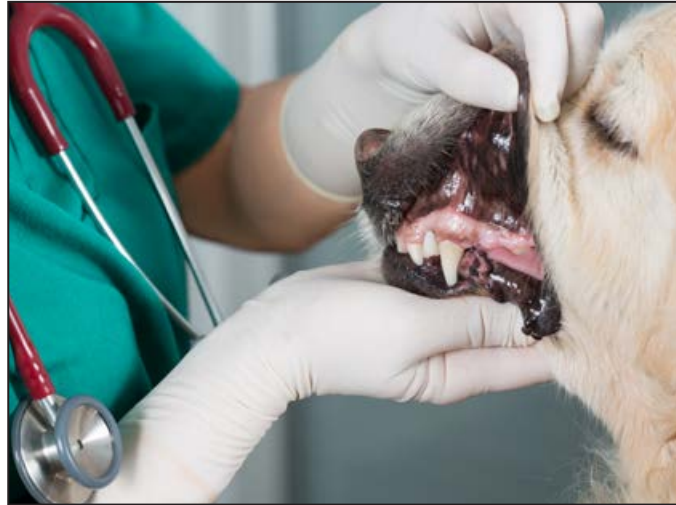


Preventing Periodontal Disease in Dogs

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Introduction

Periodontal disease is one of the most common health problems affecting adult dogs. This disease occurs as a result of infection and inflammation of the gums, bone, and tissue surrounding and supporting the teeth. Up to 80% of all dogs are believed to have some degree of periodontal disease by age 2 (Wiggs & Lobprise, 1997).



There are two stages of the disease: gingivitis, an inflammation of the gums, and periodontitis, an inflammation of the supporting structures of the tooth. As periodontal disease progresses, it will result in the breakdown of the roots of the teeth, bone loss and eventually tooth loss. Because this process can be painful to the dog, it is important to focus on prevention of advanced disease. Removal of plaque and minimizing the buildup of tartar are effective methods of achieving this.

Plaque is a biofilm, a material that contains and protects bacteria. This sticky, yellowish-tan colored substance forms on teeth, hardens and becomes tartar or calculus, a material that is more difficult to remove. Plaque and tartar close to the gum line can cause gingivitis (DuPont, 1998) and if not addressed, can lead to more advanced periodontal disease (Niemic, 2008). Common signs of periodontal disease include difficulty eating, sensitivity or pain while eating, red or bleeding gums, and loose or missing teeth. Periodontal disease may not affect only the dog's mouth; it has been

associated with other health problems, such as heart, kidney and liver disease (Niemic, 2008) although a causal relationship has not been determined (Lemmons, 2009). Professional dental care is necessary throughout a dog's lifetime, but the use of preventive home care measures is also important.

Benefits & Procedures

Associated with Professional Cleaning

A veterinary dental examination and cleaning is recommended yearly for all dogs beginning at 2-3 years of age, but the frequency may change based on individual factors (e.g. size, age, breed) and the type, frequency, and success of home preventive care provided. It is important for owners and caretakers to regularly examine their dogs' teeth for signs of plaque or tartar buildup. The presence of these materials on the teeth suggest that a professional examination is needed. Regardless of the presence of visible plaque, a professional examination and cleaning is recommended once a year because a large percentage of each tooth is located under the gum line. A thorough examination of the support structures under the gum line, as well as the removal of bacteria and plaque that collect there cannot be done without the dog under anesthesia. Even the best home care cannot remove plaque and bacteria under the gum line, so routine professional cleanings will still be necessary.

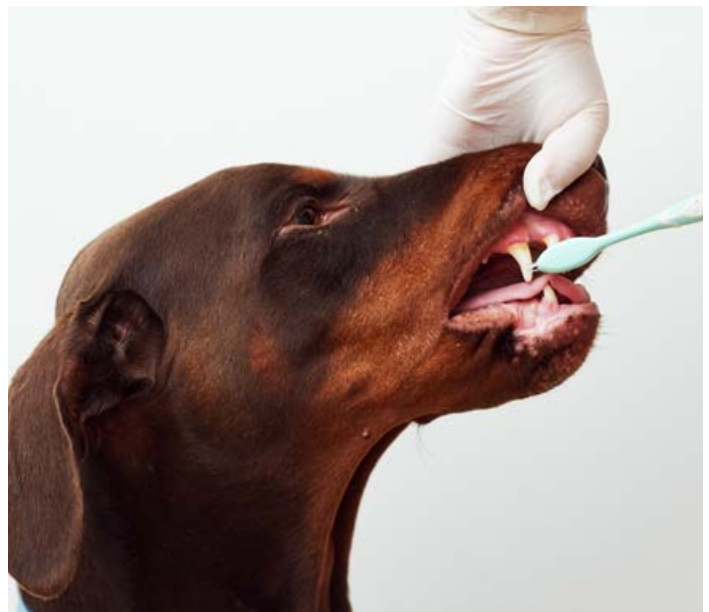


A professional dental cleaning begins with a complete physical examination, including an examination of the mouth and teeth by the veterinarian while the dog is awake, whenever possible. Blood testing and additional tests may be performed to confirm that the dog is healthy enough for anesthesia. Once the examination and bloodwork are complete, the dog is put under anesthesia and monitored for the remainder of the procedure. Scaling is performed to remove tartar both on the surface and underneath the gum line, followed by polishing to create a smooth surface that helps to protect against future plaque buildup. A complete oral examination is performed. All of the soft tissues are assessed, each tooth is evaluated, and the findings are recorded on a dental chart. The veterinarian may elect to take radiographs (X-rays) to examine the bone supporting the teeth. Teeth that are at an increased risk for infection or causing problems in the mouth based on the examination and radiographs may be extracted (removed from the mouth).

At-Home Care: Benefits of Brushing

Brushing a dog's teeth is the most effective form of preventive oral health care (Ray & Eubanks, 2009). Brushing is an active form of preventive care that is highly effective in removing the daily buildup of plaque on the teeth. Most dogs can be trained to accept the procedure, and brushing should occur at least 3 times per week to be most effective, with daily brushing being the goal (Ray & Eubanks, 2009). A soft bristle brush (either made for dogs or children) and a toothpaste made specifically for dogs should be used; human toothpaste can be toxic to dogs.

Though highly effective, routine brushing is rarely performed by most owners: 50% to 70% of caretakers do not follow recommendations for frequency of brushing (Logan, 2006). This is probably due to time constraints or the dog's willingness to tolerate brushing and ease of handling. Similar concerns apply to dogs maintained in animal shelters, laboratory facilities or commercial breeding facilities where the large number of dogs cared for may make routine brushing of teeth difficult for caregivers. If brushing is not possible, due to either owner or dog factors, there are other means of home preventive care. These methods are not considered to be as effective as brushing, but they still provide some benefit.



Alternatives to Brushing

The use of diet in maintaining dental health is one alternative to brushing. It is a common belief that wet food causes more plaque buildup on the teeth than dry food, but there is little evidence to support this claim (Logan, 2006). Specially formulated dental diets have been shown to combat plaque and/or tartar. These are designed to be abrasive; during the chewing process, plaque is scraped off the teeth. Additionally, each individual kibble is larger than standard kibble, which leads to more chewing activity. Several of these diets have been approved by the Veterinary Oral Health Council (VOHC) and are available as either a prescription diet sold by veterinarians or as non-prescription formulas that are available at pet supply stores. Visit the website www.VOHC.org (Veterinary Oral Health Council) for a full list of approved diets.

Another way to combat plaque and tartar buildup is to provide the dog with something to chew on. Proper chewing materials can reduce tartar and/or plaque buildup and clean the surface of the teeth (Logan, 2006). The increased chewing time promoted by treats designed for dental health loosens tartar (Logan, 2006). Many dental hygiene chews have been approved by the VOHC to reduce tartar and/or plaque buildup, and a handful have been found to be effective in reducing gingivitis. Dental treats that contain vitamin C and zinc sulfide as active ingredients have been shown to be more effective over a 24-hour period against oral bacteria



when compared with treats that did not have these active ingredients (Jeusette et al., 2016). It is important to note that any chew objects given to dogs must be appropriately sized for the dog's breed and body size, and to prevent injury, dogs should be monitored while they are chewing. Some types of chews, such as bones and hard plastic toys, should be avoided because they can cause damage, including tooth fractures.

Another option is the use of an antiseptic, chlorhexidine. This compound is an active ingredient in several commercially available gels and has been found to have antibacterial, antifungal and antiviral properties that can be used to reduce plaque accumulation and gingivitis (Ray & Eubanks, 2009). Chlorhexidine gel, when consistently applied to the gums, has been shown to be effective (Hennet, 2002) but application must be daily and the dog must accept handling of the mouth, so the challenges are similar to brushing. Chlorhexidine has been added in trace amounts to the water supply of some dog facilities. The effectiveness of this method has not been shown to date. This is an area that needs more research prior to drawing any conclusions about its safety and efficacy.

Green tea contains compounds that can prevent biofilm formation over the teeth. By limiting biofilm formation, bacterial growth is slowed, leading to reductions in both inflammation of the gums and bad breath. Adding small amounts of green tea extract to a dog's food has been studied as an alternative to teeth brushing (Isogai et al., 1995). Bacteria commonly found in the plaque of dogs with gingivitis decreased by almost 60% in dogs receiving green tea extract compared to those that had not received it. At this time, however, there are no known commercially available products for dogs that contain green tea extract.

Conclusion

Periodontal disease is one of the most common health problems in our canine companions. Lack of preventive care often leads to more severe disease at an earlier age. Complete dental care should include regular visits to a veterinarian for professional cleanings as well as home preventive care between professional dental cleanings. Brushing is the most effective method for prevention of periodontal disease, but it may be challenging for many caretakers. Dental diets, chlorhexidine gels, and dental treats can also be of benefit, whether paired with regular brushing or used on their own. Effectively maintaining canine dental health is an important factor in maintaining overall health. Appropriate use of preventive measures will save dogs from unnecessary pain and stress. The most important first step of any prevention plan is finding a plan of action that works well for both the dog and its owner or caretaker.

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