

## Case of the Month:

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**Madison is a 3 year old Spayed Female who was referred for evaluation of a discolored left maxillary canine tooth (204), which was noticed by her owners 3 days prior.**



### What is your next step for Diagnostics or Treatment?

A complete blood count and serum biochemistry were performed prior to anesthesia and were all within normal limits. Madison was placed under general anesthesia and full mouth radiographs were performed (see below). Oral examination and charting revealed Pulpitis of the left maxillary canine tooth (204) and mild attrition along the mesio-rostral aspect of the mandibular canine teeth (304,404). Based on the radiographic findings comparing the maxillary canine teeth, is further treatment recommended?



Left Maxillary Canine Tooth (204)



Right Maxillary Canine Tooth (104)

**The answer is Yes, further treatment is recommended.**

In adult patients--**92.2% of discolored teeth (pulpitis, etc) have been found to be non-vital, therefore requiring treatment.** Treatment options for these teeth are Root canal therapy vs. Surgical extraction (depending on the tooth affected and the age of the pet). **Simply “monitoring” these teeth in an adult is not a viable option** since such a high percentage that these teeth are non-vital and have partial or total pulp necrosis<sup>1</sup>.

#### **Treatment for Daisy:**

The owners chose root canal therapy to preserve the canine tooth. For the more important teeth in the mouth (canines, maxillary 4<sup>th</sup> premolars, mandibular 1<sup>st</sup> molars) root canal therapy is generally the preferred treatment option.



Left Maxillary Canine Tooth (204) prior to Root Canal Therapy



Left Maxillary Canine Tooth (204) after Root Canal Therapy

#### **Pulpitis:**

Pulpitis, by definition, is the inflammation of the pulpal tissue of a tooth<sup>2</sup>. The size of the pulp chamber and vascularity can influence how pulpitis will progress. Pulpitis can be reversible with the tooth maintaining its vitality, or irreversible, eventually leading to pulpal death and a nonvital tooth with pain<sup>3</sup>.

If the stimulus that caused the pulpitis is temporary and minor with no exposure to bacteria, the pulpitis can be reversible, especially in the young patient. With older, more constricted pulp cavities (once a patient is over 2 years of age), there is less space inside the tooth with the pulp and dentin to accommodate the edema and pressure. Thus, pulpal inflammation progresses to necrosis and death of the tooth<sup>3</sup>.

It has been said that there is more pain experienced with pulpitis in a closed (not fractured) tooth, due to the pressure buildup. Many times the pink, red or purple colors that you see with pulpitis is the “bleeding or bruising” of the pulp, leaking blood into the dentinal tubules.

In summary, any discolored tooth should be evaluated and treated. Dental radiographs of discolored teeth may show no radiographic evidence of endodontic disease. However, studies have shown that 92.2% of discolored teeth are non-vital, therefore root canal therapy or surgical extraction is recommended.

**References:**

1. Hale, FA. Localized intrinsic staining of teeth due to pulpitis and pulp necrosis in dogs. *J Vet Dent* 2001; 18:1: 14-20.
2. Babbush, CA, Fehrenbach, MJ, Emmons, M, Nunez, DW (editors). Mosby's dental dictionary 2<sup>nd</sup> ed. Missouri: Mosby Elsevier. 2008: 550.
3. Wiggs RB, Lobprise HB. Clinical oral pathology. In: Wiggs RB, Lobprise HB, eds. *Veterinary dentistry: principles and practice*. Philadelphia: Lippincott-Raven, 1997; 114-115.