

Patient information

Regenerative Endodontic Treatment of Immature Teeth

Liverpool University Dental Hospital

Your dentist has given you this leaflet because your tooth may benefit from treatment with a regenerative endodontic procedure.

Adult front teeth begin to erupt when a child is six years old. The roots of these teeth continue to grow and mature underneath the gums for two to three years, until a 'closed' root end develops.

One in ten children experience damage to their front teeth, and in some cases, the nerve inside the damaged tooth dies (becomes 'non-vital') and natural root development stops. Unfortunately, because the roots of young, immature teeth are not fully formed, they are weak and prone to further fracture.

Teeth that have become non-vital require root canal treatment (endodontics) in order to prevent problems such as pain and infection.

Root canal treatment is difficult in a young tooth that is not fully formed, due to the fact that the root has an immature 'open' end. Before root canal treatment can be carried out, a barrier must be placed to cover the open root end. This can be done using materials called Calcium Hydroxide or Tri Calcium Silicate. These materials are placed inside the root and sealed into the tooth. However, although they help to provide a barrier, they do not help to strengthen the walls of the tooth root.

There is some evidence to suggest that an alternative treatment involving regeneration of the root, following the use of an antibiotic or calcium hydroxide paste sealed temporarily inside the tooth or just disinfecting the root canal, allows 'natural' root growth to restart. This technique may also help to strengthen the walls of the tooth root. Treatment can often be carried out in one or two visits.

X-ray showing an immature tooth with a wide root canal and an open root end (in the centre of the picture). The other teeth are mature and have 'closed' root ends.



Why do I need a regenerative endodontic procedure?

You have a young 'immature' tooth which is 'non-vital' and infected and requires root canal treatment.

What are the advantages of this treatment?

A regenerative endodontic procedure may help to reintroduce the blood supply to your tooth in order to allow continued 'natural' growth of the root. It may help to reduce the chance of tooth fracture in later life

How many visits does this treatment take?

At your first visit, root canal treatment will be started in the usual way and an antibiotic or calcium hydroxide paste may be temporarily sealed inside the tooth root. At the second visit, the regenerative endodontic procedure will be carried out and your tooth will then be sealed with a filling. Sometimes this procedure can be done in the same visit by disinfecting the root canal and sealing it with calcium silicate barrier.

We will review the treated tooth on a regular basis for approximately one year to ensure that treatment has been successful.

Are there any known disadvantages of this treatment?

The tooth may not respond to the regenerative endodontic procedure, and if so, the root may fail to develop. If no signs of root growth or development are present, then alternative treatment may be offered using Calcium Hydroxide or Tri calcium silicate . Occasionally, root canal treatments may cause discolouration of teeth.

Are there any alternative treatments?

If a regenerative endodontic procedure is not suitable, or is unsuccessful, a root end barrier can be placed with either Calcium Hydroxide or Tri Calcium Silicate.

What will happen if I decide not to have root canal treatment?

If you chose not to have a root canal treatment the infection inside your tooth root remains untreated and your tooth may become painful. The infection could spread from the tooth and cause swelling, or in some cases, a serious health risk. Therefore, the alternative option to root canal treatment is tooth extraction.

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Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

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Review date: March 2024

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