

# Client Education Series: Fractured Teeth in Dogs and Cats

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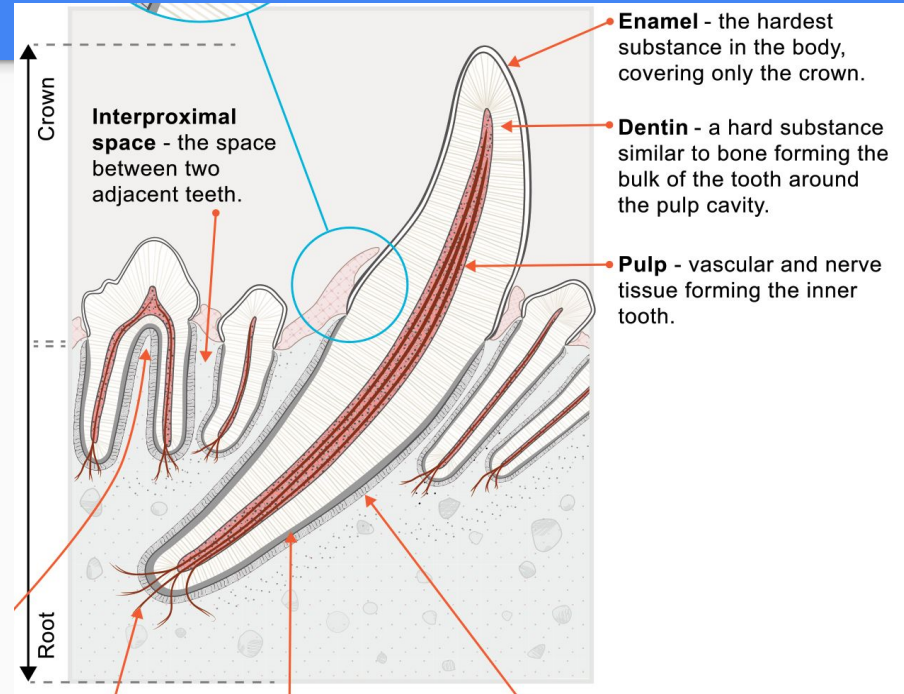


# Basic layers of a tooth

Enamel - outer layer that is very thin, once it is gone it is gone, unable to regenerate

Dentin - middle part of tooth, can be regenerated if pulp is alive & healthy

Pulp - center of the tooth with nerves and blood supply that comes from the end of the root thru the bone



# Types of tooth fractures

## Classified by:

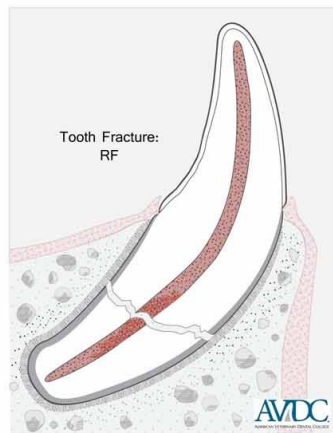
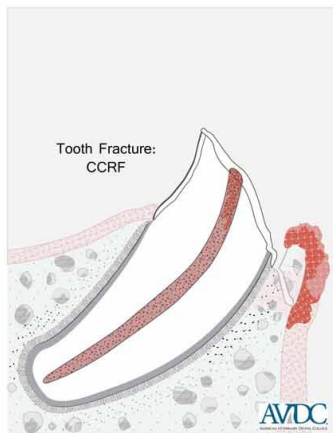
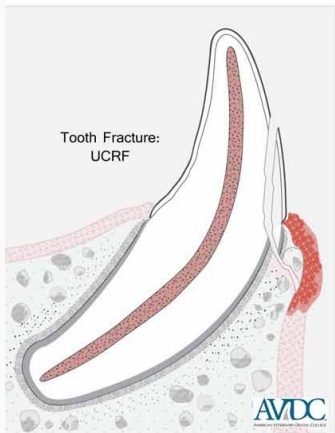
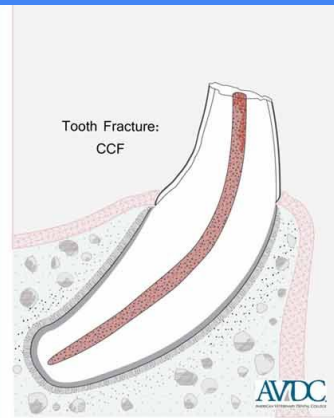
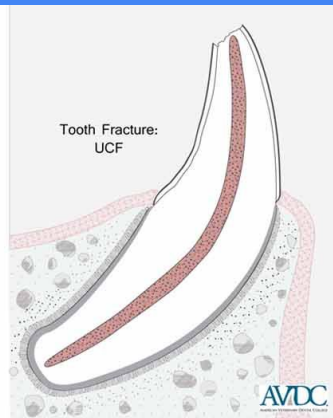
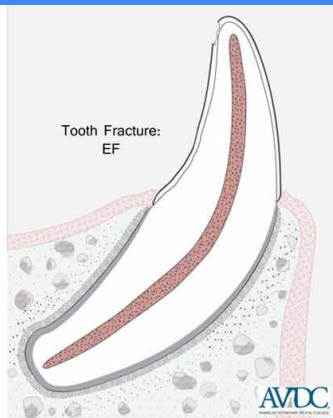
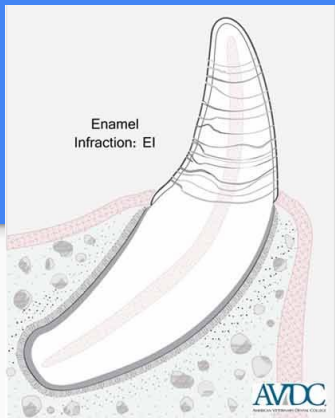
1) what part of the tooth is broken:  
crown (above the gum)  
or root (below the gum)?

2) is the pulp open or closed?

Complicated = pulp open

\*\*\*Treatment Needed

Uncomplicated = pulp closed



AVDC  
Tooth  
Fracture  
Classification

# What happens to a tooth with an open pulp?

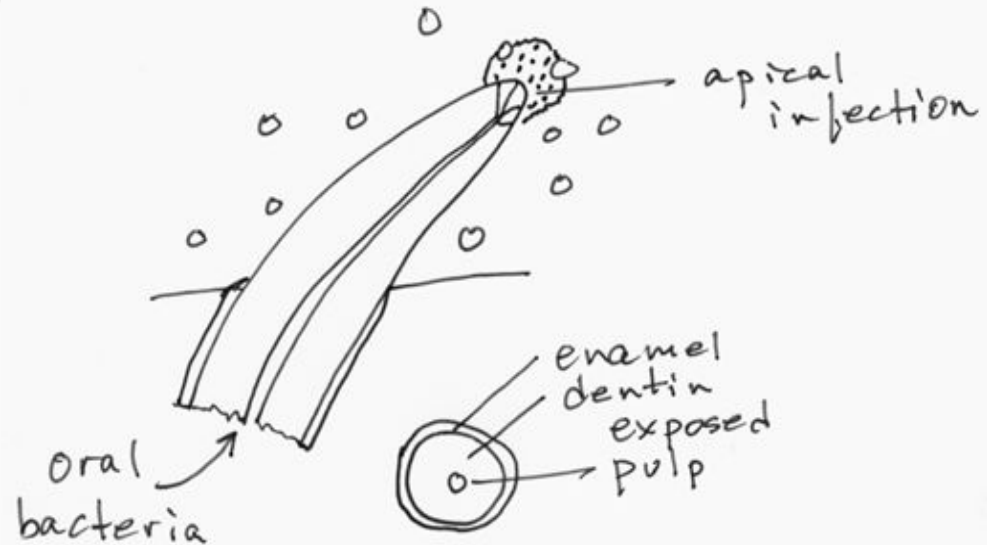
Once the pulp is exposed, it will die.

Bacteria from the mouth will enter the open pulp and set up infection.

The infection will build up inside the tooth and exit the end of the root into the bone, causing swelling and an abscess.

For the upper teeth, swelling occurs on the face.

For the lower teeth, swelling occurs under the jaw.



Why should we treat a fractured tooth with an open pulp?



**TO PREVENT**  
**INFECTION**  
**AND PAIN**



# What causes pain with a fractured tooth?

- 1) If the tooth breaks and exposes a vital (alive) pulp, the sensitive nerves are open to the oral cavity which can be painful.
- 2) Over time, the pulp will die and the concern shifts from nerve pain to pain associated with swellings and abscess formation.
- 3) Antibiotics and pain medications can be prescribed to treat for the short-term, but long-term treatment with root canal therapy or extraction is advised. The diseased tooth is the source of infection, and unless it is directly treated or removed, the worry is that the abscess and swelling will continue to recur.



# Possible signs of oral pain in dogs & cats

Drooling

Chewing on one side of the mouth

Avoiding hard food and treats - only chewing soft items

Pawing at the mouth

Trying to eat but dropping food

Decreased grooming, especially cats

Behavior changes

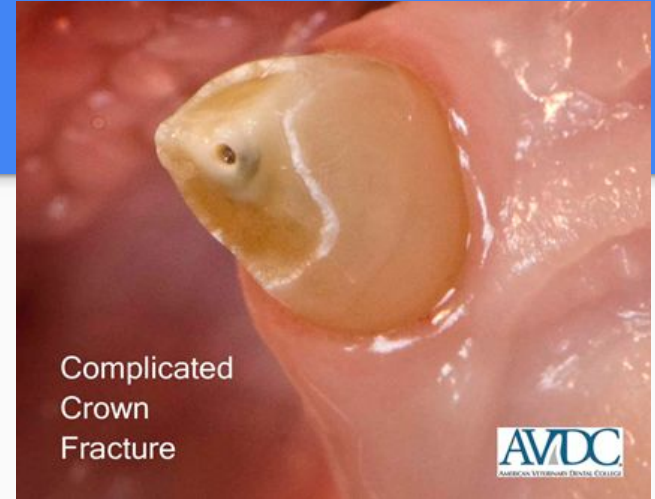


Dogs and cats are much braver than people and often do not show signs of dental pain.

# Treatment options for fractured teeth WITH pulp exposure

- 1) Vital Pulpotomy (only done in very select cases)
- 2) Conventional Root Canal Therapy
- 3) Surgical Root Canal Therapy - done if Conventional root canal therapy fails
- 4) Extraction

**\*\*Root canal and Extraction are the most common treatments for fractured teeth with open pulp canals**





# Vital Pulpotomy- only done in very select cases

The Procedure: Only part of the pulp is removed and a dressing is placed over the exposed pulp in an attempt to keep the tooth alive so it continues to mature and strengthen over time (green arrows show material at top)

94% success rate

Types of cases:

Very young animals with immature pulp or with an open apex (end of root)  
- typically under 18 months of age

Cases where the lower jaw is shorter than normal and the height of the lower canine teeth is reduced to prevent them from hitting the roof of the mouth.

In very recent fractures with an open pulp, but there is concern for bacterial contamination into the pulp with time.



# Root Canal Therapy in dogs and cats

## Pros and Cons

### The benefits of root canal therapy:

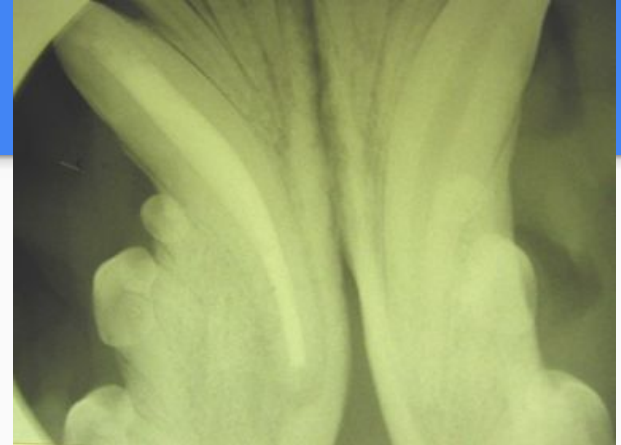
- 1) Preserve the structure and function of the tooth
- 2) Less invasive than an extraction
- 3) 95% successful in eliminating pain and infection

### The drawbacks with root canal therapy:

- 1) Risk of refracture, the tooth is more brittle without its blood supply

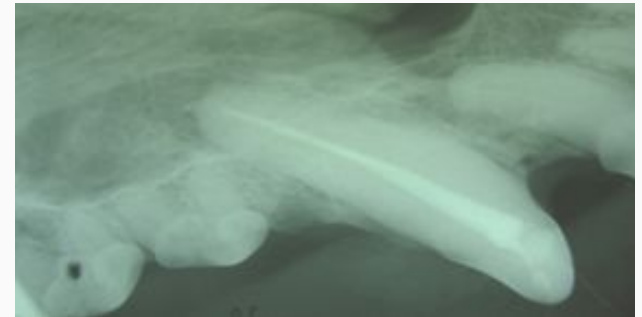
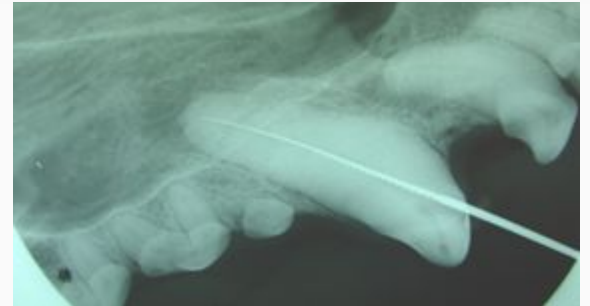
NOTE: the upper fourth premolar tooth has a very high rate of re-fracture, up to 75%

- 2) Risk of failure due to continued infection
- 3) Needs follow-up with sedated or anesthetized recheck radiographs yearly, sooner if any problems noted, and daily monitoring of the tooth



# Root Canal Therapy - what is involved?

- 1) Dental Radiographs are needed to determine if the tooth is a good candidate
- 2) Dental burs are used to open the tooth so that our instruments can fit inside
- 3) Dental broaches and files are used to remove the pulp and clean and shape the canal
- 4) A rubbery material called gutta percha is used to fill the canal and seal it from further infection
- 5) A very tough, tooth-colored restoration is placed inside the openings to seal up the access holes

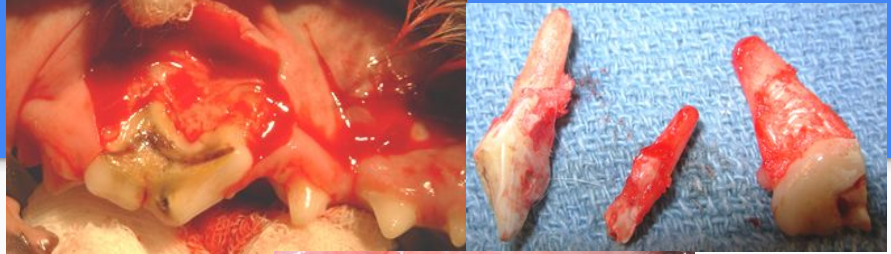


# Extraction (complete removal of the tooth including all roots)

## Pros and Cons

### The benefits of extraction:

- 1) Eliminate pain and infection
- 2) Once the site is healed, there is no further follow up
- 3) This is my advised treatment for teeth causing facial or jaw swellings and draining tracts

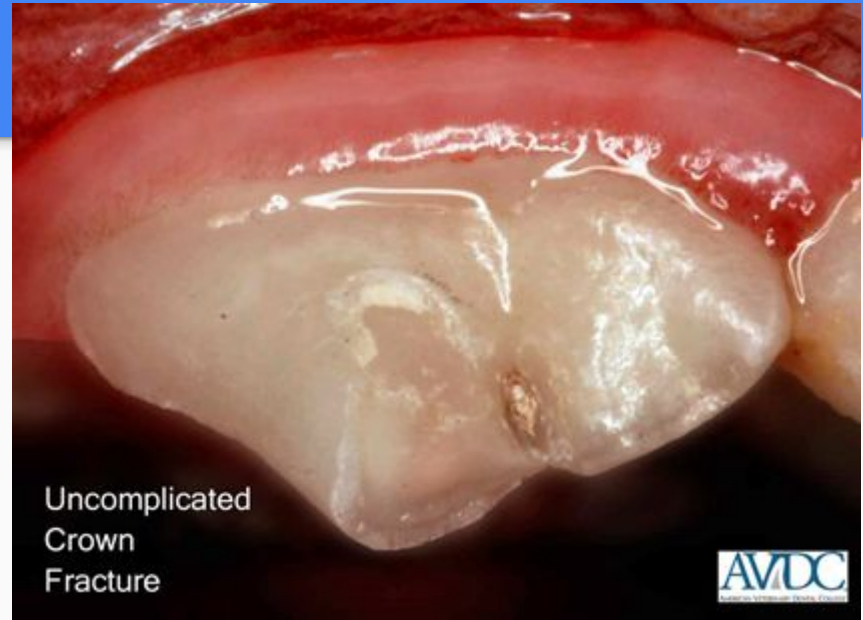


### The drawbacks of extraction:

- 1) More invasive than root canal (surgical procedure) - nerve blocks and pain medications are used to manage both during and after procedure
- 2) Loss of tooth structure - typically not an issue in dogs or cats (the other teeth do not shift or move, maintain good function even without teeth, occasional tongue "loll" if removing a lower canine tooth where tongue goes to the side)

# Treatment options for fractured teeth WITHOUT pulp exposure

- 1) Dental radiographs are still necessary to make sure the fractured tooth is still healthy - if signs of endodontic (inside the tooth) disease, even without an open pulp, the tooth should be treated with root canal or extraction
- 2) If the tooth is healthy and there is NO pulp exposure, bonding can be done to seal the dentin, decrease sensitivity, and smooth the surface
- 3) The outer part of the bonding will wear off over time and care will be needed to change chewing habits to avoid further damage to the tooth



# Summary Points for Fractured Teeth in Dogs and Cats

Fractured teeth can be complicated (open pulp) or uncomplicated (no pulp exposure)

Teeth with pulp exposure should be treated to avoid pain and infection using either root canal therapy or extraction

There are pros/cons with both root canals and extractions, and multiple factors should be weighed when deciding on treatment: anesthesia risk (both time under anesthesia and follow up needed), degree of infection present, which tooth, risk of refracture, chewing behaviors, function of animal (police dog vs other)

