

Oral Diseases

Deborah J. Davenport

Rebecca L. Remillard

Ellen I. Logan

*“If you have no Honey in your Pot, have some in your mouth.”
Benjamin Franklin, Poor Richard’s Almanac*

CLINICAL IMPORTANCE

The oral cavity is susceptible to a number of acquired and congenital disorders. In comparison to the high incidence of dental disease, however, these conditions are relatively uncommon. Chapter 47 discusses periodontal disease in detail. Among the more common conditions affecting the oral cavity are inflammatory lesions and physical abnormalities such as neoplasia, trauma and congenital malformations (e.g., cleft palate).

Acquired inflammatory lesions of the oral cavity and tongue are relatively uncommon in dogs and cats but appear to be increasing in frequency (Lyon, 2005). These conditions include eosinophilic granuloma complex, gingivostomatitis, labial granuloma immune-mediated diseases (e.g., pemphigus) and mucositis due to radiation therapy of the head and neck (Ulbricht, 2008; Quimby, 2007). Infectious oral disorders (e.g., candidiasis or fusospirochetal infections) are rare and usually occur in immunocompromised animals. Oral ulcerations may be seen in cats in association with herpesvirus and calicivirus infections. Oral neoplasia is relatively common in dogs and cats (Theilen and Madewell, 1987; Smith, 2005). Malignant melanoma, squamous cell carcinoma and fibrosarcoma are the most commonly reported oral malignancies. Trauma to the oral cavity may arise from fights among animals, falls (high-rise syndrome), motor vehicle accidents, chemical and electrical burns and penetrating foreign bodies.

Oral congenital anomalies such as cleft palate are uncommon but may have nutritional causes (e.g., copper deficiency in pregnant queens) or profound consequences due to malnutrition and secondary aspiration pneumonia in growing animals.

PATIENT ASSESSMENT

History and Physical Examination

Dogs and cats with oral disease have variable clinical signs depending on the type and location of the lesions. Patients may exhibit dysphagia or pain associated with eating. Owners may report excessive salivation, oral hemorrhage, halitosis and reluctance to eat resulting in loss of body weight and condition. In some cases, careful questioning of the owner will reveal ingestion of foreign bodies or caustic materials or a history of trauma. Puppies and kittens with congenital anomalies such as cleft palate may be presented to veterinarians for ineffectual suckling, poor weight gain and coughing or gagging following attempts at nursing.

Sedation may be required to facilitate examination of the oropharynx and tongue. Various conditions may present with specific signs. Congenital defects may be noted in the soft or hard palate. Epulides originate from periodontal stroma and are most commonly located in the gingiva near the incisor teeth and appear as pedunculated or smooth, non-ulcerated masses. Odontogenic tumors (e.g., ameloblastoma and odontoma) are

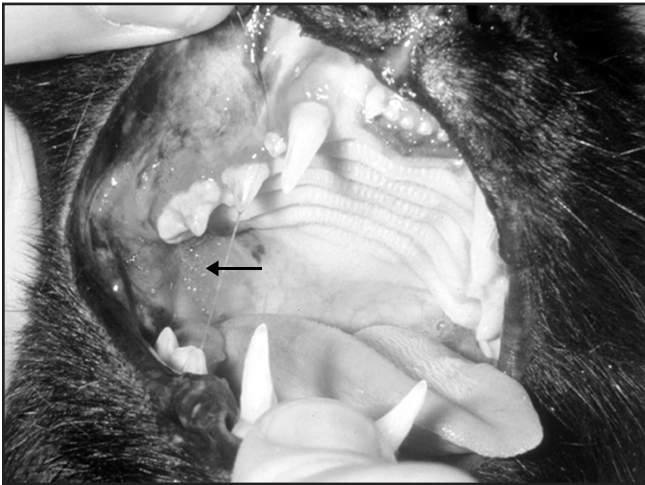


Figure 49-1. Severe lymphoplasmacytic gingivitis and stomatitis in a cat. Note the raised, cobblestone-like lesions (arrow) at the right glossopalatine arch. (Courtesy Dr. Michael Leib, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.)

Box 49-1. Feeding Patients Undergoing Radiation Therapy.

Dogs and cats undergoing radiation therapy for oral and nasal tumors often develop mucositis within the third week of a four- to five-week therapeutic protocol. This oral mucosal inflammation is painful; therefore, most animals will stop eating during this time but will drink voluntarily. A change in food form from moist or dry to a liquid is necessary for most animals to continue consuming at least their daily resting energy requirement. Most patients will consume variable quantities of a palatable chilled liquid veterinary therapeutic food during this time even if they won't consume a mixture of their regular food and water. Mixing the liquid with the patient's regular food one week before the expected onset of mucositis allows acclimation to the liquid food. Patients usually voluntarily consume their regular food as the mucositis resolves.

Some patients stop eating and drinking voluntarily when they develop mucositis and may require intravenous administration of fluids and nutrients. Discontinuing radiation therapy for a few days is also beneficial. Nasogastric or orogastric feeding tubes are not appropriate, whereas pharyngeal or esophageal feeding tubes may be useful if placed in advance and if they are not in the field to be irradiated (Chapter 25). Most patients recover quickly from mucositis (i.e., within three to four days) and consume food and water again, eliminating the need for a gastrostomy tube. Radiation treatments can usually then be continued uneventfully.

The Bibliography for **Box 49-1** can be found at www.markmorris.org.

typically expansile, slow-growing odontogenic masses that often form in the incisor region. Malignant tumors (e.g., squamous cell carcinoma, malignant melanoma and fibrosarcoma) grow rapidly and are characterized by early invasion of the gingiva and bone. Pets with suspected oral or tonsillar tumors

should be carefully evaluated for peripheral lymphadenopathy.

Gingivostomatitis is characterized by raised, erythremic cobblestone-like lesions at the glossopalatine arches (**Figure 49-1**), whereas feline eosinophilic granuloma complex manifests as ulcers, plaques and granulomas on the maxillary lips, tongue and palate. In dogs, inflammatory lesions are most often present on the tongue or palatine and labial mucosa.

Head trauma in pets often results in mandibular symphyseal fractures, maxillary fractures, displaced teeth and separation of the hard palate. These injuries may result in reluctance or inability to eat.

Chemical, electrical and thermal burns are characterized by ulceration and necrosis of affected tissues. Animals with oral burns may suffer life-threatening consequences such as pulmonary edema or cardiogenic shock.

Laboratory and Other Clinical Information

Laboratory values are often unremarkable in patients with oral disease and generally reflect underlying conditions when present. Leukocytosis and a polyclonal hyperglobulinemia are frequent findings in cats with lymphoplasmacytic stomatitis. Radiography is often of value in cases with suspected trauma to assess the extent of bony injury. Radiography is invaluable for tumor staging in patients with oral neoplasia. Generally, both skull and thoracic films are evaluated. In addition, thoracic films allow assessment of aspiration pneumonia in young animals with cleft palate. Diagnosis of lesions within the oral cavity often requires biopsy and histopathologic examination.

Risk Factors

Age and breed are risk factors for several oral disorders. Young patients are more likely to present with congenital and traumatic lesions, whereas older dogs and cats are more likely to suffer from oral neoplasia and inflammatory disorders. Patients undergoing radiation therapy of the head and neck for cancer are susceptible to radiation-induced mucositis (**Box 49-1**). In addition, certain breeds are predisposed to various oral disorders (**Table 49-1**).

Etiopathogenesis

Pets with oral disease often exhibit dysphagia or reluctance to eat resulting in malnutrition. Often this nutritional state is compounded by inflammatory, traumatic or neoplastic processes. The etiology of oral inflammatory lesions such as gingivostomatitis and faucitis, and eosinophilic granuloma complex is unknown. Gingivostomatitis in cats has been theorized to be an aberrant immunologic response to antigenic stimuli. Various bacterial, viral, periodontal, dietary and immune factors have been implicated (Quimby, 2008). There is a strong association between this disorder and infection with feline immunodeficiency virus (FIV) or calicivirus (DeBowes, 1997). Approximately 50% of cats with FIV infection and 60% of cats with calicivirus infection have chronic oral disease (DeBowes, 1997). These findings do not prove causality, however. The response of some cats with the disorder to radical extraction of teeth and the isolation of antibodies to plaque

bacteria (*Actinobacillus* and *Bacteroides* spp.) from affected cats also suggest the potential of “plaque intolerance” (DeBowes, 1997).

Key Nutritional Factors

The key nutritional factors for foods for oral diseases are discussed below and summarized in Table 49-2.

Water

Dehydration is a frequent problem in dogs and cats with oral disorders that interfere with consumption of water. Whenever possible, fluid balance should be maintained via oral consumption of fluids. However, parenteral fluid administration is often needed for dehydrated patients and those unable or unwilling to drink adequate amounts of water.

Energy Density

A food with a relatively high energy density concentration is helpful in meeting the patient’s caloric requirement in a small volume of food. Foods with energy densities in excess of 4.5 kcal/g (18.8 kJ/g) dry matter (DM) for dogs and 5 kcal/g (20.9 kJ/g) DM for cats are recommended.

Food Form

The veterinarian or owner should experiment with foods of differing consistency. Often liquid foods or slurries made from moist pet food and water are more readily accepted. A dilute consistency is often associated with less discomfort and is less likely to accumulate in oral lesions or adhere to surgical sites within the oral cavity.

FEEDING PLAN

The goals of dietary management for patients with oral disease are to provide adequate nutrition while minimizing discomfort to the pet and enhancing resolution of the oral lesions.

Assess and Select the Food

The key nutritional factors recommended for foods for patients with oral diseases should be compared with the levels in the foods under consideration for feeding. Underweight patients may need a nutrient profile similar to that found in a growth or recovery-type formula to regain normal body condition. In addition, the food should be suitable for any other conditions present that are amenable to dietary management.

Patients with extensive oral injuries or inflammation of the oral cavity may benefit from foods designed for assisted feeding or recovery (Chapter 25). Patients with oral neoplasia may benefit from foods specifically formulated for patients with cancer (Chapter 30).

Assess and Determine the Feeding Method

Because the feeding method is often altered in patients with oral disease, a thorough assessment should include verification of the feeding method currently being used. Items to consider

Table 49-1. Breed-associated oral disorders.

Disorders	Breeds
Cleft palate	Brachycephalic dogs and cats
Epulides	Boxer
Gingivitis/stomatitis	Maltese dog Siberian husky
Lymphoplasmacytic stomatitis	Abyssinian cat Burmese cat Himalayan cat Maltese cat Persian cat Siamese cat
Neoplasia	Cocker spaniel German shepherd dog German shorthaired pointer Golden retriever Weimaraner

Table 49-2. Key nutritional factors for foods for patients with oral diseases.

Factors	Dietary recommendations
Water	Maintain fluid balance with oral, and if necessary, parenteral fluids
Energy	For dogs: >4.5 kcal/g (>18.8 kJ/g) dry matter For cats: >5 kcal/g (>20.9 kJ/g) dry matter
Food form	Liquid foods and slurries made from moist food are often more readily accepted

include feeding frequency, amount fed, how the food is offered, access to other food sources including table food and who feeds the animal. All of this information should have been gathered when the history of the animal was obtained.

Dogs and cats with oral disease should initially be fed several small meals daily if they are able and willing to consume food voluntarily. After each meal, the oral cavity should be flushed with water to remove particulate matter adhered to the oral mucous membranes. In many cases, tube-feeding methods are preferred until oral discomfort is reduced, oral lesions are healed and voluntary food consumption resumes (Chapter 25).

REASSESSMENT

Body condition scores and hydration status should be evaluated to determine adequacy of food and water consumption. Assisted feeding should be instituted if oral feeding is inadequate to maintain body weight and condition (Chapter 25).

REFERENCES

The references for Chapter 49 can be found at www.markmorris.org.