Starting with the Basics: What is Periodontitis?

Periodontitis is the inflammation and infection associated with predominantly gram-negative bacteria in a subgingival biofilm. Bacteria, salivary glycoproteins, and extracellular polysaccharides collect in the mouth and on tooth surfaces, forming plaque. Plaque mineralizes, forming calculus. Plaque and calculus accumulation, inflammation, and infection can lead to periodontal disease.

Periodontal disease results in the destruction of the periodontium, which leads to the accumulation of debris and changes in the bacterial population. Malocclusion, crowding, systemic health issues, genetics, nutrition, trauma, and patient size are all predisposing factors.

How to Prevent Periodontal Disease.

Timing is The Key to Periodontal Disease Prevention

HOURS — **Plaque takes only hours to form and becomes more organized with time.**

2-4 DAYS — **A mature biofilm begins to calcify within the first 2-4 days**

12 DAYS — **Biofilm is up to 90% mineralized in just 12 days!**

Preventing periodontal disease involves timing, as plaque forms quickly and becomes organized over time. A mature biofilm calcifies within 2-4 days, reaching 90% mineralization in 12 days.

Diagnosing Periodontal Disease and the Role of Diagnostic Imaging for Complex Cases

Diagnostic imaging plays a crucial role in diagnosing periodontal disease and involves dental charting, intraoral radiographs, and clinical photographs. Intraoral radiographs oftentimes reveal invisible pathology in a significant percentage of patients, while cone-beam CT (CBCT) has less radiation than standard CT but more radiation than a full-mouth set of plain intraoral films. CBCT is far more sensitive than standard intraoral films and can help identify bone loss in complex cases.

Differentiating Between Stage 3 and Stage 4 Periodontal Disease

Regardless of stage, diagnosing periodontal disease requires that the pet be anesthetized, and diagnostic imaging should be taken. The disease is graded from 0 to 4 based on gingivitis and measured attachment loss.

Attachment loss is determined based on both intraoral examination (pocketing, furcation exposure, gingival recession) AND dental radiographs.

Early stages are defined as follows:

Stage 0 is defined as no periodontal disease

Stage 1 is defined as gingivitis with no attachment loss

Stage 2 is defined as gingivitis plus <25% attachment loss.

Treatment for Stages 1-2 typically involves a thorough professional cleaning and scaling and implementing home care. We will limit our in-depth discussion to stages 3 and 4 only.

Stage 3 Periodontal Disease: Defining, Treating, and Preventing

In certain circumstances, Stage 3 periodontal disease may be treatable; however, it requires consistent skilled dental care and a strict home oral hygiene regimen. Stage 3 is characterized by 25–50% attachment loss or Stage 2 furcation. For instance, a dog with Stage 3 periodontal disease may exhibit signs of gum recession, increased tooth mobility, and potential bone loss.

When it comes to treating stage 3 periodontitis, gingivectomy/gingivoplasty, open root planing, sliding periodontal flaps, guided tissue regeneration, and apically repositioned flaps are all potential treatment options to tackle this level of disease. The objective of these treatments is to alleviate inflammation, eliminate diseased tissue, and facilitate the healing of the periodontium, which is the connective tissue that supports and surrounds the teeth.

In cases where a pet has advanced periodontal disease, including pseudopockets, vertical bone loss, pockets larger than 5 mm, stage 2 or 3 furcation exposures, gingival clefts, and mobile incisors, periodontal surgery can be used to manage the disease and prevent it from worsening.

(Continued)

What's the Difference Between Intraoral Radiographs and Cone Beam CT?

The following chart points out some of the differences between intraoral radiographs and cone beam CT:

Intraoral Radiographs	Cone-Beam CT
• Dental x-rays are required to perform a complete dental exam	• Generator and detector rotate around the patient, capturing images using a cone shaped beam
• Nearly 2/3 of each tooth is under the gumline	• Less radiation than standard CT, but more radiation than a full mouth set of plain intraoral films
• Full-mouth intraoral radiographs reveal otherwise invisible pathology in a significant percentage of patients.	• Benefit to the patient is that it's far more sensitive than standard intraoral films
• Taking dental x-rays is standard	• Three-dimensional view
• Two-dimensional view	

Source: Dr. Alexander Adrian, "Diagnosis and Treatment of Stages 3 and 4 Periodontal Disease: It's not always an extraction!" 2024 Veterinary Dental Forum, Palm Springs, CA, September 2024.

ARIZONA VETERINARY DENTAL SPECIALISTS | thrive PET HEALTHCARE PARTNER

The overall goal of periodontal surgery is the removal of diseased tissue and the reshaping of the bone to facilitate long-term healing. It may also involve the placement of bone grafts or guided tissue regeneration to help regenerate lost bone and tissue.

Stage 4 Periodontal Disease: Defining, Treating, and Preventing

Over 50% attachment loss and/or Stage 3 furcation are indicators of Stage 4 periodontal disease's irreversible nature. However, in certain situations, it may be possible to preserve function through treatment.

In a case where one root has stage 4 periodontal disease but one root remains healthy, surgical removal of the diseased root with retention of the remaining root followed by root canal therapy can be an option for preserving tooth function.

In determining the best treatment option, the patients' overall health, pattern of bone loss, and owner's commitment to ongoing care are carefully considered.

From a preventative perspective, pets should be receiving regular professional dental care before obvious signs of periodontal disease are observed during an examination. Maintaining good oral hygiene at home is essential for avoiding advanced periodontal disease, which could lead to tooth extraction.

Although brushing their pet's teeth at home is the best way to prevent periodontal disease, many pet owners don't do it for several reasons, including but not limited to an uncooperative pet or a lack of knowledge on how to properly brush their pet's teeth. Finally, we recommend VOHC products for at-home dental care.

VETERINARY ORAL HEALTH COUNCIL
VOHC Accepted
HELPS CONTROL PLAQUE
HELPS CONTROL TARTAR

When to Refer

When your patient has advanced periodontal disease (stages 3 or 4), it's important to know when to refer to a dental specialist. A dental specialist will not only be able to provide more advanced treatments such as deep cleaning, tooth extractions, or even surgery if necessary to treat advanced periodontal disease, but we have the advanced technology and training to ensure an optimal outcome for your patient. Referring your pet patient to a dental specialist at this stage can help prevent further complications and improve their overall oral health for the long term.

Contact Us!

AZVetDentists.com

Scottsdale
(480) 941-1738
azscottsdale@thrivepet.com

Gilbert
(480) 635-1110 x8
azgilbert@thrivepet.com

Peoria
(602) 942-1486
azglendale@thrivepet.com

Tucson
(520) 888-3177 x5
aztc@thrivepet.com

Veterinarians should educate pet owners on the importance of regular dental care and the potential consequences of neglecting it to ensure the future and well-being of their furry family members.

Want to Dig Deeper?

We can arrange for a variety of CE presentations for you and your staff. With the **highest number of board certified veterinary dentists on staff** we are leading the way in veterinary dentistry in Arizona.

We've Just Scratched the Surface

The purpose of this article was to provide veterinarians with a concise overview of advanced periodontal disease and to discuss the appropriate time to refer patients to a specialist. There is a wealth of additional in-depth information and discussion to be had regarding the oral health of pets and advanced periodontal disease. We are happy to engage in a deeper discussion regarding some of the advanced techniques that we frequently employ at Arizona Veterinary Dental Specialists, such as:

- Gingivectomy/Gingivoplasty
- Open root planing
- Sliding periodontal flaps—to reestablish attached gingiva
- Guided tissue regeneration and grafting to treat an infrabony pocket
- Apically repositioned flaps—to reestablish attached gingiva



Advanced Periodontitis in Animals: Stages 3 and 4

ARIZONA VETERINARY DENTAL SPECIALISTS | thrive PET HEALTHCARE PARTNER

Conveniently located in:
Scottsdale | Gilbert | Peoria | Tucson