

The ultimate goal - clean canals

Michael Sultan discusses the challenges of getting root canals clean

Nowadays dentists have such a wide range of exciting gadgetry at their disposal to help prepare root canals quickly and easily that sometimes the biological focus of treatment is somehow overlooked.

Of course, the latest NiTi systems can certainly help improve efficiency in the surgery, but they don't necessarily help us achieve our ultimate goal - clean root canals. Even if the post-treatment radiograph does reveal a beautiful shape, without fully disinfected canals, the treatment will fail.

When we look closely at the complex structure of the canal systems in cleared teeth it is immediately evident that it is impossible that our files can even come close to cleaning the intricate shapes. It doesn't matter which NiTi system we use or how cleverly we can manip-

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ulate a rigid stainless steel file - we are just deluding ourselves. For this reason, irrigants are the weapon of choice for eliminating bacteria that are harboured in the intricate channels of the root canal systems. The irrigants work in inflamed teeth by dissolving the organic pulp tissue and in infected teeth by killing and removing bacteria. This is further enhanced by opening up tubules and removing the smear layer using chelating agents. The files are merely making space for our irrigants to get in.

The importance of a rubber dam cannot be over-estimated. The rubber dam is a brilliant tool to prevent the inhalation of files, protect the airways and maintain a clean, dry area in which to treat the patient. It is also vital for medico-legal reasons and moreover ensures that the irrigants stay in the tooth and are not swallowed. If a rub-

ber dam is not being used the only thing the tooth is being irrigated with is probably saliva. Some studies have shown that the success rate of teeth treated under rubber dam is double those that are poorly isolated.

Sodium hypochlorite is the irrigant of choice for disinfecting root canals. The solution works by dissolving pulp tissue, killing the bacteria and flushing debris away to prevent canals from becoming blocked during instrumentation. This, in

turn, helps prevent ledging and other procedural errors so that the canals can be thoroughly cleansed. Sodium hypochlorite also happens to be a very cheap solution. Also recommended is chlorhexidine solutions (two per cent): This, like

sodium hypochlorite, is strongly anti-microbial but cannot dissolve pulpal tissue; it is also expensive.

The concentration of bleach that is used varies from country

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A complete range of irrigants for root canal treatment

Gluco-Chex 2.0%

Chlorhexidine digluconate 2% - antibacterial dental preparation for rinsing the root canals. It is more efficient than sodium hypochlorite in destroying such microorganisms as *E. faecalis* which are often responsible for unsuccessful endodontic treatment.



Chlorax 2% or 5.25% (Sodium Hypochlorite)

Chlorax dissolves organic matter. It has cleaning properties and has a bleaching effect on tooth and hard tissue.



Endo-Solution EDTA

Endo-Solution is used during mechanical preparation of the root canals. The preparation supports widening and cleaning of the root canal, removes the smear layer and exposes the dentinal tubules.



Citric Acid 40%

Citric Acid 40% removes the smear layer from the root canal walls, allowing precise penetration of root canal sealer.



Isopropyl Alcohol

Reduces the surface tension enabling Sodium Hypochlorite to penetrate the tubules.



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