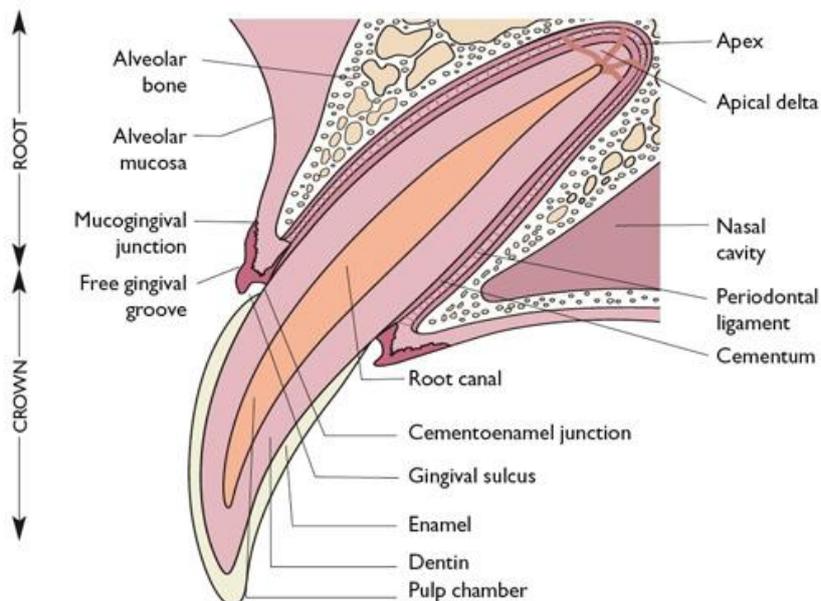


Root Canal Treatment

Root canal treatment is used to preserve a tooth in an animal's mouth, usually after a trauma to the tooth resulting in exposure of the delicate living tissues of the pulp cavity within the tooth. It is not a just a cosmetic procedure but serves a vital role in preserving the structural and functional integrity of the mouth and jaws. The upper 4th premolar or 'carnassial' tooth is the main tooth involved in chewing food and removing this tooth requires a large surgical procedure which results in a lot of post-operative pain and discomfort as well as making it more difficult to chew food. The lower canine or 'fang' teeth can account for 90% of the thickness of the front of the lower jaw and removing these can significantly weaken the jaw and make it vulnerable to fractures.

Once the pulp cavity has been exposed through a traumatic episode causing a fracture to the crown of the tooth the living tissues within the tooth very quickly become die and become infected. At this stage the choice must be made to remove the affected tooth or proceed with endodontic work to fill the root. If left open the infection spreads along the pulp cavity and into the tooth root which could ultimately lead to a painful tooth root abscess and jaw infection. Root canal treatment effectively allows the tooth to remain present within the mouth in spite of being devitalised.

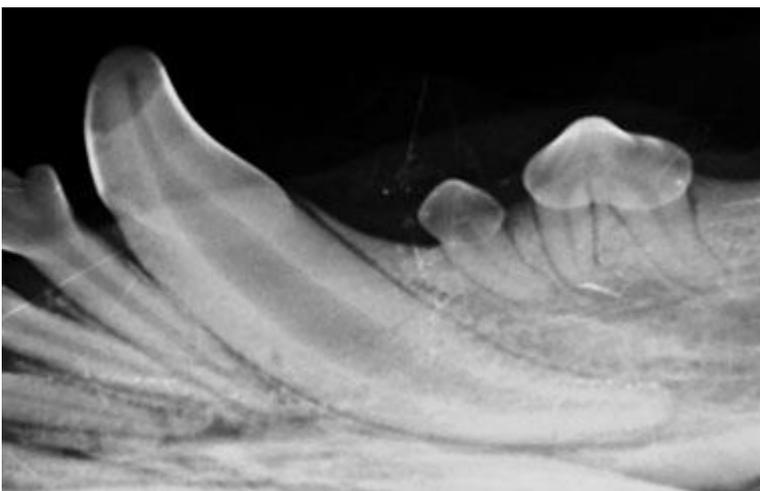
Normal tooth anatomy



The tooth below fractured when a dog caught a stone – a common cause of dental fractures! Within hours the pulp is infected and inflamed creating a classic "toothache" or pulpitis. The exposed pulp is exquisitely tender and very painful even under anaesthetic so local anaesthetic injections are given to make the area numb before root canal treatment is commenced.



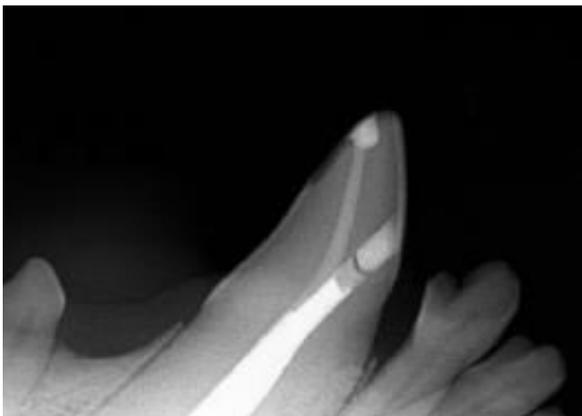
Before starting the root canal treatment dental xrays are performed to check that the tooth root is intact and not already badly infected – there would be no point removing a tooth with advanced peri-apical disease as it would need to be extracted before too long. Also some teeth have unusually kinked or abnormally shaped cavities that are either unsuitable for filling or may require a different approach.



The first stage of the repair process opening up the pulp cavity of the tooth and removing the necrotic tissues of the pulp cavity. This is performed by using special files which are used to gradually widen and shape the inside of the tooth in preparation for filling. The cavity is then filled with a solution containing Sodium Hypochlorite (bleach) to sterilise the inside of the tooth. In long, curved teeth such as the canine (fang teeth) an additional entry hole into the tooth is made at the gum margin using a dental drill to assist with this process as reaching the far base of the tooth root can be very difficult otherwise. If the root canal contains a lot of necrotic pulp and infection the root canal is then filled with a temporary filling of a paste containing Calcium Hydroxide which serves to further clean the inside of the tooth, remove any residual pulp tags and prime/etch the inside of the tooth ready for a permanent filling 4 weeks later. A temporary cap of a 'glass ionomer' resin is then placed over the top of the paste to keep it in place. Four weeks later this temporary cap is removed using a drill and the calcium hydroxide is flushed out using a special EDTA or citric acid solution.



The final step involves filling the cavity with special plugs of an inert rubber material known as 'Gutta Percha' points. These are packed into the base of the tooth root and a special obturating cement is then packed in around these to completely fill the cavity. The glass ionomer resin cap is then placed and shaped to provide a permanent seal to the root canal. Some smaller teeth with less pulp tissue can be cleaned and permanently filled in one step but the chance of a successful root canal treatment is usually maximised by the two-step process.



In about 5% of cases, peri-apical infection or necrosis still occurs and the tooth will need extraction but the vast majority do very well and will have a functional and painless tooth for many years to come! The biggest complication other than peri-apical infection tends to be a dislodged cap which can occur at any time after treatment. It can usually be replaced under light sedation but further root canal treatment may or may not be required depending on how much contamination of the root canal occurs at the time.