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Contemporary Product Solutions is proud to present the Align Certificate of Excellence. The ACE certificate will spark a desire to further your professional and personal growth in a very positive and unique way.

By completing these hands-on classes, we feel it is an exceptional opportunity for the dental team to greatly enhance their professional skills and knowledge in the following areas: Clinical Communication, Digital Photography, Impression Taking, and Composite Attachment Placement.

Who is CPS

With the combinations of the world's leaders in their field, our dexterous, knowledgeable, and experienced team of trainers stay ahead of the game by working hard to prepare for what's next in the field of dentistry and providing a whole team's perspective of information needed to succeed. Our mission is to ensure we can provide the highest level of education for all team members. Contemporary Product Solutions commitment to education is our number one priority.

Who can take the exam

Office Team
Dental Hygienists
Dental Assistants
Patient Care Coordinators

Before you can obtain the certificate

The ACE certificate is unique and accessible to all dental team members who have either attended the Fundamentals in Orthodontic Records Course or Comprehensive Orthodontic Records Course. Read and successfully completed all examinations with a passing score of 80% or higher.

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Dental Hygienists' Role in Identifying Cases for Aligners

by Shannon Pace Brinker, CDA, CDD

Dental hygienists typically see patients more frequently, regularly, and for longer periods of time than any other dental team member in the practice. Because they see patients on a routine basis, they have an intimate knowledge of a patient's mouth, condition of their teeth, and esthetics of their smile. They also observe any changes that have taken place over time.

But something else occurs during these interactions. Dental hygienists build unique and trusting relationships with their patients, the type in which patients are more likely to share their personal feelings, goals, and concerns about their health and appearance. This type of relationship, combined with the dental hygienist's first-hand knowledge of the patient's oral health and what can be accomplished with today's dental treatments, ideally positions them to identify candidates for orthodontic aligner treatment—a non-invasive treatment for straightening teeth that also can facilitate better periodontal and overall oral health.

Orthodontic aligner treatment is used to correct several conditions, including gapped teeth, overbite, underbite, open bite, crowded teeth, and crossbite. Popular for its esthetics and convenient functionality during treatment, orthodontic aligner treatment utilizes customized clear aligner trays to improve occlusion and correct tooth alignment.



HYGIENE & FUNCTIONAL IMPLICATIONS OF MISALIGNMENTS

While many patients may recognize the manner in which crooked teeth affect the esthetics of their smiles, they may not be aware of the other problems this may cause. Teeth crowding and rotations can limit their ability to properly clean all tooth surfaces, contributing to an increased risk of dental decay and periodontal disease. Gaps and spacing between teeth can result in additional periodontal problems, since gingival areas aren't protected by tooth structure. Dental hygienists have a great opportunity during routine appointments to ask patients if they've encountered any problems while flossing, which can lead easily into a casual and comfortable conversation about the oral health benefits of a straighter smile and the convenience of aligner treatment.

Patients with crossbite can exhibit abnormal wear of the teeth, dysfunctional chewing, and occlusal trauma. When dental hygienists encounter signs of abnormal wear, it's a signal to ask the patient if he or she has experienced any problems when eating or chewing certain foods, or if there have been any changes in their life since their last appointment. Then, the conversation can proceed to a discussion about the wear that has been observed, and how orthodontic aligner treatment can help.

Complications associated with overbite or deep bite (e.g., excessive overjet, overbite malocclusion) include improper function of anterior teeth, lower anterior teeth biting into palatal gum tissue and leading to periodontal problems, abnormal wear of the lower anterior teeth, posterior tooth wear, dysfunctional chewing, and occlusal trauma. It can also be associated with jaw dysfunction and pain. As a patient's first regular point of contact for oral examinations, the dental hygienist can observe changes in the condition of these areas and assess whether records and examination are warranted.

But recognizing signs of these conditions is also an opportunity for dental hygienists to inquire about any new or worsening symptoms patients may be experiencing, whether pain, stress, bruxing/grinding, or changes in lifestyle. When considered in their totality, they may lead to an open and honest conversation about ways to ensure the patient's long-term oral health and, if appropriate, how orthodontic aligner treatment can help achieve those goals.

Other alignment issues are commonly observed during routine hygiene appointments, such as extrusions, midline discrepancies, and insufficient overjet, the latter of which can contribute to improper anterior tooth function, complications with posterior tooth function, and abnormal maxillary anterior tooth wear. What's important to remember when broaching the subject of what a patient may deem as unnecessary treatment, is that dentistry that is sold often times turns into noncompliance, no shows, cancellations, and/or failed financial agreements. However, dentistry that is planned with the patient based on what they value and want results in long-term happy, grateful, and compliant patients.

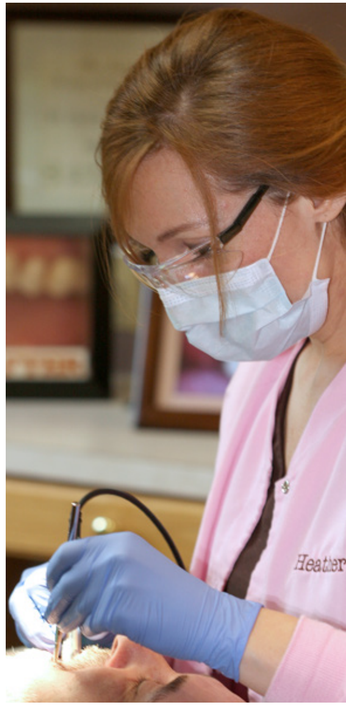
Moving Forward

Identifying stable and positive attributes of the patient's oral health—as well as those aspects of their occlusion and misalignment that can be corrected with aligner treatment—is greatly enhanced using digital dental photography. Clear photographs of the patient—preferably the nine images required for orthodontic aligner treatment planning—enable better visualization and understanding of their condition and what can be corrected.

Likewise, it's equally important for the patient to understand what the alternatives are, as well as the consequences of on-going malocclusion. In a non-threatening and non-condescending way, patients should be completely informed of the biologic, functional, and esthetic problems that could continue or develop if they choose to forego recommended treatment. And, if patients have any questions about aligner treatment, dental hygienists can reinforce treatment for a variety of misalignments and occlusal problems, explain the esthetic features and benefits of the bracketless and wireless system, and arrange for a consultation with the dentist.

Conclusion

Dental hygienists have a responsibility to ensure patient oral health and identify risk factors for periodontal disease and other oral health complications, including malocclusion. Fortunately, orthodontic aligners can be recommended for treating a variety of occlusal and misalignment problems in a comfortable, convenient, and esthetic way. When dental hygienists maintain open and trusting relationships with their patients—and are fully aware of the many type of conditions that aligners can correct—a foundation is established for discussing areas of concern that may require further consideration and treatment.



Simplifying Dental Photography for Aligner Treatment

by Shannon Pace Brinker, CDA, CDD

When taking digital photographs for orthodontic treatments, dental assistants may encounter a variety of challenges during this important treatment planning and progress documentation process. Dental photography for orthodontic treatment—spans a range of images and necessitates equipment flexibility for capturing patient conditions at all angles. Heavy cameras with various lighting equipment, settings, and lenses—in addition to overly simple systems—contribute to confusion and challenges in dental photography.

For example, typical point-and-shoot cameras do not provide sufficient specialization to properly capture and document the specific patient characteristics required in dental photographs. Meanwhile, advanced digital single reflex lens (DSLR) cameras demand extensive training and are very heavy to operate.

Orthodontic aligner treatment is planned in part based on nine intraoral and extraoral photographs. These contribute to creating the ideal customized clear aligners for each individual patient to correct their malalignment issues. Although just one component of orthodontic aligner diagnostic records, these photographs document and provide essential information for aligner fabrication. Therefore, inaccurate, incomplete, or poorly framed or focused photographs can result in poor fitting aligners, unsuccessful treatment, frustrated patients, and decreased profitability to the practice. Using the most dental-appropriate equipment available, simplifying the photo-taking process, and ensuring proper technique enable dental assistants to produce accurate and essential photographs for aligner treatment.



Photography Equipment & Materials

Necessary equipment and materials for producing clear and specific dental photography for treatment planning includes a background, lip retractors, an occlusal mirror, and a dental camera. A non-distracting background that is either white or lightly colored creates a visual contrast between the background and the patient when extraoral photographs are taken. Lip retractors are necessary for intraoral photographs to move a patient's lip away from the area of interest and isolate the teeth. Two types of lip retractors (e.g., double plastic lip retractors and small metal retractors) are used in orthodontic aligner treatment planning. Dental assistants can utilize the "c" end of the double plastic retractors when capturing anterior frontal photograph, while the "v" ends are used when taking side buccal photographs. The metal lip retractors stretch the patient's lip out more than the plastic retractors and, along with occlusal mirrors, facilitate capturing the full maxillary or mandibular occlusion.

Recent advancements in digital cameras have resulted in the development of dental specific cameras that provide dental assistants and dental practices with the ideal camera for capturing the variety of images necessary in every day practice. When taking full face photographs, keep the patient slightly away from the backdrop to avoid shadows, and stand far enough back to include the patient's shoulders and top of their head. If the patient has long hair, ask them to pull it back. For repose photographs, instruct the patient to lick their lips and then take a deep breath; this helps ensure that they are in a natural and neutral position.

Necessary equipment and materials for producing clear and specific dental photography for treatment planning includes a background (left), lip retractors, an occlusal mirror, and a dental camera (right).

Intraoral photographs require close patient interaction and specific patient instruction. Avoid using a bib on the patient during the photography portion of the records appointment to prevent implying a clinical procedure will take place. Instead, use this time to connect with the patient and continue discussing their orthodontic aligner treatment. Capturing the entire mandibular or maxillary occlusion can be difficult, so keeping the patient at ease—as well as using small metal retractors at an angle—will help enable the patient to stretch out their lips farther. Asking a patient to lift their chin as far back as possible can reduce tongue interference and improve accuracy. Eliminating saliva, lipstick, plaque, etc. when taking intraoral photographs helps avoid obscuring necessary details of a patient's teeth, improving image quality.



Photographic Technique

After the patient is determined to be a suitable candidate for orthodontic aligner treatment during the consultation appointment, schedule the patient for a necessary diagnostic records appointment.

At the diagnostic records appointment, take the required nine photographs for aligner treatment and VPS impressions.

Capture the three extraoral photographs with the patient standing in front of a neutral background, hands at their sides, and hair pulled away from their face.



1. FRONTAL SMILING



3. RIGHT PROFILE



2. FRONTAL REPOSE

Suggested Stop F5.6 or F8
Lens Setting 1:10 Automatic

Use a non-distracting background: blue, grey, black, and brown all work well. Have the patient stand with hands at their sides.

HINT: Use the interpupillary line and long axis of the face to align the camera. Camera angle should be at the same level as the patient's nose.



4. FULL SMILE



5. ANTERIOR, FRONTAL RETRACTED

Suggested Stop F22 or F32
Lens Setting 1:3 Manual

Patient is seated knee to knee facing the assistant. Both patient's and photographer's chair are the same level allowing the photo lens to be parallel.

HINT: Use buccal retractors without a mirror for retracted shot; focus is on the central teeth.



6. BUCCAL, RIGHT



7. BUCCAL, LEFT

Suggested Stop F22 or F32
Lens Setting 1:3 Manual

Same seating position - knee to knee with patient. Have the patient place retractors, pulling further back the retractor side you are capturing.

HINT: Upper and lower teeth should be together; focus are on the cuspids (right and left) and should be in the center of the frame.



8. OCCLUSAL, UPPER



9. OCCLUSAL, LOWER

Suggested Stop F22 or F32 • Lens Setting 1:3 Manual

Try not to leave any teeth out of the photo – the wider the patient opens, the more teeth will be in the frame. Keep nose out of the picture. Keep mirror warm to avoid fogging.

HINT: Place retractors and mirror then stand behind the patient and lower the chair to waist level. Ask patient to lift their head as high as they can, again encourage them to open wide. The full arch mirror should rest flat against the opposing arch teeth.

Conclusion

For orthodontic aligner treatment planning, understanding the required images, having the ideal equipment and materials, and following proper photo-taking technique enable dental assistants to achieve high-quality photographs.

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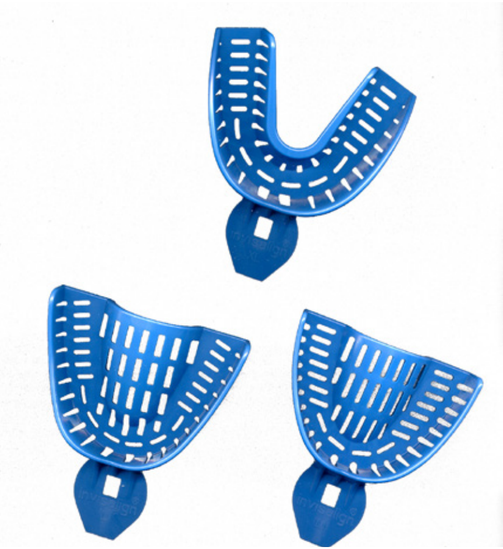
One-Step VPS Impressions Ensure Accuracy for Orthodontic Aligner Treatment

by Shannon Pace Brinker, CDA, CDD

Among the most important records for planning and executing orthodontic aligner treatments are VPS (vinylpoly siloxane) impressions. These essential replications of the patient's teeth positions and arch forms document their pre-treatment condition and help to determine treatment goals and proposed tooth movements. Unfortunately, using an inferior impression material or improper technique can compromise the integrity and accuracy of the impression, costing the dental practice additional staff time, materials, and patient confidence, as well as possibly negatively affecting treatment outcomes.

An improper impression technique can lead to "lift off," failure to capture complete anatomical details, and/or omission of the last molar, which is the most common reason that impressions are rejected by aligner manufacturers. When improper materials are used, including improper impression trays, alginate alternative materials, or polyether materials, the impressions also may be rejected because they cannot be read by the manufacturer's scanners. Additionally, scrapes, bubbles, and rubs in the set impressions compromise their accuracy, can also lead to rejection, and may cause imprecise aligner fabrication.

It is therefore imperative that the ideal VPS impression material, proper impression trays, and proper technique be incorporated into the impression taking process. Doing so helps to ensure that detailed impressions are created as a foundation for fabricating predictable treatment aligners.



Material Selection

Impression trays are available in various sizes to accommodate all patients and some companies offer them online for free. Scanners read only vinylpoly siloxane (VPS) material, so it is imperative that other materials (e.g., alginate alternatives, polyether materials) not be used. Ideal impression material systems include putty and light wash materials, a combination that captures the details necessary for creating orthodontic aligners. Such details include all margins and anatomical landmarks. Additionally, these materials set easier and avoid running and slumping.

Preparing & Handling Impressions

The type of gloves worn when handling impressions can alter the putty setting times. VPS impressions, dental assistants are advised to wear nitrile gloves, as well as to avoid mixing the putty's base and catalyst spoons to ensure that the putty doesn't set prematurely.

Ensure that the patient is sitting up, with feet uncrossed, legs straight out, and hands folded in their lap. The patient should be appropriately prepared prior to seating the impression tray, with the advanced nature of the impression materials and technique explained and any anxieties calmed. They also should be informed to be ready, since the impression material will set quickly, calm anxieties, and instruct them to be ready as the impression material sets quickly.



Prior to mixing the material together, the impression trays should be tried in the patient's mouth to ensure that they do not cut off the last molars. A new tip is placed on the wash body, which should be bled to remove any air bubbles. The putty is mixed together with quick and efficient movements, then placed in the tray, with the light wash added on top.

The tray should be firmly seated immediately, since the putty is thick and heavy. The putty should be massaged using fingers into high detail areas to avoid compromise and patient retakes.

These materials typically set in two and a half minutes. They can be checked by easily tearing a piece of the light wash material so that it breaks easily.



Clinical Technique

After capturing the nine dental photographs required for orthodontic aligner treatment planning, the patient is ready for the diagnostic impressions records component.

Prepare for impressions by putting on nitrile gloves. Try-in the maxillary impression tray to ensure proper fit. Place a new tip on the light wash impression material and bleed the tip.

MAXIALLARY



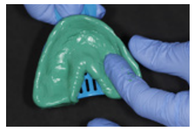
Load the impression tray with 3M's Imprint 4™ VPS putty impression material starting with the most posterior areas of the impression tray.



Load the impression tray without lifting the tip to avoids air and bubbles into the impression.



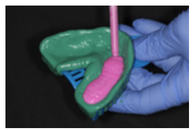
Using your index finger, make a putty trough of where the teeth should be to allow room for light body wash material.



Pinch the putty to extend the material in the vestibule area.



Examine the putty in in the tray to make sure you have good depth for the Imprint 4 light body wash



Reline the impression with 3M's Imprint 4™ VPS light body wash. Extrude into clinical crown areas making sure not to lift the tip.



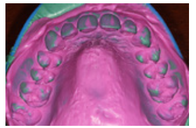
Make sure you have an even amount of Imprint 4™ VPS light body wash impression material to take a good detailed impression of the patient's dentition.



Seat the impression straight up to avoid any drags or scrapes. Make sure the handle is always aligned up with the patient's midline.



Always hold the impression tray in the pre-molar area for stability.



Final maxillary impression using Imprint 4™ VPS by 3M.

MANDIBULAR

With nitrile gloves on, try-in the mandibular impression tray to ensure proper fit. Place a new tip on the light wash impression material and bleed the tip.



Load the impression tray with 3M's Imprint 4™ VPS putty impression material starting with the most posterior areas of the impression tray.



Load the impression tray without lifting the tip to avoids air and bubbles into the impression.



Using your index finger, make a putty trough of where the teeth should be to allow room for light body wash material.



Pinch the putty to extend the material in the vestibule area.

Examine the putty in in the tray to make sure you have good depth for the Imprint 4 light body wash.



Reline the impression with 3M's Imprint 4™ VPS light body wash. Extrude into clinical crown areas making sure not to lift the tip.



Make sure you have an even amount of Imprint 4™ VPS light body wash impression material to take a good detailed impression of the patient's dentition.



Seat the impression straight down over arch while pulling out the patient's cheek.



Move around behind the patient holding down the impresion in the pre-molar area with thumbs for stability while gently holding the mandible with fingers. Final setting time is 2/30.



Final mandibular impression using Imprint 4™ VPS by 3M.

Disinfect the impressions, then package for shipment for aligner fabrication.

Conclusion

Dental assistants who take accurate impressions as part of the orthodontic aligner treatment planning process provide an invaluable service to their team members and their patients. They facilitate delivery and completion of successful aligner treatments, as well as saving the practice staff time and money. VPS impressions are the foundation for determining a patient's orthodontic needs and subsequent aligner fabrication. The one-step impression technique and VPS impression materials allow to achieve predictability when taking necessary impression records, all while demonstrating reduced setting time, improved viscosity, and detailed accuracy.

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Placing Orthodontic Aligner Attachments Using Proper Technique and Materials

by Shannon Pace Brinker, CDA, CDD



Indicated for a variety of conditions, including gapped teeth, overbite, underbite, open bite, crowded teeth, and crossbite, orthodontic aligner treatments utilize customized clear aligners to improve occlusion and straighten teeth. Popular for many reasons, aligners provide a more esthetic and functional option for patients of all ages, without using brackets, wires, or bands. Although indicated to correct several conditions, some cases require additional features to help achieve the patient's anticipated treatment results. For those cases, some tooth movements necessary for orthodontic correction require attachments in combination with the aligner for proper tooth positioning.

Designed to help the aligner tray's grip the teeth, attachments are placed in strategic positions to help move the teeth in the specific directions planned by the dentist. Attachments enhance the aligner trays' ability to move a patient's teeth by providing greater surface area retention. Attachments for aligners also serve as anchors for specific segments of teeth, so that some can move while others remain stationary. Easily removed at the end of therapy using a polishing tool, attachments do not cause any permanent alteration to the tooth surface(s).

During initial treatment planning, dentists can determine whether or not attachments are necessary and where they will need to be located. Dentists or dental assistants can then affix small amounts of enamel-colored composite to the teeth requiring an attachment using a bonding agent and designed template aligners. Although a simple procedure that requires no aesthesia, dental attachments for treatments *do require precise placement* to ensure they properly facilitate ideal tooth movement. Complications can occur, especially when improper adhesion delays treatment and/or affects the esthetics of an overall successful orthodontic treatment.

Material and Equipment Selection

Aligner templates are provided for creating ideal attachments, reducing the possibility for variations in attachment shapes and locations. After submitting the diagnostic records, the aligners are fabricated and, if necessary, fabrication of aligner templates is also completed. When the patient returns for their first aligner appointment, it can include attachment placement and/or interproximal reduction.

Attachments require a bond strong enough to anchor aligners, but weak enough to avoid altering the healthy tooth structure during removal.

Additionally, because maintaining high esthetics remains an important characteristic of orthodontic aligner treatments, and because placement of the attachments frequently occurs on anterior teeth, a shaded composite that matches the patient's enamel should be selected. This prevents the attachment from interfering with case esthetics throughout the treatment and reduces patient anxiety regarding the appearance of the attachments.

Other armamentarium useful to dental assistants to successfully place attachments include retractors which will comfortably isolate teeth and reduce saliva and excess fluid in the oral cavity that could potentially interfere with bonding should along with a saliva ejector.

Additionally, it is essential to use composite placement tools to allow dental assistants to press the composite into the template well, ensuring the ideal amount of material is present, and help stabilize the template aligner during light curing. On occasion, attachments may fall off throughout the aligner treatment for a variety of reasons, most commonly improper placement technique. A slightly wet aligner template decreases the bonding agent's ability to bond the tooth with the composite and reduces the bond strength. If an attachment falls off, two options are available for reattachment. Since the original aligner template most likely no longer fits the patient's teeth, the dental assistant can simply cut out the individual tooth from the attachment template and repeat the placement procedure. An alternative option is to contact the aligner company and request a template aligner fabricated using the patient's current aligner. In two to three days, the new template aligner will arrive and and the attachments can be placed.

Clinical Technique

Prior to treatment, explain the attachment process to the patient and prepare the patient for what to expect.

1. Isolate the teeth and reduce salivary contamination.

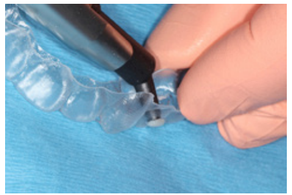


Try-in the attachment template and ensure that it snaps in place and fits properly. Remove the template and try-in the first aligner to ensure it also fits properly.

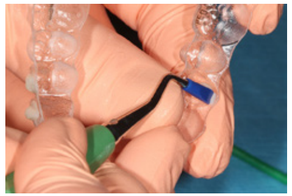
Use an air-water syringe to completely air dry the template. Review attachment instructions regarding shape and location.



2. Acid etch the enamel of the teeth to receive an attachment according to the manufacturer's instructions in the specific shape and location of where the composite attachment will be placed, with little excess on the rest of the tooth.



6. Load the shade-matched composite into the window of the attachment template.



7. Use the padded end of the instrument to press the composite into the well, ensuring the correct amount is placed. Do not to overfill or under-fill.



3. Rinse the etched tooth/teeth for 15 seconds and dry until the tooth surfaces have a frosted appearance.

If you do not see this then start over again re-etching the tooth.



4. Mix the bonding agent and apply it to the etched surface

Scrub the area for 20 seconds to enhance the bond strength and dry with light air.



5. Light-cure the bonding agent for 10 seconds, placing the curing light right on the tooth/teeth.



8. Fully seat the loaded template onto the teeth. Use the instrument to apply gentle pressure around each attachment to ensure full adaptation, and squeeze excess composite away from the etched area.



9. Firmly hold down the composite using the instrument and light cure according to composite instructions.



10. Remove the attachment template, and then remove all flash and bonding resin between teeth. Floss interproximal areas and remove any excess resin or composite.

Ask the patient to ensure that the attachment isn't too sharp. Polish the attachment as necessary using a rubber tip and low-speed polisher.

Repeat the procedure for any additional attachments.

Keep the attachment template in the patient's case box, and seat the patient's first aligner. Demonstrate on the patient how to properly put the aligners in and take them out of the mouth. Never give the aligner template to the patient, as it may be necessary to use it in the event an attachment needs replacement.

Conclusion

Orthodontic aligner treatments may sometimes require attachments as a fundamental tool to correct teeth alignment and manage occlusion. Accurate and secure placement of attachments ensures that the ideal movement of teeth occurs and avoids wasted time in fixing failed attachments. Essential to many aligner cases, dental assistants can easily place attachments by practicing the ideal placement technique and using the proper tools and materials. This helps to achieve esthetic and functional orthodontic aligner treatment results.

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