CHAPTER V
SUMMARY AND CONCLUSIONS

The present work was conducted on 20 dogs suffering from periodontal diseases presented to Department of Veterinary Surgery and Radiology, Veterinary College, J.A.U., Junagadh during the 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 years 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.

This present study was carried out on 20 dogs in which major complaints from 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 did not follow 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 (63.64
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%) 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 FE indices were 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.

Age wise gradation of periodontal disease 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 either of grade 1 or below 3 years of age.

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.
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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 Chlormphenicol (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.
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Based on the results of the present study following conclusions were drawn:

1. Breed wise highest incidence of periodontal diseases was noticed in Pomeranian spitz followed by German shepherd, Labrador retriever and others breeds of dogs.
2. Incidence of periodontal diseases was recorded more in male than female dogs especially in older and adult dogs.
3. The incidence of periodontal diseases was higher in dogs maintained on pure vegetarian or soft diet, not following any oral hygiene.
4. Halitosis and sticky salivation in dogs were noted as major complaints by dog owners.
5. Occurrence of stage 4 and stage 3 periodontal diseases was noticed maximum in older (> 6 years) dogs followed by adult (3-6 years) and younger (< 3 years) dogs.
6. Evaluation of haematological and biochemical parameters not showed any significant change in the dogs suffering from periodontal diseases.
7. The calculus deposition was more extensive on premolars and molars than canine and incisor teeth.
8. The use of ultrasonic dental scaling was found easier and effective method for scaling in dogs suffering from periodontal disease.
9. Ultrasonic dental scaler tip at 45° angle on the tooth surface was observed to be the most effective working angle for removal of supragingival calculus in dogs suffering from periodontal diseases.
10. *Streptococcus* spp. was found to be the predominant amongst pathological bacteria identified from dental plaque and Levofloxacin is most sensitive antibiotic for dental plaque.
11. Dental tarter were mainly composed of Calcium 80.07 % and Phosphorus 14.51 % than any other minerals.
12. The oral hygiene recommendations like teeth brushing, providing artificial bones chews and dietary modifications were ignored by the pet owners.