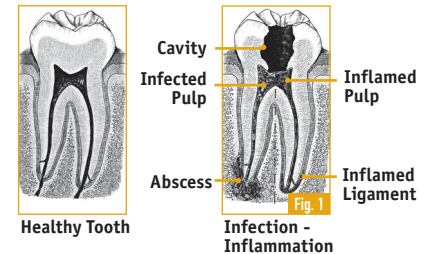


Endodontics

What is an endodontic treatment?

An endodontic treatment, more commonly known as a root canal, is one of the most common dental treatments performed in dentistry. In Canada, more than 1.5 million teeth are saved each year by endodontic treatment. It is a safe, highly successful and effective means of avoiding the loss of natural teeth, preventing the necessity for implants or dental prosthesis.

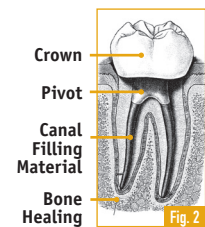
At the centre of the tooth, we find the pulp. This part of the tooth is made up of nerves, blood vessels and connective tissue and responsible for root formation during childhood tooth development. The pulp may become inflamed or infected due to a trauma, deep caries or repeated fillings. Signs of pulp disease include prolonged sensitivity to hot or cold, tooth discoloration, swelling and pain in the adjacent gums. (Fig. 1)



What are the steps of the treatment?

The dentist begins with a clinical and radiographic examination in order to make a diagnosis and assess whether an endodontic treatment is necessary. One or more appointments may be necessary to complete the root canal treatment, depending upon the number of canals and infection control.

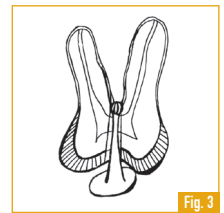
Once the tooth is anaesthetized, a rubber dam is placed around the tooth. The rubber dam acts as a protective screen to prevent the aspiration or swallowing of instruments and saliva contamination of the root canal. An access opening is then made in the top of the tooth in order to reach the diseased pulp and remove it. The canal system is cleaned, disinfected and sealed with a plastic filling material. The opening is repaired with a crown or some other restoration. This last step ensures the protection of the tooth and restores it to normal function. (Fig. 2)



Here are the possible risks and complications associated with a root canal treatment.

Risks related to access opening

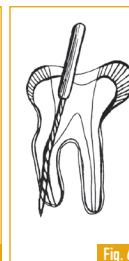
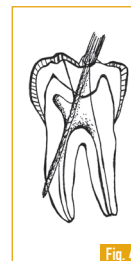
- Damage to an existing restoration in the mouth. When the dentist has to do a root canal treatment on a tooth where a crown or some other restoration lies, it is possible for the restoration (or crown) to be damaged to the point that it must be replaced, repaired or pieced back together. The rubber dam clamp may damage the crown and the gingival finish of the tooth upon which it rests.
- Perforation occurring while the access cavity is being prepared. This may happen when the dentist is countersinking to find the canal openings and the crown gets punctured on the sides or at the furcation level, in the floor of the pulp chamber. (Fig. 3)
- Tooth fracture. It is important to avoid using the tooth for chewing until a permanent restoration or crown is put in place.
- Undetected canal. It may happen quite involuntarily that some canals are left without cleaning, disinfection, mechanical preparation and filling. This may cause postoperative complications that can be felt over a certain period of time (sensitivity, pain or infection). If this is the case, the dentist may recommend a treatment to solve the problem.



Risks related to instrumentation

1 - Perforation at the root level

- At the midsection of the root: with a curved root, the perforation is towards the outside (Fig. 4)
- Lateral perforation (strip). (Fig. 5)
- Apical perforation (Fig. 6)
- Deviation of the apical foramen (zip). This condition occurs when instruments that are too stiff are brought to the curved extremity of a canal, thereby causing unnecessary enlargement of the opening. This may result in difficulty sealing the canal. (Fig. 7)



2 - Fracturing of instruments in the canal

In view of the fact that some endodontic instruments are fragile and the dimension of the canals in most teeth is very small, it is possible for an instrument to fracture and remain wedged inside one of the canals. This could affect the prognosis of the canal treatment.

3 - Canal blockage

This occurs when debris forms a solid mass in the canal or when the pulp fibrous tissue is compacted against the walls of the canal.

Complications related to filling

a) Under-filling. This is a situation where the filling material does not get to the apical foramen. If this situation prevents the healing of a pre-existing infection and/or is paired up with postoperative symptoms originating from the canals of the tooth that has received the treatment, a revision of the canal treatment (new endodontic treatment) or an apical surgery with root-end filling may be recommended. **(Fig. 8)**

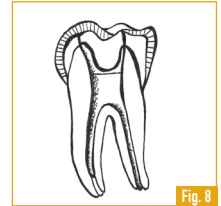


Fig. 8

b) Over-filling. In this situation, the filling material that serves to seal the canal is in contact with the tissues surrounding the root. This may cause a delay in the healing process and prevent a pre-existing infection from healing or bring postoperative discomfort. If such a situation arises, the dentist may recommend treatment to help solve the problem. **(Fig. 9)**

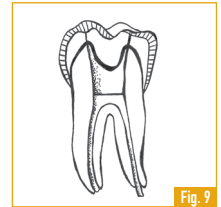


Fig. 9

Other complications

Postoperative discomfort

a) Pain. Following a root canal treatment, some pain may be experienced when the tooth is touched; the dentist will prescribe analgesics and this pain will gradually subside after 72 hours.

b) Swelling may occur if a tooth was previously infected. In such cases, the dentist may prescribe antibiotics.

Should infection persist

Possible interventions are:

- a) A new canal treatment
- b) Apical surgery with root-end filling
- c) Tooth extraction and prosthetic replacement of the missing tooth

Here are some of the difficulties that may occur during the course of your root canal treatment.

- Curvatures
- Interference, calcification
- Difficulty accessing canals
- Accessory canals
- Double canals
- Resorption
- Infection or other related lesions
- The patient's medical condition
- Others

Informed consent

Your prognosis is: Tooth No. _____ Good Average Unfavorable

Informed consent is the result of a discussion between the patient and the dentist. This document is provided for information purposes and may be completed or modified during discussions with your dentist. Some dentists may provide adequate information without giving this document to the patient.

Explanations

Informed consent to the endodontic treatment

I fully understand the nature and the limits of endodontic treatment as well as the difficulties associated with my treatment. I understand that even if the prognosis is good at the beginning, it is always possible that one of the above cited complications could occur. I also understand that I will have to avoid overloading the tooth that is being treated while chewing and I understand that I will have to have my tooth restored as quickly as possible in order to prevent it from breaking or becoming unrestorable (crown or onlay of the cusps).

I have discussed all of the foregoing with my dentist and he/she has answered all of my questions. I hereby consent to the treatment.

Patient's signature

Date

Dentist's signature

Date