

Tumors or Masses in the Mouth (Oral Masses)

Basics

OVERVIEW

- “Oral” refers to the mouth; “oral masses” are tumors or growths located in the mouth
- Oral masses may be benign or malignant (that is, cancer); 4th most common cancer area in dogs and cats; the majority invade adjacent tissues and are slow to metastasize (spread elsewhere in the body)

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs
- Cats

Breed Predilections

- Golden retrievers, German shorthaired pointers, Weimaraners, Saint Bernards, and cocker spaniels are more prone to tumors of the mouth than other breeds; dachshunds and beagles are less prone to tumors of the mouth than other breeds; boxers are more prone to have enlargement of the gums (known as “gingival hyperplasia”) than other breeds
- Malignant melanoma—the most common cancer of the mouth in the dog; cocker spaniels, German shepherd dogs, chow chows, and dogs with heavily pigmented linings of the mouth (known as “mucous membranes”) are more likely to develop malignant melanoma than other dogs
- Squamous cell carcinoma—the second most common cancer of the mouth in the dog; large-breed dogs are more likely to develop squamous cell carcinoma than other dogs

Mean Age and Range

- Older pets are affected most often
- Papillary squamous cell carcinoma—a rapidly growing cancer of young dogs (less than 1 year of age); complex odontoma, compound odontoma, papilloma also seen in dogs less than 2 years of age
- Fibrosarcomas—the third most common cancer of the mouth in dogs; seen in large, older male dogs; second most common in cats
- Osteosarcoma—middle-aged medium- to large-breed dogs
- Plasmacytoma—older dogs
- Squamous cell carcinoma in the cat—type of cancer in the mouth; age range is 3–21 years; mean age is 12.5 years



- Fibrosarcoma in the cat—the second most common cancer of the mouth; age range is 1–21 years; mean age is 10.3 years

Predominant Sex

- Malignant melanoma—the most common cancer of the mouth in the dog; males more frequently affected than females
- Fibrosarcomas—the third most common cancer of the mouth in dogs; seen more in large, older male dogs
- Osteosarcoma—females more commonly affected than males

SIGNS/OBSERVED CHANGES IN THE PET

- May have no signs
- May include bad breath (known as “halitosis”), tooth displacement, malocclusion (any deviation in the relationship or contact between the biting and chewing surfaces of the upper and lower teeth)
- Bleeding in the mouth
- Drooling
- Weight loss
- Lack of appetite (known as “anorexia”)
- Reluctance to chew or can only eat soft food; chews only on one side of the mouth; poor appetite
- Inability to open or close mouth
- Head shy
- Abnormal facial appearance (swelling, lack of symmetry between sides)
- Tooth loss, or looseness (mobility)

CAUSES

- Unknown for most oral masses
- Papilloma virus—papilloma, a benign tumor

RISK FACTORS

- Squamous cell carcinoma of the tonsils occurs ten times more commonly in dogs from urban settings than in rural dogs
- Squamous cell carcinoma—more common in white dogs in one study
- Any long-term (chronic) irritation to the tissues of the mouth (such as inflammation/infection of the tissues surrounding and supporting the teeth [known as “periodontal disease”] or second-hand smoke) increases the risk of tumor development in the mouth
- Viral papilloma can undergo transition to malignancy, to squamous cell carcinoma
- Feline leukemia virus (FeLV) or feline immunodeficiency virus (FIV) may play a role in squamous cell carcinoma development in cats
- Some researchers showed that cats that wore flea collars had 5 times the risk of developing squamous cell carcinoma of the mouth than cats that did not wear flea collars
- Second-hand smoke may be associated with squamous cell carcinoma in cats
- Dogs and puppies that have an inability to develop a normal immune response (known as “immunosuppression”) are affected more commonly with papillomas (benign tumors) than dogs with normal immune responses

Treatment

HEALTH CARE

- Depends on the tumor type
- Benign tumors are treatable with long-term success via surgery and sometimes radiation treatment
- Cancer (malignant tumors) is treated surgically with varying success, depending on tumor type, location, and if the cancer has spread to other tissues of the body (known as “metastasis”) at time of presentation to the pet's veterinarian
- In advanced cancer, combined therapy (surgery, chemotherapy, and radiation) may provide the best care
- Molecular therapies may allow treatment with better targeting
- Pain control

- Supportive care

DIET

- Nutritional support is essential with any treatment
- Gruel or liquefied diet may be necessary following surgery of the mouth
- Tube feeding may be necessary

SURGERY/RADIATION/CHEMOTHERAPY

- Early diagnosis and treatment offer the best chance for successful outcome; full surgical removal with wide margins (en-bloc), may be combined with radiation therapy (newer intensity-modulated treatment, quickly being adopted), chemotherapy used for certain types of tumors; radiation therapy will be considered in pets where complete removal of the tumor is not possible or the location of the tumor makes surgical removal impossible
- Papilloma—surgical removal is the treatment of choice
- Epulis—surgical removal is the treatment of choice;; peripheral ossifying epulis (odontogenic fibroma) may require annual removal
- Acanthomatous ameloblastoma—surgical removal with wide margins is usually curative; radiation also has been used successfully; the combination of surgery and radiation may be most effective (requiring less aggressive surgery), but if radiation is not readily available, surgery may be the only option; multiple injections of bleomycin at the tumor site have been effective in a small number of reported cases
- Malignant melanoma—if surgery is chosen for therapy, it should be aggressive; typically involving surgical removal of the lower jaw or mandible (known as “mandibulectomy”) or the upper jaw or maxilla (known as “maxillectomy”); vaccination is a promising cure (used after surgical removal); other medication with anti-tumor activity may also be considered
- Squamous cell carcinoma—may be removed surgically with wide margins or may be treated with radiation therapy in the dog, especially; surgical removal of the lower jaw or mandible (mandibulectomy) or the upper jaw or maxilla (maxillectomy) with a 2-cm clean surgical margin is the goal; dogs tolerate surgical removal of 40% to 60% of the tongue (known as “partial glossotomy”); surgery, radiation, and chemotherapy (mitoxantrone or cisplatin with piroxicam) may be the best options
- Squamous cell carcinoma in cats—remove surgically, may use carboplatin or mitoxantrone for palliative therapy; radiation therapy with aminobisphosphonates treatment may be elected for palliative therapy
- Fibrosarcoma—usually requires surgical removal of the lower jaw or mandible (mandibulectomy) or the upper jaw or maxilla (maxillectomy); combined therapy with radiation and chemotherapy after surgical removal provides best survival
- Osteosarcoma—surgical removal with wide margins; radiation therapy can be used post-operatively or for palliative therapy if removal is not possible
- Plasmacytoma is rare, in dogs, surgical removal is the treatment of choice
- Complex/compound odontoma—surgical removal, may be extensive surgery

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Chemotherapy may be indicated for some forms of cancer in the mouth

Follow-Up Care

PATIENT MONITORING

- Depends on type of tumor and the presence or absence of spread of cancer (metastasis)

PREVENTIONS AND AVOIDANCE

- Remove or treat any source of irritation to the tissues of the mouth (such as inflammation/infection of the tissues surrounding and supporting the teeth [periodontal disease] or second-hand smoke)

POSSIBLE COMPLICATIONS

- Surgical removal of part of the tongue may result in loss of blood supply to the remaining tongue, with death of tongue tissue
- Postoperative complications of surgical removal of the lower jaw or mandible (mandibulectomy) include splitting open or bursting along the incision line (known as “wound dehiscence”), difficulty grasping food, tongue hanging out of the mouth, ulcers of the palate, and excessive drooling
- Surgical removal of the lower jaw or mandible (mandibulectomy) can be performed in cats, but mandibulectomy results in greater complications (such as tongue swelling) than in dogs
- Within the first few weeks of low-dose radiation therapy, diarrhea, nausea, vomiting, and hair loss may occur (regrowth of hair is usually white); high-dose radiation therapy has these complications as well as superficial loss of tissue on the surface of the lining of the mouth, frequently with inflammation (known as “oral ulceration”) and/or death of tissues in the mouth (known as “oral necrosis”), cataracts (opacities in the normally clear lens), and radiation-induced tumors (mainly in young dogs that underwent radiation therapy); newer systems that use pulsed radiation provide more accurate dose distribution, fewer side effects
- Chemotherapy complications vary depending on the drug used

EXPECTED COURSE AND PROGNOSIS

- Early diagnosis and treatment offers the best chance for a successful outcome
- Dogs with inadequate tumor-free surgical margins were 2.5 times more likely to die of the tumor than those with complete surgical removal of the tumor (as demonstrated by microscopic evaluation of tumor margins); some surgical patients need feeding tubes to facilitate nutritional supplementation during the treatment period
- Dogs with tumors located behind the first premolar tooth had three times greater risk of dying from the disease than those with tumors located in front of the first premolar tooth
- Papilloma—most will spontaneously regress with time, autogenous vaccines may be used
- Epulis of the ossifying type may need annual removal
- Malignant melanoma—prognosis improves if the tumor is small and located in the front part of the lower jaw or mandible; treatment of malignant melanoma involves surgical removal of the lower jaw or mandible (mandibulectomy) or the upper jaw or maxilla (maxillectomy)—median survival times average 8 months; combination of surgery, radiation, and chemotherapy (low-dose cisplatin) yielded a median survival of 14 months in one study; pigmentation does not affect the prognosis; this cancer of the mouth is relatively resistant to radiation therapy—one study showed a median survival time of 14 months after radiation only; the problem with melanoma is not local disease management, but spread of the cancer to other body tissues (metastasis); vaccination of dogs seems to be curative, is now available in some sites in North America
- Squamous cell carcinoma in dogs—better long-term prognosis than malignant melanoma or fibrosarcoma in the dog; the prognosis is better if the cancer is located toward the front of the mouth than if it is located toward the back of the mouth in dogs; radiation therapy alone delivers a median survival rate of 15–17 months; in dogs, prognosis for survival following treatment for squamous cell carcinoma of the tongue is poor
- Squamous cell carcinoma in cats—mean survival time of 12 months for surgically removable tumors
- Fibrosarcoma—surgical removal of the cancer, with at least 2-cm margins, usually results in a 12-month median survival rate; surgical excision in combination with radiation therapy and chemotherapy offers the best prognosis; radiation or chemotherapy alone offered a poorer median survival rate than surgery alone; fibrosarcomas involving the roof of the mouth (palate) carry the poorest prognosis because of the inability to remove them adequately with surgery; radiation therapy can be useful following surgical removal of the mass; 4 types, low-grade best prognosis intermediate grade, high malignancy and a biologically active tumor in large breed dogs (especially golden retrievers) has poor prognosis due to rapid growth and metastasis
- Osteosarcoma—wide surgical removal is ideal; recurrence can occur and the tumor can spread to other locations in the body (metastasis); radiation therapy can be used following surgery or can be used alone to control the cancer, without curing it (palliative treatment)
- Plasmacytoma—rare, and rarely metastasize
- Staging the oral tumor using the TNM system allows for more accurate prognosis, the higher the stage, the worse the prognosis

Key Points

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- Oral masses may be benign or malignant (that is, cancer)
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- Cancer (malignant tumor) is treated surgically with varying success, depending on tumor type, location, and if the cancer has spread to other tissues of the body (metastasis); may need radiation therapy and chemotherapy
- Nutritional support is essential with any treatment

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