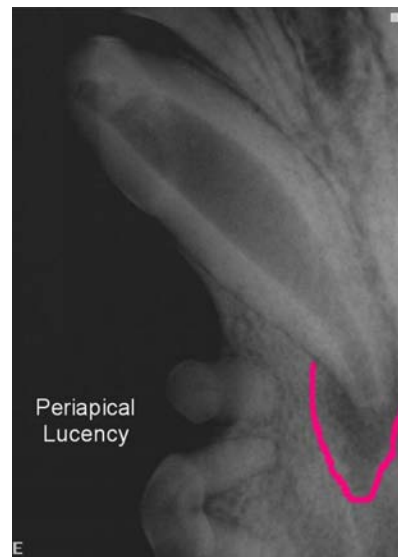
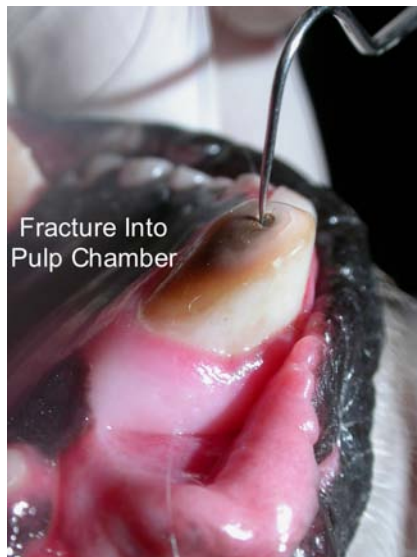


## CASE OF THE MONTH (FEBRUARY 2007)

### Signalment and History:

A three year old neutered male Border Collie was presented with a fractured right mandibular canine tooth with pulp exposure. The duration of this fracture was unknown. After placing the patient under general anesthesia, a complete oral examination was performed. A shepherd's hook explorer tip was placed into the fracture site and it became obvious that the fracture communicated with the pulp chamber.



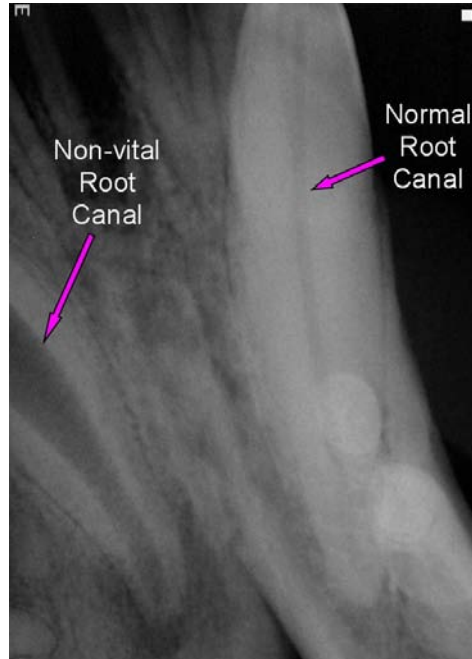
An intraoral radiograph showed that the affected tooth had a very large root canal for a patient of this age and it also showed a periapical lucency, indicating that the intracanal infection had extended beyond the confines of the tooth itself.

**Procedure:** Due to the importance of a canine tooth to the patient, a decision was made to save this tooth by performing root canal therapy. A conventional root canal procedure was performed with the use of a Lightspeed Nickel-Titanium rotary filing system. The necrotic pulp material was removed and the dentinal walls were then debrided, with the files increasing incrementally in size. The canal was sterilized with NaOCl and AH Plus, a root canal sealer, was distributed on the inside of the dentinal walls. The canal was obturated with gutta percha, and a composite restoration was placed in the fracture site and the root canal access site.



**Discussion:** In clinical practice we are often presented with examples of fractured or severely worn teeth. Often they will present with a dark brown spot on the crown of the tooth. It is imperative that we perform an exam under general anesthesia in order to fully evaluate the situation. By placing a shepherd's hook explorer into the crown of the tooth we can quickly determine whether there is an open communication with the pulp chamber of the tooth. If this is the case, we have only two alternatives in the treatment of this tooth: extraction or root canal therapy. To suggest to the client that the patient doesn't seem to be bothered by the fracture, so "why don't we just wait and see what happens" is unacceptable. The infection in this tooth and the surrounding alveolar bone will only get worse. The patient may not show obvious signs of pain, but this does not mean he or she is not experiencing pain. A dog or cat's nervous system is identical to ours and their teeth are constructed in the same way, only their shape is different. Therefore we can only assume that they perceive dental pain in the same manner that we do. Many of my clients have noticed a very significant improvement in their pet's behavior and demeanor after we have performed either extraction or root canal therapy of an endodontically infected tooth.

Another take home point from this case is our ability to determine the relative longevity of an endodontic infection by utilizing intraoral radiography. In the normal development of a feline, canine, (or, for that matter) human tooth, the dentinal walls are very thin at an early age and the root canal is very large. As the patient and the teeth mature, the odontoblasts in the pulp of the tooth are continually laying down new dentin and increasing the thickness of the dentinal walls. Consequently the diameter of the root canal normally decreases with age. If we suspect an endodontic infection we can easily expose an intraoral radiograph of the suspect tooth and also radiograph its contralateral counterpart. If the tooth has a larger root canal than its counterpart, this tells us that this tooth has died and has ceased the normal enlargement of the dentinal wall. The approximate duration of the necrosis can be estimated by the amount of discrepancy between the two. In this case it is evident that this canine tooth has had long-standing pulp necrosis with a duration of many months, possibly a year or more.



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