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OSTEOSARCOMA

What is it? Osteosarcoma is a tumor arising from and involving bone. It is the most common type of bone cancer seen in dogs and cats. Approximately 75% of osteosarcomas affect the appendicular skeleton (the long bones of the limbs) with the remainder affecting the axial skeleton (skull and spine).

What animals are affected? Osteosarcoma can occur in any dog or cat but is typically a disease of large and giant breed dogs. St. Bernards, Rottweilers, Golden Retrievers, Great Danes, Irish Setters, Doberman Pinschers and German Shepherds are most commonly affected. Scottish Deerhounds are genetically predisposed to Osteosarcoma. It usually affects middle-aged to older animals but has been diagnosed in dogs less than 2 years of age as well.

What are the signs? Osteosarcoma usually manifests as a lameness or discomfort associated with the affected limb or site. Sometimes a firm lump forms at the site and is noted by the owner prior to any lameness. Some animals show no signs until the affected bone fractures (a pathologic fracture).

How is it diagnosed? Osteosarcoma is typically diagnosed based on history, physical examination, radiographs and ultimately bone biopsy. It has a very characteristic appearance on radiographs (a lytic, punched out, moth eaten appearance to the affected bone) and tends to occur at predictable locations: proximal humerus (upper part of the upper arm bone, near the shoulder), distal radius (lower part of the lower arm bone, near the carpus or wrist), distal femur (lower part of the thigh bone) and proximal tibia (upper part of the lower leg bone). Biopsy gives the definitive diagnosis; however, biopsy *prior* to surgical treatment is often not done, since results of the biopsy rarely change the surgical recommendation. Chest radiographs are recommended to see if there is any evidence of metastasis (spread) to the lung tissue.

How is it treated? The treatment of choice for Osteosarcoma is removal of the primary tumor, followed by chemotherapy (curative intent therapy). When the tumor involves a long bone of one of the limbs, it usually means amputation of the limb followed by chemotherapy. Some tumors can alternatively be treated with limb-sparing, which involves removing the affected part of the bone and replacing it with a bone graft and surgical implants in an effort to save the leg. Amputation alone in dogs is palliative therapy, in that it relieves the source of discomfort and prevents pathologic fracture of the bone but it does not slow the progression of the disease. Tumors that cannot be removed (most spinal tumors) or those in which the owner does not want to pursue amputation can also be treated with chemotherapy or radiation therapy in an effort to alleviate some of the discomfort associated with the tumor. Osteosarcoma in cats has a low potential to metastasize so it typically treated with amputation alone.

What after care is needed? Routine postoperative care is needed in the case of amputation. Most pets adapt quickly to the loss of a limb and can function quite well once they have healed and regained their strength. The majority of animals can walk unassisted within 12 to 24 hours of amputation. Chemotherapy is also recommended as follow-up to slow the progression and metastasis of the disease.

What is the prognosis? The prognosis for patients with osteosarcoma is guarded to poor and largely depends on the location of the tumor and presence or absence of metastasis at the time of diagnosis. The majority of tumors have already metastasized, but it may as yet be undetectable. Unfortunately, we

do not have a cure for osteosarcoma and most of our treatments, even amputation, are palliative. We have had dogs survive up to two years with amputation and chemotherapy, but many, particularly those with metastatic disease, only survive a few months. The following are general guidelines for survival rates.

Osteosarcoma of a limb in dogs:

- No treatment (pain medications only) 3-5mo.
- Amputation alone (palliative treatment) 3-5mo.
- Amputation + chemo (curative intent) 8-12mo.

*Dogs with a normal Alkaline Phosphatase at the time of surgery tend to survive twice as long as those with an elevated AlkPhos.

In cats:

- Amputation alone 12mo to >4 years

Despite these numbers, amputation with or without chemo is typically recommended, since it improves the pet's quality of life by removing the source of pain. Most patients will eventually die or be humanely euthanized due to complications from either the primary tumor or the effects of metastasis.

Can it be prevented? No, at this time Osteosarcoma, like many types of cancer cannot be prevented.

Click to learn more about [Osteosarcoma and other bone tumors](#)