align education

Clinical Case Report

Dr. Lovedeep Randhawa

My new digital consult and the Align™ Oral Health Suite.

Efficiency and effectiveness in treatment acceptance in minutes.

Dr. Lovedeep Randhawa has practiced for over 18 years in British Columbia, Canada. She is among the first dentists in Canada to implement chairside CAD/CAM with glidewell.Io™ and integrate digital workflows into her two practices. Dr. Randhawa is a Clear Aligner Teen Residency Program graduate from the American Academy of Clear Aligners (AACA) and is currently pursuing a fellowship with the Academy of General Dentistry (AGD).

She is a member of the AGD, AACA, the American Academy of Cosmetic Dentistry, and the Spear Faculty Club. Dr. Randhawa graduated top of her class from Manipal College of Dental Sciences in India and completed another dental degree at the University of British Columbia (UBC) in 2004. She is also a part-time faculty member and mentor for the UBC Dental Mentorship program.

In recognition of her outstanding achievements, Dr. Randhawa was nominated for the RBC Canadian Women Entrepreneur Awards in 2019 and 2020, presented by Women of Influence. She currently sits on the Philanthropy Development Committee of the BC Children's Hospital Foundation. Dr. Randhawa is passionate about sharing her knowledge with her dental colleagues and educating her patients on the transformative power of their smiles. As a Platinum Invisalign® Provider and Align™ Technology speaker, she is an authority in her field and a true asset to the dental community.

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Background

In May 2023 a 27-year-old female patient presented to my practice for her periodic exam. She has been a patient of mine since 2019, when I recorded the first iTero™ scan. However, she had been away for a few years due to the pandemic.

At the time, I had recommended orthodontic treatment with Invisalign® clear aligners. However, the patient did not accept this treatment. Four years later, and after conducting the consultation with the Align™ Oral Health Suite, this patient immediately accepted orthodontic and restorative treatment.

What made her change her mind?

During the exam, she expressed her main concern was that her upper central incisors looked shorter than before, and she was willing to get some bonding on them to lengthen the teeth. After gathering records, including the iTero™ scan, here is how we conducted the consultation using the new tool on the iTero Element™ 5D Plus imaging system.

One of the advantages of using this tool is that when I am conducting the visual exam, I have the 3D digital scan available, and I use it to cross-reference with other records. In addition, the dental assistant is also following the 3D scan while I am dictating the findings, which adds quality assurance to the process as we can accurately see the location, size, color, and texture of clinical findings. This is not achievable without having the scan in front of you.

The Align™ Oral Health Suite provides a wheel with five conditions from which to choose **(Figure 1)**. I started with Tooth Health and worked my way around to assess each condition and build the treatment plan along the way with the active participation of the patient. I also captured screenshots throughout the consultation that were added to the iTero scan report, which is handed to the patient at the end of the consultation. This helps to reinforce the findings and treatment plan created for the patient, who can also bring it home and discuss it with their family.

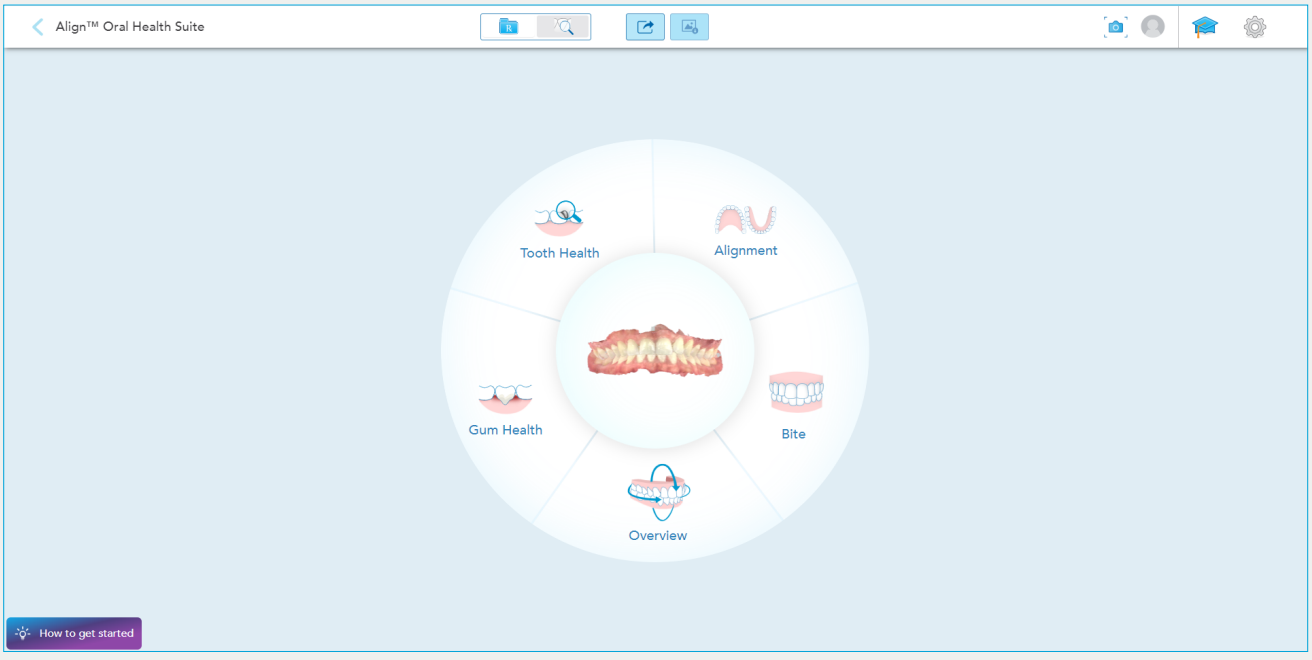

FIGURE 1: The Align™ Oral Health Suite provides five conditions for the clinician to choose how to start the conversation during new patient, recall, and emergency exams.

Case information

GENDER:
Female

AGE:
27 years

CHIEF CONCERN:
"I don't like my front teeth, they appear short."

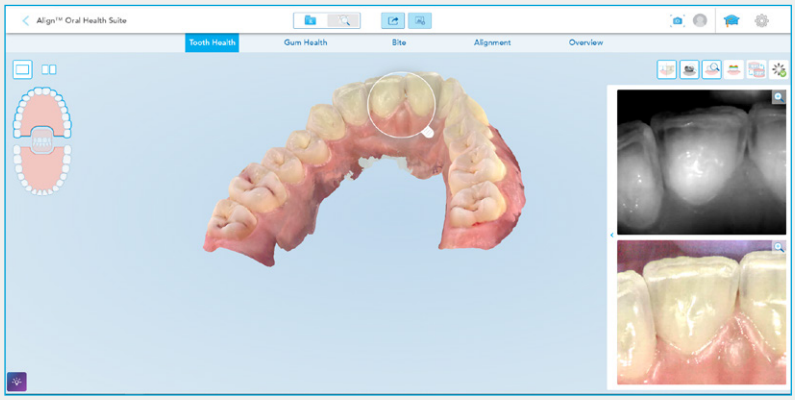

FIGURE 2. The 'Tooth Health' condition automatically highlights the stone model, the iTero™ NIRI technology, and the integrated 3D intraoral camera to assess hard tissues and restorations.

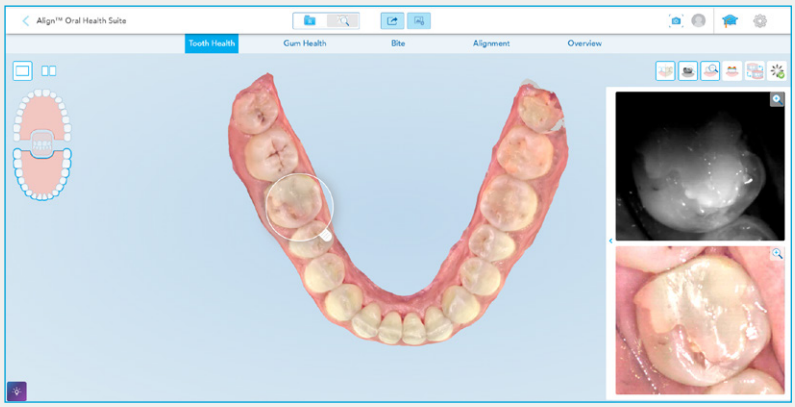

FIGURE 3. The 'Tooth Health' condition and the tools within allowed me to show the patient the need for a permanent restoration on tooth number 30 (lower right first molar).

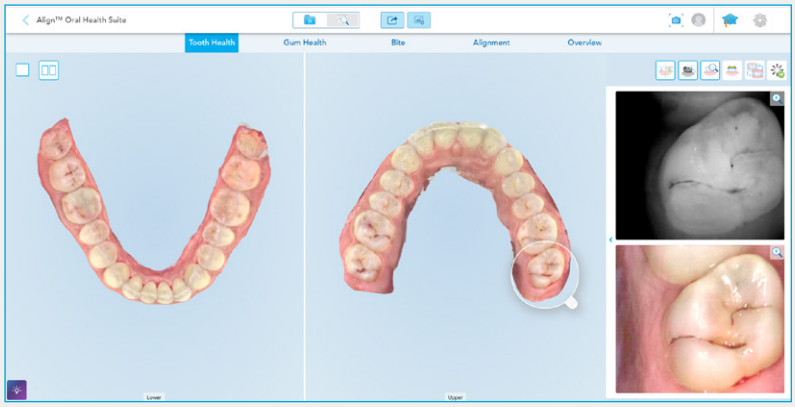

FIGURE 4. The integrated 3D intraoral camera aided in educating the patient on the depth of her grooves and the importance of keeping up with good hygiene practices to prevent future dental caries.

Tooth Health

Under this condition, the stone model, the iTero™ NIRI technology (Near Infra-Red Imaging) and the integrated 3D intraoral camera are highlighted. This patient has a relatively low history of dental caries. Her oral hygiene is acceptable and after reviewing the radiographs and the images generated by the iTero™ NIRI technology, we confirmed one interproximal lesion on the mesial of tooth number 8 (upper central right incisor) **(Figure 2)**. I dragged the loupe around both arches while we both looked for potential lesions and evaluated the state of existing restorations. There are a few old restorations that we will be monitoring for potential microleakage, as well as a large restoration on tooth number 30 (lower right first molar) that needs a crown **(Figure 3).** Furthermore, her teeth present deep stained grooves. However, there is no evidence of dental caries confirmed during the clinical exam **(Figure 4)**. With patients with good oral hygiene and few lesions, this tool helps us to reinforce positive behaviors or indicate the areas where improved hygiene is required.

With the aid of the stone model feature, we proceeded to assess any type of tooth wear from every angle. From the occlusal view, we detected attrition in the anterior upper and lower segments and facets in the upper and lower premolars and molars **(Figure 5)**.

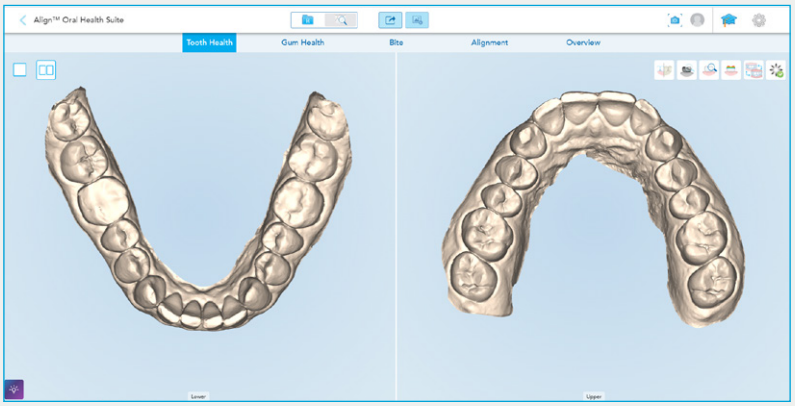

FIGURE 5. The stone model helped us visualize attrition in the incisal edges of the upper and lower canines and incisors and the buccal cusps of premolars and molars.

Gum Health

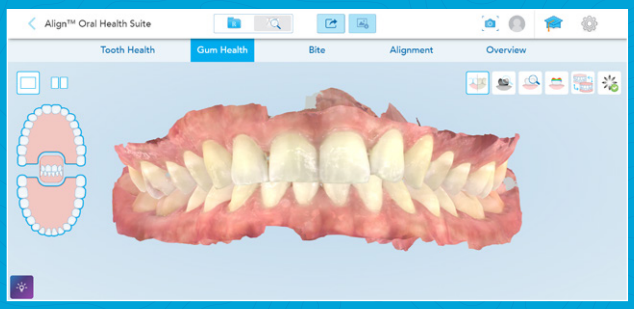

FIGURE 6. The tools under Gum Health allowed me to assess the color, texture, volume, and oral hygiene of the patient.

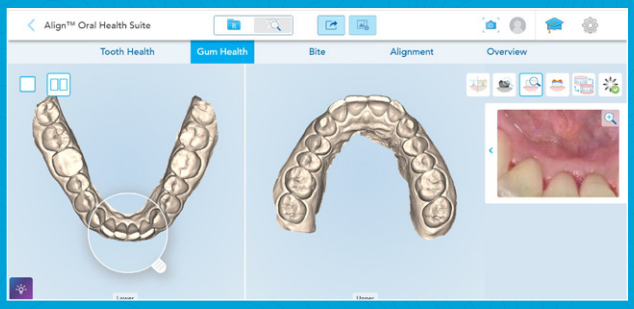

FIGURE 7. Assessment of gum health using the stone model to identify changes in the gingival line and correlate with findings in tooth wear in the cervical areas.

This condition highlights the stone model and the integrated 3D intraoral camera features. As I moved the loupe around the arches, the integrated 3D intraoral camera revealed that this patient does not have any active signs of gingival and/or periodontal disease, which was cross-referenced with the periodontal visual exam, probing, and radiographs. Her gingiva is pink, with good attachment, and there is no presence of enlarged papillae, bleeding, dental plaque, calculus, or impacted food. The texture and color of the gingiva reflects that of healthy tissues all around **(Figure 6)**.

I switched the models to the "stone model" view to assess if any recessions have developed since her last visit. We discussed the initial gingival recession in the lingual of the lower incisors and the importance of keeping good hygiene and considering alignment and occlusion (discussed in the following sections) to help prevent further recession on these teeth **(Figure 7)**. It is important to scan every patient every time so that you have at least two scans to activate tools such as the side-by-side 3D compare feature to assess changes over time. The iTero™ TimeLapse technology is also a powerful tool that will allow you to assess gingival changes or changes in hard tissues and tooth movement.

Bite

The maxillary and mandibular arches present a constricted arch form. I showed the patient how her upper teeth are lingually inclined, including retroclined upper incisors, crowded lower anteriors, and a deep curve of Spee. Other clinical findings included bilateral molar and canine class I relation, heavy occlusion on the first bicuspids and incisors **(Figures 9-10)**, a coordinated midline between the arches and facial midline, an overjet of 2.5 mm and overbite of 3.5 mm/50% **(Figure 8)**. Based on her chief complaint of short upper central incisors, I explained that the deep bite and tight overjet were causing the wear and chipping of the upper central incisors. I had discussed orthodontic treatment with Invisalign® aligners in 2019. However, this patient was not ready at the time. After showing how the wear became more pronounced over time, she started considering other treatment options.

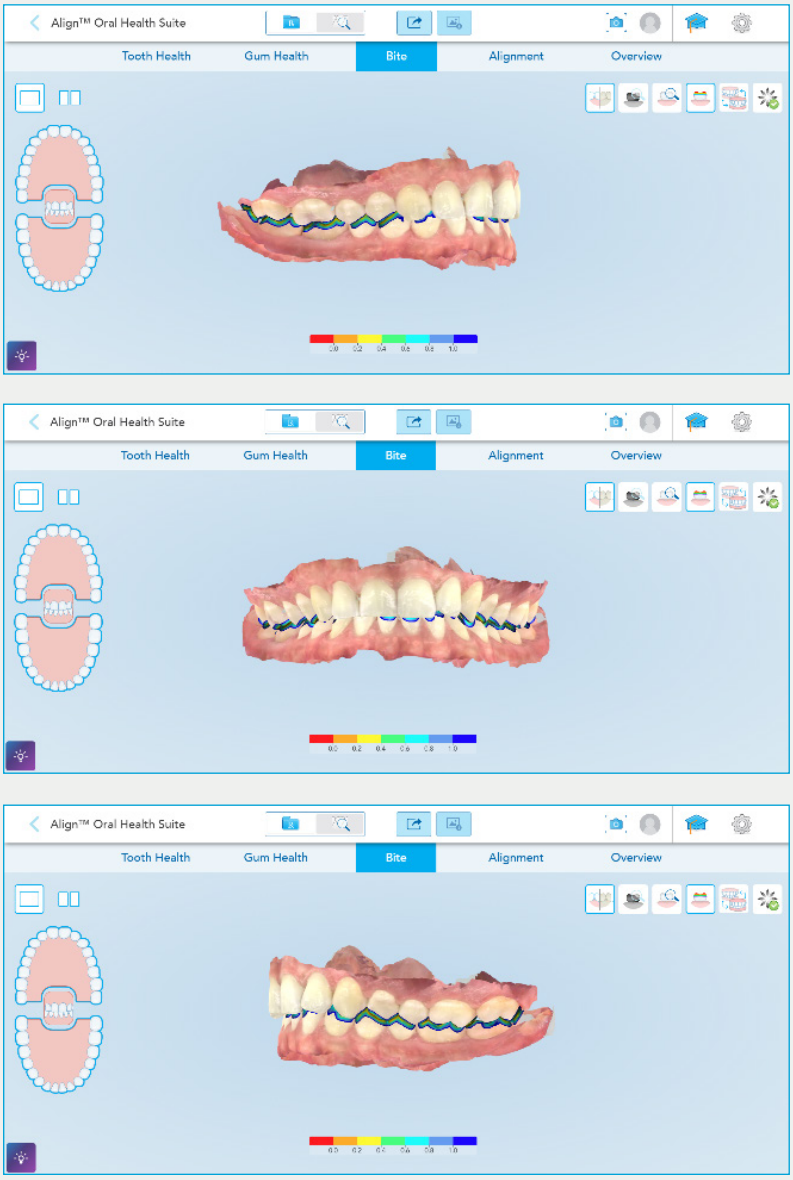

FIGURE 8. Sagittal and frontal views to assess dental interarch relationships. This patient presents molar and canine class I, deep bite, and retroclined teeth.

Alignment

This patient presents large facets throughout the arches. The upper and lower incisors present moderate wear on the incisal edges, whereas the lower canines and the premolars present large facial facets. Using the 3D stone model and activating the iTero™ Occlusogram tool, we identified those large contact areas that could become problematic in the future and have progressed over time **(Figures 9-10)**.

The side-by-side 3D compare feature helped me explain the heavy occlusion on the anterior teeth as well as the first premolars and how the problem has progressed since her last visit by referring to the color scale **(Figures 9-10)**. I also used the iTero™ TimeLapse technology to show the increasing occlusal wear and shifting of the teeth. Here we can also further assess for changes in the gingiva that can be cross-referenced with other conditions and records.

FIGURE 9. Observe the arch form, tooth wear, and heavy occlusion in the anterior segment and premolars. Contact areas expanded in four years likely due to wearing down of the teeth.

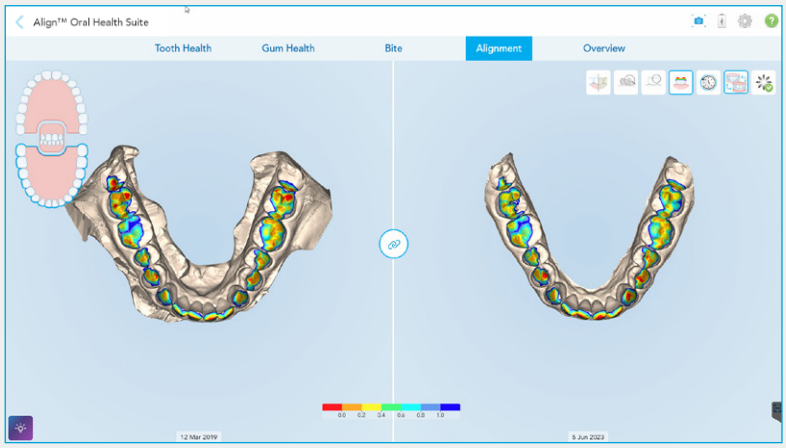

FIGURE 10. The constricted arch form, the crowding in the anterior segment, and the heavy contact areas and further tooth wear along the incisal edges, and buccal surfaces from first premolar to first premolar can be prevented with Invisalign® aligners. These signs have worsened since her last visit in 2019.

Overview

While I covered the main concern with the patient with the previous tools, I went into the overview mode to highlight the alignment and tooth wear issues. Moreover, I activated the Invisalign® Outcome Simulator Pro for her to understand how treatment with Invisalign® clear aligners will address not only the issues pertaining to malocclusion but also to her esthetics. When she saw the scan, she did not like the crowding in the upper and lower anterior segments, but the simulation showed her with a smile that has a fuller buccal corridor, a better width, and length ratio of the upper anterior teeth. The patient, who initially was looking for bonding in the upper central incisors, accepted to move forward with Invisalign® clear aligners to correct her malocclusion and three crowns (upper central incisors and lower right first molar) right away. She realized that investing in orthodontic treatment would protect her from further wearing down of the enamel and having to incur to other types of costly restorative work in the future if we don't address the root cause.

The Align™ Oral Health Suite allowed me to explain to the patient my concerns and for her to understand the importance of accepting crowns and orthodontic treatment as the optimal treatment plan. This is a tool that allows the clinician to conduct a structured consult where the patient is actively participating in the conversation following high-definition visualizations of their teeth, gingiva, and other tissues that are easy to understand. As you present the facts and discover together with the patient, trust is established within minutes, and this helps patients understand why I make my recommendations – and they accept treatment in the dental chair.

Moreover, the side-by-side 3D compare tool helped me contrast her previous oral health conditions with the latest scan and demonstrate how it changed in the past 36 months.

FIGURE 11. A simulation with the Invisalign® Outcome Simulator Pro was run to show the patient how the orthodontic treatment can address the root causes of malocclusion and her complaint about the upper central incisors. Views of the pre-treatment stage and the simulation with different views, including the in-face visualization simulation.

Conclusion

The Align™ Oral Health Suite is a useful tool for me because I see it as my teleprompter during the consult. It uses language that is familiar to the patients, and as they follow the conversation, they actively participate, which makes them feel they are part of the process. It is a two-way conversation, not just the doctor providing solutions right away without communicating and educating the patient as to why they should accept a certain procedure. It also helps to explain potential consequences to their health if we don't act now, and future financial implications. It makes the consultation seamless and transparent.