Inflammation + orthodontics

Bone loss

We already know that periodontal inflammation on its own can cause bone loss. If we add orthodontic tooth movement to an inflamed periodontium, it is well documented that bone loss can be magnified. There are canine and monkey studies from the 1970s which clearly show the relationship. In humans, such studies are not permitted, but we can see clinically that orthodontic treatment, or even simply occlusal overload (which is an uncontrolled orthodontic force) can further weaken the support around the tooth of an already inflamed periodontium.

Poor home care is the primary cause for periodontal inflammation, but if we combine additional risk factors such as smoking or uncontrolled diabetes, or genetic risk factors such as a thin biotype or increased inflammatory susceptibility, we further increase the risk of periodontal loss. This can be true in children as well, such as those with 'juvenile periodontitis', but especially so in adults who carry a higher risk simply with increased age.

Loosing teeth in the process of orthodontic treatment can result in severe ridge defects compromising future implant replacement and esthetics. ***Orthodontic treatment should not be performed in patients with an inflamed periodontium.***

The steps below can mitigate risk, and keep your patients informed of expected outcomes.

Orthodontics and the Periodontium

Orthodontic tooth movement is a fascinating thing. That the body will even allow a tooth to be moved through the bone is fascinating. And that we can guide and control the size and dimension of the bone and the gingiva, not just within the alveolus, but even at sutures and long bones is equally as fascinating.

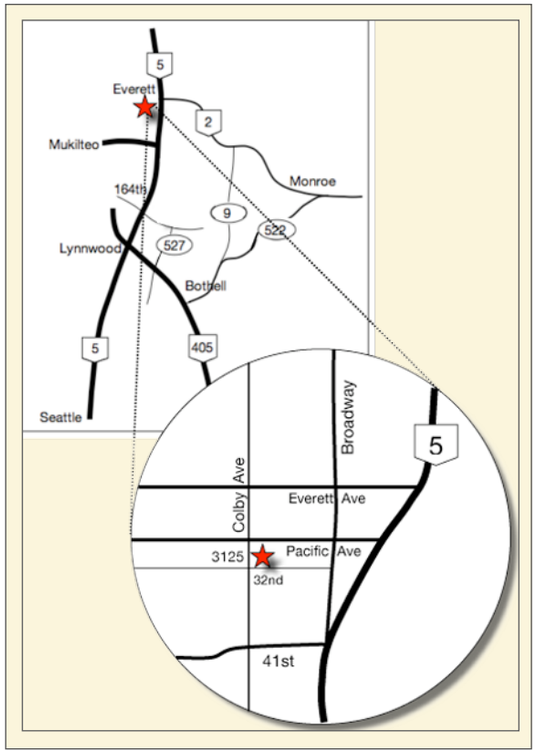
There are some really neat things we can 'fix' with orthodontic treatment that can't be easily treated, if treated at all, in any other way. Take a missing papilla for example. There is no way to predictably grow a missing papilla when there is no inter-proximal bone present on an adjacent tooth. But we can extrude a tooth and bring inter-proximal bone coronally, and get a papilla! Certainly we may pay the price of endodontic treatment or full coverage restoration, but it may be worth it for some. Or consider moving a proclined tooth lingually in order to reduce or improve root exposure, or moving a tooth through a congenitally missing tooth space to regenerate a ridge without surgery.

But most people aren't always interested in a perfect papilla or the missing bone in a periodontal pocket they can't see. They want straight teeth without realizing the risk of losing bone or gingiva or even teeth if periodontal inflammation is present.

This issue of ProbeTips will review **best practices for successfully performing orthodontic treatment on patients with periodontitis, and avoiding serious complications.**

Pamela A Nicoara DDS MSD PLLC

PERIODONTOLOGY IMPLANTOLOGY ORAL MEDICINE



3125 Colby Avenue, Suite H
Everett WA 98201
T: **425-374-5380** F: 425-374-5382

www.NICOARAperio.com
doctor@NICOARAperio.com

Probe Tips

A Quarterly Periodontal Newsletter

BY PAMELA NICOARA DDS MSD

Orthodontics in Periodontitis Patients

VOLUME 13, NO. 3

NOVEMBER 2020

Orthodontics in Patients with Periodontitis

Achieving a Healthy Periodontium

Step 1: Home Care and Maintenance

We all have seen patients who don't brush their teeth and may only show a little gingivitis. But for the majority of those with periodontitis, the major causative factor is excessive oral plaque.

It seems simple to show someone how to brush their teeth, but we've all pulled our hair out at people who just don't seem to get it. In that case, more effort is necessary with teaching aids such as disclosing solutions…even for adults! Even that doesn't always work, and some just don't care, in which case more *frequent maintenance every 3 months is necessary…even for children or adolescents*!

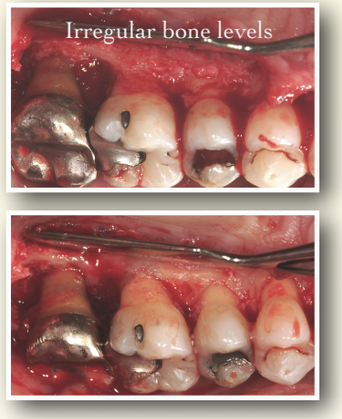
Orthodontic treatment ideally should not begin until home care is adequate. And it is always an option to stop orthodontic treatment if home care is unacceptable. Written and signed consent forms and documentation is paramount, particularly in our litigious society.

Step 2. Scaling & Root Planing or Surgery

The first step in professionally treating periodontitis is through scaling and root planing. Removing deposits from the root surface creates a clean root that the soft tissues will re-adhere to in order to reduce the pocket and prevent any more bone loss.

If the pocket and bleeding and inflammation persists after scaling, access may have been limited, and flap surgery is needed to address the lesions prior to orthodontics.

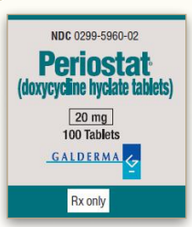
Calculus is removed, bone levels scalloped, root surfaces smoothened, and overhanging margins reduced, all of which can cause bone loss during orthodontic treatment. Usually 6-12 weeks after scaling or surgery respectively, probings are assessed and *clearance is obtained from the periodontist to start orthodontic treatment once inflammation is controlled*.



Scalloped 'natural' bone levels

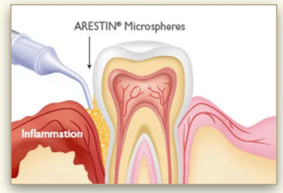
Step 3. Chemotheraputics

In those patients with great home care and compliance with maintenance visits, and who have had scaling or flap surgery who still have a high risk due to thin biotype or genetic susceptibility to inflammation, a few pharmaceutical options exist.



For some of my patients with generalized inflammation, a generalized chemotherapy is necessary. I place these patients on Periostat. This reduces the inflammatory burden, particularly while in orthodontics. Periostat does not replace good home care or regular maintenance, or provide a license to begin smoking or becoming lax with general health such as diet or exercise. But it does give those with the greatest sensitivity to oral bacteria *an opportunity to get through orthodontic care while under the watch of a periodontist*, which they may not otherwise be able to withstand.

For those patients with a localized area of disease, perhaps an area of prior bone regeneration along the side of a tooth, a local treatment such as Arestin can be used to manage the area at each maintenance visit, or at alternating visits with the periodontist, depending on the amount of bleeding on probing at each visit.



Treating a Reduced Periodontium

Periodontitis can cause localized defects, or generalized severe migration and flaring of teeth. *A reduced periodontium has no active inflammation or bleeding, and has shallower pockets*, even though significant amounts of bone have been lost. The risk for bone loss is greatly reduced when inflammation is controlled by the steps previously described. Some precautions must still be taken:

1. **Orthodontic treatment must not be too aggressive**, particularly in terms of arch expansion, as most cases of flared teeth are moved lingually rather than facially.
2. **Care must be taken to ensure proper occlusion** to avoid excessive forces which would cause further mobility or tooth lost post orthodontic treatment.
3. **Splinting may be necessary** to prevent tooth mobility post treatment from reduced periodontal support.

The images below (including the image on the main title panel) are an example of multiple similar cases in the literature of successful orthodontic treatment of patients with a reduced periodontium *who are without inflammation*. Flaring is reversed, occlusal harmony is restored, bone levels can improve, and esthetics are regained.

References

Int Ortho. Kruk et al. 2018.
AJO-DO. Carvalho et al. 2018.
JCP. Ericsson et al. 1977.

Complete References Available on Request.

For more information, visit us online at www.NICOARAperio.com