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Study on the incidence of dental affections in dogs

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Abstract

Study was conducted on the 24 clinical cases of dental affections that were presented to Veterinary Clinical Complex and Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram. Incidence of the dental affections in relation to breed, age, body weight, gender and feeding habits were studied. Signalment and history was collected and complete oral cavity examination was done for assessing the stage of gingivitis, periodontal disease, amount of calculus, presence of fracture of tooth, dental abrasion and attachment loss. Periodontal probing and the imaging procedures like dental radiography was done in the all dogs to confirm the diagnosis in required cases. The different types of dental affections and their incidence was described in the present study.

Keywords: Dental affections, incidence, dogs, oral cavity

Introduction

Dental diseases are of major clinical importance in pets because dental health and general health of the animals are closely interrelated. Negligence of the pet owners towards the oral health care may predispose the animal towards greater complications like tooth loss, dysphagia, malnutrition, and other systemic organ alterations, as oral pain is difficult to assess in veterinary patients. The pain associated with dental pathology is often chronic and 'low grade' and is unlikely to affect appetite and eating habits. Common dental affections in dogs are periodontal and endodontal diseases (Niemiec, 2008a) ^[1] and (Fadden and Marretta, 2013) ^[2] and it has been reported that by two years of age, 80% of the dogs and cats are likely to have some form of periodontal disease (Martin *et al.*, 2011) ^[3], (Zombori *et al.*, 2012) ^[4] and (Fadden and Marretta 2013) ^[2].

Among the periodontal diseases, dental plaque which forms due to bacterial colonization, later develops into dental calculus, which if left untreated, leads to gingivitis and ultimately exfoliation (Gorrel, 2004) ^[5]. Endodontal diseases are the diseases that affect the internal portion of the tooth with clinical signs like pain, chewing on one side, inability to eat or drink properly, and draining lesions on the gingiva. The most common cause of endodontic disease in dogs was reported as tooth fracture with pulp exposure (Niemiec, 2005) ^[6].

Materials and Methods

The study was conducted during twelve months of duration from January, 2020 to January, 2021, in Veterinary Clinical Complex and Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh. Dogs of either sex, over one year of age, of all breeds with different dental affections having symptoms like halitosis, drooling of saliva, plaque, calculus, bleeding gums, gingivitis, purulent exudates, loosened teeth were included in the present study and were screened for the presence of peri and endodontal diseases. During this period, total of 896 dogs were presented for different ailments and all were screened for dental problems and 268 dogs (29.91%) were diagnosed for having dental affections. Of which total of 24 dogs with periodontal and endodontal affections having symptoms like halitosis, purulent discharges from oral cavity, drooling of saliva and anorexia were further examined under general anaesthesia and were included in the present study. All the cases were subjected to detailed anamnesis and signalment.

The details of the cases with regard to age, breed, sex, body weight, feeding habits, chief complaint, home dental care, use of dental chews, previous history of dental affections and the treatment followed were collected from the owner and recorded. The cases were subjected for general physical examination and the oral cavity examination. In conscious animal, gingival health, presence of calculus and structure of teeth were examined, and if required complete oral cavity examination was done in an anaesthetised patient for assessing the stage of gingivitis, periodontal disease, amount of calculus, presence of fracture of tooth, dental abrasion, attachment loss, and periodontal probing. In dogs suspected for periodontal and endodontal affections, dental radiography was performed using conventional radiography.

Results and Discussion

A total of 896 dogs presented for different ailments were screened for dental affections and 268 dogs (29.91%) were diagnosed for having dental affections. But Vani *et al.*, (2007)^[7] reported that overall occurrence of the dental diseases was about 48.73% of dogs of which 53.17% of cases having the disease of tooth substance, Vani *et al.*, (2007)^[7], Zombori *et al.* (2012)^[4] and Fadden and Marretta (2013)^[2], mentioned that 80% of the dogs included in their study were having periodontal disease whereas, Hale, (2001)^[8] reported 2.1% of endodontal diseases in dogs, Kyllar and Witter (2005)^[9], reported incidence of periodontal disease was (60%) higher than endodontal diseases.

Breed wise occurrence of the dental diseases in the present study, of 24 dogs which were included in the study, nine dogs were Pomeranians, three were mixed breed of dogs, three were Labrador Retrievers, two were mongrels, two were Shih Tzu, two were German Shepherds, one each of Golden Retriever, Siberian Husky, and Cocker Spaniel breeds were presented. Higher incidence (38%) was found in Pomeranians followed by (13%) Labrador retrievers and (13%) mixed breed of dogs. These findings were similar to Martin *et al.*, (2011)^[3], who observed prevalence of dental diseases in German Shepherd dogs followed by Spitz dogs. Kumar *et al.*, (2008)^[10], reported higher incidence of dental diseases in Pomeranians followed by German shepherd dogs. Vani (2003)^[11], reported higher incidence in mongrels followed by Pomeranian breed of dogs. Incidence of dental affections was more in small breed of dogs (n=11, 45.83%), than in medium breeds of dogs (n=7, 29.16%) and larger breed of dogs (n=6, 25%) (Graph.1). This might be due to their genetic predisposition, which renders the gingiva more susceptible to periodontal disease and moreover, malocclusions were common in smaller breeds, thus exposing the teeth to deposition of subgingival plaque resulting in periodontal disease. These findings were in accordance with Butkovic *et al.*, (2001)^[12] and Aswathy *et al.* (2019)^[13], who also reported higher incidence in small breed of dogs. Butkovic *et al.* (2001)^[12], stated that higher incidence of periodontitis was seen in small breeds because of their longer life expectancy compared to larger breed of dogs.

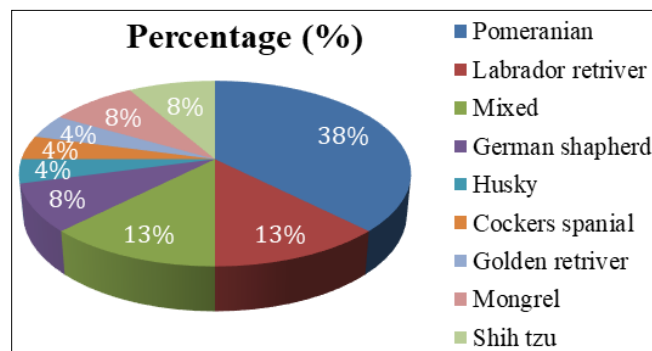
Higher incidence of dental affections was observed in five to eight years age group of dogs, this might be because development of the periodontal disease was a slow process thus prevalence increased with increase in the age of the dogs (Graph.2). Similar findings were reported by Vani *et al.*, (2007)^[7] and Martin *et al.*, (2011)^[3], who reported that dental

affections were common in middle aged group of dogs.

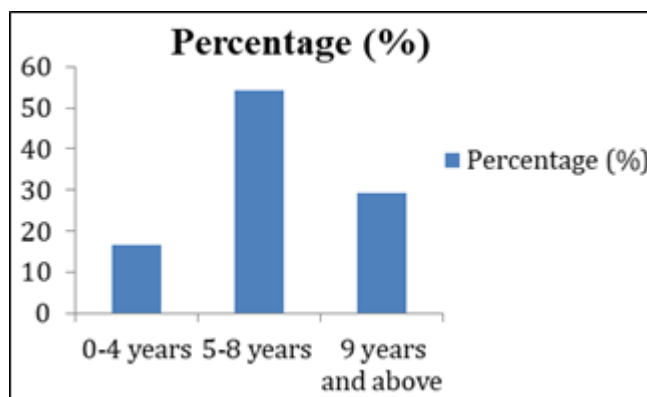
The incidence of dental diseases in relation to body weight revealed highest incidence (54.33%) in dogs weighing 10- 20 kgs (Graph. 3). These findings were not in accordance with reports of Muller-Esnault (2009)^[14], who reported that prevalence of dental diseases decreased with increasing weight. Results may be biased due to lower sample size of lower body weight dogs (n=3) included in the present study, and hence definitive conclusions could not be drawn.

Higher incidence of dental diseases was found in female dogs (70.83%) compared to males (Graph. 4), these findings were similar with the results of Martin *et al.*, (2011)^[3], who reported higher incidence in female dogs and were contrary with Vani (2003)^[11] and Kumar *et al.*, (2008)^[10], who documented higher incidence in male dogs compared to females this might be due to the fact that cases included in the present study were mostly females.

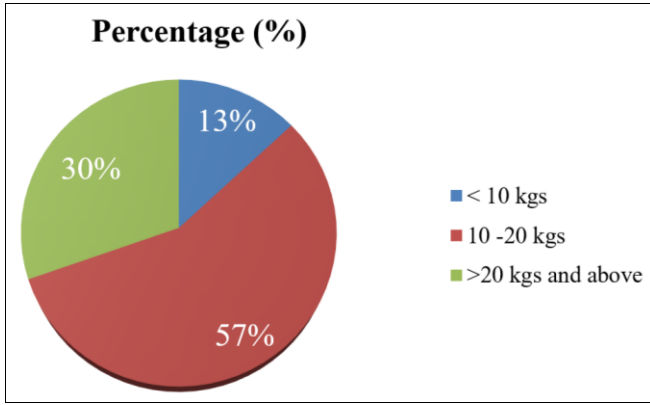
Among the dogs that were screened, higher incidence of dental diseases was found in dogs that were fed with mixed diet followed by home and commercial food. The lower incidence of dental diseases in dogs that were fed with commercial diet might be due to the fact that the diet was in pellet form and contained sufficient amount of fiber that helped in reducing the plaque formation and thus improving the oral health (Graph. 5). These findings were similar to the reports of Kumar *et al.* (2008)^[10] and Martin *et al.*, (2011)^[3], who recorded that higher incidence of dental affections was seen in dogs that were fed with home food and soft diet increases the frequency and severity of dental diseases. Lesser incidence of dental problems with the dogs that were fed with dry food was reported by Golden *et al.*, (1982)^[15], it was due to abrasive nature of the dry food which removed the plaque from the crown of the teeth (Vani *et al.*, 2007)^[7].



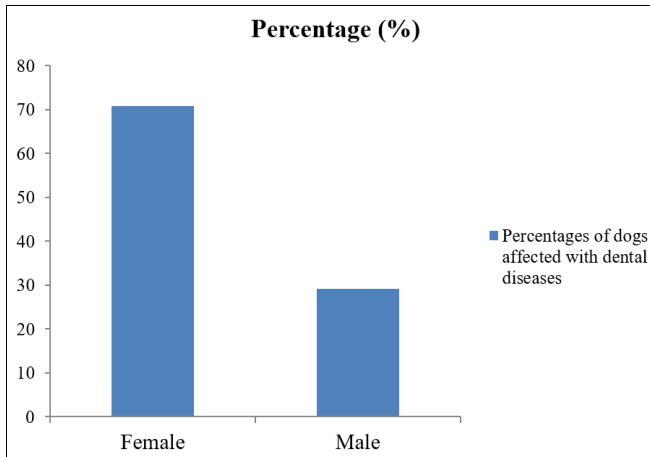
Graph 1: Breed wise incidence of canine dental affections.



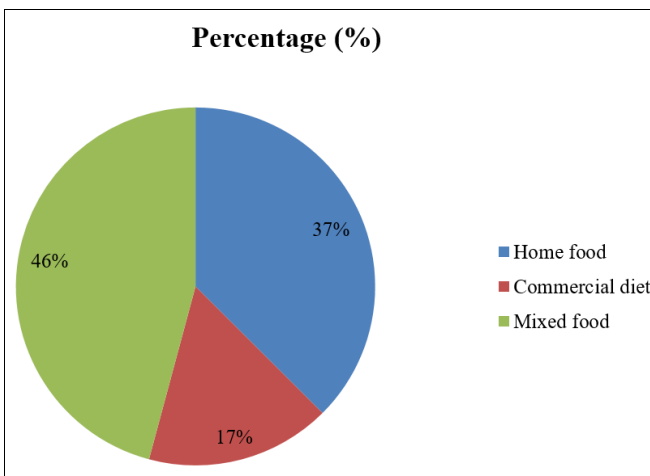
Graph 2: Age wise incidence of canine dental affections.



Graph 3: Body weight wise incidence of canine dental affections.



Graph 4: Gender wise incidence of canine dental affections.



Graph 5: Incidence of canine dental affections according to feeding habit.

Conclusions

The incidence of dental diseases was high in smaller breed dogs with higher incidence in Pomeranians followed by Labrador retrievers and mixed breed of dogs. The incidence was high in middle aged female dogs fed with mixed type of feed.

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