

MEDVET CLINICAL REVIEW

Osteosarcoma in Dogs

Osteosarcoma (OSA) is the most common primary bone tumor in canines accounting for approximately 90% of all bone tumors in large/giant dog breeds and 75% of bone tumors in smaller breeds. Middle-aged and older dogs are most commonly affected but young dogs can be affected as well. 75% of these tumors occur in the limbs (appendicular) with the remaining tumors occurring in the pelvis, skull, ribs and spine. The cause of OSA is unknown.

Clinical Signs

Dogs with appendicular OSA develop lameness over a period of several weeks to months. Eventually, this lameness becomes constant and may result in non-weight bearing on the affected limb. This lameness is usually poorly responsive to non-steroidal anti-inflammatory drugs (Rimadyl, Deramaxx, etc. and other oral pain medications). There may also be an obvious swelling over the tumor site and muscle atrophy in the affected limb.

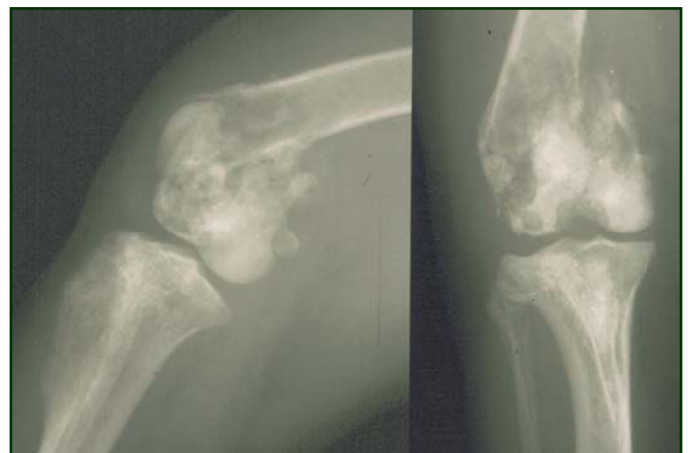


Figure 1- OSA of the femur near the knee. Note the obvious loss of bone and the “moth-eaten” appearance.

Diagnostics

Clinical history, physical examination and radiography are often sufficient enough to establish a presumptive diagnosis. Radiographs of the bone generally show varying degrees of bony lysis (moth-eaten appearance) and proliferation (irregular new bone formation at the edges of the bone) and soft tissue swelling (**Figure 1**). A definitive diagnosis can be obtained through a biopsy. This is performed under anesthesia where a small piece of the bone is removed. The sample is sent to the lab for analysis and results are usually returned in 7-14 days. Biopsies can be helpful in the decision-making process but are often not necessary.

Chest radiographs are recommended to be taken at the initial presentation since approximately 20% of dogs will already have demonstrable spread of tumor to the lungs (metastasis) at this early stage. The prognosis of dogs with visible metastatic lesions is extremely guarded.

Treatment and Prognosis

OSA is a highly metastatic-type of tumor. Research has found that up to 98% of dogs have micrometastases (spread of the cancer to the lungs or elsewhere, that is invisible to the naked eye) at the time of diagnosis. There are however, treatment options available to improve the quality and length of your pet's life. The following is a list of the average survival times with associated treatments for appendicular OSA. These are average survival times; therefore, some patients may live longer or shorter than the numbers listed.

- No Treatment- Patients are usually euthanized within 1-2 months of diagnosis of OSA. This is because the pain from the tumor becomes so debilitating that the patient's quality of life is severely compromised. Rarely is OSA the actual cause of death instead, patients are often humanely euthanized to end suffering.
- Palliative Radiation- The goal of palliative radiation is to reduce or eliminate tumor-associated pain and improve quality of life. Treatment usually involves 3 doses of radiation which provides a 4-5 month average survival time. The advantage of this treatment is that the limb is preserved but survival times are not as long as other treatments.
- Amputation- Amputation is the most common surgical treatment performed for appendicular bone tumors because of its low complication rate and definitive removal of the primary tumor. With amputation alone the average survival time is about 6 months. This is because amputation alone has no affect on any micrometastases present that will eventually grow into a larger tumor.
- Amputation and Chemotherapy- Chemotherapy, when combined with surgery, offers the longest average survival time of 12-14 months. Chemotherapy is used to control the micrometastases.
- Limb Sparing and Chemotherapy- Limb sparing involves removing the tumor and replacing the bone with a cadaver bone (allograft) or a metal rod, thus allowing the patient to keep the limb. This option is only available for dogs that have tumors at certain locations on their forelimbs. The survival time is equivalent to amputation and chemotherapy. The advantage of this treatment is that a functional limb is preserved and survival time is not compromised. However, complication rates and costs are higher than for amputation.

A Note about Amputation

Most clients have difficulty making the decision to amputate a pet's limb. Your MedVet veterinarian and your regular veterinarian can provide you with facts and experiences that may help guide this decision for you and your family. In most cases, amputation is a good option for an otherwise healthy pet. Exceptions to this may include very large breeds, very overweight pets and those with concurrent orthopedic or neurologic diseases. At MedVet, our experience has been that almost all clients are pleasantly surprised at the success of surgery and the function of their pets. One of the reasons dogs do so well with amputation is that they do not experience the emotional trauma/handicap a human does when faced with loss of a limb. Amputation is often easier on the canine patient than it is on their owner. We have many patients who go on to swim, play ball, and lead high quality lives. For more information concerning the impact of amputation on pet's lives visit the following website: <http://www.people.ku.edu/~cadavis/ClubMain.shtml>



300 E. Wilson Bridge Rd., Worthington, Ohio 43085
 (614) 846-5800, (800) 891-9010, Fax (614) 891-2081

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