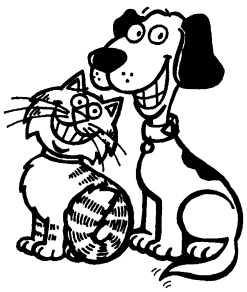

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DENTAL AND ORAL SURGERY FOR PETS

This informational page is an attempt to describe a complex subject in limited space. It should be considered to be very introductory. More in-depth discussions of this and many other subjects can be found on the Old CUSP Articles page at www.toothvet.ca. You are encouraged to visit and make use of the resources there and elsewhere on my website.

Dentin Exposure in Dogs and Cats

Dog and cat (and your) teeth are made up of four tissues.

The crown is covered by a thin layer of very hard, non-porous *enamel*. The enamel all forms before the tooth erupts to become visible in the mouth.

The root is covered by a thin layer of *cementum*.

Under the enamel of the crown and cementum of the root is the tissue that makes up the bulk of the mature tooth called *dentin*. It is harder than bone but not as hard as enamel. When the tooth first erupts, the dentin wall is very thin and dentin is laid down on the inside of the tooth so over time, the dentin wall gets thicker. Unlike enamel, dentin is porous, with holes that go right through into the *pulp chamber* and it is sensitive to heat, cold, touch and various other stimuli.

In the hollow space inside the tooth is the *dental pulp*. Pulp contains the cells that produce dentin inside the tooth, blood vessels, nerves and various other tissues. The pulp is very sensitive with a high concentration of pain receptors.

Normally, the only way in or out of the pulp chamber is through a collection of tiny channels at the tip of the roots.

When the crown of a tooth is damaged (worn down or fractured) in a way that exposes the dentin but without creating a large hole directly into the pulp chamber, there are a few possibilities regarding what happens next.

With the porous dentin exposed, there will be stimulation and irritation of the dentin producing cells inside the tooth. This can cause them to produce what is known as *reparative dentin* to create a thicker wall between the outside of the tooth and the inside of the tooth. In other words, the tooth may be able to respond to the damage and survive.
OR
With the porous dentin exposed, it is possible for oral bacteria to colonize the dentin pores and work their way through into the pulp chamber to cause infection and death of the pulp.

Sometimes it seems that teeth will initially respond by producing reparative dentin in the short term but the tooth still goes on to develop infection and death of the pulp. Predicting which outcome is in store for any given tooth can be a real challenge.

Step one is a detailed clinical and radiographic evaluation of the tooth to look for signs of pulp death and to establish how much dentin there is between the pulp and the oral cavity.

If the examination reveals that the layer of dentin remaining between the pulp and oral cavity is very thin or that the pulp is already dead then the tooth needs root canal treatment or extraction. No question.

If there is a reasonable amount of dentin and there are no clinical or radiographic signs of pulp disease then placing a bonded sealant on the expose dentin to seal the pores can offer some protection to the pulp tissue inside the tooth and help prevent pulp disease from developing. Then the tooth would require follow-up examinations (with radiographs) on a regular basis to monitor for signs of pulp disease.

Left: photo and radiograph of a chipped right upper 4th premolar tooth with no evidence of pulp disease. Right: photo and radiograph of the chipped left upper 4th premolar tooth in the same dog with lots of bone loss (dark area) around root tips due to chronic infection.