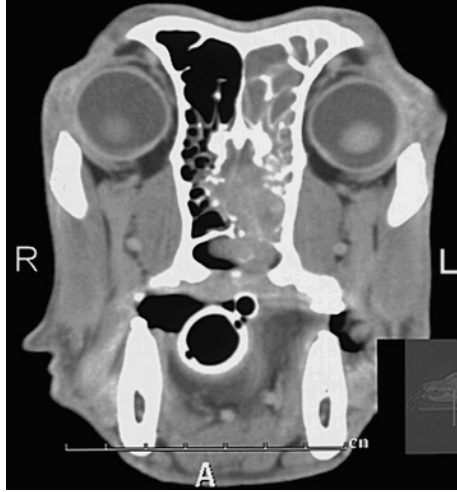




The Pet Oncologist

## Nasal Tumours in Dogs



**A dog presents to you with nasal signs and/or a sinusoidal mass. You perform a nasal biopsy and diagnose a nasal tumour. What is the prognosis and what are the treatment options?**

**First, let's start with some information about nasal tumours in dogs.**

**Primary nasal tumours** are uncommon, representing around 1% of all canine neoplasms. Nasal carcinomas represent two-thirds of canine nasal tumours. The remaining nasal tumours are primarily sarcomas. Less common cancers include mast cell tumour, transmissible venereal tumour, lymphoma, melanoma, haemangiosarcoma and neuroendocrine tumours.

The cause of nasal tumours is likely multifactorial and largely unknown. It has been speculated that dolichocephalic breeds or dogs living in urban environments, with resultant increased nasal filtration of pollutants, may be at higher risk for developing nasal cancer. Exposure to environmental tobacco smoke and indoor exposure to fossil fuel combustion products (such as coal or kerosene heaters) may also play a role.

Older (median age of 10 years) and medium-to-large breed dogs appear more commonly affected. Male dogs appear slightly more frequently affected than females.

Common clinical signs at presentation include epistaxis, mucopurulent nasal discharge, facial deformity, unwillingness to open the mouth, sneezing, dyspnoea, stertorous breathing, exophthalmos, and ocular discharge. Clinical signs are progressive and often temporarily alleviated by antibiotics and anti-inflammatories.

Nasal tumours are extremely locally invasive into the surrounding tissues and bone. The metastatic rate at the time of diagnosis is low (<24%) but approaches 40% to 50% at the time of death. The most common sites of metastasis are the regional lymph nodes and lungs.

### ***What is the prognosis?***

The prognosis for canine nasal tumours is poor with median (average) survival times of two to three months with supportive care alone. Most dogs are humanely euthanised due to poor quality of life from the local effects of the primary tumour.

The prognosis for canine nasal tumours is highly variable and depends on several factors, including clinical stage, presence of lymph node or distant metastasis, histologic subtype, presence of epistaxis and response to therapy.

Dogs with clinical stage I disease (i.e. unilateral nasal disease and turbinate destruction only), the median survival time is around two years after treatment with radiation therapy, while dogs with clinical stage II disease (i.e. other bone involvement beyond turbinates, orbit, subcutaneous, submucosal, or nasopharyngeal extension) have a median survival time of around 15 months after treatment with radiation therapy. Unfortunately, dogs with clinical stage IV disease (i.e. involvement of the cribriform plate) have the worse prognosis, with reported median survival times of two to ten months after treatment with radiation therapy.

The presence of either regional lymph node or pulmonary metastasis is associated with a poor median survival time of around 3.5 months, compared to 13 months in dogs without metastasis.

Most studies show no clinical difference between the types of nasal tumours in response to therapy. However, one study showed dogs with SCC, anaplastic carcinoma and undifferentiated carcinomas carry a worse prognosis with a median survival time of six months for treatment with radiation therapy, and two months for treatment with chemotherapy. In some studies, sarcomas (particularly chondrosarcomas) have a better prognosis than carcinomas.

Unfortunately, dogs that present with epistaxis have reported median survival times of around three months, compared to 7.5 months in dogs that did not have epistaxis.

Failure to achieve complete resolution of clinical signs and remission after therapy is associated with worse survival outcomes. The median survival time for dogs that achieve complete remission after therapy is around 16 months, compared to four months.

### ***What are the treatment options?***

The best survival outcomes for nasal tumours is a combination of surgery and radiation therapy. Good survival outcomes have also been reported for surgery followed by adjuvant chemotherapy. However, for most nasal tumours, surgery is not feasible and is associated with a high rate of morbidity. Therefore, radiation therapy alone is considered the standard of care treatment. Although less effective, chemotherapy or Palladia® (toceranib) can also be considered. Surgery alone is not recommended because it has proven to be of little benefit in prolonging survival times.

#### **Radiation therapy**

In most dogs, radiation therapy is effective at reducing tumour size, improving clinical signs and improving survival. The response rate is high (80%), and the median survival times range from 8 months to 1.7 years. Treatment is typically administered under general anaesthesia, daily Monday to Friday for around 3.5 weeks.

Stereotactic radiation therapy is a relatively new form of radiation therapy in veterinary medicine that is currently being investigated for the treatment of nasal tumours in dogs. Stereotactic radiation therapy typically involves three consecutive daily high doses of radiation therapy and provides the benefit of a reduced number of general anaesthetics and shorter treatment duration. At this present time, stereotactic radiation therapy appears to offer comparable tumour control to conventional radiation therapy, with median survival times of around 8.5 months to 1.6 years. Palliative radiation therapy can also be considered. Treatment is typically administered weekly for three to four treatments or daily for five consecutive days. The goals of palliative radiation therapy are to improve quality of life and not necessarily to extend survival time. Around two-thirds of dogs will clinically improve for a median duration of four to ten months.

### Chemotherapy

Chemotherapy can be considered for dogs with nasal tumours. In two studies of canine nasal tumours treated with a combination of carboplatin and doxorubicin chemotherapy (alongside with piroxicam), the response rates were around 75% and median survival times seven to 7.5 months.

### Palladia®

Palladia® can be considered as a sole therapy or in combination with radiation therapy. In an unpublished preliminary study in dogs with nasal carcinoma, most dogs (71%) experienced a clinical benefit from Palladia® and survived a median of 8 months after starting therapy. Combination Palladia® and radiation therapy were associated with an 80% response rate and median survival time of 1.7 years.

### Piroxicam

Piroxicam is a non-steroidal anti-inflammatory drug (NSAID) that can help improve quality of life and can be considered as a sole therapy or in combination with any of the above therapies; provided the dog has normal renal function. Piroxicam has anti-cancer activity against a variety of cancers in pets, particularly carcinomas. One study showed normal nasal tissue had no evidence of cyclooxygenase-2 (COX-2) expression, and that 71-95% nasal carcinomas express COX-2. Therefore, piroxicam that can inhibit COX-2 may play a role in the treatment of nasal carcinomas. Piroxicam can result in clinical improvement in half of the dogs. However, it should be considered with low expectations in reducing tumour burden. Piroxicam should not be used concurrently with other NSAIDs or prednisolone, and it should not be administered on the same days as Palladia®.

### Prednisolone

Prednisolone is a corticosteroid that can be used instead of piroxicam when dogs are clinically unwell from their cancer. Anti-inflammatory dosages can reduce the inflammatory cytokine release associated with cancer and make dogs feel clinically better within 24-48 hours. Prednisolone should not be used concurrently with NSAIDs, and it should not be administered on the same days as Palladia®.

**Vets, I hope this information helps you understand a bit more about the prognosis and treatment options for dogs with nasal tumours. If you have a question about canine nasal tumours or have a case that you would like evaluated, please do not hesitate to get in touch. Email: [info@thepetoncologist.com](mailto:info@thepetoncologist.com).**