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Part 1

As a dental professional, it is important to understand gingivitis and its etiology in order to know how to treat it. According to Crest's video, What is Gingivitis?, "Gingivitis occurs in 3 out of 4 of Americans during their lifetime" and if left untreated can progress to a more serious and irreversible stage known as periodontitis (Crest, 2019). Plaque is always accumulating on the teeth and presents as a sticky bacteria filled substance that can range anywhere from colorless to pale yellow. It is imperative that we remove this biofilm because poor oral hygiene triggers inflammation of the gums otherwise known as gingivitis. Gingivitis is the beginning stage of gum disease and it can be observed clinically as red, puffy, bleeding gums and there is often the presence of halitosis. There are also risk factors that predispose individuals to gingivitis such as taking medications, smoking, chronic diseases, hormonal changes, poor diet/ nutrition, and stress. If these factors apply to any one individual, it is paramount that they remain vigilant. According to two of the most well-known dental companies, Crest and Oral B, some key recommendations that I can advise patients to prevent gingivitis is to brush with an anti-gingivitis toothpaste (containing stannous fluoride) and a soft electric toothbrush twice a day, followed by an anti-gingivitis rinse and daily flossing. Crest has a line of dentifrices that were formulated to prevent gingivitis as well as Oral B that "is the number one dentist-recommended toothbrush brand worldwide" (Oral B, 2021). These are oral home-care habits that can prevent and reverse gingivitis but another key component to preventing gingivitis is visiting your dental professional regularly. One thing that I have learned from watching these videos is the importance of recommending your patients to regularly visit their dental professionals. A patient can follow all of the recommendations to maintain their oral health at home but still need areas of improvement that can only be observed by a dental professional. We also have the skill of removing hardened plaque also known as calculus which cannot be done at home by the patient.

Part 2

When it comes to brushing the teeth, it is often a daily activity that is done without much thought. However, to ensure proper plaque removal, it is of utmost importance that we select toothbrushes and a toothbrushing method that will remove the plaque effectively from all areas of our mouth. According to Colgate's article, Manual Toothbrush versus Powered/Electric Toothbrush, "Around 80% of Americans still use a manual toothbrush"(Colgate, 2020). This is due to the wider range of choices such as bristle style, color, ergonomic design, and etcetera. Manual brushes are also generally cheaper and more widely available which gravitates towards more people. These are all pros when it comes to the manual toothbrush however, a con is that all of these features make it hard for patients to make a selective decision. There are endless options for manual toothbrushes and some are not designed with the intention to promote the best results. For example, soft toothbrushes are recommended because medium and hard toothbrushes can lead to abrasion destroying the enamel layer of the teeth. Although this is known, it is still sold in stores and customers that are not knowledgeable about this will continue to purchase them. Manual toothbrushes when compared to their electronic counterparts are more portable. When it comes to the electronic toothbrush, one has to worry about the batteries or

charging aspect of it which makes it more of a hassle. It is also advised that children should start off using manual toothbrushes because of the habits and changes they go through that arise the need for replacing their toothbrushes more often. Replacement of electronic toothbrush heads is more costly than the manual which is a con for usage by children and adults.

Although it may be more expensive to implement electronic toothbrushes into a patient's oral care routine, it has its benefits as well. For children with braces, it allows for more effective plaque removal and certain types of electronic toothbrushes can motivate proper tooth brushing habits by including built-in timers, songs, lights, colors, and implementing apps with rewards to improve the experience. Overall, electronic toothbrushes improve the cleaning efficacy because it can eliminate some human error that is commonly exhibited with the usage of manual toothbrushes such as not brushing long enough, and using improper brushing techniques. According to the Crest and Oral-B presentation, a manual toothbrush leaves behind 50% of biofilm when used for the full 2 minutes because only 10% of patients use correct brushing methods (Tripathi, 2021). Electric toothbrushes use smaller brush heads that get into harder-to-reach areas around teeth. There are also some individuals that have dexterity issues so electric toothbrushes are great for them because it does the work as well as has a bigger handle making it easier for them to hold. On the flip side, the article, Manual vs Power Which Toothbrush is best? It depends... states, “ in some patients the vibration and action of electric toothbrushes is not well tolerated” such as those with Parkinson's disease or autism (Bradley, 2020). Some electronic toothbrushes connect to apps that track and monitor the toothbrush user to give feedback and encourage better tooth brushing habits. The advice I would give when it comes to using an electric toothbrush would be to take advantage of the apps and actively work towards effectively removing plaque. I would also encourage patients to select brush heads that are designed for their particular situation for example using interspace heads if they have bridges, crowns, or implants.

Whether a manual or electric toothbrush is used, the key to effective tooth brushing is reaching all areas of the mouth. I would assess my patient's oral condition with a disclosing solution and a hand mirror to help the patient and I visually see where most of the plaque is found in their mouth. I could have them demonstrate their method prior to showing them my recommendations to fine-tune their technique. I would indicate the best method that they should use. I would also advise that they find a toothbrush that fits their mouth so that they can brush more easily. There are many methods to choose from when it comes to toothbrushing with the most common one being the bass method. It removes biofilm beneath and adjacent to the gingival margin and in combination with the rolling method can clean the crowns of the teeth. I would demonstrate to patients how to execute this toothbrushing method correctly. This method is where the filaments of the toothbrush are directed apically at a 45-degree angle and are vibrated back and forth with short strokes for at least 10 vibrations. The occlusal method is a supplemental method that involves a short vibratory stroke in the pits and fissures of the occlusal surfaces of the teeth. Another method I am likely to recommend is the Charter method due to its efficacy in the presence of orthodontic appliances such as braces and fixed partial dentures. This method would involve the toothbrush being placed at a 45-degree angle to the occlusal plane and implementing 3-4 small rotary movements. Some patients may also have overlapped teeth, open embrasures, and selected areas of recession and in that case, I would advise them to brush in a vertical position to remove the biofilm. Lastly, I would advise the patient to actively brush the lingual surfaces and the most distal aspects of the last molars because these are areas that patients

tend to miss. With this assessment, demonstration, and advice, patients should be able to clean all aspects of their teeth effectively.

Caring for our toothbrushes is just as important as how we use them. This is because of the opportunity for bacterial growth and reduced efficacy with worn-out brushes. As a dental professional, I would suggest that my patients have at least two toothbrushes at home to rotate between uses in the event that the one they are currently using is still wet. Toothbrushes must be fully dry because if they are not, pathogenic bacteria can grow on them and be introduced into the mouth. If patients want to carry brushes to work or school, I would also suggest placing the dried toothbrush in a portable brush container to prevent contamination and promote drying of the filaments when used. Generally, toothbrushes should be replaced every 3 to 4 months and even more frequently before the filaments become frayed or if the patient is sick. It is also important that the toothbrush is rinsed thoroughly with water after each use to remove any debris, dentifrices, and bacteria. Lastly, in terms of storage, it is recommended that toothbrushes be kept in open air in an upright position and not in contact with other brushes. Toothbrushes should not be stored in closed containers because this also encourages bacterial growth.

Part 3

The majority of the population understands the importance of brushing their teeth but the same cannot be said for flossing. Flossing is equally as important as brushing and one cannot fulfill or replace the job of the other. Floss was invented in 1815 by American dentist, Dr. Levi Spear Parmly who used waxed silk thread to remove bacteria from within the sulcus. Now, the importance of floss is more widely known. Simply put, it gets into the areas that toothbrushing cannot such as the proximal tooth surfaces and adjacent gingiva. According to Wilkins' Clinical Practice of the Dental Hygienist, “Interdental biofilm control is essential to complete the patients oral self-care program”(Mallonee, 2020). The area of the gingiva directly under the contact is known as the col. It is composed of thin epithelium tissue that is not keratinized making it less resistant to infection and often the first signs of gingivitis are found here. Leaving the biofilm in this area undisturbed means active progression to periodontitis which presents with attachment loss, pocket formation, bone loss, irregularities of the teeth involved, and exposed proximal tooth surfaces all of which are irreversible.

There are two methods of flossing. The first option is called the spool method. To prepare the floss for this method, a 12-15 inch piece of floss should be held in the thumb and index of both hands leaving only half an inch of floss between them. The remaining floss can be wrapped around the middle fingers or held in the palms. The second method would be the loop method in which the same amount of floss is used instead the ends are tied in a knot. This makes it convenient, easier to hold and increases plaque removal efficiency by improving user compliance. Regardless of which method of flossing preparation is used, the floss will then be applied to the teeth depending on the arch that's currently being worked on. If working on the maxillary arch, the floss should be directed upward by holding it over the thumbs. If working on the mandible, the floss should be directed downward by holding the index fingers on top of the strip of floss. A fulcrum can be implemented to provide balance by resting the side of a finger on the teeth. Next would be insertion starting with the most posterior tooth by holding the floss in a diagonal position and using a sawing motion to slowly get the floss through the contact area and

curve it around the tooth in a C shape. The floss should be pressed firmly against the tooth beneath the gingiva in an up and down motion to disrupt any biofilm that may be present.

Part 4

If a 13-year-old patient with orthodontic appliances were to inform me that he brushes only once a day and never flossed, I would start off by conducting a patient assessment to see if there is any inflammation, bleeding, and other notable findings. Based on these findings I would report any areas of inflammation or bleeding as indicated by the probing depths and explain what it means in layman's terms to the patient. I would inform him that inflammation is the result of plaque accumulation and that plaque which contains bacteria constantly builds up in our mouths throughout the day. I would stress that if left undisturbed, gingivitis can progress to a more serious stage called periodontitis which presents as loss of attachment, bone loss, and eventually tooth loss. I would also add that especially since he has orthodontic appliances, he will retain much more plaque making it paramount that he stay on top of it. This not only means brushing twice a day but incorporating floss daily to get into areas where a toothbrush can not reach. Since he has never flossed I would show him a demonstration on how to do it. I would also introduce him to the charter method if he isn't already utilizing it to ensure that he is effectively brushing his teeth.

If a 28-year-old patient with localized gingival recession informed me that they have been using a medium toothbrush and only floss when there is food in between their teeth I would explain to them that the bristle type they are using is negatively affecting the condition of their teeth because it is too harsh on the gums. I would also inform them that recession exposes the roots of the teeth which is problematic because the roots of our teeth are not as strong as the crowns. Not only is a medium toothbrush hard on the gums, it is also hard on the enamel which with continuous use will only wear away that protective layer of our teeth making it weaker. I would recommend that they switch to a soft bristle toothbrush and try the modified Stillman method instead of the scrubbing method because it is also contributing to the recession. I would demo it for the patient to ensure that they understand the method as well. If the patient refuses to change their toothbrushing method I would understand their decision and advise that they at the very least try to be less aggressive with their brushing. In regards to the flossing, I would let the patient know that it is great they are flossing occasionally but they should focus on flossing all of their teeth daily because they need to remove the bacteria that is accumulating in the sulcus. The bacteria rather than food is what causes disease of the gums and I would ask them to demonstrate the way they floss to fine-tune anything they need to improve on and maximize biofilm removal.

Part 5

From this assignment, I have learned that a lot is involved when it comes to individualizing patient care. There is a wide arrangement of toothbrushing methods and oral hygiene products that we can choose from. It is important to understand the indications for each to effectively decipher which ones will or will not work for our patients. Patients rely on us to make their selections easier because the market is overly saturated and it can be overwhelming or confusing for them to know which products they should or shouldn't get. This assignment was beneficial because it provided me with more information about the key differences between manual and electric toothbrushes and flossing techniques so that I can help suggest the best options for my patients. I was also able to actively think about what I would recommend for two

different types of patients based on their specific circumstances which is always good to practice. My entire family uses the scrub method which is all we were ever taught to use. We have been using it correctly for the posterior teeth but not for the anterior because we do not hold the brush parallel to the long axis of the teeth in this area of the mouth. We also never had a real emphasis on flossing but in the event that we did floss, the method was done correctly but not in the correct sequence because we would start with the anterior teeth first. In the future, I do feel comfortable with explaining toothbrushing methods, flossing methods, plaque and calculus because I have the understanding that I need to be able to explain these concepts as well as demonstrate them.

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