



Mansfield Animal Clinic

1260 North Main Street, Mansfield Animal Clinic, TX, 76063

Phone: 817-473-1012

Fax: 817-473-1315

Email: admin@mansfieldanimalclinic.com

Website: www.mansfieldanimalclinic.com

Osteosarcoma in Dogs

What is an osteosarcoma?

Osteosarcoma is the most common malignant bone tumor diagnosed in veterinary practice. It is considered similar to pediatric osteosarcoma in humans, a bone cancer that usually develops during the period of rapid growth that occurs in adolescence, as a teenager matures into an adult. Osteosarcoma typically affects large breed older dogs but dogs one to two years of age are also diagnosed with this serious disease. There seems to be a higher incidence of osteosarcoma in male dogs.

What are the clinical signs of osteosarcoma?

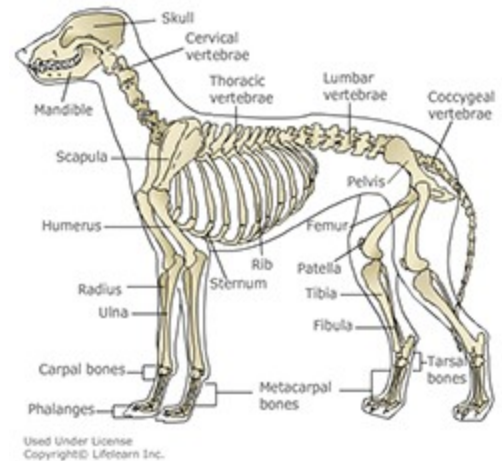
The symptoms of osteosarcoma are related to the bone or bones involved. The usual symptom is intermittent lameness in a forelimb or hindlimb without any known trauma or injury. There may be a painful area over a long bone or the owner or veterinarian may notice a hard swelling. In some cases, the cancerous bone may fracture or break with only minor trauma. The four most common sites for osteosarcoma are the distal radius, proximal humerus, distal femur, and proximal tibia.

Are some dogs more likely to get bone cancer?

Osteosarcoma should be considered in any large breed dog that suddenly develops lameness without an obvious cause. Rottweilers seem to have an unusually high incidence of osteosarcoma. In a recent survey of about 800 Rottweiler owners, one out of every eight Rottweiler dogs was reportedly developed osteosarcoma. Large breeds such as Labradors, Golden Retrievers, German Shepherds, Dobermans, Weimeraners, and Boxers are at greater risk for developing osteosarcoma. Other breeds commonly affected include Great Danes, Saint Bernards, Great Pyrenees, Newfoundlands, Bernese Mountain Dogs, and Irish Wolfhounds.

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Dogs over 80 pounds have been shown to be at least sixty times more likely to develop an osteosarcoma than dogs weighing less than 75 pounds. Osteosarcoma is uncommon in small breeds of dogs.



How is osteosarcoma diagnosed?

The key diagnostic tests for osteosarcoma are radiographs and histopathology. Radiographs of osteosarcoma have a typical "lytic" or moth-eaten appearance. If a suspicious area is observed, either a fine-needle aspirate or a bone biopsy of the lesion needs to be performed to make a final diagnosis. Care must be taken when performing bone biopsies due to the increased risk of bone fracture of the weakened and cancerous bone. Although the incidence of biopsy-induced fracture is low, many dogs become lame and more painful immediately following bone biopsy procedures. For these reasons, some veterinary oncologists prefer to obtain diagnostic samples with fine-needle aspirates using an 18-gauge hypodermic needle.

" Up to 90% of these tumors will have *metastasized*..."

Blood tests and radiographs of the chest are also often performed as part of the diagnostic work-up, to search for additional lesions or underlying medical conditions. Up to 90% of these tumors will have *metastasized* or spread to the lungs at the time of diagnosis, but because of the small initial size of the metastatic lesions, less than 10% will initially show up on a chest x-ray. Because of this high incidence of metastasis, all dogs with osteosarcoma are treated as though they have metastasis to the lungs regardless of the findings on the initial lung x-rays.

How is osteosarcoma treated?

Treatment of osteosarcoma should be based both on the patient's condition at the time of diagnosis and the wishes of the owner. Osteosarcoma is a highly metastatic cancer meaning that it is very likely to spread to other parts of the body. This results in an overall less favorable prognosis than for a malignant tumor that is not highly metastatic. Traditional treatments for osteosarcoma include *amputation* of the affected limb to address local pain issues, followed by *systemic chemotherapy* for the treatment of distant metastasis.

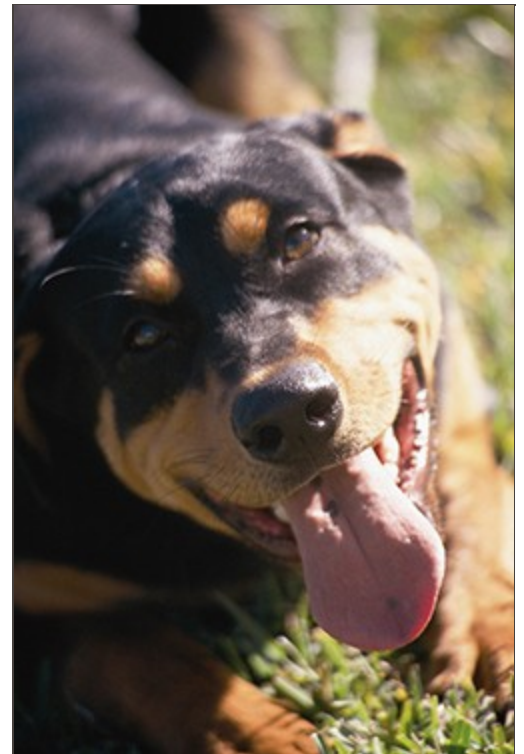
"...it is vital that systemic chemotherapy is started immediately..."

Since 90% of osteosarcomas will spread to the lungs, it is vital that systemic chemotherapy is started immediately, even if there is no radiographic evidence of spread to the lungs. Radiation therapy has also been used to control pain in certain cases.

My dog seems to be in pain. What can be done to relieve it?

Osteosarcoma is a painful cancer. Pain medications will be used but are not a replacement for amputation and chemotherapy.

"Most patients will require a combination of medications to control their pain."



Most patients will require a combination of medications to control their pain. Non-steroidal anti-inflammatory agents (NSAIDs), tramadol, amantadine, and fentanyl are commonly used to combat the debilitating pain associated with osteosarcoma.

What is the prognosis for osteosarcoma?

The prognosis is based on the severity of the disease and the extent of metastasis. Overall, a guarded to poor prognosis is warranted until the results of all diagnostic tests are completed and the response to initial treatment has been assessed. Your veterinarian will guide you through the decision-making process of how to best care for your pet's condition.

*This client information sheet is based on material written by: Ernest Ward, DVM
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