



# PAW & CLAW PRINTS



## TIMELY TOPIC SUPPLEMENT

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### DOGS AND CATS GET DIRTY TEETH, TOO!

By Dr. Angelique Cucaro, DVM

People are often surprised to learn that animals get the same ailments that humans do- from heart disease to diabetes to cancer. Among the other conditions that animals can develop are dental and periodontal disease. Gum erosion, inflamed gums, tooth decay, tooth root infections and fractured teeth with pulp exposure- dogs and cats are at risk for all these. Since animals can't brush their own teeth, tartar and plaque accumulate to cause problems. Besides causing bad breath and pain (note that animals will tolerate more pain than humans before manifesting obvious signs of discomfort such as reluctance to eat), the plaque build-up also harbors bacteria that is shed into the blood stream to affect other organs of the body.

While tartar accumulation and gum inflammation can be minimized by feeding dry foods and giving chew toys and tartar control treats, there is often individual and breed predisposition to developing dental disease. Some dogs and cats, despite being on a 100% dry food diet, will still get plaque. Certain dog breeds, especially toy and miniature dog breeds are especially prone to periodontal disease. These breeds are also prone to retaining their baby teeth. These extra teeth which can lead to problems often necessitate removal. Certain cat breeds such as Siamese and Abyssinians seem to be particularly prone to gingivitis (inflamed gums). In cats, stomatitis (inflamed mouth) can signal certain diseases such as infection with the feline immunodeficiency virus (FIV).

What can a dog/cat owner do? The most important part in managing dental disease is as for ourselves- daily brushing. While some cats and dogs will simply not tolerate this, most can be taught to deal with a finger brush or small toothbrush in the mouth with pet toothpaste (not human products). It may take time and patience to train your pet to accept brushing and it's best to start with puppies and kittens to let them get used to gentle massaging of the gums and teeth. By starting with a bit of baby food, the pet learns that the brush is tasty and will tolerate this. Then chicken or beef flavored toothpaste can be introduced. The toothbrush is applied to the outside of the front teeth (incisors), the fangs (canines), and the back teeth (premolars and molars), working between the cheek and the outside of the tooth where plaque build up occurs. This can be done without having to open the animal's mouth but by simply lifting up the lip and moving the brush between the cheek and teeth. Most animals will cooperate with this technique but are less tolerant of having their mouth opened wide. Fortunately, less buildup occurs on the inside of the teeth. If inflamed gums are more of a concern without the presence of tartar, chlorohexidine based gels and solutions can be helpful to swab on gum and minimize oral bacteria.

Dental brushing on a regular basis, ideally every day, but even 3 times a week, makes a difference.

For dogs and cats that already have considerable dental tartar and/or periodontal disease, a more thorough cleaning is necessary. Cleaning the teeth is not just for cosmetic purposes, although Fido's breath will undeniably smell better afterwards. It is beneficial for the pet's health since the bacteria harbored in the mouth systemically affects all the organs of the body. In some cases of inflammation of the liver or kidney compromise or heart murmurs, bacteria is playing a role in contributing the decreased health of that organ.

A dental prophylaxis is best done under anesthesia by your veterinarian. There are facilities, usually pet stores and grooming salons, that will offer "anesthesia-free dentals" or "standing dentals" or "hand scaling". While this seems ideal since it avoids anesthesia for the pet, there are many drawbacks. While a superficial cleaning leaves the teeth looking apparently clean, deep cleaning is not possible, and an extensive amount of plaque can be left under the gum line. When a compromised tooth is encountered that necessitates extraction or other procedure (i.e. root canal), this cannot be addressed. In scaling the teeth, either by hand or with a cavitron, small scratches are made on the tooth's surface and unless the teeth are polished, this roughened surface provides a foothold for bacteria to build up again. Also, in the process of cleaning the teeth, bacteria is liberated and goes into the blood stream. Outside of a hospital setting, antibiotics are not given to eliminate this bacteria that systemically affects the animal.

For this reason, at veterinary hospitals, an injection of antibiotics is given prior to the dental prophylaxis and if there are extractions and/or the presence of periodontal disease, oral antibiotics are dispensed when the animal is sent home. Dental prophylaxes done at the hospital also provide the occasion to remove minor lumps as well as to do other procedures that the animal may not tolerate in an awake state - thorough ear cleanings, toe nail trims and xrays of limbs, for which positioning and immobility are necessary to obtain the precise view. Note, however, dental prophylaxes are not done at the same time as major surgeries such as abdominal or orthopedic procedures. This is to avoid contamination of the sites with the oral bacteria released with cleaning teeth. Most hospitals can do prophylaxes and do extractions, but not all do "flaps" with extractions, a technique that allows the hole to be closed over and sutured with absorbable sutures and dental xrays which allow a more thorough evaluation of tooth and bone damage. These more specialized techniques are usually done by veterinarians and technicians who have undergone additional training in veterinary dentistry. Still, there are some procedures that would necessitate referral to a veterinary dentist, that is, a specialist who can do more difficult procedures such as root canals. This technique is done to preserve fractured major teeth

such as the canines (the fangs) or carnassials (the big molar teeth) rather than extracting them.

There are always concerns about anesthetizing an older animal, and it is often the middle-aged or older pet that has significant dental disease. However, there are ways that this can be done safely. Your veterinarian will recommend doing blood work and urinalysis before anesthetizing your pet. It is important to get a “picture” of your pet’s body’s function, and this is best done by analyzing liver and kidney enzymes, electrolyte levels and red blood cell and white blood cell counts. If there are significant problems noted beforehand, a dental cleaning may be delayed and further testing such as xrays and ultrasound or treatment with continued monitoring may be recommended. If no problems are found in the blood and urine samples, a “baseline” or what is normal for your pet has been established. This is an important point of reference in the future as your pet ages and helps your veterinarian determine significant changes in your pet’s health as your animal gets older.

There are several precautions that are taken on the day of anesthesia for a dental prophylaxis. These include:

- a physical exam (even if one was just done the day before since like us, an animal’s status can change overnight) –
- pain killers to minimize any pain associated with the procedure
- use of an intravenous catheter for administration of fluids (which allows for the perfusion of organs and control of blood pressure)
- monitoring blood pressure with a Doppler
- monitoring the patient’s oxygen content with a pulse oximeter
- an EKG that monitors the heart’s electrical activity
- close supervision by a veterinary technician who monitors the animal’s depth of anesthesia, breathing pattern, heart rate and body temperature

It’s ideal after a dental prophylaxis to commit to keeping the bacteria at a minimum with regular brushing. Other options in addition to brushing include CET chews and Hill’s Prescription T/D diet (to be used as a supplement to your pet’s normal diet). By being proactive in the dental care of your companion animal, doing a dental prophylaxis, brushing and offering chews or T/D, you have taken a significant step in improving and extending your pet’s life.



For further information concerning dental services provided by Linda Mar Veterinary Hospital and Coastal Cat Clinic, please contact us or view our website at [www.lindamarvet.com](http://www.lindamarvet.com).

## The “Sweet” Danger in Xylitol

You may be familiar with xylitol as the sugar alcohol substitute used in many every-day items such as sugar-free gum and mints, nicotine gum, chewable vitamins, baked goods, “natural” human toothpastes and other oral-care products. It is commonly found in Trident, Orbit and IceBreakers gum. What you may not know is that, even though it is safe for human consumption, it can cause severe hypoglycemia (low blood sugar), severe liver necrosis, coagulopathies (clotting disorders) and even death in dogs.

With the shift to low-carbohydrate diets making use of sugar substitutes, xylitol has become a readily available choice in diet beverages and granulated forms for baking and sweetening cereals. In humans, xylitol is slowly absorbed, while in dogs maximum concentrations are achieved within 30 minutes of consumption.

The first adverse effect clinically seen is vomiting, followed by hypoglycemia. Once in the bloodstream, xylitol causes a dose-related release of insulin, which results in a concurrent drop in blood glucose concentrations. Hypoglycemia usually develops within 30-60 minutes after ingestion, but may be delayed for up to 12 hours (found with gum containing xylitol). At this point clinical signs progress rapidly from lethargic behavior to stumbling and ataxia, collapse, and seizure. Liver enzyme values become elevated within 12-24 hours after xylitol ingestion. Several dogs have developed acute liver failure subsequent to ingestion. Coagulopathies follow liver damage, including prolonged clotting times, petechia, ecchymosis (spots of bleeding and bruising under the skin) and gastrointestinal bleeding.

If you suspect that your dog has ingested products containing xylitol, please contact your veterinarian immediately. Because of the potential for rapid onset of clinical signs and quick absorption, treatment is highly recommended in all cases in which a dog may have ingested more than 0.1 g/kg (>0.22 g/pound) of xylitol. Treatment consists of possible emesis (vomiting; only if the dog is asymptomatic on presentation), baseline bloodwork, continuous blood glucose monitoring, intravenous fluids containing supplements and additives needed to assist in normal body function, as well as liver protectants and antioxidants. If a coagulopathy develops, blood transfusions, plasma transfusions or both may be needed.

In order to insure the best possible prognosis prompt treatment is needed. As time goes on without treatment, complications ensue, requiring more intensive therapies or the inability to correct the continued damage from the toxicosis.

Other sugar alcohol substitutes such as sorbitol and mannitol have very little effect on blood glucose concentrations or insulin levels in dogs. Their over consumption may result in diarrhea. Artificial sweeteners like saccharin, sucralose and aspartame are generally considered to be safe and should not cause significant illness. However, there is no alternative to careful monitoring and preventing your dog’s dietary indiscretions. Though xylitol is a sweet treat for you, it is potentially quite dangerous for your dog- a handful of cookies, a couple of muffins, or even a few pieces of gum are enough to be harmful to your canine companion.