

Whole-mouth technique removes need for implants

Gum stretching, not cutting, is the key to a periodontic technique that is saving many patients from extractions and implants, **bdanews** has been hearing

Many teeth could be saved from extraction by a non-invasive technique that UK-based dentists can now learn. And this periodontal therapy is thought to have a beneficial effect on the health of the whole body.

USA periodontal therapist Dr William Hoisington, who developed the procedure, believes that the health of teeth and gums is vital to overall health and wellbeing. He suggests that periodontal disease begins when a drop in immune-system effectiveness allows aggressive anaerobic bacteria to multiply in the space under the gingival tissue around the teeth. As well as causing degeneration of the dental bone and gums, these bacteria could also be a contributory factor in heart disease, stroke, osteoporosis, respiratory and sinus infections, arthritis, ulcers, premature births and infertility.

His technique, called Tri-Immuno Phasic (TIP) periodontal therapy, allows dentists to go under the gums and destroy these bacteria – without surgery.

“This procedure promotes gum and bone healing and regeneration and has proved successful in thousands of cases,” he told **bdanews**.

“Not only are loose teeth saved by being bound back to the newly regenerated gum and bone, toxins from the bacteria are no longer entering the body and having a negative effect on our health.”

Dr Hoisington developed the technique while with an implant research group at the University of Nice in the south of France.

Working with orthopaedic surgeons, immunologists and cell biologists, he hit on a different way of treating and preparing the mouth periodontally for his implantology colleagues.

“Most periodontics is mainly concerned with how do you defeat the bacteria and reduce pockets – the oral hygiene things – and the bone has been treated as an inert piece of marble that you could carve. But orthopaedic surgeons look at bone as something you should heal if it is broken,” he explained.

“So, we started looking at damaged periodontal bone as being broken rather than just being



Dr Hoisington treats patients at his Lille clinic on a warm waterbed-style couch to keep them comfortable and relaxed

infected. This gave us an insight into treating periodontal disease more like a medical problem than a purely mechanical dental problem.

“We elaborated a protocol of treating the whole mouth in one session rather than sector by sector, where re-infection is a perpetual problem.”

A whole-mouth session takes between three to five hours and is done under local anaesthesia in sectors. Dr Hoisington treats patients on a warm waterbed-style couch to keep them comfortable and relaxed.

Only three simple dental instruments are needed.

Its non-invasiveness also confers benefits, Dr Hoisington continued.

“If you do an open flap procedure to get periodontal access to the bone, you cut off the circulation to the bone, which dries it out and you actually kill the superficial bone cells. This greatly contributes to the failure of grafting and any other kind of procedure you are trying to do on the bone,” he said.

“We were trying to figure out how to get access to the bone without doing a flap and hit on the idea that the gum tissue is a lot like skin. It is very elastic, very stretchy. So we intentionally stretched the gum tissue to get access down to the surface of the bone and were able to smooth it and remove the granulation tissue and the anaerobic bacteria trapped in the porosities of the bone. In fact, we found that stretching gave nearly as good an access to the root surfaces as a flap and was much faster and didn’t require suturing.

“But what is most interesting about this approach is that instead of getting a wound-healing response, you get a more regenerative response that comes from the stem cells that are in the periodontal ligament space. You get a whole different pathway of healing that has never been demonstrated before.

“It’s not a scar-tissue wound healing and it’s not an epithelial kind of attachment. You get an attachment that is like a combination between bone and connective tissue. It is partially

mineralised but really dense connective tissue. As it matures, it becomes acellular and is extraordinarily resistant to inflammation.”

The gum-stretching technique also allows good clot formation – another key element in the success of the procedure – which, in turn, helps reduce inflammation and infection.

“Traditional techniques tend to stop a really good clot forming onto the bone,” Dr Hoisington continued.

“If the clot doesn’t form very well the inflammation stays present underneath and stem cells don’t like any environment where there is infection or inflammation – they are just too delicate to venture out into that kind of unfavourable environment.

“But with good clot formation the stem cells scurry along the clot and hook up with the remnants of the gingival fibres. They also come up the root surface at a rate of about ½ mm a day. All this is building new tissue at the bottom of the pockets. And if you see stem-cell migration you know that any infection is under control.”

Bacterial DNA test

The final piece in the jigsaw is perhaps giving patients antibiotics that will kill the specific anaerobes with which they are infected. To identify these accurately, Dr Hoisington uses a bacterial deoxyribonucleic acid (DNA) test.

This involves putting a paper point under the gum tissue for about 15 seconds and sending it off to a laboratory where the bacteria on the paper will be identified by comparing their DNA with DNA profiles held in the lab’s reference database. The paper does not need to be sent in any transport medium and a dentist would get the results in about one week. Cost is about £50, Dr Hoisington said.

“This is something that is quite fascinating for dentists to be able to get involved with. It gives you a list of the main periodontal anaerobic pathogens present.

“Previously, a dentist couldn’t know what was there because finding out would be too costly. It tells you exactly what pathogens you are dealing with, especially if the two nastiest ones (*Actinobacillus actinomycetemcomitans* and *Porphyromonas gingivalis*) are present.

“And they are absolutely accurate, that’s the thing. Culture techniques have been proven to be about 25% inaccurate because you can’t reliably culture all bacteria. Some of them are too delicate.

“And the test is not even expensive – about £50. It tells you exactly what’s there. I know that in the Netherlands if you don’t do a test like this and the patient subsequently gets infected you are in a world of a problem because you have nothing to defend yourself with. You can’t prove that you correctly prepared the mouth periodontically for the implants.”

Dr Hoisington would like to see his technique being more widely used and would be happy to

teach UK-based colleagues – something he has already done in France, Belgium and Russia.

“I have trained mostly general dentists in France to do this. It does take quite a bit of training unless the dentist has been particularly interested in this area and done a lot of it as a general dentist. Usually, we do about 20 to 25 cases together. This quantity allows us to see the gamut of all the difficulties you can run into together.

“I would feel very comfortable with a general dentist learning how to do this because they don’t have to learn surgical skills. You are depending on healing to eliminate the pocket not surgical skill. You just have to learn to be good at doing the stretching and the instrumentation. And what’s good about this is if you don’t get it 100% right it is very easy to retreat. Surgically if you don’t get it right people don’t like you to go back in there and start all over again.”



Patients need to use a perio-aid tooth pick during the healing to keep the area open and rub the sticky layer off the roots of the teeth

During the healing process, the patient has to use a perio-aid tooth pick, used for some years in dentistry by patients who found it difficult to floss between teeth, to keep the area open and rub the sticky layer off the roots of the teeth. Anaerobic bacteria need this mucopolysaccharide sticky layer to re-colonise. There is no need to use disinfectants such as hydrogen peroxide or chlorhexidine, which Dr Hoisington describes as “like throwing napalm” at the immature stem cells.

“It is the one oral hygiene technique that really gives a patient feedback on what they are doing because you can feel the healing. You can feel the attachment coming back and getting solid. You can hear the tooth pick making a ‘squeaky clean’ sound on the roots when the sticky layer has been removed. You can see that the gum area has stopped bleeding and you can feel that the pocket is getting shallower. It is also a way for patients to check what we did and that we have met our promises to them. It’s very empowering for people to know that they have a way of checking what you did and that you gave them that right.”

Not using disinfectants also seems to promote more-rapid healing and reduce sensitivity and postoperative discomfort. And the healing is quick.

“You can start out with an 8mm or 9mm pocket and get 4mm of this filled in from the bottom within a few days. During the next healing stage, you get production of fibrous tissue with a little bit of calcification and above that a normal junctional epithelial attachment. This gives you another 2mm reduction in pocket depth, a total of about 6mm. So, even with a 9mm pocket, you are down to about 3mm within a month. It’s very fast.”

This rapid-healing phase is followed by re-growth of the cortical layer, which takes about eight months.

“We may have started out trying to get the best preparation of the bone for implants but we realised that if you attack whatever has been causing the bone erosion you can grow the bone back,” Dr Hoisington said.

“This procedure allows you to cut down on the need for bone grafts and preserve teeth surrounded by pockets, teeth which would otherwise need to be extracted and replaced by implants.”

Cost-effective solution

The procedure is especially suitable for patients who have chronic adult periodontitis where there is widespread bone loss and the need for extractions and implant replacement. It is also a more cost-effective solution as it tends to cost about one-quarter of what a simple implant regimen would cost, Dr Hoisington said.

“For the person who would really like to keep their teeth or the person who doesn’t have the sort of financial resource the implant option requires, this is very cost effective in terms of giving them the continued use of a tooth, arguably for the rest of their life, because once you can establish this kind of bone healing with a very resistant attachment above it, no pocket depth and a good oral hygiene routine, it is pretty hard to break all that down again.

“It works especially well with a patient who is aware of how this works and is not going to just stop on their hygiene or stop coming for follow ups. So you can save people a lot of future dentistry and help them keep their own teeth.

“It’s certainly what the patients would prefer – to have the most healing possible with the least amount of treatment.”

Dr Hoisington believes that his whole-mouth periodontic therapy has wider-reaching benefits than simply improving mouth hygiene and preserving teeth.

“If, through oral hygiene we can keep the anaerobic bacteria out of the blood stream, we can stop them contributing to other diseases such as heart disease, stroke, respiratory, osteoporosis, pre-term births.

“That’s why there is a lot of interest in the Hale Clinic because they are oriented towards treating the whole body. You’ve got this reservoir of nasty bacteria being fed into the blood stream and the digestive system, taking up immune energy and

compromising nutrition, and destabilising the bite, which leads to musculoskeletal problems up and down the joints and the neck and the back. It just wreaks havoc up and down the body.

“Our main patients are those in their late-40s early-50s but research with the bacterial DNA tests has shown that even eight to 10 year olds will have these anaerobic bacteria and some of them get juvenile periodontitis with just huge destruction around 18 to 20 years old.

“With those DNA tests available we should be checking our kids to make sure they are not in that group that has these one or two pathogens that tend to be associated with the disease. Let’s treat them early before we get this massive bone loss and problems,” Dr Hoisington said.

Although prevention should begin in childhood, Dr Hoisington believes that the aetiology of the disease mostly occurs in adulthood, often around the age of 20. It is probably initiated by a period of stress caused by events over which the patient had little or no control during this time. This stress could stem from college, work or family problems and could last as long as one or two years.

The stressful period will eventually pass but it has led to an immune depression that allows growth of anaerobic bacteria which are usually

kept in check by a fully functioning immune system. Some of these bacteria are extremely aggressive. They have proteolytic enzymes which can breakdown of the attachment of the gum tissue to the roots of the teeth very quickly and create an added depth in which huge numbers of these bacteria can grow. Unfortunately, these areas are out of the range of normal oral-hygiene techniques, Dr Hoisington said.

“People have been trying to be conscientious but trying to do an impossible job”

“Dentists then see these people years later because even if they get through the stressful events and their immune functioning returns to normal, they still have these areas of anaerobic infection that have to be treated,” he continued.

“Patients have to be told right from the very beginning that the disease was due to the immune depression and that it wasn’t something they are guilty of because they didn’t brush or floss.

“If you have this reservoir of bacteria you can brush and floss diligently and eight hours later those roots will be covered with bacteria again because they are coming up from this reservoir. You can’t get at them so you can’t be guilty.

“A lot of time you will find that people have been trying to be conscientious but trying to do an impossible job.

“So, right way you have a better situation with a patient if there is not this guilt associated with it. It’s hard to be guilty about something that happened when you were back in your 20s and was caused by working for a really lousy employer but were stuck there because you needed the money.

“And you have a lot of good news to tell them: they’re not going to lose their teeth and they’re not going to have wildly expensive restorations.”

But Dr Hoisington’s success with his periodontic preparation puts him at odds with the rest of the implantology research group sometimes.

“I’ve been too successful. They’d like to have the mouth prepared for implants but they don’t want me to totally eliminate the need for them,” he concluded.

Readers who wish to learn more about Tri-Immuno Phasic (TIP) periodontal therapy can contact Dr William Hoisington on william@periofirst.com