

## **The Purple Tooth**

Dogs with a purple or tan colored tooth most likely have dead teeth, most of the time these patients will not show any outward signs. Most clients are surprised to learn that, with a few exceptions, it is very important to treat dead teeth.

### Dental Anatomy

The crown is covered with enamel, the hardest substance in the body. It will survive normal use and even some abuse without problems. Enamel is produced by cells called ameloblasts as the tooth is developing. Underneath the gumline is the root, the deepest part is the apex. Blood vessels and nerves enter the apex through a series of small channels known as the apical delta or through larger canals known as the apical foramen. The bulk of the tooth consists of dentin. Dentin is produced throughout the life of the tooth by odontoblasts lining the pulp chamber. The innermost portion of the tooth is the pulp chamber. The contents of the pulp chamber are nerves, blood vessels, and a variety of different types of cells and fibrous tissue. The root canal is the portion of the pulp chamber below the gumline. The odontoblasts also have small appendages called odontoblastic processes that enter and fill the dentinal tubules. In addition to producing pulp, the odontoblasts can “sense” impending exposure by tooth wear and produce additional protective dentin.

### Pulp Pathology in the Intact Tooth

Teeth die and turn purple then tan for several reasons. If there is mechanical or thermal trauma to the tooth the contents die. If there is inflammation and increased fluid production a cascade of events may lead to death of the entire pulp. Blood products leak into the dentinal tubules and turn the tooth pink, then purple and finally tan as oxygen is lost. This dead tissue inside the tooth is a nice culture media for bacteria to grow. Once infected, the bacteria can then leak through the apical delta/foramen into surrounding bone. Root canal therapy removes the dead pulp, seals the apex and prevents infection. An alternative to this is extraction. However, extraction is very traumatic and due to the size and length of the roots many extractions are more expensive than Root Canal Therapy.

There is another reason for discolored teeth. That occurs in older dogs, older than 9 – 10 years of age when the odontoblasts have produced so much dentine that they have “walled off” the apical delta. The pulp chamber is dead but cut off from the rest of the body as the apex is sealed. This happens in older humans as well, and most that have it do not complain about any discomfort. Therefore, the pulp chambers of older patients should be evaluated with x-rays. If the pulp chambers are large, they should be treated. If they are small, no treatment aside from periodic monitoring may be an option.

Discolored teeth should not be ignored. If the patient is young root canal therapy is the best treatment. If the patient is older than 9 – 10 years of age, dental radiographic monitoring may be an appropriate alternative. If there are any abnormal changes, root canal therapy should be performed.

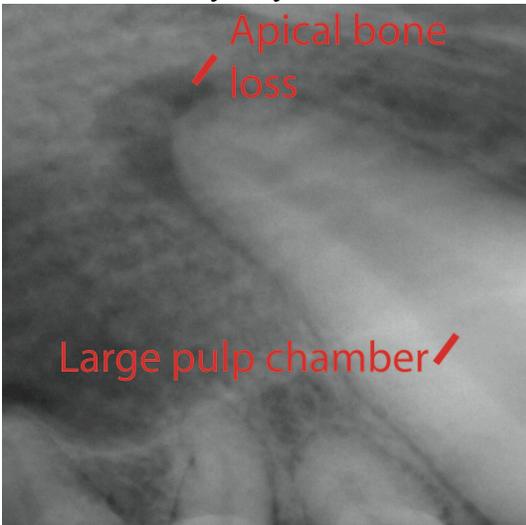
Purple Tooth Photographs and Radiographs



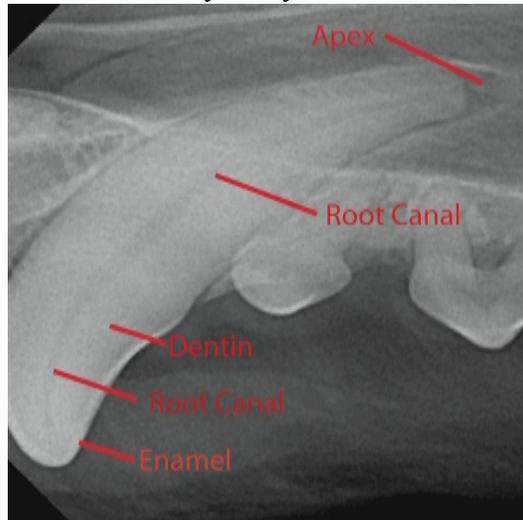
“Henry” 5 years Old



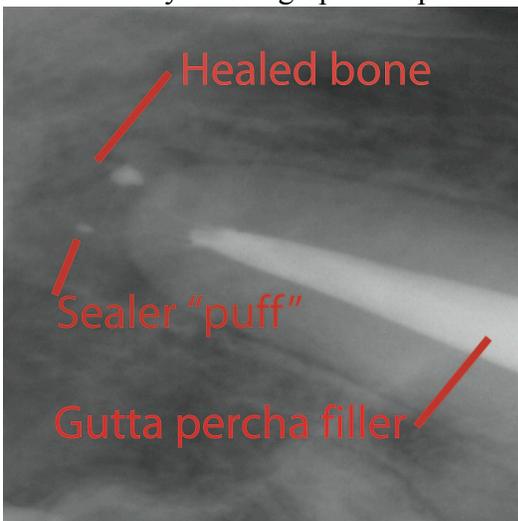
“Haley” 11 years old



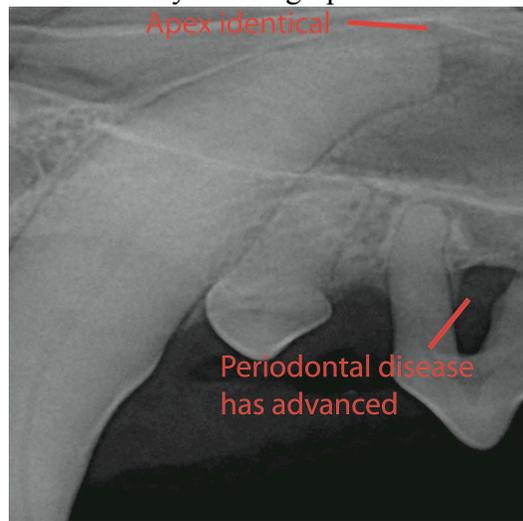
“Henry” Radiograph Preop



“Haley” Radiograph 2010



“Henry” Radiograph Postop



“Haley” Radiograph 2011