

# Client Education Series: Discolored Teeth in Dogs

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# Anatomy of a Tooth

The pulp is the center of the tooth (pink) with blood vessels and nerves.

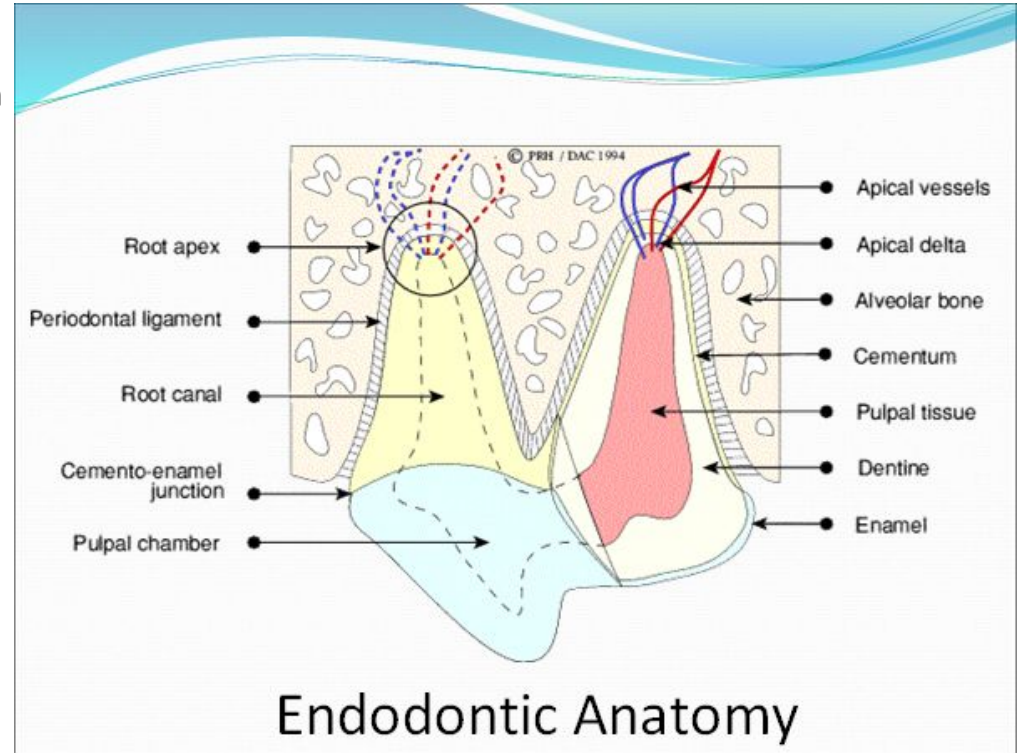
Inflammation of the pulp is called “Pulpitis”

Pulpitis can be either:

Reversible = the tooth can heal and recover

Or Irreversible = the tooth will die

When talking about discoloration in this series, intrinsic (coming from the inside) discoloration is being reviewed. There can also be extrinsic (on the outside) color changes from tartar, stain, and wear.



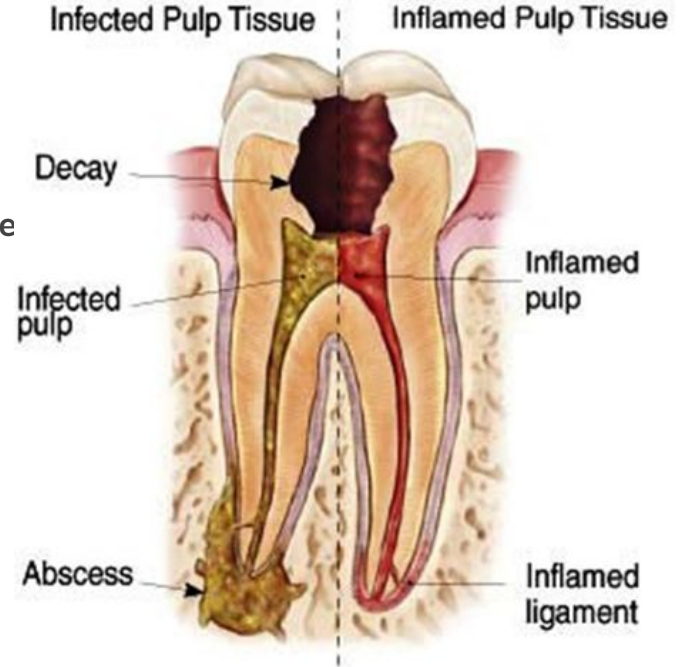
# How does pulpitis occur?

Pulpitis most commonly happens when a tooth is fractured in dogs (in humans, cavities are the most common cause).

If there is trauma to the tooth that causes bruising and bleeding of the pulp without the tooth breaking, this can also cause pulpitis. The pulp is encased in hard tooth surface, so there is little room for swelling and bleeding. As the red blood cells break down, they will cause discoloration inside the dentinal tubules (middle layer) of the tooth. You can think of this process like when you bump your arm hard enough to cause a bruise to appear.

If the damage and swelling/bleeding of the pulp is mild, it can recover = reversible pulpitis

If the damage is too severe, the tooth will die = irreversible pulpitis, this is also called pulp necrosis



# Studies on Pulpitis in Dogs



There have been only 2 veterinary studies on pulpitis in dogs that conclude that approximately 90-92% of discolored teeth are non-vital and require treatment with root canal or extraction.

There is a greater chance of survival if only part of the tooth is discolored (example - only the tip), and if the colors are lighter pink/purple/blue. The dark colors gray/black/brown indicate pulp death.

I believe there are also differences with tooth anatomy (small incisor vs large canine), age of the tooth (this influences thickness of dentin and size of pulp), degree of force (hit by car or kicked by horse vs bumping the floor in a house while picking up a toy), and other factors like the patient's immune system and response to inflammation.



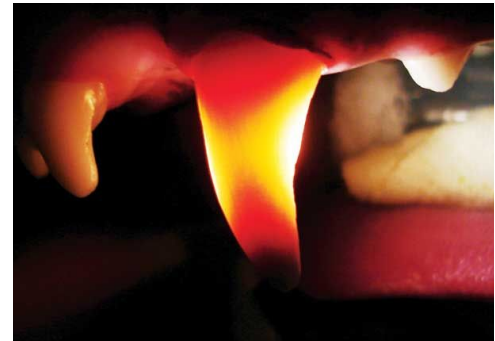
Above: Discolored tooth with non-vital pulp removed during root canal therapy



# Evaluating Discolored Teeth

Dental Radiographs are very important to look for signs the tooth is still alive or if it is non-vital. Pulp size can be compared to other teeth to see if the pulp is still maturing (a dead tooth will have a wider pulp). The end of the root should also be checked for any signs of infection on dental radiographs. It takes time for these changes to show up on dental radiographs, so if the trauma and discoloration to the tooth just recently occurred, radiographs can be taken to have a base line, but it can take weeks/months/years for the other changes to take place.

Transillumination and hot/cold testing that are used in people are often not helpful in our canine patients.



# Treating Discolored Teeth

If a tooth is recently discolored and lighter pink, purple, or blue without any signs of oral discomfort, it can be closely monitored for further change. If the tooth has reversible pulpitis, it may lighten in color or possibly stay the same. If the tooth darkens, or more of the tooth becomes discolored, there is high concern for irreversible pulpitis or pulp death.

For teeth with wide pulp canals, signs of infection, or darkening color, treatment with root canal or extraction are advised to prevent pain and infection.

