DEPARTMENT OF VETERINARY SURGERY AND
RADIOLOGY

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CLINICAL STUDIES ON SURGICAL MANAGEMENT OF
PERIODONTAL DISEASES IN DOGS

ABSTRACT

Key words: Periodontal Diseases, Dogs, Incidence, Clinical examination, Food
habits, Chemical analysis, Micro flora and ABST

The present work was conducted on 20 dogs suffering from periodontal diseases (PD) presented to Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Junagadh Agricultural University, Junagadh during study period. The present clinical work was carried out to study incidence of periodontal affections, haematological and biochemical parameters in relation to periodontal disease, diagnosis of periodontal diseases, and use of ultrasonic dental scaling for the treatment of periodontal diseases in dogs, to study oral micro flora, suitable antibiotics therapy and mineral composition of dental tarter.

The incidence of periodontal diseases was noticed in dogs of all age groups of either sex from 2 to 12 years in different breeds of dogs during present clinical study. However, higher incidence was recorded in dogs above more than 6 years age 27 out of 48 dogs (56.25 %) followed by, dogs aged between 3-6 years 18 out of 48 dogs (37.5 %) and younger dogs less than 3 years of age 3 out of 48 dogs (6.25 %), particularly affecting male 34 out of 48 dogs (70.83 %) than female 14 out of 48 dogs (29.17 %). Pomeranian spitz breed of dogs was affected the most 19 out of 48 dogs (39.58 %) followed by German shepherd 8 out of 48 dogs (16.67 %), Labrador retriever 7 out of 48 dogs (14.58 %), Non descript 7 out of 48 dogs (14.58 %), Great dane 3 out of 48 dogs (6.25 %), Doberman pinscher 2 out of 48 dogs (4.17 %) and Lhasa apso 2 out of 48 dogs (4.17 %) affected with periodontal diseases.
The highest incidence of stage 4 PD was noticed in the dogs of more than 6 years of age. Highest prevalence of PD (53.84 %) was also recorded in group of old dogs (> 6 yrs). Whereas, stage- 1 PD was seen only in group of young dogs (< 3 yrs). While none of the animal was having any affection of grade-1 in dogs below 3 years of age.

Dog owners revealed halitosis in 14 out of 20 dogs (70 %) as the most common complaint. Sticky salivation was the second most common complaint and reported in 11 out of 20 dogs (55 %), followed by anorexia in 7 out of 20 dogs (35 %), pawing at mouth 5 out of 20 dogs (20 %) and facial swelling 3 out of 20 dogs (15 %) in the present study. History further revealed that pet owners ignore any home care and professional dental cleaning for keeping teeth of dogs healthy.

A detailed survey regarding food habits of dogs revealed that 11 out of 20 dogs (55 %) were maintained on pure vegetarian diet and rest 9 out of 20 dogs (45 %) were maintained on vegetarian and non-vegetarian diet. Majority of dogs 7 out of 20 dogs (63.64 %) were provided homemade food mainly consisting of soft food, either pure vegetarian or mixed, while 4 out of 20 dogs (36.36 %) were also offered commercial available food (vegetarian) in the market in addition to homemade food.

Oral examination revealed varying degree of dental plaque accumulation in all cases 20 (100 %), followed by dental calculus in 17 (85 %) cases. Another important periodontal affection was gingival recession reported in 9 (45 %) cases, followed by gingival hyperplasia in 6 (30 %), tooth fracture in 3 cases (15 %), persistent deciduous tooth in 1 cases (5 %) and pulpitis in 1 (5 %) in the present study.

Dental plaque and gingivitis were noticed in the majority of dogs of the present study. However, PI-2 was observed in maximum in 11 (55 %) out of 20 dogs, followed by PI-1 in 7 (35 %) and PI- 3 in 2 (10 %) dogs of the present study. In the present study, calculus index was calculated as recommended by Loe (1963). Based on observations of the study, it was concluded that dogs suffered maximum with CI- 2 type calculus 9 out of 20 cases (45 %), followed by CI- 5 out of 20 cases (25 %), CI-3 in 4 cases (20 %) and CI- 0 in cases (10 %) type of calculus. Moreover, dental calculus was found to affect mainly on upper forth premolar tooth followed by lower premolar and molar tooth of the dogs.

In present study, furcation was not noticed in 12 out of 20 dogs and thus a FE index was calculated as zero. However, in rest of 8 dogs varying degree of furcation was noticed and further classified as FE-1 in 4 out of 20 cases (20 %), followed by
FE-3 in 2 out of 20 cases (10 %) and FE-2 in 2 out of 20 cases (10 %) of the present study. Based on observations of periodontal probing depth, 13 out of 20 dogs of present study probing depth was less than 3 mm whereas, probing depth of 4 mm and more than 5 mm was recorded in 4 (20 %) and 3 (15 %) dogs, respectively.

According to haemato-biochemical analysis on the day of treatment all parameters were recorded within normal range. Whereas there was no significant difference between values of various haematological and biochemical parameters on 0 day of treatment and 10th post treatment day.

For purpose of dental scaling premedication with atropine sulphate, diazepam and ketamine hydrochloride were used for anesthesia. The depth and duration of anesthesia in the dogs of the present study was found satisfactory to accomplish scaling of affected teeth in dogs. Most effective dental scaling could be performed by using ultrasonic piezo scaler. While using ultra sonic piezo scaler tip at 45° angle to the tooth surface was observed to be the most effective working angle for removal of supragingival calculus. There was no thermal damage to tooth due to simultaneously irrigation with water from scaling tip.

Sterile swabs were used for sample collection from mineralized dental plaque of 20 dogs. The result of bacteriological culture revealed the presence of different types of bacterial colonies; viz. Streptococcus spp. (40 %), Staphylococcus spp. (30 %), Escherichia spp. (20 %) found to be higher in culture media. Levofloxacin had the highest in-vitro susceptibility (85 %), followed by Amoxicillin (65 %), Gentamicin (60 %), Ceftriaxone (55 %), Cefotaxime (55 %), Oxytetracycline (50 %) and Chloramphenicol (45 %) Based on this susceptibility test, Levofloxacin was found to be the best antimicrobial drug of choice for periodontal diseases.

Dental tarter samples (n=20) were subjected to chemical analysis. The analyzed dental tarter composed of Calcium (Ca) 80.07 %, Phosphorus (P) 14.51 %, Magnesium (Mg) 2.83 %, Potassium (K) 1.22 %, Sulphur (S) 0.89 %, Iron (Fe) 0.61 %, Nickel (Ni) 0.44 %, and Zinc (Zn) 0.20 %.

All animal owners were advised to follow daily brushing of teeth, use of mouth wash, provision of bones for chewing and avoiding soft food for keeping teeth of dogs healthy. But only 35 % owners followed brushing of teeth once or twice weekly, whereas, 65 % owners did not follow brushing of the teeth. Further, 70 % owners provided dental chew sticks or artificial bones to gnaw and 30 % owners ignored instructions.