma, or bone cancer, is most common in large dog breeds, such as Great Danes, mastiffs, Labrador Retrievers, and Rottweilers.

Chapter 7 : Tumors in Domestic Animals - James Edward Moulton - Google Books

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