What do Batman and orthodontic braces have in common?

By Shirley Gedwarksi, RDH, BSDH, FAGD

The most stomach-wrenching thing dentists see is an oral cancer lesion; for hygienists, it’s the melted enamel under and around orthodontic brackets and bands. The hot pink tissue seems to pulse with a life of its own. It covers the gingival third of the tooth hiding a caustic biofilm that percolates acids reminiscent of the vats Batman hung over, strung up by the dark knight. The chemistry under there has baffled third year dental and dental hygiene students. What to do with melted enamel?

**Solutions: appliances and chemical ones**

One option is to use the more advanced appliances that discourage biofilm formation. The ‘living better though chemistry’ is another answer to this problem. Today’s oral care products, over the counter and professional, have the potential to eliminate that stomach-wrenching moment. Even without relying on patient compliance, change can occur to save the teeth. **Brackets** New passive self-ligating brackets are a great way to go (Damon). They discourage biofilm formation. The design of the bracket allows the low-force memory wire to move the teeth with less chance for bacteria to accumulate because they don’t require ligatures. Elastic ligatures greatly increase the number of microorganisms attached to the apparatus during treatment. This increased level of biofilm activity increases the incidence of decalcification during treatment.

**Fluoride** Applying fluoride varnish biannually may decrease unsightly white spot infections. Some of the elastomeric ligatures come in fluoride releasing types that cut down on biofilm too. The fluoride release is temporary, lasting only about two weeks; one study stated that they shouldn’t be counted on for decreasing enamel breakdown.

**Bonding cement** The cement for bonding the brackets onto the teeth can make a huge difference, too. An ortho cement containing amorphous calcium phosphate (ACP) (Bosworth Ageis) contains the components to control the formation and maturation of ameloblasts, which are the cells that secrete enamel.

**Pastes** Along with the enamel replacement trend there are newer pastes that do more than just provide fluoride. The list is long, starting with Colgate Total with Triclosan, and advancing to products containing Novamin and Recaldent, and the new one Tricalcium Phosphate (TCP). Having these products on hand to give orthodontic patients can set the stage for a premiere cosmetic outcome, along with a great orthodontic outcome.

Prophy paste Deciding on a prophy paste is also a worthwhile exercise. It seems as if new polishing pastes are brought to the market almost every day. The newest Prophy Pearls (JaVo) is also helpful to the tissue, although not as dramatically.

Home care Customizing the home care regimen is very important for people wearing orthodontic appliances. Many hygienists go to the cosmetic end and talk about halitosis or gunky food hanging from the brackets or wires, making the patient unappealing to the opposite sex. The problem is, though, the patient’s don’t respond well to this scare tactic. If they want to, they’ll find someone to get close to.

Really looking at the array of toothbrushes available for ortho patients is important. So is finding out if they’ll use a Water Pik. The benefits of pulsing water for removing biofilm and creating ghost cells of the bacteria in the biofilm is substantiated in the literature. Water is the only thing necessary for outstanding results.

Resin modified glass ionomer (RMGI) On occasion, things get out of the clinician’s hands and enamel breaks down. Something new on the market can be used as a temporary band aid over a white spot infection that has started anywhere on the teeth. It’s a resin modified glass ionomer called Vanish XT Varnish. The dispenser is new to the hygiene world in that it uses double-barrel dispensing. Like epoxy cement, two components are squeezed out onto a mixing pad, mixed chairside and applied with a microbrush or other similar device, then the material is light cured. It is tooth colored as long as the tooth is white. It releases fluoride to the area and recharges when fluoride is around.

**Sociological & psychological considerations**

The sociological and psychological needs of the teenage patient also need to be addressed. Remove all judgment; the situation you are looking at with each patient is what it is. With teenage patients, it’s very tempting to belittle or use a condescending tone.

Sometimes the patient doesn’t want the treatment and will show his or her displeasure by refusing

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**Genetic discovery could lead to advances in dental treatment**

**By David Stauth**

Science Writer, Oregon State University

Corvallis, Ore. — Researchers have identified the gene that ultimately controls the production of tooth enamel, a significant advance that could someday lead to the repair of damaged enamel, a new concept in cavity prevention, and restoration or even the production of replacement teeth.

The gene, called Cltp2, is a “transcription factor” that was already known to have several functions — in immune response and the development of skin and the nervous system. Scientists can now add tooth development to that list.

The findings were just published in the Proceedings of the National Academy of Science.

“It’s not unusual for a gene to have multiple functions, but before this we didn’t know what regulated the production of tooth enamel,” said Chrissa Kioussi, an assistant professor in the College of Pharmacy at Oregon State University. “This is the first transcription factor ever found to control the formation and maturation of ameloblasts, which are the cells that secrete enamel.”

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Dear Reader,

In this issue, readers will be learning about alternative treatment modalities for orthodontic patients. While these treatments may have been introduced to some practitioners, the information will be completely new to others. How is it possible that some hygienists are actually using new products for various dental hygiene applications and others have never even heard of such things?

This is truly reflective of the amount of interest a clinician takes in keeping up to date with the world of dental hygiene. Many hygienists are content doing the things they always have and do not seek out new, potentially better ways to treat patients. The question I pose to hygienists is this, Do you want your physician practicing 1980s medicine or do you want him/her to be able to educate you on the latest recommendations being made by the medical profession? I am sure the answer is not only do you want your medical professional to be up to date, you expect it!

Well, guess what? Dental patients expect dental professionals to deliver the latest and best oral care possible. At this point in time, hygienists are fortunate to have a menagerie of places in which to gain education. Learning about new developments and different ways of doing things used to require time away from the office, travel and sitting in a meeting room all day. Now hygienists can learn 24/7 without even leaving the living room, if that is what we choose.

Hygiene journals and magazines are full of information and they can be accessed online. Yes, even Hygiene Tribune can be read the Web, Live, as well as taped Webinars are gaining popularity. Online hygiene groups/study clubs are wonderful information resources. So take some time to peruse the Web, and especially our new www.DTSStudyClub.com Web site as well. It is a fascinating place in which to gain new knowledge to allow us to practice dental hygiene the way it is meant to be practiced in 2008!!

Best Regards,

Angie Stone, RDH, BS
Editor in Chief

Sholdering the burden

Our professional responsibility is to take as much of the burden from the patient as possible. Brushing and flossing will never be totally in the background, but until the patient in the chair learns basic and advanced self-care during those turbulent teenage years, it behooves us to do everything within our power so he or she suffers the fewest consequences. Doing so will lessen tissue overgrowth, thus eliminating the caustic acid even Batman doesn’t want to tangle with. By using products from the professional end and suggesting less difficult home care regimens we can really produce the kinds of smiles we hoped to create.

more info

An orthodontic patient and Texas dental hygienist, Gutkowski has some insights into oral hygiene with braces.

You're wearing the Damon braces now, are you excited about the difference in oral hygiene you're able to achieve wearing them over others?

Yes, because of the way the brackets are designed I find that oral hygiene is much easier for me. I see much more accumulated plaque biofilm in a patient with the traditional brackets and bands set up than the patient with Damon braces.

Can you tell us what makes them so different? Is the design of the hardware or the materials used?

It's not the materials, they're similar to traditional equipment. Light wires are used to move the teeth with little pressure. This allows for the facial muscles and tongue to help the process along. The light pressure lessons the bone necrosis to occur, which I believe causes some of the tissue overgrowth we see in teens undergoing orthodontic treatment. Heavy pressure can cause the alveolar bone to crush, decreasing blood supply and cause pain.

The other oral hygiene friendly aspect of this system is the self-ligating brackets. The wires go into the brackets and there's no need for those little elastic bands to hold the tooth against the wire. Less elastic, less plaque biofilm, better oral hygiene.

When you're presented with patients with traditional brackets and bands, what do you generally recommend for oral hygiene?

Since embarking on this journey I've had a number of eye opening experiences. I had no idea about the potential for necrosis, for example. Now that I'm living with bone full time, I've made some adjustments in my oral hygiene recommendations. For instance, I'd never disregard the new chemistry we have available today. I recommend Denclude for nearly everyone, I also recommend MI Paste. I recommend the Sonicare Flexcare for anyone with brackets and bands, and the Sunstar Summit brush for when a power brush isn't practical, like at school. I'm very particular about what I recommend and I'm seeing better results than ever. In the office, I apply fluoride varnish and use smart prophy paste.

Tell us what you think!

Do you have general comments or criticism you would like to share? Is there a particular topic you would like to get discussed in Hygiene Tribune? Let us know by e-mailing feedback@dtamerica.com. We look forward to hearing from you!

About the authors

Shirley Gutkowski, RDH, BSDH, FACHE is a clinical dental hygienist from Sun Prairie, Wis. She is the 2008 recipient of the Leadership Award from the World Congress of Minimally Invasive Dentistry. She is an award winning author and is co-author of the best seller, “The Purple Guide: Developing Your Clinical Dental Hygiene Career.” Her new book, The Purple Guide: Caries Management for Difficult Case Presentations,” will be published summer 2009. Please visit www.rdhpurpleguide.com for more information. You may contact Gutkowski at crosslinkpresent@aol.com.

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to cooperate with home care. In such a case, it’s best to have the appliances. This is a difficult decision, and while the parents may not agree, it is important that we as professionals take a stand. Orthodontic treatment is not inert. It may not be the best treatment option at that particular time if the patient is not ready to receive it.

More info

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The National Children’s Oral Health Foundation (NCOHF) has awarded three Dental Hygienists’ Toothfairy Grants totaling $14,000 to organizations to help eliminate children’s suffering from preventable dental disease. Grants are made possible through contributions to the Dental Hygienists’ Toothfairy Campaign in partnership with the American Dental Hygienists’ Association.

NCOHF President and CEO Fern Ingber said, “NCOHF is very grateful to the American Dental Hygienists’ Association and all dental hygienists who have made generous contributions to the Toothfairy Campaign. Together we are focused on providing underserved children effective preventive oral health services that break the cycle of preventable pediatric dental disease.”

Dental Hygienists’ Toothfairy Grants were awarded to the following NCOHF Affiliate network organizations:

- $10,000 to Catholic Healthcare West (Chandler, Ariz.), that in collaboration with multiple community partners has expanded its new dental clinic to reduce the incidence of needless suffering through its prevention and intervention dental program.
- $2,000 to Primary Health Care, Inc. Dental Clinic (Des Moines, Iowa) for vital prevention education program materials that teach positive behaviors to prevent pediatric dental disease.
- $2,000 to A Fluoride Connection Non Profit Corporation (Madison, Wis.) for materials teaching prevention and positive behaviors that prevent needless pain caused by pediatric dental disease.

Recipients are members of NCOHF’s national affiliate network, dedicated to delivering comprehensive oral health treatment and preventive educational services to millions of economically disadvantaged children and their families.

Nancy Adrianse, RDH for Primary Health Care, Inc. expressed her excitement. “The funding is very beneficial since we are currently seeing many more people who do not have the means to pay for dental care in our clinics. We are very excited to receive our educational material and begin using it with our most vulnerable children. Thank you so much for this great opportunity!”

With an understanding of its genetic underpinning, Kioussi said, it may be possible to use tooth stem cells to stimulate the growth of new enamel. Some research groups are already having success growing the inner portions of teeth in laboratory animal experiments, but those teeth do not have hard coatings — the scientists lacked the genetic material that makes enamel.

“At a lot of work would still be needed to bring this to human applications, but it should work,” Kioussi said. “It could be really cool, a whole new approach to dental health.”

Many people have problems with eroded tooth enamel, including people who smoke, drink and especially some who use illegal drugs such as methamphetamine. And most cavities start as a hole in tooth enamel that allows decay to begin.

This research was supported by the National Institutes of Health and the OSU College of Pharmacy. The study was a collaboration of scientists from the OSU College of Pharmacy, College of Science and College of Engineering, and the Institut de Genetique et de Biologie Moleculaire et Cellulaire in France.

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