

OBSERVATIONS REGARDING PERIODONTAL DISEASE TREATMENT IN DOG

Larisa SCHUSZLER, Roxana DASCĂLU, Adelina PROTEASA, Daniel BUMB, Cornel IGNA

Banat's University of Agricultural Sciences And Veterinary
Medicine "King Michael I of Romania" Timisoara , 119 Calea Aradului, 300645, Timisoara,
Romania, Phone: +4021.318.25.64, Fax: + 40256.277.213, Email: larisaschuszler@yahoo.com,
dascaluroxana80@yahoo.com, adelinaproteasa@yahoo.com, bdbi8586@gmail.com,
ignacornel@gmail.com.

Corresponding author email: larisaschuszler@yahoo.com

Abstract

Between 01.01.2013-19.02.2015 in the Surgery clinic of Faculty of Veterinary Medicine in Timisoara 37 dogs were diagnosed with different stages of periodontal disease and treated. The treatment was dependent on the stage of disease evolution. Thus in the only case with stage of disease has been made dental cleaning with ultrasound unit followed by teeth polish with an abrasive paste. In patients with stage II of disease after ultrasonic scaling, performed supra- and subgingival, without gingivotomy, in periodontal pockets and tooth crown was applied a waxy barrier gel. At stage III and IV of disease, scaling was done initially using hand instrumentation afterwards with ultrasound unit. Even if periodontal pockets were deeper than 4 mm clearance technique used for subgingival curettage was closed. Vertical and horizontal defects of alveolar bone were put out easily, gingival recession and furcation exposure were obvious, teeth having first degree mobility in stage of installed periodontitis, and II or III degree of mobility in stage of advanced periodontitis. In these patients the dental mobility had imposed teeth extraction. When multiple dental units were extracted alveoplasty was necessary. In the sockets iodoform powder was introduced and afterwards gum was sutured. Oral cavity antiseptis was performed with chlorhexidine spray and for antimicrobial therapy clindamicine or stomorgil were used for at least ten day and maximum two weeks.

Key words: dog, periodontal disease, treatment.

INTRODUCTION

Chronic periodontal disease affects 30% of the adult population (Nares, 2000). It is probably the most common disease in dogs and cats and is found in more than 85% of dogs over four years (Marreta, 20011). In the early stages the prognosis is favourable if an appropriate treatment was carried out, but in advanced stages the prognosis become poor, all teeth with high degree of mobility requires extraction and bone loss being irreversible without regenerative surgical therapy (Igna et. al., 2008; Wigs et al., 1997).

The paper present an analysis of the treatment applied in 37 cases of different stages of periodontal disease.

MATERIALS AND METHODS

Between 01.01.2013-19.02.2015 in the Surgery clinic of Faculty of Veterinary Medicine in Timisoara 37 dogs were diagnosed with

different stages of periodontal disease and treated. All these dog were enrolled in this study. The establishment of diagnosis had included history, physical examination and general initial examination of the oral cavity made on awake animal, while full examination of the oral cavity, radiological examination /computer tomography exam followed by treatment were performed on anesthetized animals.

Diagnostic distinct clinical elements, or in other words evaluation of gingival health and anatomic changes in the periodontium, were: gingival inflammation grade, gingival bleeding on probing, plaque and calculus presence, ulceration presence, bone tissue resorption degree, the periodontal pockets existence, the gingival retraction, furcation exposure, each tooth mobility, oronasal fistulas presence, granulomas and periapical abscesses existence. For each stage of disease was applied a specific treatment, consisted of dental cleaning, tooth extractions, the curettage of fistulous tracts and

their closure, apical granulomas or abscesses curettage, and excision of areas with gingival hypertrophy or gingival benign tumors. Surgical treatment was completed by stomorgil or clindamicine administration for at least of ten days. Owners were asked to come to recheck the healing process of dog's oral cavity after an interval of one and two weeks, and after three months.

RESULTS AND DISCUSSIONS

For each stage of disease the distribution by age, gender and size is represented in table below (Table 1).

Table 1. Periodontal stages of disease – case distribution (n=37)

Stage of periodontal disease	Age group		Gender		Breed		
	Adult	Geriatric ¹	+O	♂	Toy	Small	Medium
I	1	-	1	-	-	-	1
II	4	2	2	4	1	4	1
III	3	5	4	4	1	6	1
IV	-	22	9	13	-	14	8

¹over 8 years in medium and small breeds, over 10 years in toy breeds

The stage I - gingivitis was diagnosed at 2.7% of cases, stage II – early periodontitis in 16.2%, stage III – mild periodontitis in 21,6% and stage IV of sever disease in 59,4% of cases.

Without exception all dogs with stage III or IV of periodontal disease, have had pseudo oligodontia, lacking at least two dental units most often incisors or premolars.

In stages I to III, dental calculus presence was a common element in all cases with the exception of four patients.

The destruction of bone tissue, with vertical and horizontal loss greater than 50% of tooth root length, has been found both on radiographs and by CT at more than half of patients.

The treatment was dependent on the stage of disease evolution. Thus in the only case with stage I of disease has been made dental cleaning with ultrasound unit (BlueTech B5) followed by teeth polish with an abrasive paste and excision of gingival hyperplasiated margins with a scalpel followed by repeated plugging with zinc chloride solution. Oral cavity

antisepsis was performed with chlorhexidine spray.

In patients with stage II of disease after ultrasonic scaling, performed supra- and subgingival, without gingivotomy, in periodontal pockets and tooth crown was applied a waxy barrier gel.

At stage III and IV of disease, scaling was done initially using hand instrumentation afterwards with ultrasound unit. Even if periodontal pockets were deeper than 4 mm clearance technique used for subgingival curettage was closed, although in the literature is described for root planing the open technique that necessitate to make a gingival flap followed by suturing it in separate points. This will aid vision and improve efficiency (Gorrel, 2004; IngahmK. Et al., 1999).

Vertical and horizontal defects of alveolar bone were put out easily, gingival recession and furcation exposure were obvious (Figure 1), teeth having first degree mobility in stage III of disease (installed periodontitis), and II or III degree of mobility in stage IV (advanced periodontitis).



Figure 1. Alveolar bone loss. a - upper maxillary, b - lower maxillary

In these patients the dental mobility with intense pain ascertained on clinical examination, had imposed teeth extraction. Were extracted between two and three teeth, mainly maxillary premolars and molars (Figure 2). In four patients were extracted eight dental

units. Mainly at these cases it was necessary alveoplasty, achieved using a rotary drill to discard the remaining alveolar sharp edges. In the sockets iodoform powder was introduced and afterwards gum was sutured (Figure 3). In eight patients were found apical granulomas which required careful curettage after extraction. In the case of bone substrate loss, before periodontal surgery practice, the situation must be assessed in several ways: are the patient and the owner cooperative? in terms of daily oral hygiene, frequent dental controls, additional costs; it is possible to save the tooth? thinking as there are bone support that is available and the surgical method applicable.



Figure 2. Multiple maxillary teeth extraction



Figure 3. Gingival soft tissue simple interrupted suture

Because in advanced stages of disease it was a negative feedback regarding patient and owner, was wiser to resort to tooth extractions.

Because one patient have had oronasal fistula, fistulous tract was curettage and subsequently closed by suturing gingival tissue. Three patients have had abscess fistulization into external infraorbital soft tissues, in these cases the suture after tooth extraction was not performed. On four dogs was necessary canine tooth extraction, due to crown fracture and chronic pulpitis. This was achieved by standard technique and was followed by suturing the muco-gingival flap back into position.

A number of seven dogs have presented fibroid epulis (confirmed histologically) localized between the incisors, canines and incisors or among canines and premolars. In these cases excision of the tumor was made with electric scalpel.

For ulcerative stomatitis treatment (five cases) was recommended brushing with borax and glycerin solution together with antibiotic medication.

In the treatment of advanced stages of the disease began to be introduced novel therapies aimed to induce periodontal regeneration namely soft tissue grafts, graft bone substitute, bioactive morphogenetic protein bone, tissue controlled regeneration and combinations thereof (Greenwell, 2001). Modern methods or advanced surgical procedures, include guided bone regenerative therapy using osteoinductive and osteoconductive materials with or without epithelial barrier, and only those can ensure long-term success when more than 50% of the bone around the tooth is lost. The final way to solve, the definitive therapy, in advanced periodontal disease is currently the dental extraction (Niemic, 2008).

Clindamycin, amoxicillin and metronidazole seem to be effective antimicrobials. They may be given for a week before periodontal treatment and before anesthesia and postoperative for 7-10 days (Niemic, 2008; Lobprise, 2007). Some authors consider antibiotic therapy before the treatment as a way of partial success in managing the challenges posed by periodontal disease (Colin, 2005). The use of antimicrobial substances for long-term treatment of periodontal disease is not recommended, nor should be encouraged because there is no evidence of benefits and because of possible side effects, along with the development of resistance (Albuquerque et al.,

2012; Colin, 2005). The maximum time for antimicrobial therapy in this study was for two weeks.

After a week have come for medical rechecking only five patients, at them the gingival tissue healing was almost completely. Of these, at two weeks, came just one (Figure 4).

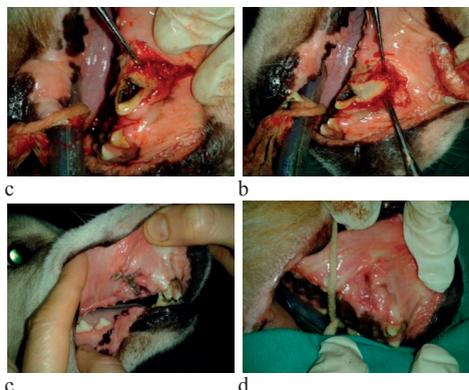


Figure 4. Canine tooth extraction (a, b) and healing process at one week (c) and at two weeks (e)

CONCLUSIONS

At stage III and IV of disease because of large amount of calculus, scaling was done initially using hand instrumentation afterwards with ultrasound unit.

With good results closed clearance technique was used for subgingival curettage, even if periodontal pockets were deeper than 4 mm.

When multiple dental units were extracted alveoplasty was necessary.

In patients with marked dental mobility were imposed teeth extractions.

ACKNOWLEDGEMENTS

This research work was carried out with the support of the project *Dezvoltarea infrastructurii de cercetare, educatie si servicii in domeniile medicine veterinare si tehnologiilor inovative pentru RO 05, cod SMIS_CSNR 2669*.

REFERENCES

- Albuquerque C., Morinha F., Requicha J., Martins T., Dias I., Guedes-Pinto H., Bastos E., Viegas C., 2012. Canine periodontitis: The dog as an important model for periodontal studies, *The Veterinary Journal*, 191: 299-305.
- Colin, E.H. (2005) – Management of Periodontal Disease: Understanding the Options. *Veterinary Clinics Small Animal Practice*, 31, 819-836.
- Gorrel C., 2004. *Veterinary dentistry for the general practitioner*. Saunders Publishing House, Philadelphia.
- Greenwell H., 2001. Guidelines for periodontal therapy. *Journal of Periodontology*, 72: 1624-1628.
- Ignă C., Sabău M., Schuszler L., Șereș M., Dascălu R., 2008. *Stomatologie Veterinară*. Ed. Brumar, Timișoara.
- Ingahm K., Gorrel C., 1999. Assessing oral health and hygiene in dogs. *Waltham Viewpoint*, 9(4): 32-33.
- Lobprise H.B., 2007. Periodontal disease: Periodontitis, in *Blackwell's Five Minute Veterinary Consult Clinical Companion Small Animal Dentistry*, Ames Publishing House, Iowa State University Press, 172-180.
- Marreta M. Sandra, 2001. Recognition of canine oral lesions. *Proc. of the Atlantic Coast Veterinary Conference*.
- Nares S., 2000. The genetic relationship to periodontal disease. *Periodontology*, 32:36-49.
- Niemiec B.A., 2008. Periodontal disease. *Topics in Companion Animal Medicine*, 23(2): 72-80.
- Wigs R.B., Lobprise Heidi B., 1997. *Clinical Oral Pathology, Periodontology, Basic endodontic therapy*, in *Veterinary Dentistry. Principals & Practice*. Lippincot Raven Publishing House, Philadelphia, 128-163, 186-231, 280-324.