Macroscopic Oral And Dental Diseases In Dogs And Cats

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Abstract
The present research aims to examine oral and dental macroscopic diseases in dogs and cats by a descriptive and analytical method using library resources. Due to the high incidence of oral and dental diseases in dogs and cats, the widespread oral infections seem to be caused by dental calculus, infection, foreign objects, oral infections, tooth fracture, gingivitis, and periodontal disease, all of which are caused by oral and dental hygiene non-observance. According to the results, the major factor was the nutrition type of dogs and cats. Therefore, this study and other studies around the world demonstrate that the incidence of these diseases corresponds to the global incidence, and the causes are similar to those discovered worldwide.

Keywords: dental diseases, gingival disorders, tongue diseases and lesions, salivary gland disorders

Introduction

Dental and oral-pharyngeal diseases are widespread diseases in dogs and cats (Yaghini J, et. al., 2022; Shawky M, et. al., 2022). These diseases can be divided into different categories, including those related to lips, mouth, teeth, gingival diseases, neoplastic diseases, and salivary gland diseases (Stephen J. Ettinger et al., 2010; Lee JH., 2022).

The shape, size, and structure of the lips are very different and diverse in various breeds of dogs, and this variety causes a multitude of diseases. Problems are always seen in dogs that have larger and fleshier lips with distinct and prominent folds and wrinkles on the lips; such dogs are prone to infection and trauma. These cases are diagnosed by observation and clinical examination of the mouth and teeth, and they can often be treated with surgery (Birchard, et al., 2006).

Clinical symptoms can differ depending on the causative factors. The affected lip should be examined in terms of the predominant symptoms seen in most cases, including the animal's feeling of discomfort in the lip, rubbing or grabbing the irritated area of the lip against the door, wall, and objects. Other signs include the presence of moisture and salivation, shedding of hair around the affected area, the presence of infection in the lip folds in the form of brown deposits, halitosis, swelling of the skin and the lip, and bad smell from the wound site. Moreover, pus accumulation and lip ulcers usually appear when the infection spreads in the lip folds (Richard W. Nelson, et al., 2013).

For treatment, a foreign object in the tissue (if present) must be removed to eliminate the irritation and relieve the wound. The hair around the wound must be sheared completely. The wound must be washed with diluted betadine and normal saline. Antibiotic-containing vasoconstrictive ointments and antibiotic ointments with corticosteroids should be used in cases of more severe wounds with a longer healing process. Local anesthesia can also be used to prevent stimulation by the animal (Birchard et al., 2006).

It should be acknowledged that the vaccination of kittens and puppies, the use of calcium-rich foods and solid diets along with oral and dental hygiene, the use of hard food in dogs, and the prevention of dental object remains through oral hygiene observance and the diet type are very effective in prevention. The observance of these conditions in animals will lead to a sharp decrease in the occurrence of these diseases. Accordingly, the present study aims to investigate oral and dental macroscopic diseases in dogs and cats.

1. Oral and dental diseases

A congenital cleft on the lips, known as hare lip, is one of the advanced disorders in dogs and cats, which is caused by the incomplete attachment of the two facial halves during the embryonic period. In some cases, this cleft is also seen in the animal's palate, which is known as the cleft palate (Birchard et al., 2006). Dark spots appear due to the presence of abnormal pigments, which is the characteristic lips of some breeds, such as Doberman and Dalmatian. Although these unwanted pigments cause no discomfort to the animal, this color change in Hana's lips is desirable, and it is recognized as an undesirable color change in the animal in terms of breed characteristics. Simple side effects of the lips can be fixed by surgery, but the presence of palate lesions (cleft palate) further complicates the situation (Stephen J. Ettinger et al., 2010).

Since most puppies and dogs tend to chew and crush hard sharp-tipped objects and bones, scratches and wounds sometimes appear on the surface and around the lips. Sometimes, these wounds heal spontaneously after a while, and in some cases, they cause infection and abscess due to the penetration and remains of foreign bodies, or the localization of bacteria and infectious agents in the wound. Contact ulcers are also formed on the inner surface of the lips because of physical damage. The presence of irregular teeth can also cause such lesions on the inner surface and on the outer surface of the lips in advanced cases. Such lesions are often caused by the maxillary canine teeth (Richard W. Nelson, et al., 2013).

For treatment,

The corner lip ulcer. Often mechanical irritations caused by the deposition of dental material or during oral area manipulation can injure one or both corners of the lip. In addition, infection and swelling of the lip fold, as well as lip fold dermatitis, may occur in some cases due to the skin fold of the lip and the remaining saliva and secretions in this area (Brook A. Niemiec et al., 2011).

Swollen lips often occur in dogs with more-than-usual moist mouths or suffer from halitosis and often involve the corners of the lips. In most cases, the causative agent, *Sphaerophorus necrophorus*, is considered the dominant agent. Due to allergies, dogs may sometimes suffer from acute purulent dermatitis complications, fungal dermatitis, or urticaria (Brook A. Niemiec et al., 2011).

Lip warts are frequently observed in puppies and sometimes in adult dogs. It is often caused by a virus belonging to the Papilloma family, known as canine papilloma, and differs from the human papillomavirus. Neoplasias usually appear on the skin and membrane, and benign types are often located on the surface of the skin, but malignant types start growing on the surface of the mucous membrane. Viral neoplasia may rarely spread from the mucosa to the skin, but it can usually spread from the skin to other organs. Warts appear around the lips, and their surface is first smooth and white, but with the wart progression, their surface becomes uneven and takes a cauliflower form after a while. These warts may also involve other parts of the mouth, such as the palate, tongue, and pharynx, and even the disturbed boil process in this animal causes halitosis. The spontaneous healing of these neoplasias will produce lifelong immunity (Brook A. Niemiec et al., 2011).

Eosinophilic granuloma is often a type of eosinophilic ulcer, which is often observed in yellow to brown color on the upper lip. These ulcers are usually painless and non-itchy (Birchard et al., 2006). The cause of the disease is not known, and the lesion is often caused by constant contact and licking in the cat, suggesting the chronicity of the disease. The incident lesion can be seen in the cat's upper lip and sometimes in the middle part of the lip and

may be single or multiple. Lesions progress gradually destroys more parts, may involve even the tongue and palate, and may sometimes be seen in other parts of the lip along with skin lesions. Multiple lesions in the lip area may spread such that create irregularly arched and indented lips, creating an annoying appearance. In this condition, the edges of the lesion are swollen and thick, resulting in gradual lesion infection. In cats, increased eosinophilia is visible in lip granuloma (Birchard et al., 2006).

Congenital oral defects include short jaws or protrusion and projection of one or both jaws, with the lower jaw often involved in this condition. Inherited cleft palate and gingival hypertrophy are also seen in such cases. Retained deciduous canines without their replacement with permanent deciduous teeth, and retained all deciduous teeth without their replacement with permanent teeth, and retained deciduous teeth (RDT) next to the permanent canine teeth are the other cases (Birchard et al., 2006).

Oral-nasal fistula is an abnormal connection between the mouth and nose, and cleft palate may also occur in any part of the palate, making a connection between the mouth and nose. Oral-nasal fistula is often created in the area of canine teeth (Birchard et al., 2006).

Congenital cleft palate defect often occurs in brachiocephalic breeds such as miniature schnauzers, cocker spaniels, beagles, and cats. It is more widespread in animals with congenital hare lips than in other animals, but cleft palate can occur together or independently of hare lips. Vitamin A deficiency during pregnancy can pave the ground for congenital cleft palate (Birchard et al., 2006).

Stomatitis refers to the swelling of the oral mucosa, which may be locally limited to the gingiva in some cases and cause gingivitis or involve the tongue, leading to Glositis. Similar to gingivitis, stomatitis is one of the widespread oral complications in dogs and cats. The underlying cause of stomatitis should always be recognized because the treatment will be based on the underlying cause (Stephen J. Ettinger et al., 2010). This type of oral injury usually occurs in dogs and cats living outdoors and there are plants and sharp objects in their living environment, alongside contact with foreign bodies such as plant thorns, sharp-edged bones, trauma and impact, heat, electricity, and burns, or due to fights between animals. In the oral examination of these animals, the remains of plants and plant materials may be observed or identified in a biopsy (Stephen J (Ettinger et al., 2010).

Inflammation and sometimes peeling of the skin are observed in the oral examination of animals damaged by chemicals, and it is not possible to discover exactly the causative agent (Birchard, et al., 2006); instead, the causative agent of the injury may be predicted according to the evidence. Poisoning with heavy metals (e.g., thallium) may cause oral swelling and lesions. Similar to thallium poisoning, poisoning with waste products from factories results in a bad general condition of the animal and may also show symptoms such as convulsions. A good antidote should be used according to the cause of the poisoning, and the animal should receive symptomatic and supportive treatments (Birchard et al., 2006).

Uremia caused by kidney diseases is a widespread cause of oral ulcers, in which ammonia mostly causes such ulcers in the mouth, followed by dehydration and a tendency to bleed in the mouth (in the final stages of the disease). This kind of lesion is caused by the cytotoxicity of ammonia on the oral mucosa, which will cause ulcers due to the necrosis of the mucosal tissues lining the digestive tract (Birchard, et al., 2006)

Pemphigus is the most prevalent autoimmune skin disorder in dogs and cats. Macular erythematous lesions are visible around the mouth, muzzle, eyes, and between the fingers, and most nails remain healthy. The pet owner may initially notice skin hyperkeratosis in less-hair areas, such as between the fingers. In cats, it may be seen as a cheesy thickness with an exudative center during nail trimming. The presence of itching is variable, i.e., the lesions are sometimes itchy and not itchy in at times.

(Birchard, et al., 2006). This disorder should be diagnosed using biopsies from lesions, the ANA test, or the antinuclear antibody test (Birchard et al., 2006).

Feline immunodeficiency (FIV) and feline leukemia virus (FeLV) are among the diseases that weaken the body's immune system and cause oral stomatitis (Birchard, et al., 2006). FIV disease weakens the cat's immune system through lifetime animal involvement (Birchard et al., 2006). FeLV can be transmitted from the mother to the fetus and suppresses the bone marrow, making the infected animal susceptible to a variety of diseases by weakening the immune system. The non-specific symptoms of this disease can be seen in the oral cavity, and this type of stomatitis is associated with horseshoe-like wounds, gingivitis, and diseases of periodontium tissues (Birchard et al., 2006).

Oral warts are a viral and transmissible disease that often infects young dogs, but it can also be noticed in old animals. The disease manifestations begin with benign papillomas, and the oral mucous membrane, tongue, larynx, and lips are the most common places for their growth, being less frequent on the skin around the oral cavity. The oral warts initially appear white, light pink, or gray colors, but they usually change color from light gray to blackish gray in other areas of the body. The surface of these warts is hard, rigid, and almost horny. These warts vary from the size of a split pea to a ripe cabbage flower. These warts often have a base. Papillomas are transmissible and can quickly form new warts adjacent to old ones. Typically, they are without pain and discomfort and only hurt the animal during eating. The incubation period is about one month, which can have a shorter incubation period in cases of food poverty and physical weakness in puppies (Brook A. Niemiec et al., 2011).

2. Dental diseases

Two sets of teeth, primary or deciduous teeth, and secondary or permanent teeth, exist in dogs and cats. Primary teeth are formed during the embryonic period, and permanent teeth are produced during infancy. All visiting patients should undergo oral and dental examinations (Stephen J. Ettinger et al., 2010).

The incomplete growth of deciduous teeth observed in puppies mostly includes deviation from their original location or their abnormal number. This event is often seen in dogs and cats with short wide muzzles and rarely occurs in Mesocephalics. Typically, the higher number of teeth than normal cases occurs unilaterally in the upper jaw more than in the lower jaw (Stephen J. Ettinger et al., 2010). Displacement of teeth usually happens because of teeth density in the dental arch. The third premolar of the upper jaw is the first tooth that begins to rotate due to the animal's muzzle shortness in a Brachiocephal breed. This rotation rarely happens in molars. The presence of dental bodies rarely causes abnormal teeth arrangement. These types of anomalies usually do not need treatment unless the teeth abnormally overlap each other, cause problems in the animal's normal life, and result in discomfort and difficulty in the animal feeding (Stephen J. Ettinger et al., 2010).

Tooth extraction can be necessary for dental anomalies as they may damage the dental soft tissues, such as the lips and cheeks, or interfere with the proper oral closure. Orthodontic treatment can also be a suitable alternative to tooth extraction in some cases, provided that the pet owner is willing to do so) (Birchard, et al., 2006). Teeth should also be extracted in severe diseases of periodontium tissues and severe gingival diseases (Birchard et al., 2006). An indication forcing the tooth extraction is affected by the diseases of periodontium tissues, including the periodontal pocket expansion toward the tooth root. This expansion can induce the penetration of pathogens into the sinuses or the nasal cavity (Birchard et al., 2006).

A hidden tooth is considered one that is not placed in the dental arch because of various reasons such as insufficient space in the jaw, excessive density of teeth, or gingival problems. These teeth may cause orthodontic problems, bone erosion, and problems in the nasal area (Birchard et al., 2006), as well as a follicular cyst, which causes facial

disharmony. A follicular cyst may turn into an ameloblastoma (Birchard et al., 2006).

Minor malformations, such as enamel hypoplasia, are diagnosed based on observations and changes in the appearance and color of the enamel, and they do require no treatments in most cases. Malformed teeth extraction is extremely painful (Birchard et al., 2006). Treatment is usually required when two teeth attach to each other at the time of budding. Before extracting these teeth, a radiograph should be taken to examine the condition of the tooth roots (Birchard et al., 2006). Hereditary changes in the teeth with an abnormal shape and smaller or larger than normal teeth are mostly seen in the front side teeth of the upper jaw (the second tooth from the middle line) (Birchard et al., 2006).

Tooth resorption or odontoclastic root resorption is very common in cats. Although tooth decay is one of the widespread problems worldwide, the complex relationship between the patient's diet and the appearance of dental cavities is still not understood completely (Birchard, et al., 2006; Stephen J. Ettinger, et al., 2010). In dogs, tooth decay often occurs in molars, while in cats, it is seen at the buccal surface of small and large molars exactly below the gingival margin. Such cats usually refuse to eat food and stand in front of the diet dish and lick the food, but they cannot take and chew the food by their teeth. Depending on the severity of the lesion, the decayed teeth should be extracted in case of surface decay. They should be denervated in the case of root infection and should be extracted in the case of infection of periodontium tissues, tooth loosening, and gingival resorption (Stephen J. Ettinger et al., 2010).

Periodontal abscesses are usually dental and periodontal membrane infections, which are generally located deep in the dental bone cavity and originate from the tooth pulp. Abscesses of dental alveoli due to the infected tooth root cause trauma to the tooth, which thereby infects the root and causes pulpitis (Birchard, et al., 2006).

Periodontal disease is a general term for inflammatory lesions caused by dental plaque affecting the periodontium tissues. The word infection refers to the presence and proliferation of microorganisms in the body. Periodontal disease is a unique infection associated with widespread bacterial invasion of tissues (Brook Niemiec et al., 2011). This disease usually starts with a microbial gingival infection. Dental calculus is usually seen with this infection. In brachiocephalic dogs with an incorrect jaw adaptation, the irregular shape and location of the teeth cause food collection between the teeth and predispose the animal to periodontal disease. Problems in jaw movements in chewing food or immobility and insufficient efficiency of the jaws cause periodontal disease. This disease can also be caused by the atrophy of incorrect teeth-supporting tissues or general diseases such as diabetes mellitus, calcium deficiency, hyperthyroidism, and chronic kidney infections (Birchard, et al. 2006). Inflammatory reactions in periodontitis can destruct the periodontal ligament and the alveolar bone. Untreated periodontitis eventually causes the scaling of damaged tooth layers (Birchard et al., 2006).

The disease of periodontium tissues causes a painful feeling in the affected animal. Halitosis is common and often the first symptom noticed by the pet owner. Other signs include slow chewing or refusal of feeding, chewing food with one side of the mouth, excessive salivation, pain in the teeth, loose teeth, and falling teeth. An excessive amount of dental plaque is seen in the teeth, which requires teeth scaling to allow a more detailed examination. In the advanced stages of the disease, some pus may eject from the peripheral tooth by manipulating and pressing the infected tooth. Ulcers may be observed in the mucosa of areas in which the tissues are exposed to dental plaque. Gingival resorption, different amounts of plaque, inflammation of the periodontium tissue, increased gum pocket depth, the presence of oral-nasal fistula, severe gingival bleeding during manipulation and examination, problems in the lower jaw, and the presence of pain are the other symptoms of this disease (Birchard et al., 2006).

Gingivitis and periodontium tissue infection are mainly caused by dental plaque accumulation on the tooth surface. Unlike public belief, dental plaque is only a secondary etiological factor in disease development, and the treatment of periodontium tissue infection aims to prevent the creation of new lesions. Successful disease management relies on a comprehensive understanding of the cause and pathogenesis of the disease (Birchard et al. 2006).

Dental calculus consists of calcium salts, organic materials (e.g., epithelial cells), microbial bodies, and food particles accumulated on the tooth surface. They first form dental plaque and create such objects due to failure to its cleaning and continued feeding on soft foods. The color of these deposits varies from light gray to dark brown. These sediments are soft in the early stages of formation and gradually harden afterward (Brook Niemiec et al., 2011).

If dental calculus and plaque are not removed from the teeth, they will cause pressure on the gums and gingivitis, which will gradually create cavities under the gums, gathering some food and plaque and causing halitosis, eventually leading to periodontal disease and loose teeth (Brook Niemiec et al., 2011).

3. Gingival diseases and anomalies

Sometimes, irritation caused by broken teeth can be involved in gingivitis, which if remains untreated and infects the gingival arch, the infection will gradually spread to other parts of the gum and the oral cavity. Gingivitis is seen as secondary to systemic diseases. The major chronic debilitating diseases causing secondary gingivitis include malnutrition, chronic nephritis, and uremia. Gingivitis can be observed along with distemper, leptospirosis, and deficiency of B and C vitamins (Stephen J. Ettinger et al., 2010). Poisoning with heavy metal solutions is also involved in secondary gingivitis. Cats often suffer from gingivitis following chronic diseases weakening their bodies (Stephen J. Ettinger et al., 2010).

Since gingivitis is caused by multiple factors, the animal should be thoroughly examined before a diagnosis. It is necessary to initially determine the cause of primary or secondary gingivitis. Acute bleeding of the gingival margin usually leads to the formation of bloody saliva, which must be distinguished from mild bleeding caused by simple gingival gingivitis (Birchard et al., 2006).

The tooth pocket is normal (dog 1-3 mm and cat 0.5-1mm) in a patient with simple gingivitis, and there are no signs of gingival resorption, tooth root exposure (furcation involvement), or tooth loosening. It is diagnosed clinically through observation and touch (Birchard et al., 2006). The grade of gingivitis is evaluated based on the presence and intensity of inflammation, redness, and swelling, as well as the presence or absence of bleeding in the dental pocket probe. The degree of inflammation can be determined with different indicators, among which the bleeding index can be the simplest, most accessible, and most useful index in clinical diagnosis (Birchard et al., 2006).

If bleeding occurs in the gums with the smallest irritation and there is also gingival resorption, it is grade 3 (severe) gingivitis (Birchard et al., 2006; Stephen J. Ettinger et al., 2010). Gingival hyperplasia may also be seen in gingivitis because of the inflammation caused by dental plaque; it may also have an unknown (idiopathic) origin (Birchard et al., 2006; Richard Nelson et al., 2013).

Oral cavity neoplasia is relatively common in dogs and cats. Annually, 20 out of every 100,000 dogs are reported with oral or pharyngeal cancer, and the highest numbers belong to malignant melanoma and SCC. This cancer is less prevalent in cats (one out of 100,000 cats) (Stephen J. Ettinger et al., 2010). Most oral and dental tumors do not tend to metastasize and only have a local invasion, except for malignant melanoma and SCC, which can also invade more distant areas (Birchard et al., 2006). Predisposing factors include age, sex, breed, size, and color of oral mucosa. Older animals are generally more prone to cancer, however, 25% of fibrosarcoma is reported in young large-bodied dogs. Male dogs are more susceptible to

malignant melanoma and fibrosarcoma (Stephen J. Ettinger et al., 2010).

In large neoplasia, the animal has difficulty in food intake, a lesion and then trauma may form in the mouth, is not able to swallow, saliva flows from the mouth, and the saliva may be bloody, particularly with injured lesions. The tumor-associated tooth may be unable to chew well, leading to a painful tooth structure (Stephen J. Ettinger 2012; Steven E. Holmstrom et al., 2010). Unfortunately, oral malignant neoplasms are often diagnosed with the tumor progression to the second stage because its site is often in the part of the mouth that is usually not observed by the pet owner (Birchard et al., 2006; Stephen J. Ettinger et al., 2010).

Papilloma, fibroma, lipoma, chondroma, osteoma, hemangioma, and epulis are some benign neoplasias reported in the mouths of dogs (Stephen J. Ettinger et al., 2010). It causes multiple lesions in the dog's mouth, which is transmitted by papovavirus. COP is caused by a pale mucous and a protrusion on the oral flat and smooth parts, which presents as rough appearance during the disease progression (Birchard et al., 2006). Damages older than 3-4 weeks are deep and rooted. Lesions become wrinkled and grayish during regression (recovery). All regressions require 4-8 weeks (Birchard et al., 2006). More severe cases with multiple lesions may require surgery (Stephen J. Ettinger et al., 2010).

Surgery is always the first line of treatment in the control of these oral neoplasias. Since epulis tumors are among local tumors, they are removable with curettage. Regarding acanthomatous epulis, however, a better result can be obtained from the treatment by removing the epulis, dental ligament, and surrounding tissues, and tooth extraction because this tumor tends to malignancy and bone tissue invasion (Richard W. Nelson et al., 2013). Radiation therapy without the use of surgery can also be effective for epulis treatment. Large epulises and partially removed epulises for any reason can also be exposed to postoperative radiotherapy (Birchard et al., 2006). Chemotherapy is often not effective for epulis (Birchard et al., 2006).

Fibrosarcoma is the third most common tumor after malignant melanoma and SCC in dogs and the second most prevalent tumor in cats. It occurs in the mouth areas that are similar to SCC in terms of the involvement site, but it can be more severe. Fibrosarcomas are stable, grow slowly, and are locally invasive in the early stages, characterized by metastasis at the end of the disease (near death). Fibrosarcoma is usually seen from the edge of the maxillary gum between the upper canine and the fourth premolar (Birchard et al., 2006).

4. Tongue diseases and lesions

The tongue is one of the essential parts of the oral examination that requires careful inspection. Many cases of glossitis can be detected by animal oral examination. Therefore, rapid recovery can be produced in the tongue tissue by removing the causative agent. To avoid tissue irritation, it is better to use special tongue clamps during the tongue examination. This device helps better examine and inspect the base and upper surface of the tongue (Brook Niemiec et al., 2011).

Glossitis is often associated with stomatitis, but the tongue may be affected alone. Glossitis may be accompanied by ulceration or gangrene and appears as primary and secondary (Brook Niemiec et al., 2011). Primary glossitis is often caused by burns with chemicals or hot and caustic objects and dental plaque. Foreign objects, trauma at animal fights, and insect bites are also among the primary glossitis factors (Brook Niemiec et al., 2011).

The symptoms of glossitis differ depending on the severity and complication of the disease, but drooling, anorexia, and halitosis are also among the symptoms that are clearly visible in diseased animals. If there is a problem with the teeth or teeth growth, it can slightly cause irritation, redness, and inflammation in the tongue, which may eventually turn into a tongue ulcer (Brook Niemiec et al., 2011).

Glossitis and gangrene of the tongue usually occur after leptospirosis, which causes chronic infectious nephritis, but it can also occur after

a foreign body embedment in the tongue tissue. This lesion is associated with bleeding. Necrotic tissue is usually observed around the edge of the tongue. In progressive cases, most of the surface tongue coating turns into necrotic tissue, which can be removed to recover the animal. Chemical burns and wounds caused by the animal also account for the factors causing the disease (Brook Niemiec, et al., 2011).

5. Salivary gland diseases and anomalies

The parotid salivary gland is located at the base of the ear cartilage, and the parotid duct consists of two or three short branches that pass through the masseter mastication muscle, enter the upper jaw, and then the mouth near the fourth premolar tooth (Birchard, et al., 2006). The submandibular salivary gland located in the area of the linguofacial vessels is surrounded by a dense capsule (Birchard et al., 2006).

Lack of salivation from the mouth is rarely observed in dogs and cats, but the absence of salivation by the parotid gland, submandibular gland, and sublingual gland is mostly caused by animal dehydration, accompanied by digestive actions, diabetes insipidus, any other cause, or because of salivary gland atrophy (Birchard et al., 2006).

Salivary gland infection (SGI) is an inflammatory reaction in salivary glands that rarely occurs in small animals and often involves the zygomatic salivary gland (Birchard et al., 2006). If the parotid gland is involved, the site is painful and warm, with the discharge of mucosal-purulent secretions from the duct. SGI is not common and mostly includes zygomatic and parotid glands (Birchard et al., 2006). The initial manifestations of SGI are similar to cellulitis and phlegmon, but later it turns into purulent foci in the form of an abscess (Birchard et al., 2006).

SGI usually results from biting or physical trauma. Placement of foreign bodies in the duct of salivary glands, the transmission of an ascending infection through the duct of the glands, or microbial infection through the blood cause salivary infection. The mumps virus in domestic dogs has been reported to cause swelling and infection of parotid glands (Birchard et al., 2006).

Salivary gland neoplasia is often rare, such as adenocarcinoma. Parotid and submandibular glands are often prone to neoplasia (Birchard et al., 2006). Some symptoms include salivary gland enlargement, nausea, quick swallowing, lip smacking, drooling, reduced food intake, weight loss, and vomiting (Birchard et al., 2006).

Conclusion

Oral and dental diseases are one of the widespread diseases observed in small animal medicine. Dental problems seem to be more common in animals over 4 years of age, and they are not only highly prevalent worldwide but also account for the most common disease and cause of visiting clinics. In Iran, oral and dental diseases seem to have a high occurrence due to various reasons that will be mentioned. However, no comprehensive studies have so far investigated the type and incidence of the disease. Therefore, this research aimed to comprehensively scrutinize the various types of visible oral and dental diseases to accurately elucidate the incidence of this disease and the percentage of its presence in dogs and cats.

To this aim, the type of disease was determined through complete oral and dental examination of all visitors to the Day small animal clinic and the small animal clinic at the Azad University of Tabriz for over one year. In this regard, the type of nutrition and the rearing procedure were recorded in special forms.

Fortunately, a critical factor in the determination and diagnosis of oral and dental diseases is the presence of visible lesions and diseases. Oral and dental lesions are often accompanied by gross and visible lesions, and paraclinical tests are not needed in most cases unless the need for bacterial and fungal cultures or radiology in some diseases to observe the condition of oral hard tissues. Therefore, tests and direct observation will help to clinically recognize the majority of these diseases, except for the cases of

involvement and bone lysis, by determining the type of bacteria or fungi in the lesions or the type of tumors present in the rest of lesions.

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