

ROOT CANAL TREATMENT (RCT)

Teeth are composed of a hard structure surrounding a soft living tissue called the pulp (or "nerve"), which contains blood vessels, fibres and nerves. The pulp can become inflamed and die as a result of tooth decay, cracks or trauma. Germs can enter the root canal space. Irritants go through the root tip and into the bone. This may cause pain and an abscess. An x-ray film may show a dark shadow at the end of the root. RCT is a procedure that may save a tooth from extraction and has a high success rate. Studies indicate success rates to range between 50-95%. Teeth with larger lesions (pathology) and Re-RCTs have poorer prognosis.

Benefits

Relief of pain and resolution of infection.

Alternative to extraction/removal of the tooth if the tooth can be saved.

How is it carried out?

The tooth is made numb (LA) and may be isolated with a rubber sheet. An opening is carefully made in the centre of the tooth to reach the root canal. The inflamed or dying pulp is removed with very small files.

The root canal is gradually widened and cleaned at the same time using special instruments. The root will frequently be rinsed with medicaments. An x-ray film measures the root length.

A rubber-like material (gutta percha) is tightly packed into the new space to prevent germs from entering the root canal. X-rays may be taken during treatment to check progress. The opening in the tooth is sealed with a filling.

How long will it take?

The technique is highly skilled. Normally, it takes 1-3 visits depending on many factors. You may need to keep your mouth open for a considerable time (1-2 hrs) at each visit depending on the number of canals to be treated. You can have rest periods. Some patients prefer a mouth prop to help them keep the mouth open.

Following the treatment, a crown may be needed in cases where the tooth was heavily broken down at the start of treatment. This forms a protective covering and prevents further breakdown.

In most cases, the infection should heal. The dentist will monitor the tooth and take x-ray films 6 months to 1 year later.

Will it hurt?

Moderate discomfort is common as the anaesthetic wears off. This can be managed with painkillers (e.g., Ibuprofen or Paracetamol). The tooth may be tender on biting; Avoid heavy chewing for several days.

In cases of severe pain or swelling you should contact us in the first instance for appropriate advice.

When the surgery is closed phone NHS Direct (111). This service operates 24 hours a day 365 days a year.

Aftercare

Root filled teeth are effectively dead. This may mean the tooth will darken slightly. This is normal. These teeth are cared for in the same way as any other tooth such as by veneers or crowns if needed (see below about increased risk of fracture)

Risks

During or after the treatment, there may be some pain and soreness. Usually this resolves soon after the treatment has been completed. The instruments used to remove the nerve are very fragile and can occasionally break off in a root canal that is twisted, curved or blocked. Depending on its location, the fragment may be retrieved or it may be necessary to seal around it. This may affect the success rate of the root treatment.

There are risks of errors such as overfilling or underfilling the root canal. Also, another possible complication is accidental perforation of the tooth whilst drilling. Both can reduce the success rate of the root canal treatment.

Most teeth having root canal treatment are weakened by the original cavity or large fillings. Root canal treatment makes the tooth brittle and more prone to fracture. If a protective cap/crown/half-crown (Onlay) is not placed on the tooth, the tooth is at high risk of breaking.

The solution used for irrigation (sodium hypochlorite which is bleach) may leak if the rubber dam seal fails. This does not taste nice. It may make you nauseated and uneasy for a while. If it does happen, the rubber dam will need to be reapplied after rinsing your mouth.

If canals are not negotiable, the procedure has to be abandoned and alternative treatments sought.

The risks of a local anaesthetic also apply. This could be increased heart rate, fainting and bruising if you are prone to it.

Re RCT

As mentioned, some RCTs will fail no matter how well they are carried out. The tooth may continue to have symptoms despite an apparently complete filling. The root filling may be too short from the end of the root tip or the canal is incompletely filled. Curved and very narrow root canals may result in separation of the fine instruments within the canal making it difficult to complete the filling. Generally speaking, Re RCT is more difficult than doing the original RCT and there might be more complications.

What if Re RCT does not work?

Endodontic surgery or extraction may be the only solution.

What is endodontic surgery? Occasionally, surgery is undertaken to correct the problem from the end of the root. Under local anaesthesia the gum tissue is gently lifted to expose the root end. The root end is cut off and a filling placed to seal the end. Stitches are placed to hold down the gum. If the problem is solved, the bone will heal around the root tip. **Unfortunately, despite all these efforts a tooth may need extraction.**