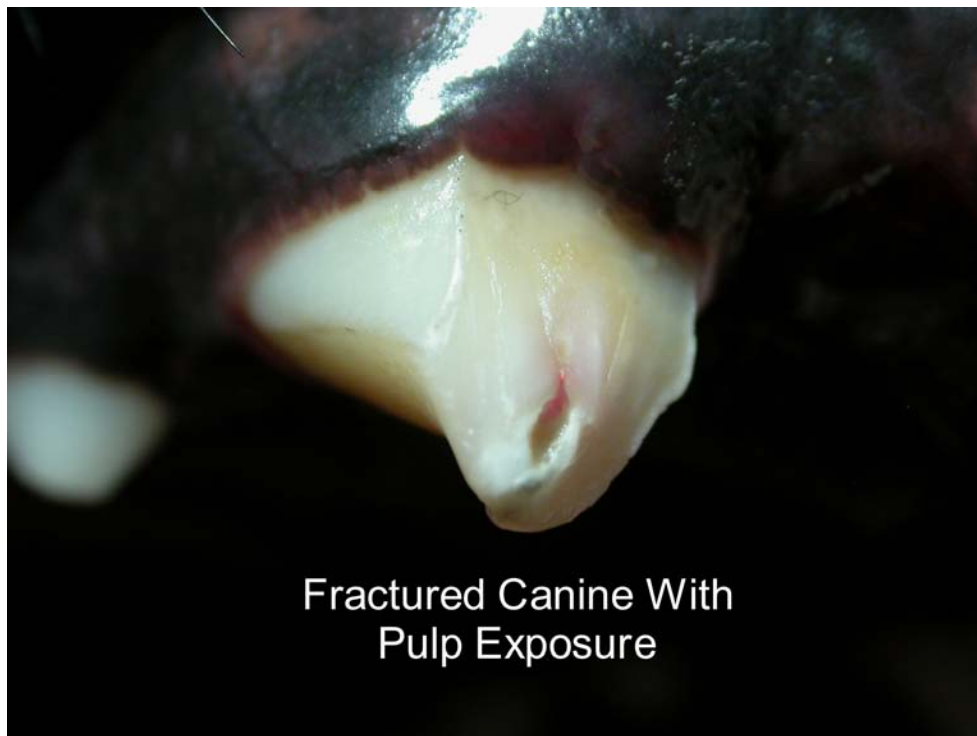


CASE OF THE MONTH (March 2009)

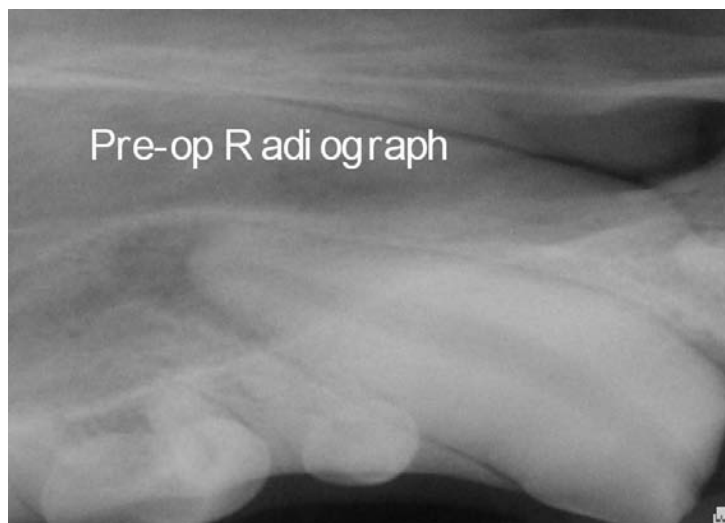
Signalment and History: A three year old intact male Belgian Malinois was referred from a military base with a fractured right maxillary canine tooth with pulp exposure. The fracture was oblique in nature and resulted in significant loss of crown structure on the mesial aspect of the tooth as well as loss of crown length. The fracture occurred as a result of “cage chewing” while the patient was confined to a kennel. This patient was a valuable member of a combat team and was trained as an attack dog as well as in the detection of explosives. Our goal was to return the patient to full active duty as soon as possible.

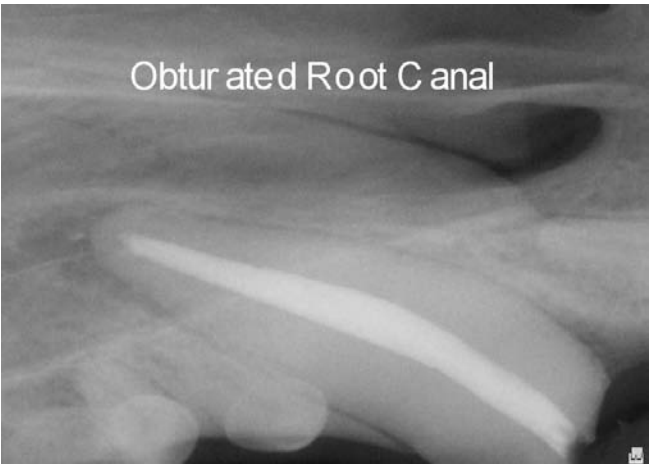
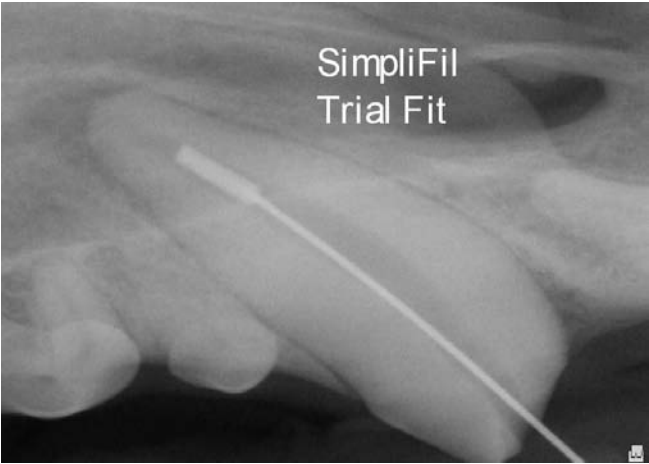


Fractured Canine With
Pulp Exposure

Procedures: The patient was placed under general anesthesia for a complete oral exam. The other canine teeth showed some degree of wear due to “cage chewing”, but no significant damage was appreciated.

A standard root canal procedure was performed on this tooth using the Lightspeed rotary filing system.





After completing the root canal procedure, we prepared the crown for the application of a cast metal crown. This process consists of four phases:

First, we performed a crown lengthening procedure. We used a CO₂ laser to remove approximately 4-5 mm of tissue from the gingival margin. By doing this, we created a larger tooth surface that would be available for cementation of the fabricated crown. The more tooth surface available for cementation, the stronger the resulting bond.

Next we used a composite restorative material as a core buildup on the fractured crown. This procedure restores a more natural shape to the tooth and makes the creation and fitting of the fabricated crown easier to accomplish.

Third, we prepared the tooth surface to receive the fabricated crown. We used a cylindrical diamond bur to remove 0.5mm of the tooth surface circumferentially, leaving a lip or ledge at the base of the tooth. The base of the manufactured crown will seat against this ledge.



Finally we used polyvinyl siloxane dental material to create an impression of the tooth and crown preparation. This impression was sent to a dental lab for cast metal crown fabrication.



When the manufactured crown was returned to our office, the patient was again placed under general anesthesia for the cementation process.





Discussion: Many of us are often confronted with a patient that has suffered a fractured tooth with pulp exposure. Given this presentation, we have two choices for treatment: root canal or extraction. If root canal therapy is chosen, many patients will do well with a standard composite restoration and will return to normal function. These patients must be monitored and all potential “jawbreakers” must be removed from the patient’s environment.

This patient, however, needed to return to bite training and it was imperative that we provide him with a tooth that was strong enough to withstand the forces encountered in his military duties. Cosmetically, a porcelain crown would have a nicer appearance, however it would not stand up to a bite force five times as powerful as our own. A stainless steel alloy crown meets this challenge.

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