

## Management of dry mouth and failing teeth

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Saliva maintains the health of dental hard tissue. The minerals within it prevent damage to teeth caused by bacteria in the mouth and/or acids present in the diet. As figure one shows this process can go the other way resulting in tatar deposits on the teeth (known to dentists as calculus deposition- see Figure 1).



Figure 1

Tartar is a dental plaque calcified by minerals from saliva. Without these minerals dental decay is more likely. Sjögren's Syndrome may affect the absolute amounts of saliva and minerals. Someone suffering the effects of the syndrome may not benefit from all this mineral.

An additional consequence of the reduced rate of flow of saliva is that bacteria in the mouth are no longer flushed out very aggressively. Bacteria and fungi will find it easier to become established in the mouth. With bacteria present, there is a swing towards disease in the mouth. Dental caries gingivitis, and its more damaging cousin periodontitis can now really get a grip.

Overall when Sjögren's Syndrome strikes it may greatly potentiate dental decay and it may make existing gum disease more difficult to deal with. Tooth damage and loss is therefore more prevalent in Sjögren's sufferers. To compound this lack of saliva also induces a dearth of oral lubrication. Dry, sticky oral tissues, will cause problems with soft tissue trauma, and with the ability to speak. Another associated problem is that lack of saliva will make dentures feel very loose in the mouth owing to lack of suction. One surprising finding is that even when of the worst happens and intraoral disease is rampant, patients don't find themselves usually too bothered by halitosis, as their senses seemed to be overwhelmed and they cease to register the problem. It is left to innocent bystanders to experience the full impact of bacterial bad smell.

It cannot be overemphasised that the keystone to managing dental diseases where a mouth is suffering from salivary gland hypo-function, is prevention. Once damage becomes significant it is very difficult to control its on-rush.

Prevention centres around-

- Control of the diet (minimising the consumption and frequency of consumption of fermentable carbohydrates/ sugar).
- Scrupulous attention to detail in oral hygiene, and use of fluoride to change the intra oral mineralisation balance towards re-mineralisation (repair of enamel and dentine).
- Where indicated salivary supplementation or augmentation.

Dietary control is a huge inconvenience - a lot of modern foods (for instance breads in fast food and baked beans) contain unexpectedly large amounts of sugar. It takes an almost obsessive eye for detail to keep harmful intake down. Outstanding oral hygiene likewise entails a lot of time and effort - and most untrained individuals just cannot manage. It takes training and help from dental professionals to attain the highest standards. These levels of dedication are not always possible, especially if related conditions (like arthritis) impede cleaning.

Artificial salivas may help but may also be socially inconvenient. There are medications that enhance the activity of any remaining salivary function, but they tend to have unpleasant secondary effects.

Sometimes all measures fail, and the decline inevitable. Despite the advances in healthcare and dentistry there is perhaps surprisingly little the dental profession can offer if prevention fails. There are some restorative dental management approaches that may help, but none approach cure or perfection.

As we have seen normal saliva helps maintain appropriate lubrication of the tissues. Proper lubrication prevents structures such as cheek or tongue sticking to each other or to the teeth. Together with reduction in quantity these qualitative changes increase the tendency of the soft tissues to become traumatised by their teeth whilst chewing food. This adhesive tendency is something that greatly complicates the efforts of dentists attempting to fix problems in Sjögren's sufferers.

Dental prostheses (like dentures) can be modified to maximize retention (tightness of fit) by using those remaining teeth still present. The so called 'silicone gasket prosthesis' for instance which fit around the necks of surviving teeth using with rubber grips. Prostheses can be made to maximize retention by the muscles present within the mouth, such as the myolok appliance, and it is also possible to use appliances as reservoirs for artificial saliva replacements (the so called have reservoir prosthesis).

These approaches may seem to be rather inadequate to the possible size of the problems, however let us examine a case in which huge efforts have been exerted in order to fight a rearguard action to save teeth. The series of radiographs in the Figures 2-5 records such an attempt. The pale areas in the image appearing to be inside the tooth are evidence of root canal treatment. You may notice that over the eighteen months in which the series was taken, dental caries has led to the root filling of two further teeth in this patient's mouth despite aggressive preventive measures.

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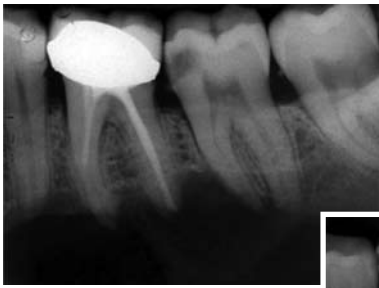


Figure 2

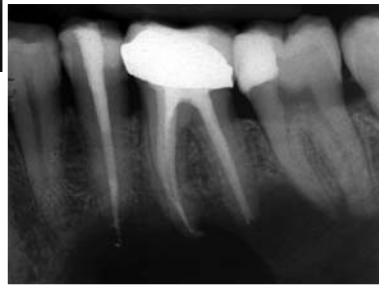


Figure 3

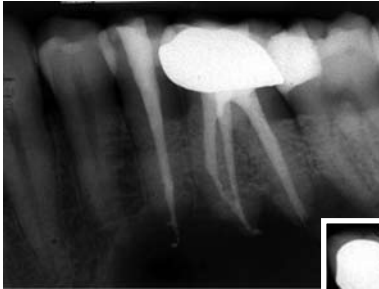


Figure 4



Figure 5

Patients suffering from a dry mouth/Sjögren's, tend to get into a downward spiral of increasing dental intervention of a dubious or poor prognosis. The eventual tendency is to end with removable prostheses. These can be made more tolerable using precision attachments, magnets or 'locking' designs to attach them to the teeth still remaining healthy. You will notice from the Figures (6-8) below that all the illustrations are of removable dental work.



Figure 6



Figure 7



Figure 8

Dental bridge work in which prostheses are fixed by some means to still existing healthy teeth, tends to be very problematic in dry mouth patients. There is a high incidence of adverse outcome owing to decay of the teeth used as bridging abutments (i.e. used to support the bridge). In fact it is quite common for attempts to use fixed bridgework to simply result (in the medium term) in further tooth loss.

There is however one more (albeit technical and difficult to access) alternative – the osseointegrated dental implant. Some authorities have averred that dental implants are contraindicated in patients with connective tissue disorder such as Sjögren's Syndrome. What is the real evidence? There is extensive experience of the use of osseointegrated dental implants in the provision of fixed prostheses in patients following tumour abolition surgery to treat cancers. Despite significant medical compromise in such cases success rates appears adequate (but not 100% - figure 11 shows a failed implant).

Such evidence as exists for Sjögren's Syndrome seems to indicate there are no overriding contraindications for the use of osseointegrated dental implants. Sjögren's Syndrome patients may however find difficulties in accessing implant based treatment modalities within the National Health Service. This is a result of National Clinical Guidelines that militate against such a patient successfully making a case that they should be a priority patient for implant funding. This is a political issue and there are other countries in which the view is different and Sjögren's Syndrome receives higher prioritization.



Figure 9

Whilst implant supported prostheses may effectively replace teeth were lost as result of dry mouth and its complications, they will still tend to stick to and traumatise soft tissues. There is also an increasing tendency for people to try to minimise the costs associated with implant based treatments modalities, by travelling overseas in so called 'dental tourism'. This can go horribly wrong, as follow up in the UK may lead to the discovery that more harm has been done than good.

In conclusion - Syndrome can have truly devastating oral health consequences. Once damaged, teeth and their supports are enormously difficult to repair satisfactorily. Fanatically rigorous dental disease prevention is the best means to preserve oral health so that a declining spiral does not get started.

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