What do Batman and orthodontic braces have in common?

By Shirley Szewkowski, RDH, BS DH, D.ADE

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 chemotherapy 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 accumulation. 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 rebuild enamel. Without relying on a teenager to remove biofilm, the cement changes properties during an acid challenge to release the ACP, thus releasing the consequences of teenage hormone surges that put self-care on the back burner.

The Ageis cement is a compliance-free way to go. The hygiene department can have more say in treatment modalities if it affects the oral hygiene of the patient. Stopping therapy by removing the brackets is not always a good option, although it should work its way to the top of the option list if by six months the patient’s oral hygiene hasn’t improved.

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 Triosan, 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 NuPro contains Novamin. New prophy cups and brushes can never resist breaking apart around brackets or wires. An air slurry polisher is important to use on patients with brackets and bands. Biocarbonate has many healing properties and can reduce biofilm on its own working with the sodium pump in the cell wall of the bacteria to upset the equilibrium, thus killing the bacteria. Calcium carbonate in Prophy Pearls (KaVo) 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 halirosis 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.

Realistically 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 choiceside 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

AD

Realistic

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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 via the Web, Live, as well as taped Webinars are gaining popularity. Online hygiene groups/study clubs are wonderful to cooperate with home care. In such a case, it’s best to keep 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 practitioners, the information will be completely new to others. How is the burden should abrasive actions.

Shaping 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 chance for 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 braces 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 Dencle 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 prophecy paste.

Editor’s letter

Shirley Gutkowski, RDH, BSDH, FACE 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: Careers 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.
The researchers used a laboratory mouse model in this study in which this gene has been “knocked out” and its protein is missing. Such mice lack basic biological systems and cannot live after birth, but allow scientists to study what is there and what’s missing.

In this case, the mice had rudimentary teeth ready to erupt, but they lacked a proper enamel coating and never would have been functional. “Enamel is one of the hardest materials on earth,” Kioussi said, “and it’s made in the mouth; it’s not made anywhere else.”

Yet the researchers were able to put a genetic underpinning on the mouse’s lack of enamel and even to bring this to human application. Kioussi said, “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 Celulaire in France.

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