



OSTEOSARCOMA

What is an Osteosarcoma?

Osteosarcoma is a type of cancer arising from the bone. Most commonly bones of the front or back legs are affected, though this type of cancer can also be seen in "short" bones, such as the bones of the jaw, the nose and the ribs. The most common complaint is lameness in the affected leg, while in some dogs a swelling can also be seen above the site of cancer. Osteosarcoma is usually seen in large and giant breed dogs, such as Rottweilers, Greyhounds, Retrievers and others. Cats and small to medium-breed dogs are less commonly affected.

A big concern with osteosarcomas is pain. This can have a significant impact on a pet's welfare, as they may not be able to use the affected leg. The tumour can make a bone very weak and there may be a bone fracture secondary to this.

Another major concern with osteosarcomas of the long bones is that they tend to spread (metastasise) to other parts of the body despite appropriate management. This has typically occurred at a microscopic level in most dogs by the time the tumour is detectable.

Diagnosis and Screening Tests

When a dog is diagnosed with osteosarcoma, then a series of diagnostic tests will likely be recommended to better understand if there is any evidence of cancer spreading to other parts of the body. This is important, as cancer spread is associated with shorter survival. Unfortunately, this may affect the treatment options. An X-ray or CT of the lungs is commonly performed test.

X-rays of the affected leg will usually be suggestive of osteosarcoma. A definitive diagnosis can only be made with the collection of tissue (biopsy) from the affected part of the bone.

What are the treatment options?

The main treatment options for dogs with osteosarcoma involve surgery followed by chemotherapy. Surgery in the form of amputation is recommended for osteosarcoma of long bones. By performing an amputation, the tumour is completely removed and at the same time, the source of pain is taken away. The majority of patients, even large and giant breed dogs, will adapt very well and will achieve nearly normal exercise levels. The possibility of regrowth is very low with this procedure. Unfortunately, the risk of cancer spreading will still be there. For this reason,

chemotherapy is recommended once the surgical site has healed. Chemotherapy will delay the evidence of cancer spreading in the lungs and other parts of the body. Injectable chemotherapy with drugs called carboplatin or doxorubicin is given every 3 weeks for a total of 4 to 6 doses. After completion of the protocol, repeat x-rays or CT of the chest are performed to identify evidence of cancer spread.

Alternative options to amputation are limb-sparing techniques. With this approach, the tumour is removed, though the limb is maintained. There is a wide range of limb-sparing techniques and some of those will involve the use of metallic plates and bone grafts or prosthesis to cover the deficit. Not many dogs with osteosarcomas are good candidates for limb-sparing techniques. However, non-surgical treatments for osteosarcoma can include the use of radiation therapy.

Radiation therapy can be very useful in managing the signs of pain in the majority of dogs. Radiation therapy can be combined with chemotherapy and other painkillers. Repeated infusions of bisphosphonates can also be used alongside the above techniques. Bisphosphonates (such as zoledronate and pamidronate) are supposed to make the bone stronger.

Despite the efforts, most dogs with osteosarcoma will have evidence of cancer spread in the future, though with surgery and chemotherapy, 30-50% and 10-20% of dogs will be alive and 1 and 2 years after diagnosis, respectively.



Example of bone changes (lysis) in the distal ulna of a dog with early OSA



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