



NURSING CARIES

Opinions On a Serious Problem for Parents and Children

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Abstract: "Nursing Caries" or early pediatric decay can be a heartbreaking problem for parents and a serious health threat for children. The pathogenic bacteria involved in all dental disease are commonly shared among family members. There are some very simple steps parents can take that will improve the dental health of the entire family, steps based on logic and common sense. This paper will provide an insight on how this problem can be avoided by controlling the microbiome that can be transferred among family members.

“NURSING CARIES”
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Over my professional lifetime we have helped spot trends in the origin of dental disease and have been instrumental in developing protocols for dental treatment. Over two decades ago we identified a serious microbial challenge that can destroy teeth in elderly patients in an amazingly short time caused by a predominance of an oral yeast infection. We also developed a simple protocol that will help any person confronted with an immune system problem promoting an overgrowth of yeast to maintain their teeth.

We first recognized the potential for “yeast”, or most likely *Candida albicans* as a potential progenitor of “Geriatric Root Caries”, or root decay in the elderly, some two decades ago. We had significant success in reducing or eliminating abutment caries, the decay in root surfaces in contact with a denture, simply by having patients treat denture bases and abutment areas with Lamasil, the active ingredient being terbinafine. We began modifying our OHI (Oral Hygiene Instructions) programs to suppress the “Thrush” appearance of the oral cavities in these susceptible individuals, and later developed a protocol embracing the pH altering characteristic of baking soda. Most recently we have again altered our protocols to include ozone and ozonated oils, replacing the terbinafine.

We endorsed the fact that dental disease is a disease caused by a pathogenic oral biofilm. By altering the pathogenic oral biofilm, we have had success in eliminating most oral disease.

One of our last major challenges was the conundrum of “Nursing Caries” (Nursing Decay). We often see children who are being nursed by a very caring mom who have extensive decay in their primary teeth. Nursing causing caries never made scientific sense, considering that if the very natural act of nursing a child caused decay, we, the human race, should be an extinct species. Research also supported the fact that there was no difference in decay rate if the infant was nursing or bottle fed.ⁱ Therefore, there had to be modern environmental factors contributing to “Nursing Caries” that were simply being overlooked. As does happen in a lot of scientific advances, we took an educated guess that somehow the environmental factors encouraged an overgrowth of the same yeast microbes in the child’s mouth that were the cause of geriatric caries, so we developed a protocol directed at altering the factors causing serious decay in children’s teeth.

Knowing something and proving it are two different things, so we quietly waited for the researchers to do their jobs and give us the proof we needed related to the microbes involved in the decay process in children. Now that we have invented and developed the protocol, we now have the proof in a recently published article that can be sourced through: www.sciencedaily.com/releases/2014/03/140312132625.htm, “Bacterium, fungus team up to cause virulent tooth decay in toddlers”.ⁱⁱ

The following is a protocol for preventing and dealing with this difficult problem.

“Nursing Caries” is often the result of the “Perfect Storm”. We consistently see severe pediatric caries in a sibling whose other siblings are relatively unaffected by decay. Recently we saw three four year old patients as follow ups to our Early Diagnosis/Early Intervention “Second Opinion” appointments. All three were around two years old when first seen, and they were seen on a one year follow up appointment. Their parents went to extremes to bring these children to us, one being from Canada, one from Florida, and one from Dallas. (We’re

located in far South Texas, 180 miles below Houston). The patient from Florida was the child of a pediatric anesthesiologist who preferred not to anesthetize his own daughter to fix her teeth.

The common denominator on the child's side of the equation of this Perfect Storm in these three children appears to be some indeterminate gestational interruption of enamel maturation between 17 weeks to 21 weeks post conception, extrapolating from Schroederⁱⁱⁱ. Hypoplasia can be the result of an illness in the mother during this susceptible stage. Recently there have been several investigations regarding the microbiome of the placenta. A more recent article gave credence that the placenta plays a role in establishing the microbiome of the infant *enutero*^{iv}, with the taxa of the placenta largely mirroring the oral microbiome of the mother as well as the infant.

There is usually a history of lack of care of the child's teeth immediately upon eruption of the upper central incisors. The susceptibility to early pediatric caries increases with early eruption. This is partially due to the inoculation of the child by oral pathogens shared by the parents, lack of care parental care, but also due to the lack of formation of protective salivary glands on the inner surface of the upper lip until around four months post partum. If there is a defect in the teeth coupled with early eruption, the teeth are much more likely to become cariously involved in partially due to the lack of the protective mechanism of bathing saliva. All of these factors can add up to the "Perfect Storm", resulting in early pediatric caries, and offering an explanation of the conundrum of "Nursing Caries".

"Nursing Caries", or rather early pediatric decay, affects far more children who are not also affected by a gestational interruption. Pediatric caries is still a disease caused by microbes and fungus regardless of whether or not the child is nursing or taking a bottle. Therefore, change the pathogenic oral bioflora to non-pathogenic. The predominant source of the oral bioflora in the child is the mother, but BOTH parents are targeted in this protocol, because the parents obviously share oral flora between themselves. The pathogenic oral biofloras do not do well in a non-acidic environment. Thus we first target the oral bioflora of both parents simply by having the parents brush twice daily with baking soda and use interproximal brushes to push the powder between the teeth.

Pathogens like *Strep mutans* and *Candida* do well in low resting pH oral environments, with any pH approaching 5.5 beneficial to these pathogens and the plaques they will form. Even normally 'innocent' microbes are seen to become cariogenic acid-producers when left in an acidic environment. Ordinary baking soda has a pH of around 9. Raise the pH, and the oral environment becomes unfavorable to the growth of yeast or other pathogens. Any cook who has had bread or cake fail to rise understands the importance of an acidic pH to the viability of yeast. Make a mistake in the recipe, if the pH is too high, the bread or cake will "fall" because the yeast will die.

Brushing twice daily with baking soda will help establish a passive biofilm that thrives in a neutral pH environment. We also see people who will purchase a baking soda containing tooth paste, thinking that it is the same thing as baking soda. All popular brands of toothpaste must have a negative, acidic pH to suppress the overgrowth of microbes in the tube. These toothpastes can also facilitate the promotion of an acidic mouth, with devastating consequences to persons suffering from "dry mouth syndrome" due to a variety of etiologies. The advice to use baking soda and baking soda alone for oral hygiene is good advice for anyone suffering from poor salivary function due to chemotherapy, radiation therapy, antihypertensives, rheumatoid arthritis, diabetes, geriatric deterioration of salivary flow, and any of the many immune dysfunctions affecting salivary flow like Sjögren's syndrome.

Simply brushing with baking soda is not adequate oral hygiene. The areas in-between the teeth (interproximal surfaces) comprise around a third of the surface area of the teeth, and nurture the most microbes if left unaddressed. Worse, many of them may be the more damaging anaerobes.

It is essential to break up the microbial plaque in-between the teeth with some adjunct. Floss is adequate for children and many young people, but the use of a small “interproximal brush” by adults will assure success in driving baking soda into this region, as well as pushing bubbles of air carrying oxygen, with high pH and oxygen being the nemesis of these anaerobic pathogenic microbes. If we think of the interproximal contours of teeth, especially those with advancing periodontal attack, it is easy to understand why floss cannot, alone, be adequate to removing and disrupting plaque.

On the average, we seldom see a person using a manual tooth brush who does an adequate job of brushing all tooth surfaces. We strongly recommend a sonic toothbrush for all patients and that they “quit brushing their teeth”. The gumline, the junction between the teeth and the gums is where most dental disease originates, both decay and periodontal disease if the chewing surfaces have been properly protected. Closing one’s eyes and “feeling” for the brush to systematically touch all tooth-gum surfaces will assure success.

Not only do these powered adjuncts to oral hygiene do a great job of breaking up plaque, the sonic wavelength will break up plaque three millimeters from the brush. Also, the foaming action of the sonic systems also pushes bubbles of oxygen containing air three millimeters from the brush, helping to search out and kill anaerobic microbes beyond the actual reach of the brush. Agitation also damages structures in microbe cell walls—fimbriae—that allow the germs to move over greater distances.

Another overlooked adjunct is a water irrigator device and a baking soda mouth rinse. One third cup of baking soda in a liter of water makes a great, effective mouth rinse. The higher pH solution actually has therapeutic qualities. Just be sure not to let the solution dry out in the irrigator or it will harden and damage the device.

In reality, the prevention of “Nursing Caries”, or any decay of the primary teeth should begin when potential parents consider becoming pregnant. The microbes that cause decay in infants do take a while to be replaced through good oral hygiene practices, and the sooner potential parents begin this journey the better the results will be for their yet-to-be-born infants. Chewing gum, for instance, with Xylitol instead of sucrose can substantially reduce the bad microbes that can potentially be transferred to the baby.

We also strongly, strongly recommend that patients seek out practices skilled in the use of ozone in its many forms. If there is a problem with a pathogenic oral bioflora, the proper use of ozone can immediately alter the entire oral bioflora, something that otherwise take months to accomplish. It is important to also only employ dental hygienists and practices who use only “Air Slurry Polishing”, or air abrasion with baking soda as the cleaner/polishing agent. Using baking soda as a polisher is an effective way to instantly disrupt the pathogenic microbes living below the gumline that may not easily be reached with ozone, and the air polisher removes the plaque barriers that may reduce the effectiveness of ozone.

Ozone also removes the dangerous biomolecules in early decay that give rise to an environment conducive to acid-forming microbes. One strong ozone treatment can significantly reduce the bad plaques for around 3-4 months, giving time for the tooth to remineralize and allow formation of a better balanced biofilm. Probiotics may also be helpful during this time, along with Xylitol.

How effective is this air polishing baking soda adjunct? One of the most tenacious and difficult things to treat is “pregnancy gingivitis”, the flare up of inflamed gums that is so prevalent beginning near the end of the first trimester and continuing well into the pregnancy. This flare up is often associated with a particularly dangerous family of pathogens, the spirochetes, which have been associated with cardiovascular disease, strokes, etc. later on in life^v. Other pathogens, such as fusobacterium, have been associated with preterm or low birthweight babies.

We routinely eliminate the pregnancy gingivitis in our patients by using baking soda in an air abrasion device for four consecutive weeks as the patient engages the oral hygiene methods we have discussed above, the most important adjunct being brushing correctly using a sonic tooth brush and baking soda. If there is a significant flare up of bleeding gums, we will also jump start the healing process by adding ozone.

If there is a history of recurring “yeast infections” in the female, the female must first realize that these reoccurring infections are simply flare ups of overgrowth of a dominant bioflora, yeast. The infection is already there. BOTH partners need to begin protocols of life style that will help eliminate yeast as a predominant bioflora.

There are other preventive methods that will help change the body’s external microbiome once the internal sources are addressed through diet and nutritional adjustments. Simply putting a cup of baking soda in the bath water each and every time a person bathes will help change the microbiome. Taking a cup of baking soda, dissolving it in a container of water, and pouring it over one’s head and body will help if showering is the main bathing method. Also, using a strong cleaning agent in the tub, shower, fixtures and bathroom floor will help eliminate pathogenic resident microbes.

Oral hygiene and prevention of “Nursing Caries” for the children starts right after they are born. Use an Xylitol wipe to cleanse the gums and under the upper lip immediately after feeding, whether bottle feeding or nursing. As soon as teeth begin to erupt, introduce a toothbrush to the regimen. Brush the anterior teeth as they erupt, and when the molars erupt, don’t forget the most decayed tooth area in the human body, the back side (distal) of the primary first molars. You MUST brush the back side of this area or the teeth may decay. The brush is placed on the back side of the back molar, coming from a 90 degree angle.

As the child develops, begin use of a nasal spray or drip containing Xylitol to keep pathogenic microbes at bay. How effective is using Xylitol sugar nasal spray? Several exposures a day to this simple sugar can decrease the incident of ear infections in children by a factor of 90%!!! Xylitol also helps reduce the incident of decay in children’s teeth. As soon as practical, begin using a mix of Xylitol and baking soda for brushing your child’s teeth.

Also, keep in mind that we, as humans, tend to develop unbreakable habits early in life. Allowing a five year old to brush with a manual toothbrush unsupervised virtually assures the development of bad brushing habits. We never have a month go by that we don’t see a 70 year old patient still brushing the long gone baby teeth they had at five years of age with disastrous results as their immune system begins to wane. They never discovered the gumlines of the newly erupted permanent teeth, and now they are in serious trouble. The only reliable way around this problem is to teach the child how to use an electronic tooth brush and teach the child to brush all of their gumlines. Don’t stop supervising until long after they master brushing their twelve year molars, and make sure you get an honest report from the child’s hygienist. “He/She is doing OK” doesn’t mean a thing. The hygienist is there to help prevent oral disease, and their job is to help reinforce good oral hygiene habits. They are like good parents: they are not there to make friends.

Your dentist might want to send home some plaque disclosing tablets to help see where your child is frequently missing in cleaning. These dyes are available in liquid or tablet form.

Keep in mind that this advice covering pediatric medical care, internal medicine, care in people with immune system disorders, patients with cancer, OB Gyn care, oral hygiene and prevention covering all ages, and prevention of otic infections is coming from a general dentist and not the medical community. Be sure to consult your dentist concerning your oral health when considering bringing a child into this world. Good oral health is just a part of maintaining a healthy body throughout life.

The conundrum of “Nursing Caries” is simply a disease caused by a pathogenic bioflora. The consequences of not controlling the sources of this disease will have lifelong consequences not only healthwise for the child, but also financially considering that the lifetime maintenance cost of a single permanent back tooth drilled on by a dentist is now estimated to be over \$6000^{vi}. Altering the bioflora is not an overnight treatment, but will take months and even years to establish and maintain a passive, neutral probiotic bioflora. Every person in contact with the children must also take steps to alter their bioflora, starting with the most frequent care givers. Nursing caries is simply a manifestation of the “Perfect Storm” of events that leads to this heartbreaking disease. Nursing caries and early pediatric caries can be managed and largely prevented through educating the parents and care givers.

This and more opinion articles are available on the www.jtimrainey.com website.

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