

## Pulp Capping: A possible alternative to Root Canal Treatment

There seems to be a lot of confusion and anxiety related to root canal treatment, and many patients want to know if there is any other alternative, other than extraction, to root canal treatment. The answer is yes...and no.

The most common scenario is the case of decay that has gotten so deep in to the tooth that it appears on the x-ray it looks as though it has already reached the pulp, the soft tissue inside the tooth that houses the nerve and blood supply, and you are advised that the tooth may need to have a root canal.

Sometimes dentists will see a radiolucent “shadow” or widening of the periodontal ligament that attaches the root of the tooth to the bone at the tip of the root when reviewing the x-ray. That indicates bone loss has already occurred that results from your white blood cells pooling at the tip of the root when a tooth is already infected (abscessed) and the pulp has already been dead for a while (several months or longer). In this case, there is no other choice other than extraction or root canal treatment.

Sometimes, however, there is no clearly defined shadow at the tip of the root and the tooth is asymptomatic, so determining whether or not the tooth needs a root canal is a bit of a puzzle, and we have to be a bit of a detective in evaluating the tooth and putting many clues together. In these cases, the dentist has to remove the old filling and decay to see how deep the decay really goes. Sometimes we can remove all the decay and see that the nerve has not been reached; other times after removing all the decay there may be a small spot where the nerve has been reached and that spot will hopefully bleed a little. This is what’s called a vital “exposure” (vital meaning the nerve tissue is still alive). The textbook thing to do here would be to start a root canal, but if the exposure is not much larger than a pin-prick with minimal bleeding and healthy looking tissue, the dentist may opt to do a pulp cap.

Pulp caps come in two different forms. A direct pulp cap is done when an exposure of the pulp tissue has already occurred; and indirect pulp cap is done when a near exposure has occurred (sometimes the membrane of healthy tooth covering the pulp is so thin we can actually see pink beneath it). Pulp capping is typically done by sterilizing the area with sodium hypochlorite or a laser, achieving hemostasis (stopping the bleeding), and placing an appropriate filling over it. Usually a paste of calcium hydroxide is placed. Calcium hydroxide has a high pH which provides additional disinfection and irritates the healthy pulp tissue to produce secondary or reparative dentin to bridge over the exposed area. An intermediate restorative material containing zinc oxide and eugenol (oil of clove – that “dental office” smell) or a glass ionomer cement is placed over the calcium hydroxide cap to sedate the tooth.

Dentists do pulp capping in these situations because they frequently work, but they’re not a guarantee that the tooth may not need a root canal in the future. Sometimes just the physical trauma to the tooth in removing deep decay can set the tooth off and give it a toothache. However, when they are done well in the right situation, pulp caps have a good chance of success. The key here is in selecting the right candidate teeth: exposures that do not fit in to the narrow slot of suitability for a pulp cap should be considered for extraction or root canal treatment.

Teeth that are already abscessed should never be pulp capped; nor should teeth with signs of “irreversible pulpitis” (spontaneous pain caused by temperature extremes or pressure), which means the tooth is already irritated beyond the ability to repair itself. It is only for those in-between teeth where the pulp might be irritated but still vital and healthy enough to repair itself given a reasonable chance. Pulp capping gives the tooth a chance by removing decay and bacteria, creating a clean dressing under the filling. It’s not unlike cleaning out a dirty wound and placing a clean bandage over it. In these situations, we will discuss with you whether or not a pulp cap may be an option for your tooth. Please be advised that pulp capping is not a covered benefit with some insurance companies: in these instances, you would be financially responsible for the cost of the pulp capping procedure.