Root canal therapy

Root Canal therapy is required when the pulp becomes inflamed or infected. This can be caused by deep decay, recurring dental procedures on the tooth, or a crack or chip in the tooth. In addition, an injury or trauma to a tooth can also cause pulp damage even if the tooth has no visible chips or cracks. If pulp inflammation or infection is left untreated, it can cause severe pain or lead to an abscess and the tooth may have to be removed.

Provided that the damage due to decay and trauma allows the tooth to be restored predictably, root canal therapy becomes a viable option for the patient to save the offending tooth. Basically the treatment involves the removal of the inflamed or infected pulp (nerve) from the tooth, the cleansing and disinfection of the root canal space and finally the obturation (filling) of the root canal space with a biocompatible filling material.

There are several phases that are required to complete root canal therapy successfully. The typical phases are as follows:

**Phase 1: Relief of pain**

- During this visit the dentist will spend the time to test and assess all the teeth in the vicinity of where the reported pain is. We need to ensure that the offending tooth is correctly identified. To aid us in coming up with a diagnosis, X rays will be taken and some thermal and percussive tests may be done.
- Once the offending tooth has been identified, for your comfort, a local anaesthetic is administered to numb your tooth and surrounding area, making for a comfortable procedure.
- Placed around the tooth being treated is a latex sheet called a dam, this will protect your surrounding tissue and healthy teeth as well as prevent the spread of infection to other areas of your mouth.
- If decay is present, the decay will be removed
  - As much of the nerve tissue will also be removed and the tooth cleansed with a hypochlorite solution to disinfect the root canal system
- An antibiotic paste will be introduced into the root canal space and the root canal space sealed temporarily
- A temporary filling will be placed over the tooth to rebuild the tooth so that the patient can function on it without the fear of the cavity getting larger.
- Typically an appointment will be made for the patient in 7-10 days time.
  - At this stage, the patient can still opt out of this treatment and have the tooth removed if the budget does not allow for this procedure to be done.
Phase 2: 1st visit – commencement of Root Canal Therapy

- At this visit, the tooth will be anaesthetised, and the rubber dam placed to isolate the tooth.
- Access is gained to the root canal space through a small opening on the top of the tooth.

- X rays will be taken to determine the length of the root. In some cases we will use an electronic apex locator to further confirm the length of the root.

- Depending on where the tooth is located, there may be several root canal spaces that we have to find and clean.
  - Typically in molar teeth, up to 4 and sometimes 5 root canal spaces can be identified.
  - In premolar teeth, up to 3 root canal spaces can be identified.
- In anterior teeth, up to 2 root canal spaces can be identified
- Once the length of the root canal(s) is established, the space where the nerve used to occupy is then cleaned and made wider to facilitate a final permanent filling. The enlargement of the root canal space also simultaneously removes any remaining nerve tissue from the root canal space.

A file is used to clean and then shape the canals. The canals are now prepared (shaped) to receive the root canal filling.

- The tooth is then cleansed and an antibiotic paste placed again to ensure that the root canal space is totally disinfected.
  - Sometimes, if the dentist feels that the procedure is going well and that the root canal is sufficiently clean, he may decide to finish the entire treatment in a single visit.
- This is left for 8-10 days for the antibiotic to work.
Phase 3: Final stage of root canal therapy

- Depending on the dentist, Local Anesthetic may or may not be used. If you are apprehensive about the procedure, please let the dentist know and he/she will only be too happy to anaesthetize the tooth. Remember, the nerve has already been taken out and so this procedure should not cause you too much discomfort.
- The rubber dam is then placed and the temporary filling removed
- The medicament placed at the last visit is then flushed out and the root canal system is cleaned again with special files and with different disinfectants.
- Once the dentist is happy that everything is clean, the root canal filling is placed into the root canal space and verification X ray is taken. If everything is satisfactory, the filling (usually “gutta-percha” – a rubber-like material) is cemented into place and the temporary filling is then placed over the small opening so that no food debris can enter and fill the opening.

- The tooth is now ready for the final filling.

Depending on the amount of tooth structure loss due to decay or trauma, your dentist will advise you of the best and most appropriate final filling to be placed in the tooth. Typically, a crown is recommended for the back teeth as the loss of tooth structure usually makes the tooth prone to splitting.
Sometimes in the front tooth, the tooth may appear dark after root canal therapy. In such instances we could attempt to bleach the tooth “internally” or if a lot of tooth structure is lost, a nice all ceramic crown can be done to restore the color and function of the tooth.