



Enamel Hypocalcification

What is enamel hypocalcification?

Enamel hypocalcification (sometimes mistakenly called enamel hypoplasia) is a condition where the enamel does not form correctly, or is damaged during its development. When the enamel is damaged, it can flake off and create a defect in the enamel covering. This will result in exposure of the underlying dentin (Figure 1). The defect can be isolated to one tooth or area of a tooth (focal), or may be widespread throughout the whole mouth (generalized). The most common cause of generalized enamel hypocalcification is a high fever at a very young age, during the development of the tooth or teeth. If only a single tooth is affected, then trauma to the developing tooth was likely, such as infection from a fractured puppy tooth or an injury. In some cases, the developing tooth root was also damaged at the same time as the enamel.

Why is enamel hypocalcification a problem?

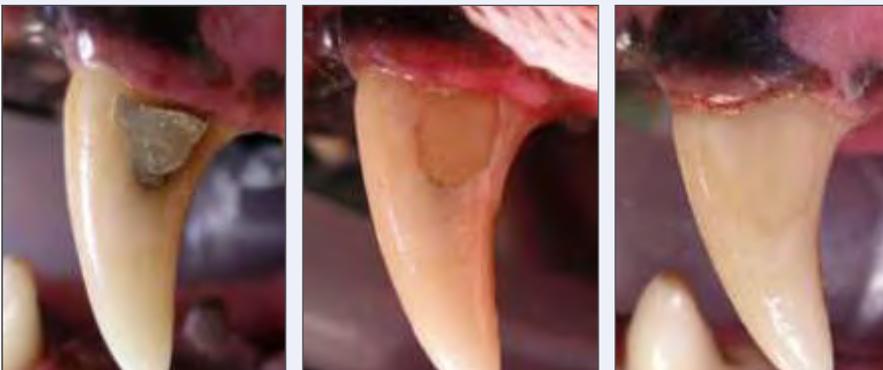
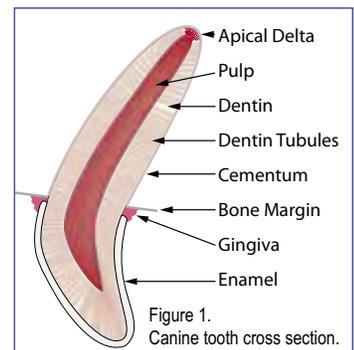
When the enamel is damaged, the porous dentin underneath is exposed. There are three main reasons that dentin exposure is a concern. First, loss of the covering enamel causes sensitivity and allows bacteria to invade into the tooth through the porous dentin. This may compromise the health of the tooth and can be very uncomfortable for the dog. Second, dentin is not as strong as enamel, so the teeth are weaker than normal teeth, and much more susceptible to wear and fracture, which may expose the pulp and cause further damage and pain. Third, the porous dentin is rough and irregular. This allows plaque and calculus to build up more quickly and can accelerate periodontal disease.

What treatment options are available?

Dental radiographs are required prior to any treatment to determine if the damaged tooth is still healthy and vital and the root structure developed normally. If the radiographs show that tooth is no longer healthy, or the root did not develop correctly, root canal therapy or extraction will be required. If the tooth is still vital and alive, the exposed dentin is sensitive and susceptible to infection.

To seal the dentin, decrease sensitivity, and increase the wear resistance of the tooth, there are 2 options. A composite resin restoration can be placed if the area is not too large or in an area of heavy chewing. This type of restoration can be fragile if placed in a high stress area and may need replaced during the dog's life. However, it is very functional and aesthetic if the filling is matched to the tooth color. The other restoration available is a full metal crown. If the chance of tooth fracture is high, such as in working dogs, or the area to cover is quite large, this is the best restoration. This will require two anesthetics, but is the best for long term treatment of large areas of enamel hypocalcification.

No matter which option is chosen, treatment is recommended for teeth with enamel hypocalcification because of the discomfort of the exposed dentin, the increased likelihood of future damage to the teeth, and to create a smooth, plaque-retardant surface.



An upper canine tooth with an enamel defect filled with calculus (far left). After cleaning the area, the actual size of the defect can be seen (center photo). The final image on the right is after restoration with a composite resin. This is often the best option because it is a tooth-colored filling, smooth, blends in with surrounding tooth, decreases sensitivity, and minimizes future plaque and calculus buildup.



On left, an upper canine tooth treated with full metal crown therapy. The metal crown protects the tooth, seals the exposed dentin, and provides additional strength. In the middle and on right, more examples of enamel hypocalcification.

About Dr. Bannon

Kris Bannon, DVM, FAVD, DAVDC received her veterinary medical degree from Texas A&M University in 1998. She worked in a small animal hospital in Santa Fe, NM for ten years before starting the first veterinary practice in New Mexico dedicated to the oral health needs of our companion animals.

In 2008, she was the first veterinarian in New Mexico to earn the title Fellow of the Academy of Veterinary Dentistry (FAVD). She became a Diplomate of the American Veterinary Dental College (DAVDC) in 2010. Both certifications are earned after years of intensive training, followed by a rigorous application process and examination. As of 2010, there are only 93 Fellows of the AVD and 115 Diplomates of the AVDC worldwide. As a Diplomate of the AVDC, Dr. Bannon became the first and only board-certified veterinary dentist in the state of New Mexico!

She was elected to serve a five year term on the Board of Directors for the American Veterinary Dental Society in 2006. In her free time, Dr. Bannon enjoys volunteering with the Peter Emily International Veterinary Dental Foundation, using her advanced dental skills to benefit disadvantaged and captive wildlife in sanctuaries across the country. Dr. Bannon enjoys teaching other

veterinarians about quality dental care, and lectures frequently within New Mexico and nationwide.

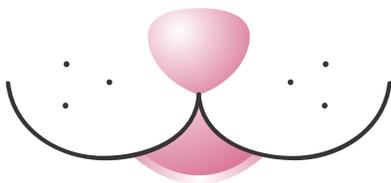
Dr. Bannon is very enthusiastic about dentistry, and wants to share with everyone the positive effects that good dental health and oral hygiene can have on the quality of life for our beloved furry friends. If you have any questions, please feel free to call, email, or just ask.

Anesthesia and Peri-operative Support

Anesthesia is required for a thorough dental examination and a safe treatment. There are always many concerns about anesthesia. However, a well-balanced anesthetic protocol can be safe and effective.

Pre-anesthetic blood work will be performed, preferably by your regular veterinarian. Individual protocols are used to provide the safest experience possible. Monitoring is performed by a dedicated assistant recording blood oxygen levels, respiratory and heart rate, blood pressure, and body temperature. Local pain management is utilized to minimize any pain that your pet may feel.

Most dental procedures are performed on an outpatient basis. Follow-up is included until your pet is recovered and your goals are met. Your primary veterinarian will then take over regular veterinary care.



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