

Osteosarcoma

What is osteosarcoma?

Osteosarcoma is a type of cancer of the bone. It can affect any dog, but large-breed, middle-aged dogs are most commonly affected. It can occur in any bone but the most frequently affected sites are the ends of the long bones –the end of the radius towards the carpal joint (equivalent to our wrist) or around the knee. The first sign of this type of cancer is generally lameness due to pain, which can be severe. Rarely the weakened bone will fracture (break). As the cancer develops a lump may be seen or felt at the site.

How is it diagnosed?

X-rays may arouse a suspicion of osteosarcoma, but a specific diagnosis requires evaluation of a biopsy by a pathologist. Biopsies are usually taken with needles through small skin incisions. At the same time patients are evaluated for secondary spread of the tumour –ideally with a chest CT scan and abdominal ultrasound scan. Osteosarcoma is an aggressive type of cancer. In the majority of cases the cancer has already spread to the lungs, possibly to other bones/organs, by the time it is diagnosed. The secondary tumours are usually microscopic at this stage and are therefore usually not seen on scans/x-rays. These tests are important when deciding on whether chemotherapy is appropriate or not – chemotherapy is generally not used in dogs with well-developed secondary tumours. Blood tests can also be helpful to assess prognosis.

What treatment is possible?

The main objective of treatment is to alleviate pain. Treatment options include:

1. **Amputation:** since this removes the tumour, it also removes the source of pain. However, the secondary tumours will continue to progress and so average survival is only around 4 months. Owners are often worried that their dog will not cope well on three legs but as long as the other three legs are healthy, even large dogs can cope very well. Amputation of a hindlimb is tolerated slightly better than amputation of a forelimb.
2. **Bisphosphonates:** In some dogs drugs called bisphosphonates can help reduce the pain of osteosarcoma without amputation. Bisphosphonates are typically given intravenously every 3-4 weeks.
3. **Limb-sparing surgery:** This involves a localised resection of the tumour and then stabilisation of the affected bone by placing a large spacer at the tumour site, secured with a large bone plate. It is usually only an option for osteosarcoma of the lower part of the forelimb (distal radius/ulna). The risk of complications is high and so limb-sparing is not often performed, but it can be useful for some dogs with orthopaedic disease in the other limbs or in very large dogs. Limb-sparing surgery is a very technical procedure and it should only be performed by specialist orthopaedic surgeons. Limb-sparing surgery is only performed in conjunction with postoperative chemotherapy.



4. **Chemotherapy:** Many owners are wary of using chemotherapy in their pets because of the side effects they associate with the use of chemotherapy in people. Chemotherapy in dogs however is very different; we tend to use lower drug doses and the side effects are generally minimal. For dogs with osteosarcoma chemotherapy is performed in conjunction with either amputation or limb-sparing surgery. It usually involves 4-6 doses of intravenous medication, given every three weeks. Chemotherapy can extend the average survival time of your pet to around 12 months, meaning 50% of dogs are alive at 12 months. 15-20% are alive at 2 years.

5. **Radiation:** Radiation can palliate some of the pain associated with osteosarcoma but the effect is delayed rather than instantaneous and radiation does not slow down the development of the secondary tumours in the lungs or elsewhere. Additionally, there is an increased risk of fracture at the tumour site. Radiation therapy facilities are limited in the UK at present.

6. **Euthanasia:** The pain associated with osteosarcoma is usually severe and so doing nothing is usually not an option on humane grounds. If you do not wish to pursue the treatment options listed above for your pet than saying a final farewell is often the kindest option.

At Anderson Moores Veterinary Specialists we are always happy to investigate suspected osteosarcoma cases and/or provide treatment for confirmed osteosarcoma patients. Our multi-discipline approach with orthopaedic, imaging and medicine specialists and our on-site advanced imaging facilities and state of the art surgical facilities allow for the optimum care of these patients, including chemotherapy, bisphosphonate therapy and limb-sparing surgery where appropriate.

