



STRAUMANN SIRIOS™ CLINICAL **CASEBOOK**



DEAR DOCTOR,

Digital technology is transforming modern dentistry, enhancing efficiency, improving patient comfort, and helping practices stand out while meeting patients' evolving expectations. By embracing innovation, you open new opportunities to stay competitive and deliver the highest standard of care. Leveraging the right technology allows you to highlight what makes your practice unique and stay ahead in an ever-changing industry.

As the flagship brand of the world's largest implant manufacturer, the Straumann Group® has a long-standing legacy of pioneering advancements in dentistry. Recognized as one of the most iconic brands in the field, we are committed to driving excellence and transformational innovation for a global community of forward-thinking dental professionals. One of our key solutions, the Straumann SIRIOS™ intraoral scanner, is set to help dentists step into the digital world – empowering them with precision, efficiency, and seamless workflow integration.





Straumann SIRIOS™ goes beyond image capturing, redefining the essence of how you interact with dentistry and opening the door to excellence, with your patient at the center. The synergy of our performance-driven hardware with our intuitive software is engineered to deliver peak performance across your workflow with precision and efficiency.

This casebook details some case reports which explore the use of Straumann SIRIOS™ in several clinical situations. The cases come from clinicians, who have been asked to present the planning, procedures and conclusion for each case. We hope these clinical reports inspire you to adopt the best of what digital dentistry has to offer: efficiency, predictability and profitability. All clinical cases presented in this document used Straumann SIRIOS™ to perform the intraoral scanning on the data capture steps.

Enjoy reading!





DID YOU KNOW THAT...

87%

of patients say it's important that their dentists use digital technology

100%

of patients prefer intraoral scanners over traditional impressions



COMPETITIVE EDGE

Stand out with advanced technology and attract new patients.



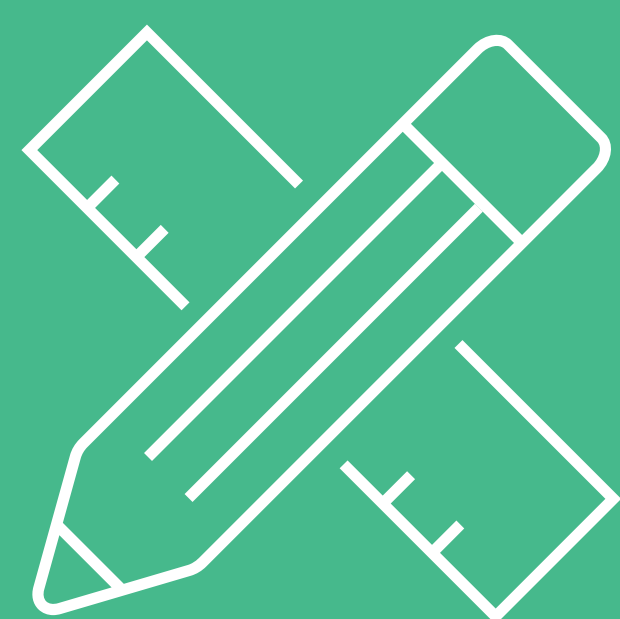
ACCURACY & PRECISION

Improved accuracy and treatment planning, providing highly detailed 3D models.



PATIENT EXPERIENCE

Less invasive procedure and enhanced patient experience.



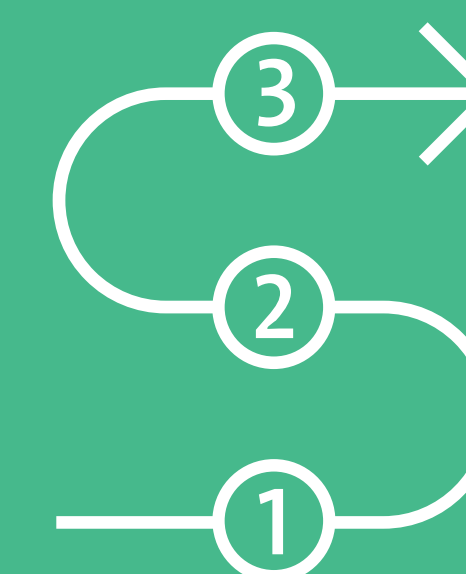
TREATMENT DIFFERENTIATION

Provide personalized treatments and a variety of customized solutions.



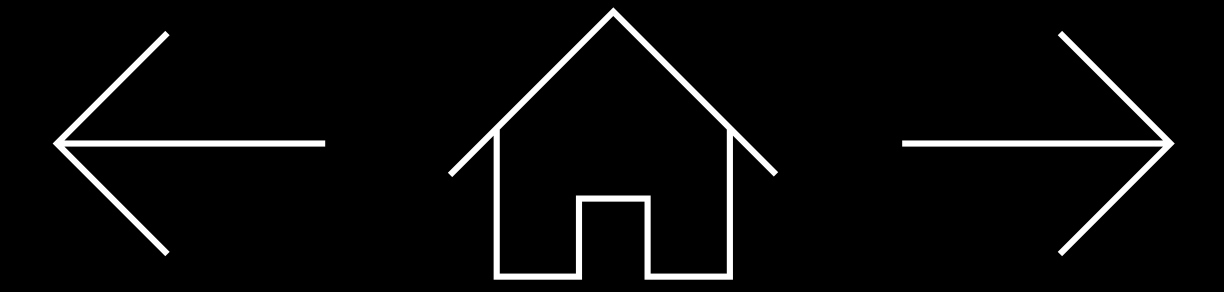
EFFICIENCY & TIME-SAVING

Reduce chairtime and rework with faster turn-around time.



INTEGRATION & WORKFLOW

Simplify workflows, eliminate inefficiencies and save time.



CLINICAL **CASE** REPORTS

1	Zirconia Single Tooth Implant	6
2	Full Arch Prosthesis	10
3	Neodent Ti Block Prosthesis	15
4	Guided Single Tooth Implant	19
5	Onlay Restoration for Upper Molar	24
6	Guided Surgery with Straumann® BLX	27
7	Zirconia Dental Crown for Lower Molar	31
8	Guided Full Arch Implant	34
9	Upper Full Arch with Straumann® BLX	39
10	ClearCorrect® Clear Retainer	42



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CLINICAL CASE REPORT 1

ZIRCONIA SINGLE TOOTH IMPLANT

INTRODUCTION

The use of implants in anterior areas requires special attention to aesthetics. Before the development of ceramic implants, achieving optimal aesthetics for crowns and implants in these areas was a significant concern. However, with advancements in ceramic implant technology, doctors now have effective solutions to address this issue. Additionally, improvements in intraoral scanners have enhanced guided surgery, making outcomes more predictable and ensuring better-fitting crowns.

INITIAL SITUATION

A 62-year-old female patient in good health presented at the practice, dissatisfied with tooth 22 due to recurrent loosening. Clinical and x-ray examinations revealed a root fracture. The decision was made to extract the tooth and proceed with an immediate dental implant and immediate loading using guided surgery (Neodent® EasyGuide). The patient's periodontal and bone conditions were favorable.



Extraoral initial smile



Intraoral initial frontal view



Initial x-ray

CLINICAL CASE REPORT 1

ZIRCONIA SINGLE TOOTH IMPLANT

PLANNING

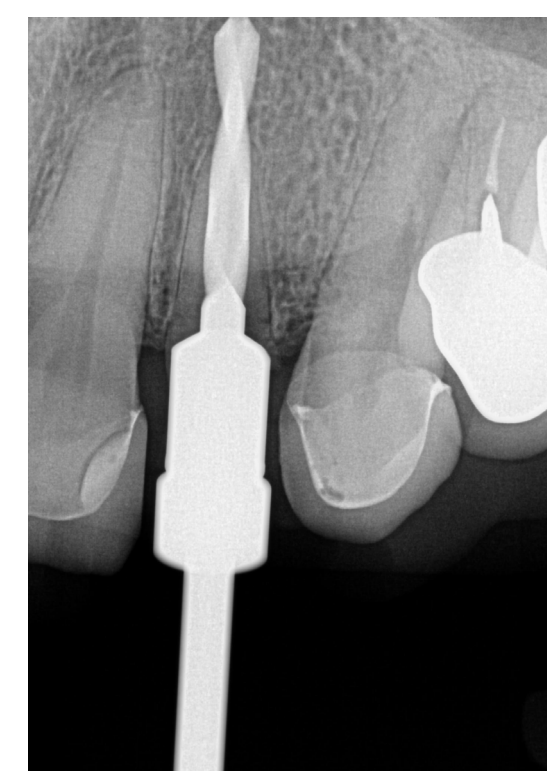
The treatment plan involved extracting the dental root of tooth number 22 and performing flapless guided surgery to place a Neodent® Zi Ceramic implant (Ø 4.3 × 13 mm) along with a Neodent® Zi Base abutment (Ø 3.75 × 2.5 mm). Immediate loading of a temporary crown was also planned.



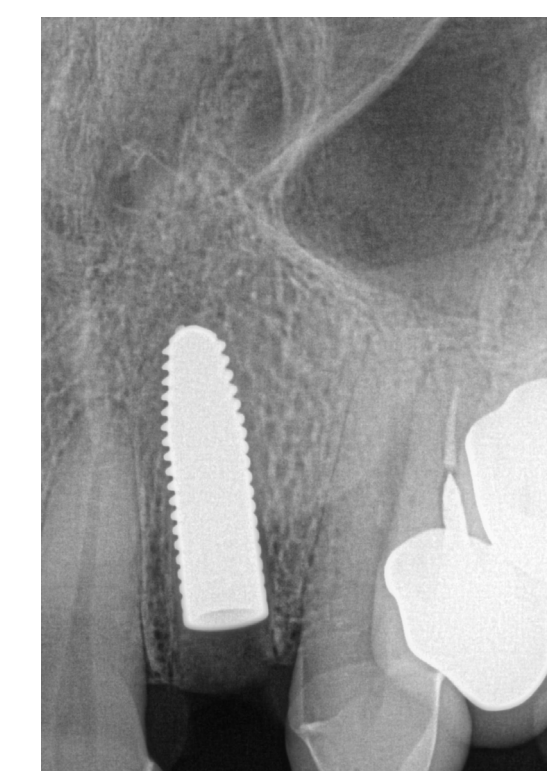
Surgical guide positioned



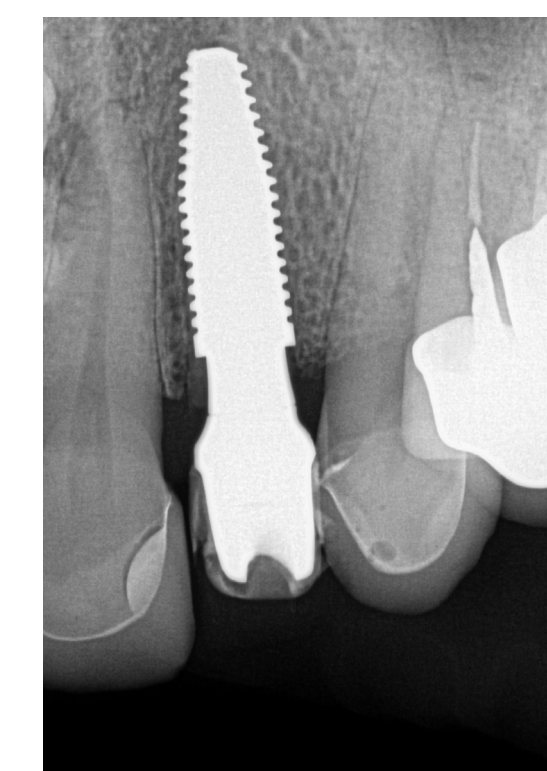
Drilling step



Drilling x-ray



Implant positioned x-ray



Abutment placed x-ray

SURGICAL PROCEDURE

A scan and a CBCT were performed to produce the surgical guide. Before the procedure, the patient was medicated with betamethasone and diazepam. For local anesthesia, articaine was administered. The extraction of the dental root of tooth number 22 was carried out using the socket shield technique, preserving the buccal surface of the root to prevent buccal bone resorption. The surgical guide was then positioned to facilitate bone drilling, followed by the placement of a Neodent® Zi Ceramic implant (Ø 4.3 × 13 mm) with a torque of 45 N.cm and a Neodent® Zi Base abutment (Ø 3.75 × 2.5 mm). Finally, a temporary crown was cemented temporarily onto the abutment.



Intraoral abutment view



Smile with temporary crown in-mouth.

CLINICAL CASE REPORT 1

ZIRCONIA SINGLE TOOTH IMPLANT

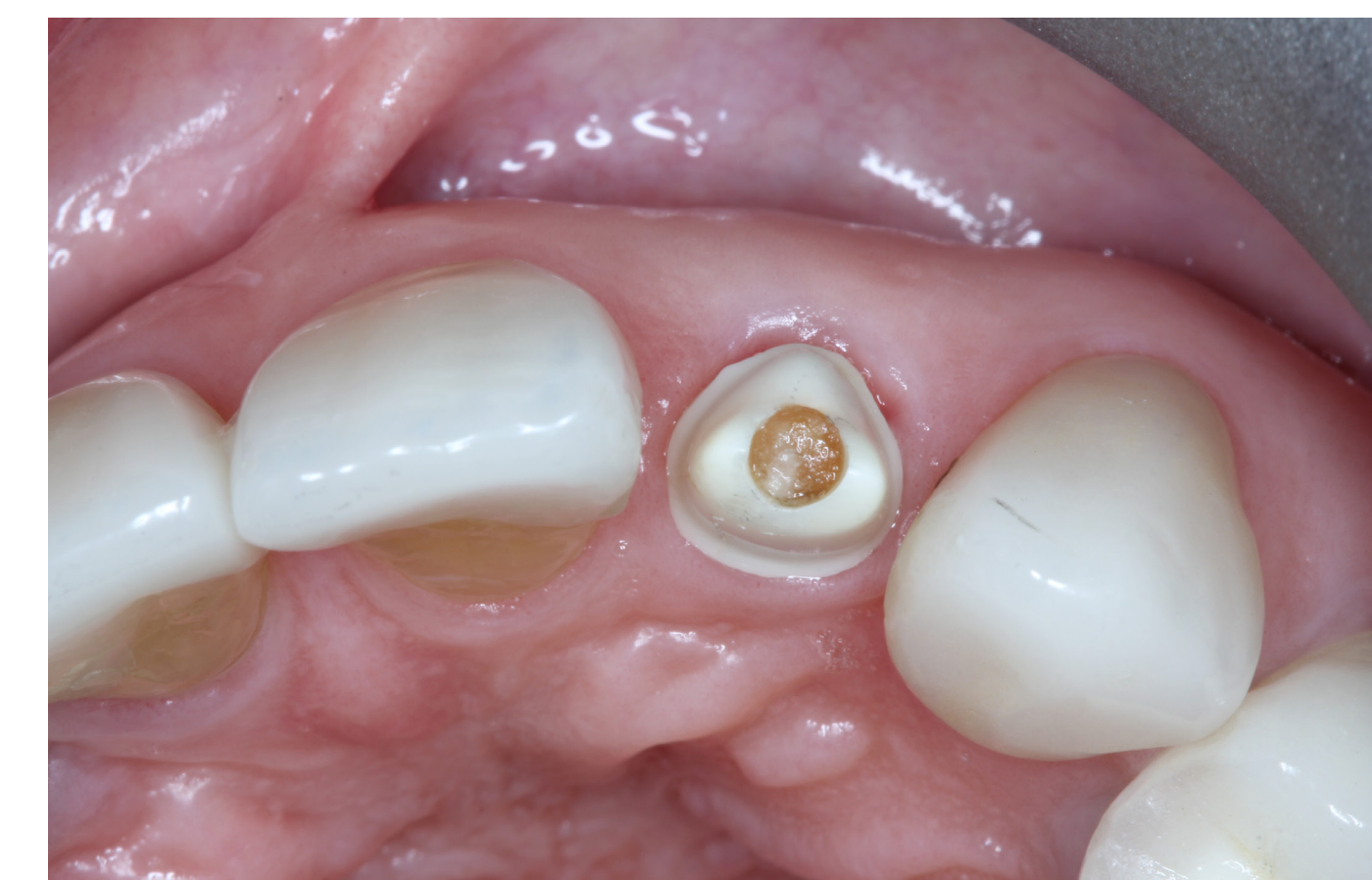
PROSTHETIC PROCEDURE

Four months after the surgery, the temporary crown was removed, and a new scan was performed using the Straumann SIRIOS™ scanner with retraction cords. The tooth shade was also checked before fabricating the final crown.

The STL file was sent to the lab, where the zirconia final crown was designed and milled using a DMG Sauer Ultrasonic machine. Two days later, the final crown was cemented with composite cement. Occlusal adjustments were made, and final x-rays and photographs were taken.



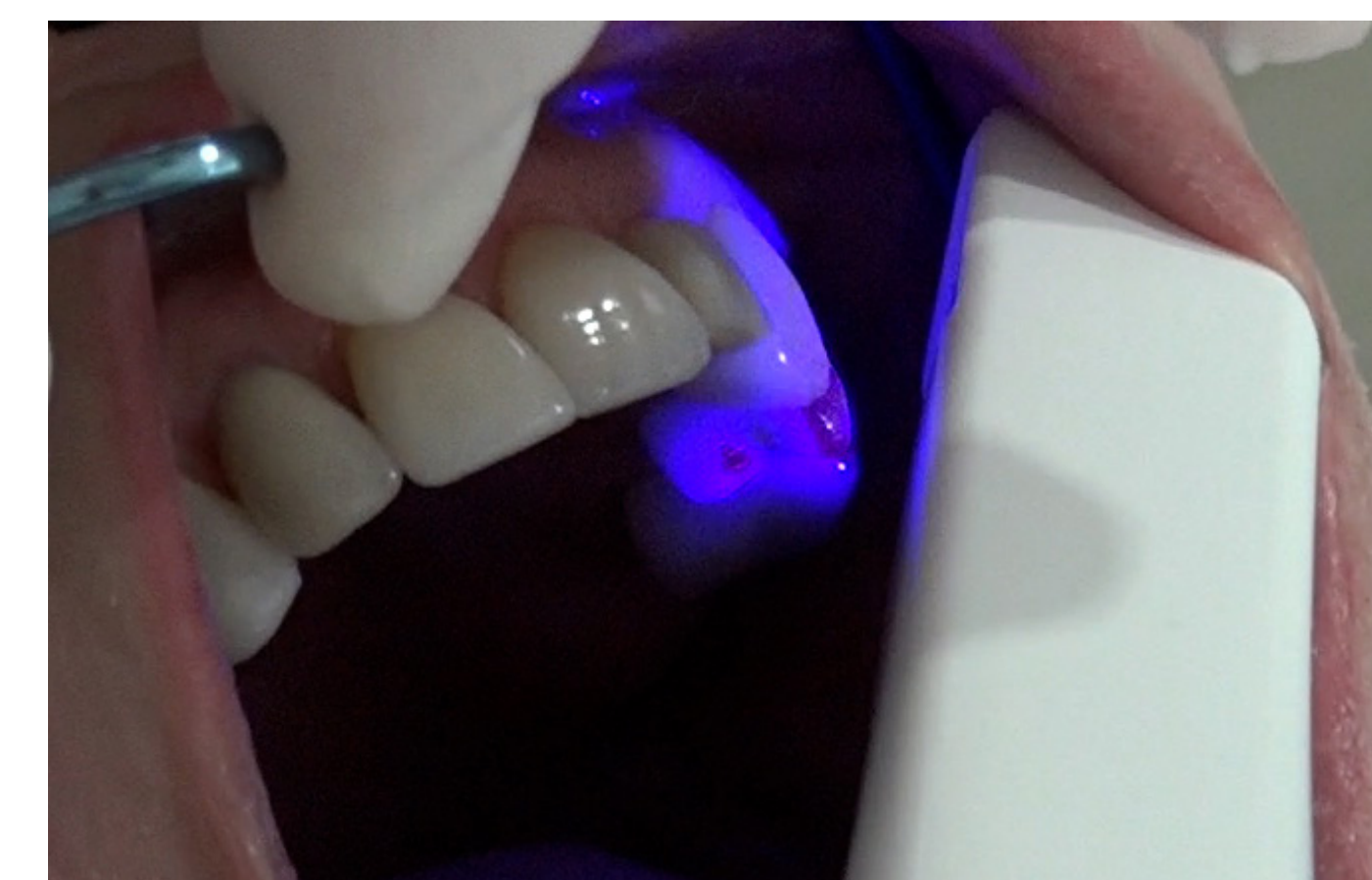
Buccal view of the abutment



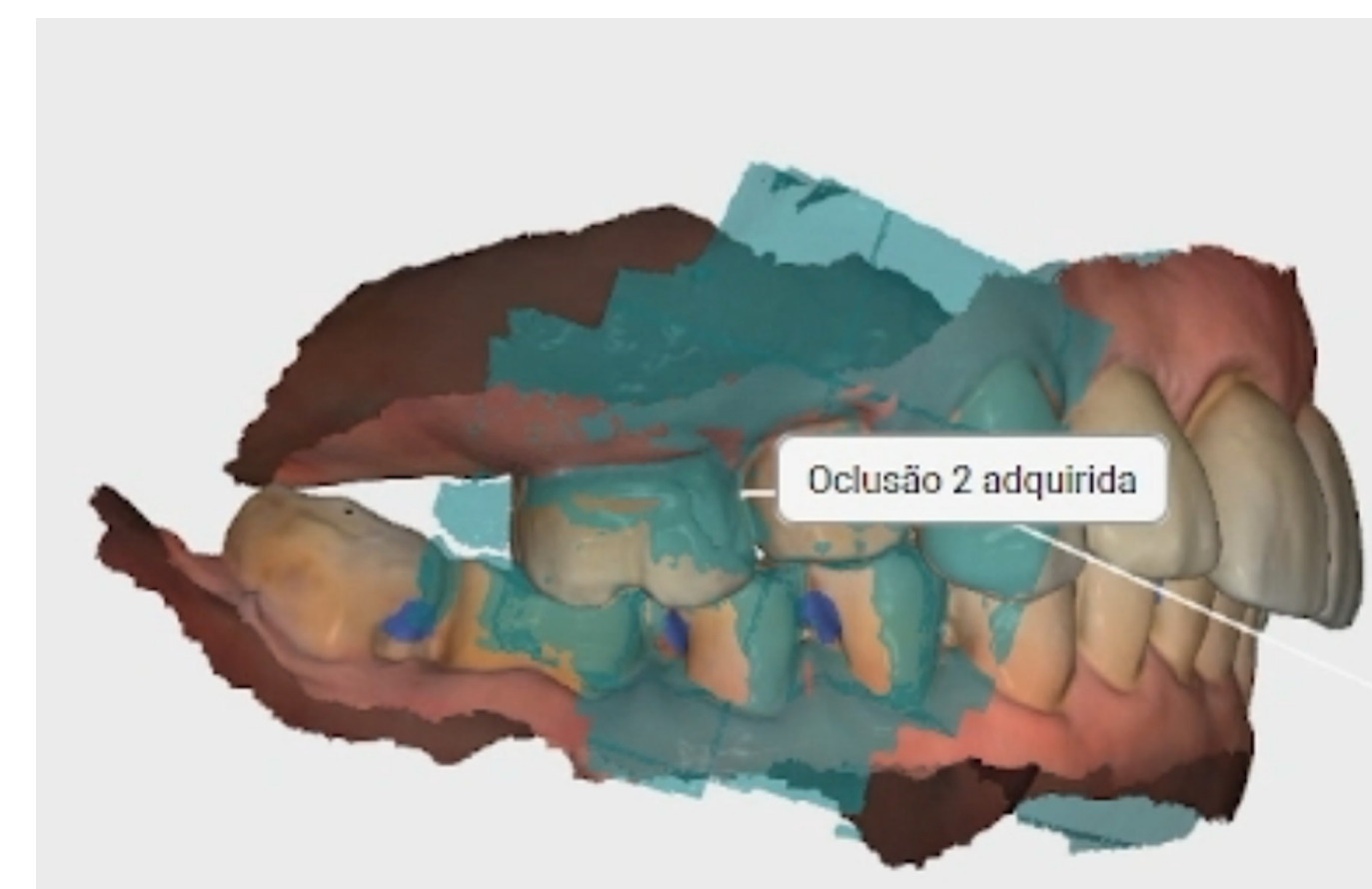
Occlusal view of the abutment



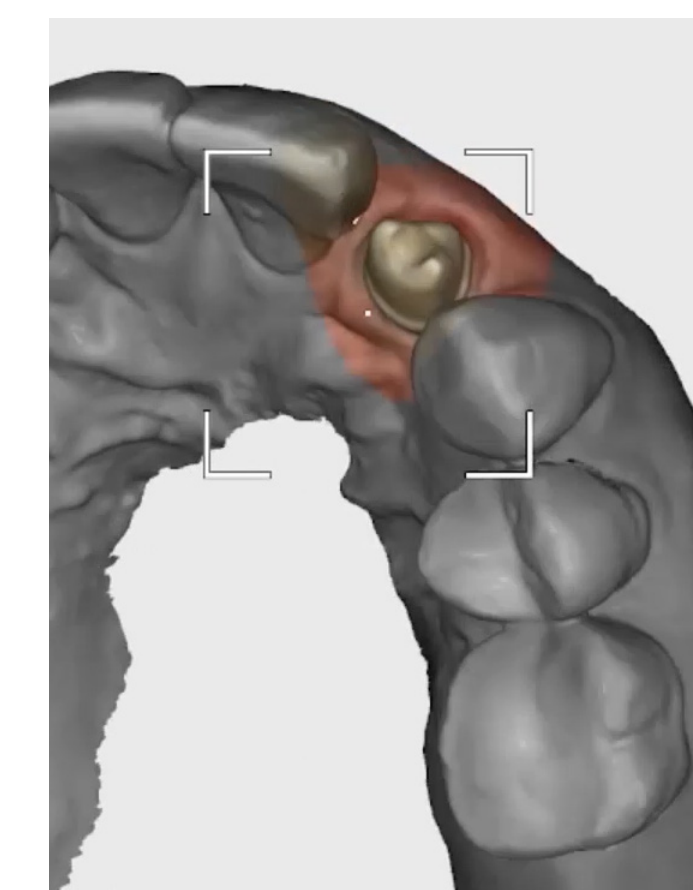
Abutment with retraction cord



Scanning step



3D scans obtained with Straumann SIRIOS™



3D scans obtained with Straumann SIRIOS™

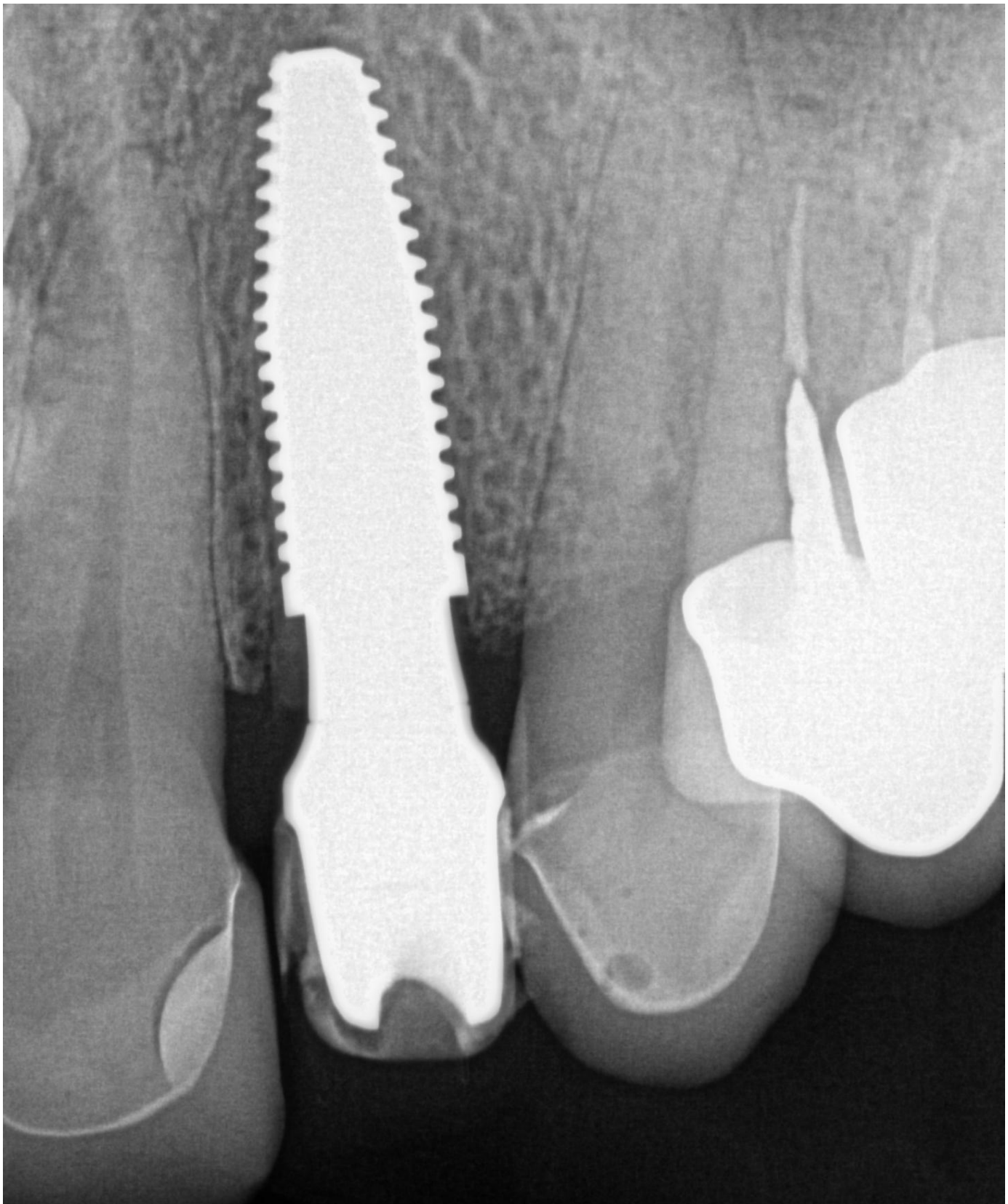
CLINICAL CASE REPORT 1

ZIRCONIA SINGLE TOOTH IMPLANT

CONCLUSION

The digital workflow using the Straumann SIRIOS™ scanner reduced chair time and costs from the planning stage to the final prosthesis, making the process simple to execute.

The patient was highly satisfied with the comfort, predictability, and aesthetic outcome of the treatment.



Periapical x-ray of the implant and the crown abutment



Buccal view of the final crown



Buccal view of the final crown



Occlusal view of the final crown

CLINICAL CASE REPORT 2

FULL ARCH PROSTHESIS

INTRODUCTION

The treatment of periodontal disease has long been a challenge in dentistry, especially in cases of total tooth loss, particularly in young patients. However, advancements in surgical treatments and the introduction of full-arch techniques have made rehabilitation a more accessible and predictable solution. Additionally, the use of intraoral scanners has enabled clinicians to provide treatment with reduced chair time, increased patient comfort, and enhanced procedural security.

INITIAL SITUATION

A 22-year-old female patient in good health presented at the practice with severe tooth mobility and bone loss affecting most of her teeth. Some teeth had been stabilized with a wire and composite resin. Clinical and x-ray examinations confirmed the need for a double full-arch procedure.



Initial panoramic x-ray



Initial intraoral photograph



Initial smile

CLINICAL CASE REPORT 2

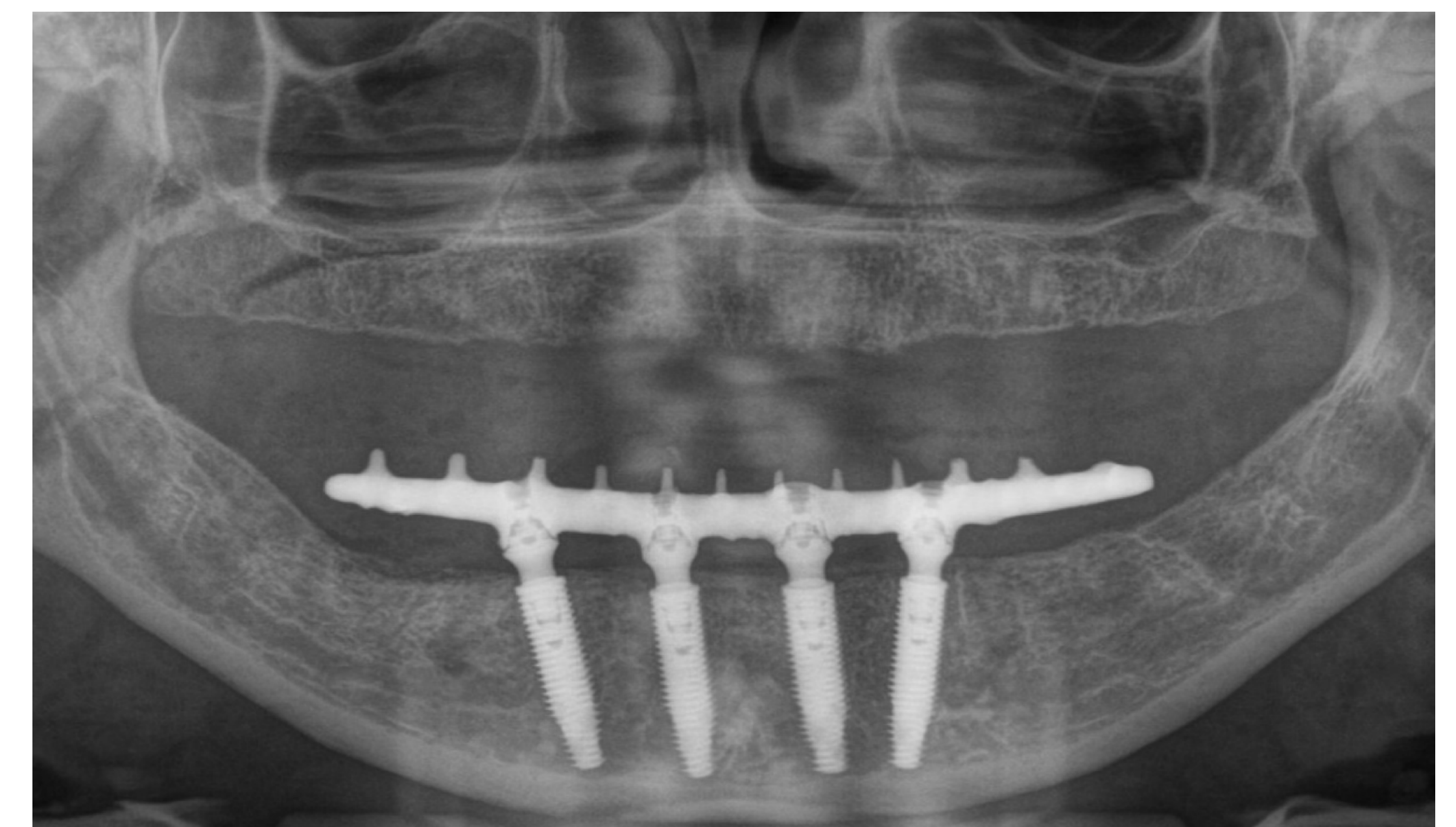
FULL ARCH PROSTHESIS

PLANNING

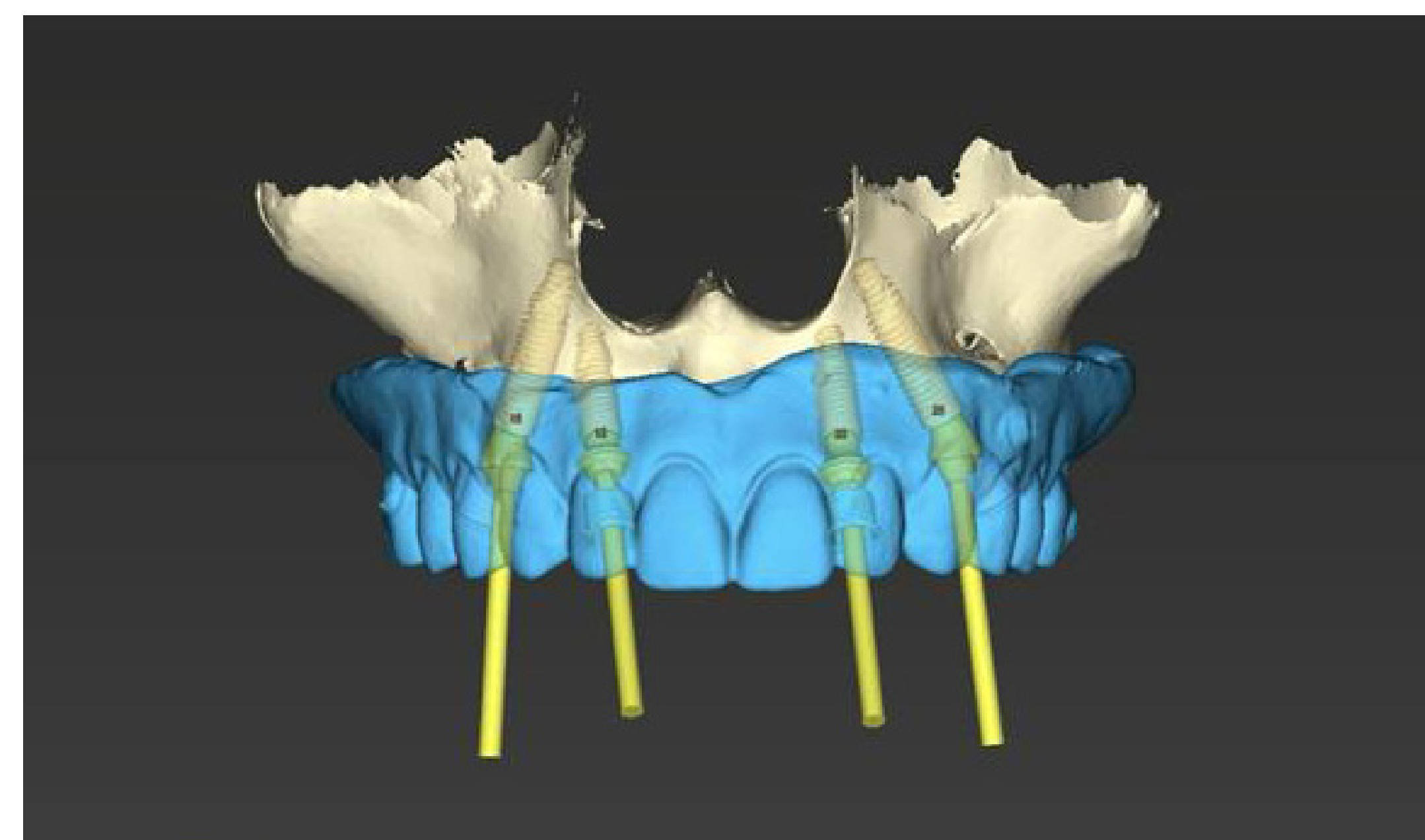
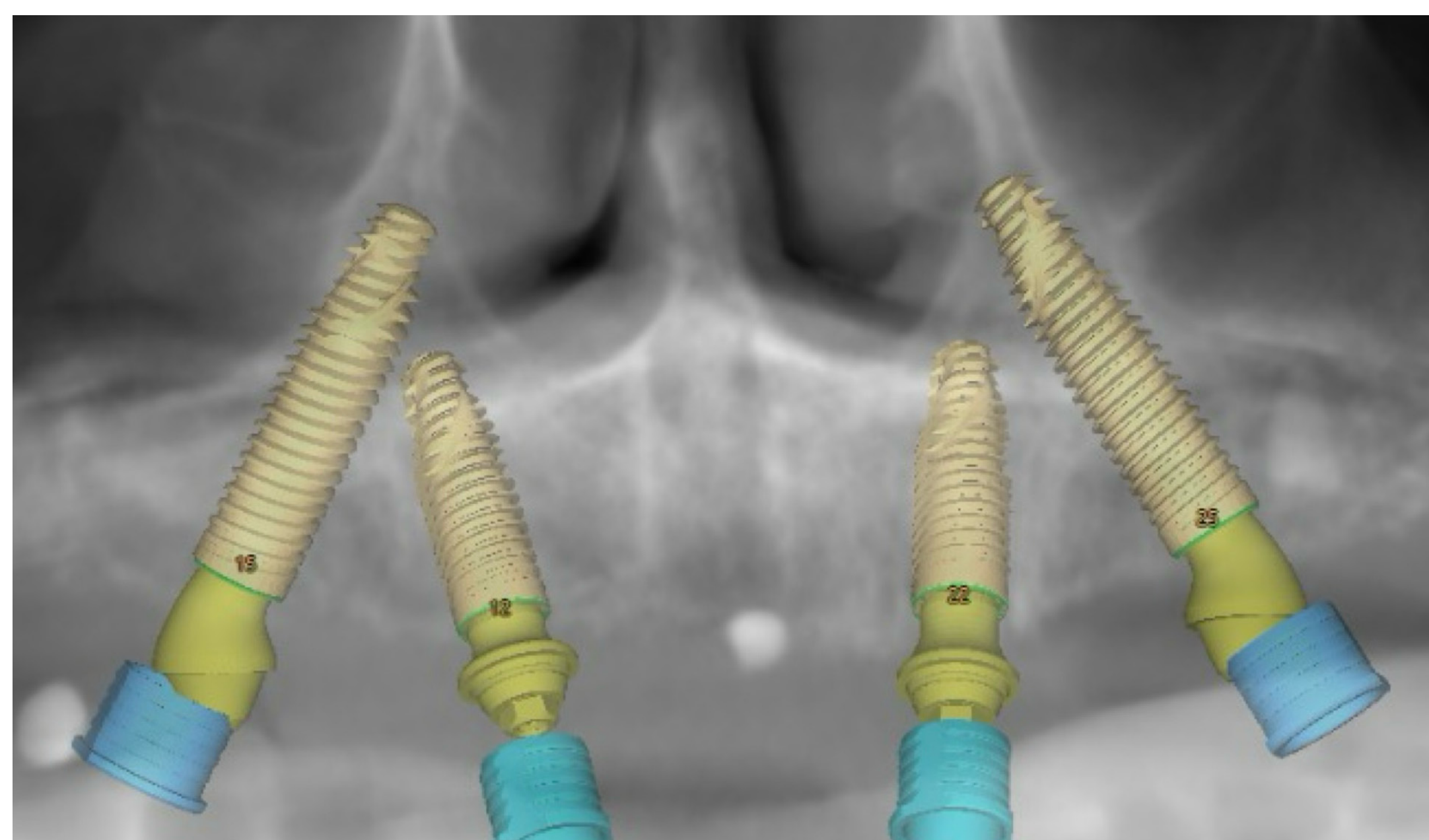
The treatment plan was divided into two surgical phases due to the patient's anxiety.

In the first phase, all teeth were extracted, and dental implants were placed in the lower jaw, while a removable prosthesis was provided for the upper jaw.

One month later, in the second phase, guided surgery was performed to place the upper implants. Neodent® GM Helix Acqua implants were selected for both surgeries, and the Straumann SIRIOS™ intraoral scanner was used to capture the final prosthesis.



Surgery: first step



Upper surgery planning using coDiagnostiX®

CLINICAL CASE REPORT 2

FULL ARCH PROSTHESIS

SURGICAL PROCEDURE

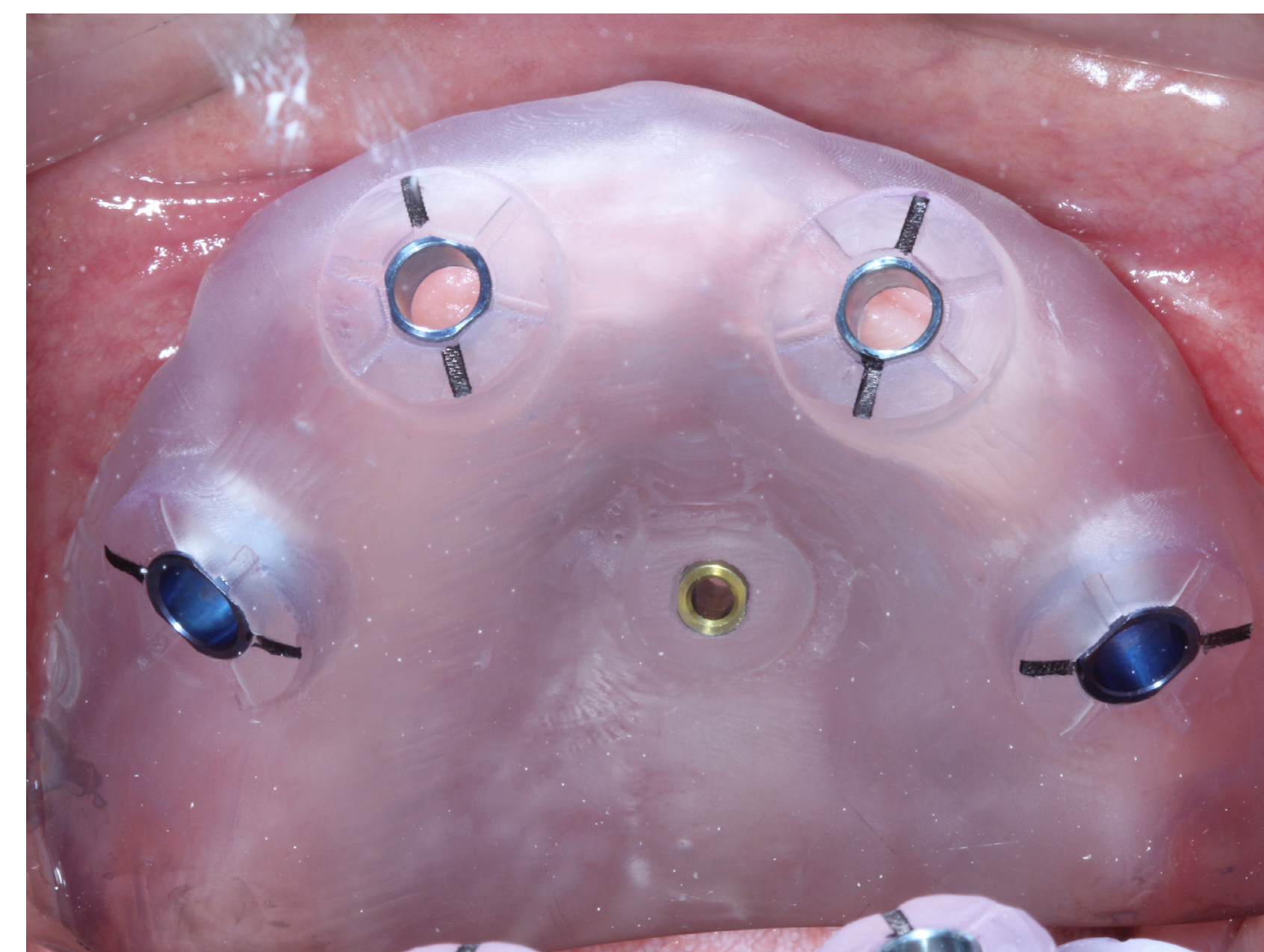
At this stage, the patient had already received the final fixed implant-supported rehabilitation in the lower jaw, and the guided upper surgery was planned.

The patient was premedicated with betamethasone and diazepam. Flapless guided surgery was performed under local anesthesia using articaine.

Following the protocol for bone type II, Neodent® EasyGuided and NGS drills were used to place four Neodent® GM Helix Aqua implants – two measuring $\varnothing 4.0 \times 16$ mm and two measuring $\varnothing 3.75 \times 11.5$ mm. All implants achieved a torque of over 60 N.cm.

For abutment selection, two Neodent® GM Mini Conical Abutments 17° with removable screws were used, while the other two were standard GM Mini Conical Abutments.

Postoperative medications included amoxicillin and Spidufen® 600 mg.



Surgical guide in position



Drilling step



Implants placed



Abutments positioned

CLINICAL CASE REPORT 2

FULL ARCH PROSTHESIS

PROSTHETIC PROCEDURE

The protocol for prosthetic rehabilitation included immediate loading with a temporary denture.

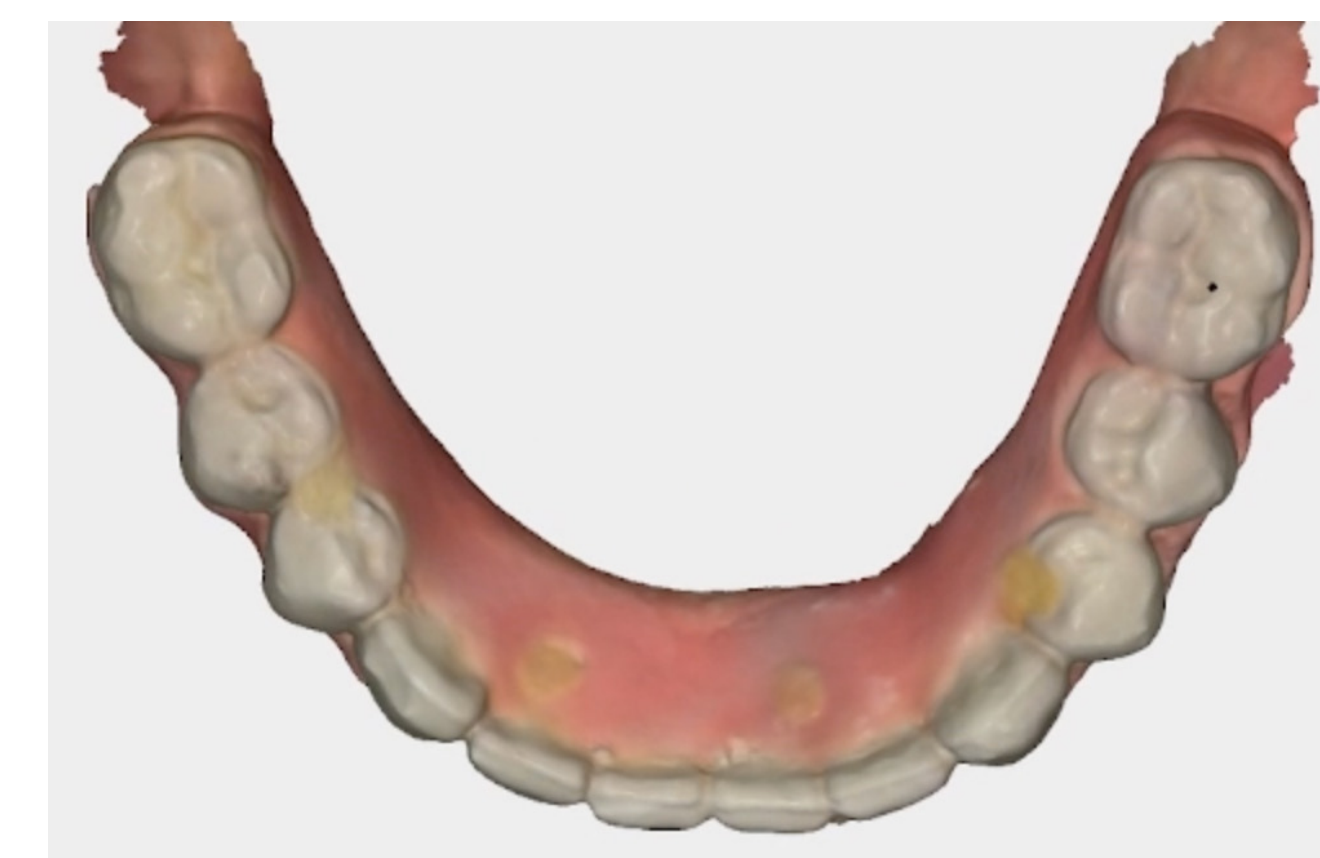
One month after surgery, three digital impressions were taken using the Straumann SIRIOS™ scanner:

- **First scan:** Taken intraorally with the dentures in position (upper, lower, and bite) to capture the teeth's alignment inside the mouth
- **Second scan:** Captured with scanbodies placed over the abutments to register the gingival condition, allowing the lab to create an acrylic component
- **Third scan:** Performed with the dentures outside the mouth using the Straumann® RevEX™ scanbody to verify the implant/abutment positions

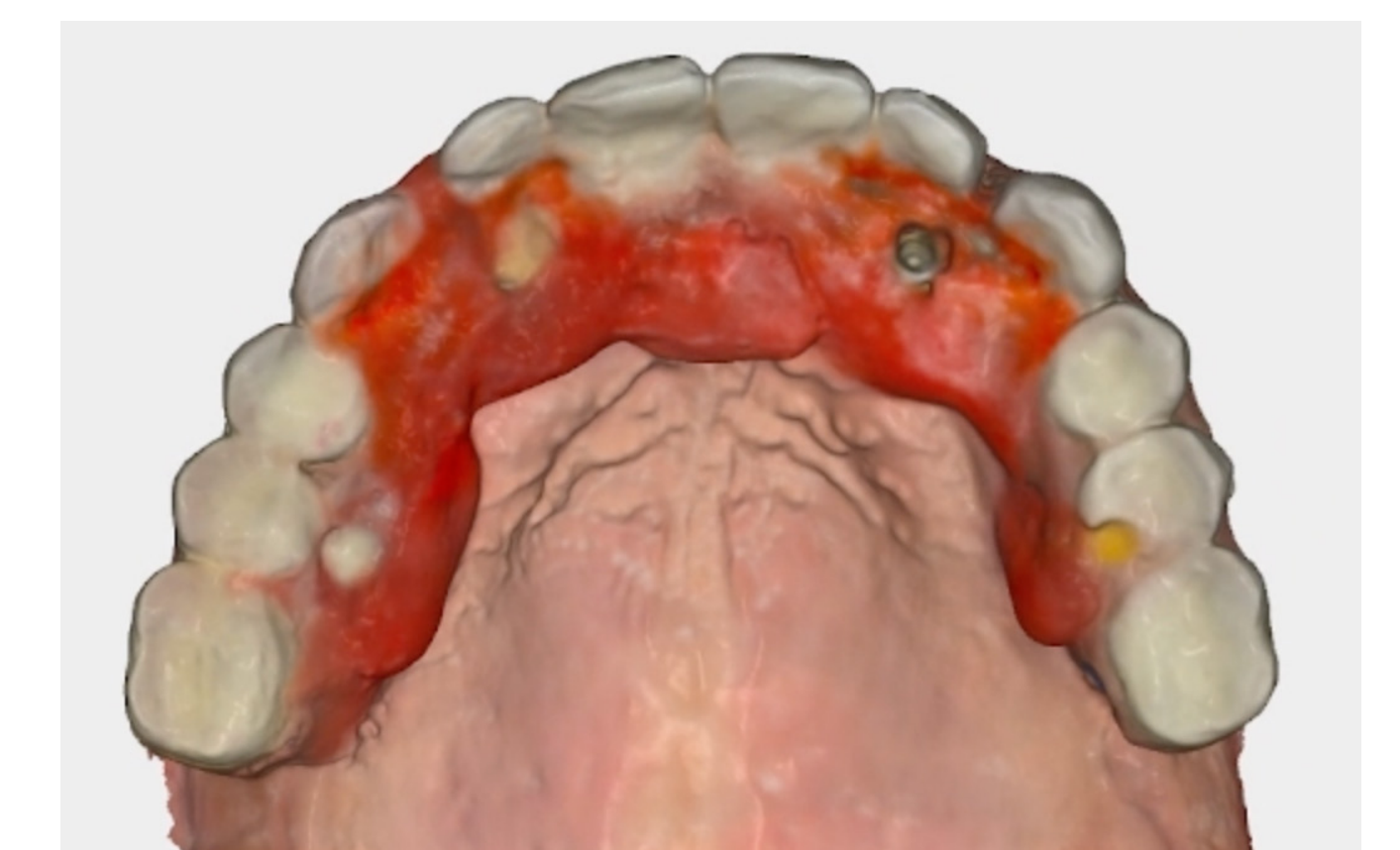
The STL files were sent to the lab, where the titanium bars were designed and milled using a DMG Sauer Ultrasonic machine. The final denture was fabricated with acrylic teeth.

Two days after scanning, a try-in was conducted, combining the bars and dentures in wax, followed by bite registration. The next day, the final prosthesis was installed, and an occlusal adjustment was performed to achieve balanced bilateral occlusion.

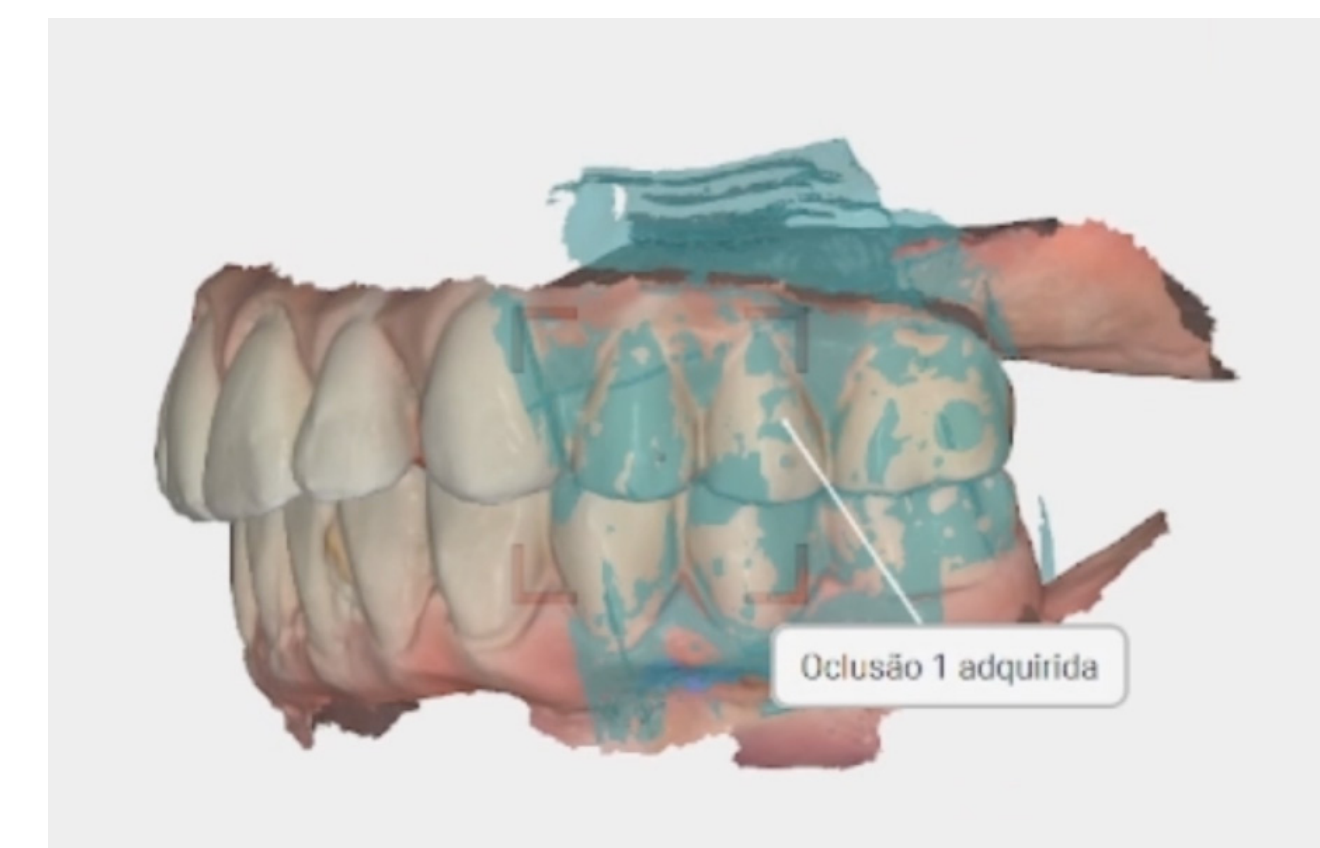
3D scans obtained with Straumann SIRIOS™



Lower scan



In situ scan of the upper prosthesis



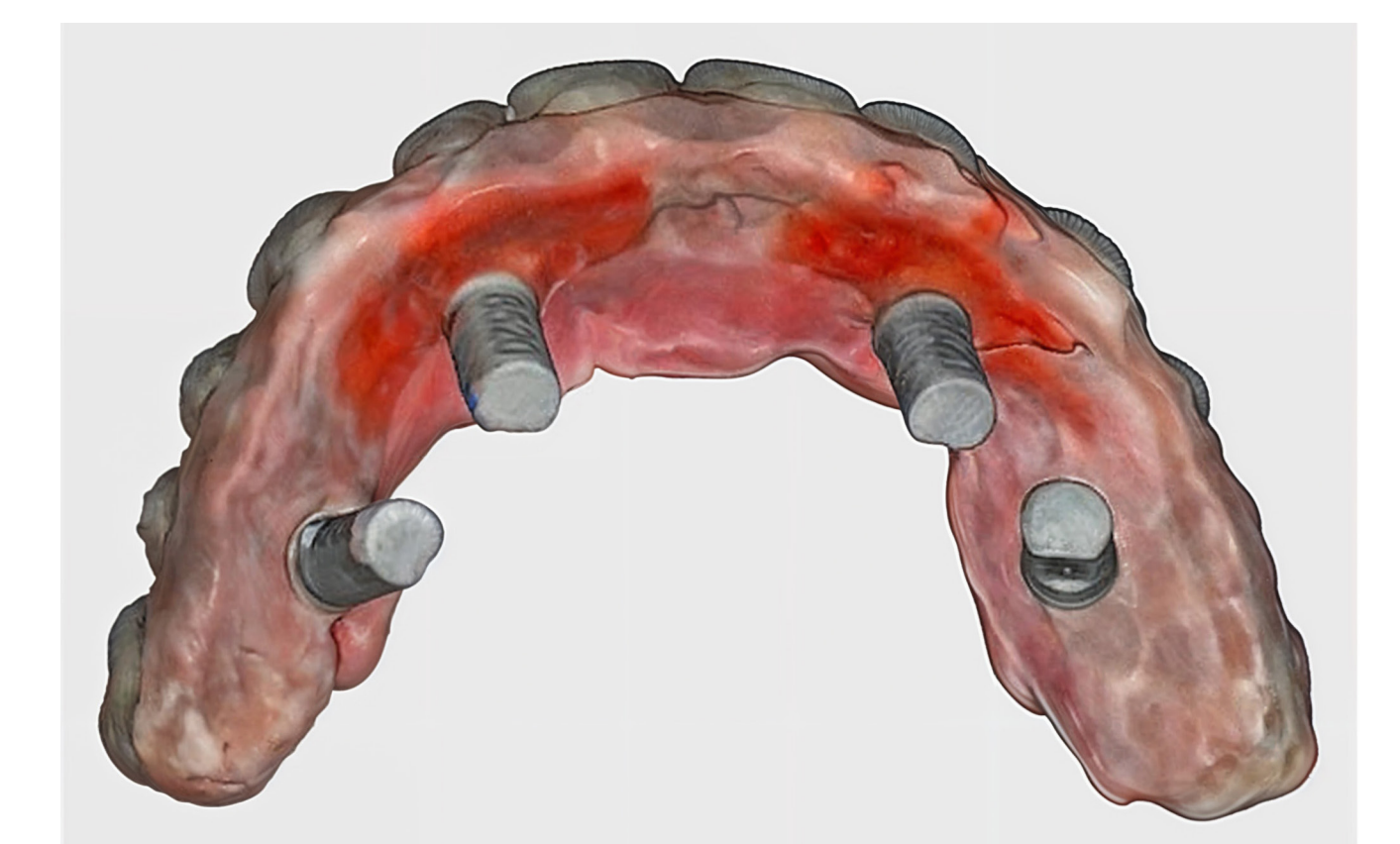
Bite scan



Upper scan bodies scan



Intaglio of the prosthesis



CLINICAL CASE REPORT 2

FULL ARCH PROSTHESIS

CONCLUSION

Planning this type of surgery for a young patient who still has many teeth, despite their poor condition, is always a challenge. In this case, the Straumann SIRIOS™ scanner was used both during surgical planning and prosthetic fabrication. This approach provided predictable implant positioning while ensuring security and comfort for the patient throughout the surgical and prosthetic phases.



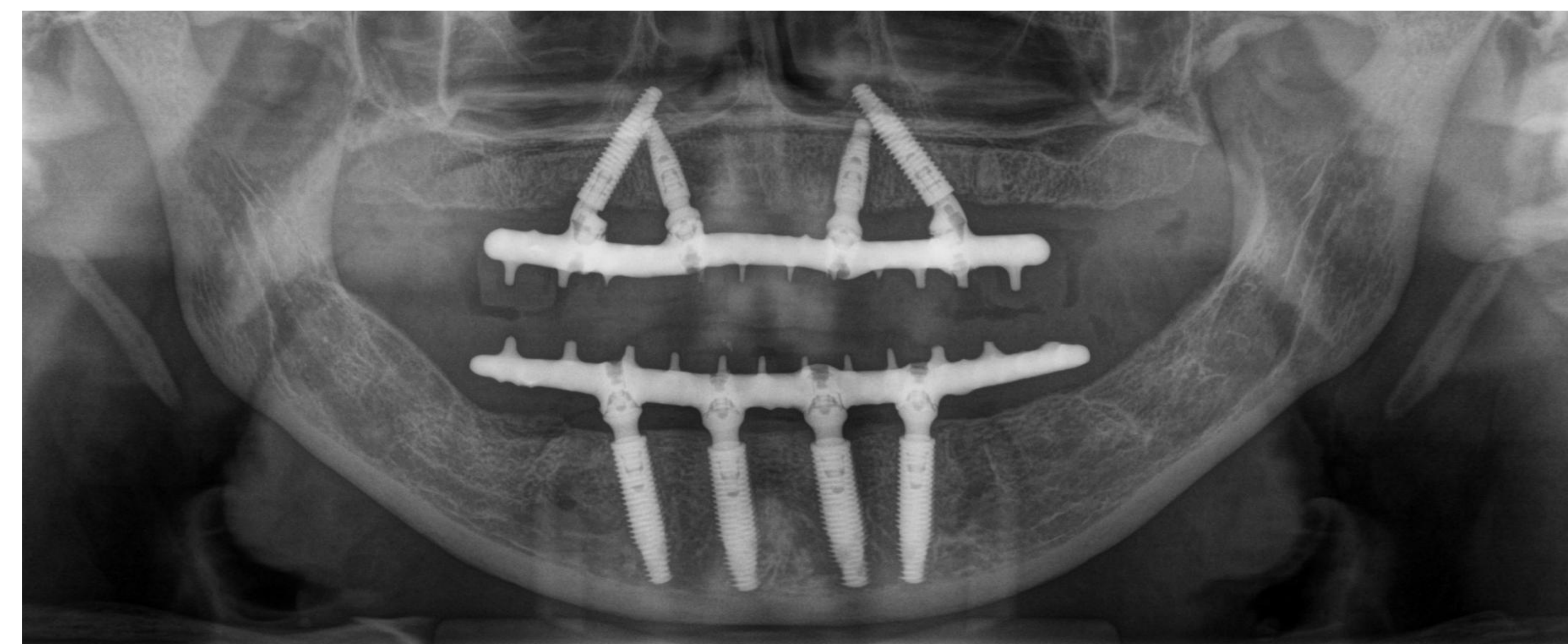
Final smile



Final intraoral images



Upper occlusal view



Final panoramic x-ray



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CLINICAL CASE REPORT 3

NEODENT TI BLOCK PROSTHESIS

INTRODUCTION

In some cases, patients may not prioritize replacing a missing tooth, particularly when it is located in the posterior region. However, the absence of even a single tooth can lead to multiple complications, such as the extrusion of the opposing tooth, which may ultimately result in further tooth loss. Additionally, certain anatomical and functional factors – such as limited mouth opening, the proximity of the cheeks to the surgical site, and tongue positioning – can complicate surgical procedures and impression-taking. Using an intraoral scanner instead of traditional impressions can be an effective solution in these situations, improving accuracy and patient comfort.



Initial periapical x-ray of the implant

INITIAL SITUATION

A 37-year-old male patient in good health presented at the practice with a missing second left lower molar (tooth number 37), which had already been replaced with an implant.

CLINICAL CASE REPORT 3

NEODENT[®] Ti BLOCK PROSTHESIS

PLANNING

The treatment plan involved restoring tooth number 37 with a Neodent[®] Helix GM Acqua Implant (Ø 4.3 × 10 mm) and a Neodent[®] Ti block abutment.

Digital impressions were taken using the Straumann SIRIOS™ scanner, and the final restoration consisted of a zirconia crown.



Initial smile



Healing abutment occlusal view



Healing abutment buccal view

CLINICAL CASE REPORT 3

NEODENT TI BLOCK PROSTHESIS

PROSTHETIC PROCEDURE

After capturing initial photographs and x-rays, a Neodent® Ti Block was placed as the abutment for the crown. Digital impressions were taken using the Straumann SIRIOS™ scanner and sent to the lab for milling a zirconia crown using a DMG Sauer Ultrasonic machine. The following day, the crown was cemented with Multilink® Ivoclar, and final occlusal adjustments were performed.

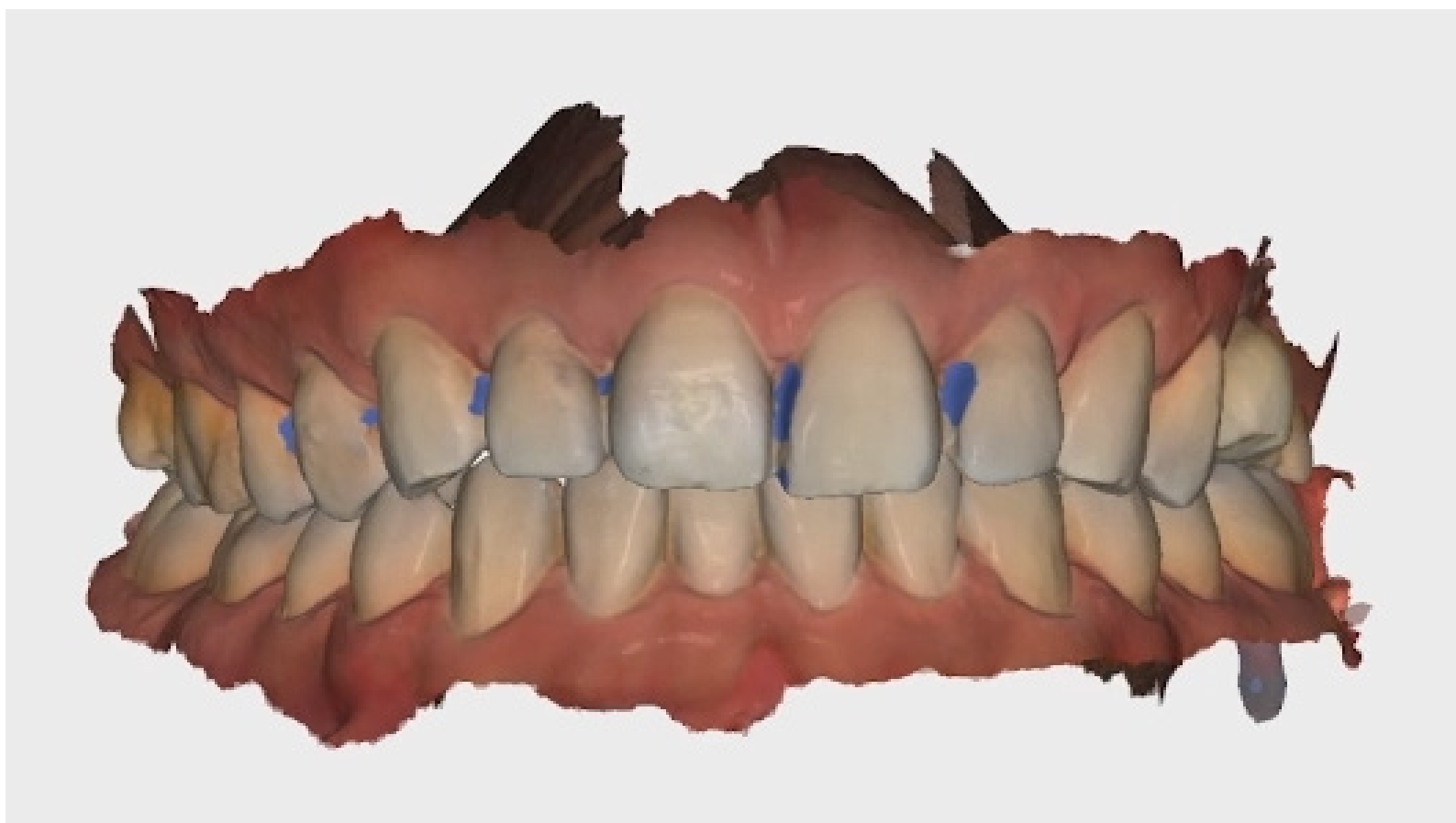
3D scans obtained with Straumann SIRIOS™



Lower emergence profile scan



Upper scan



Upper and lower scan in occlusion



Ti block and crown outside the mouth



Ti block placed on the model



Crown positioned on the model

CLINICAL CASE REPORT 3

NEODENT[™] TI BLOCK PROSTHESIS

CONCLUSION

The use of implants to restore individual missing teeth provides a reliable solution for maintaining both gingival health and occlusion. While posterior restorations can present challenges, utilizing the Straumann SIRIOS[™] scanner for impressions, along with digital milling or printing of restorative materials, helps reduce chair time and enhances satisfaction for both patients and clinicians. In this case, the procedure was completed successfully, with no complaints from either the patient or the dental team.



Final occlusal view



Periapical x-ray with final crown in place.



Final buccal image

CLINICAL CASE REPORT 4

GUIDED SINGLE TOOTH IMPLANT

INTRODUCTION

The loss of a single tooth is a common occurrence in dental practice. The first lower molar is the most frequently lost tooth, primarily because it erupts first during childhood – a time when oral hygiene is often neglected. One major consequence of a missing first molar is the mesial inclination of the second molar, which can contribute to periodontal disease on its mesial side, leading to bone loss and, in some cases, the eventual loss of the second molar as well.

For many years, the standard treatment for this issue involved placing a bridge supported by the second molar and second premolar. However, this approach requires crown preparation, which can compromise the integrity of the adjacent teeth. The introduction of dental implants has been a major advancement, eliminating the need for modifying healthy teeth. However, challenges such as limited mouth opening, difficult hand angulation, and other anatomical constraints can lead to suboptimal implant positioning.

With the development of digital workflows – including intraoral scanners and guided surgery – dentists now have a safer and more precise method for implant placement, ensuring optimal positioning for long-term success.

INITIAL SITUATION

A 66-year-old male patient, with no significant health issues, presented at the practice with an absence of the first lower molar on the right side. There was adequate spacing between the remaining teeth and a favorable occlusion. The condition of the bone was satisfactory, and the placement of a single implant was recommended.



Initial smile



Initial panoramic x-ray

CLINICAL CASE REPORT 4

GUIDED SINGLE TOOTH IMPLANT

PLANNING

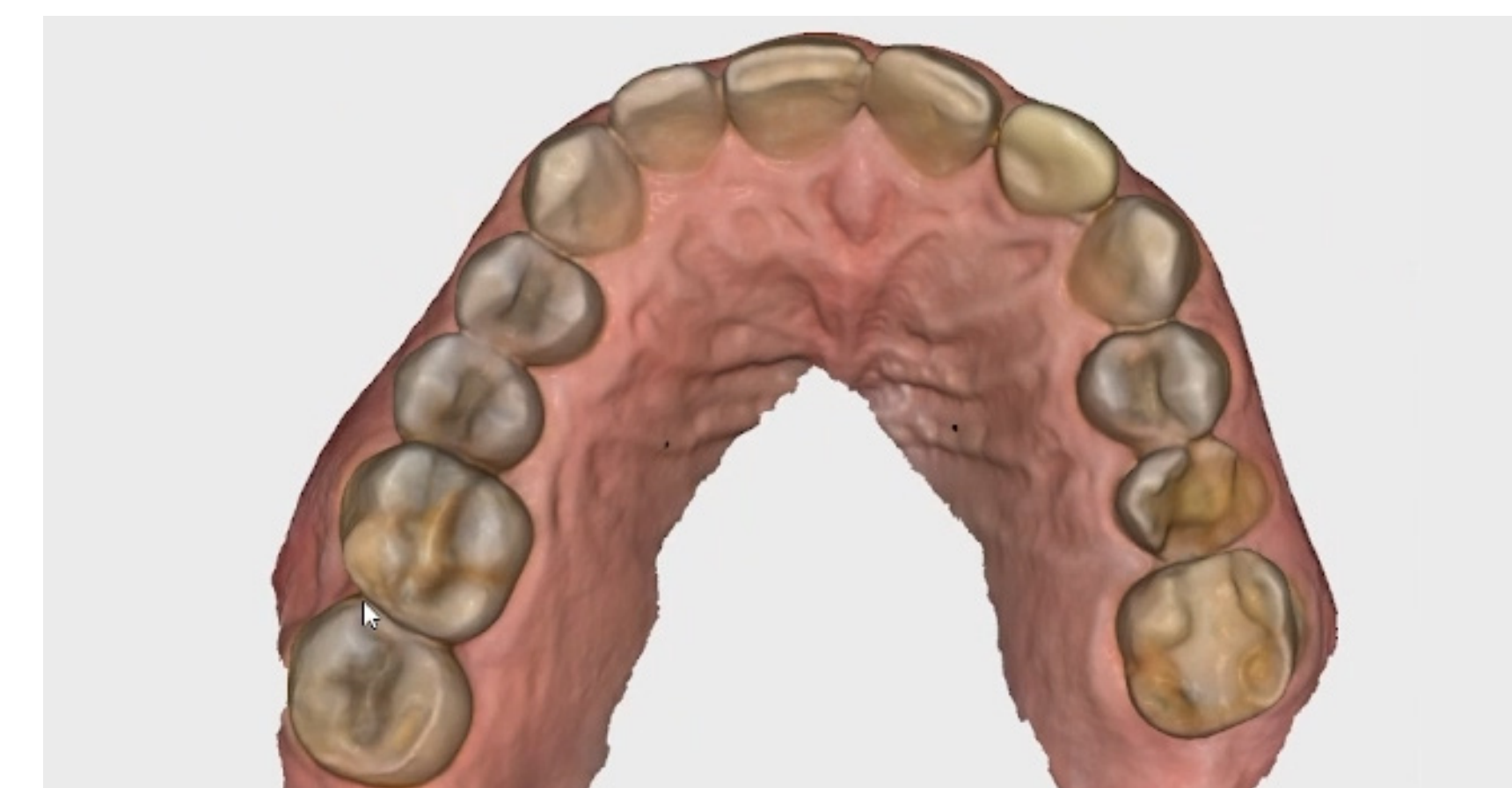
The treatment plan involved placing a single implant in the region of tooth 46 using a printed surgical guide.

The guide and a PMMA-milled crown were both designed based on digital impressions taken with the Straumann SIRIOS™ scanner.

3D scans obtained with Straumann SIRIOS™



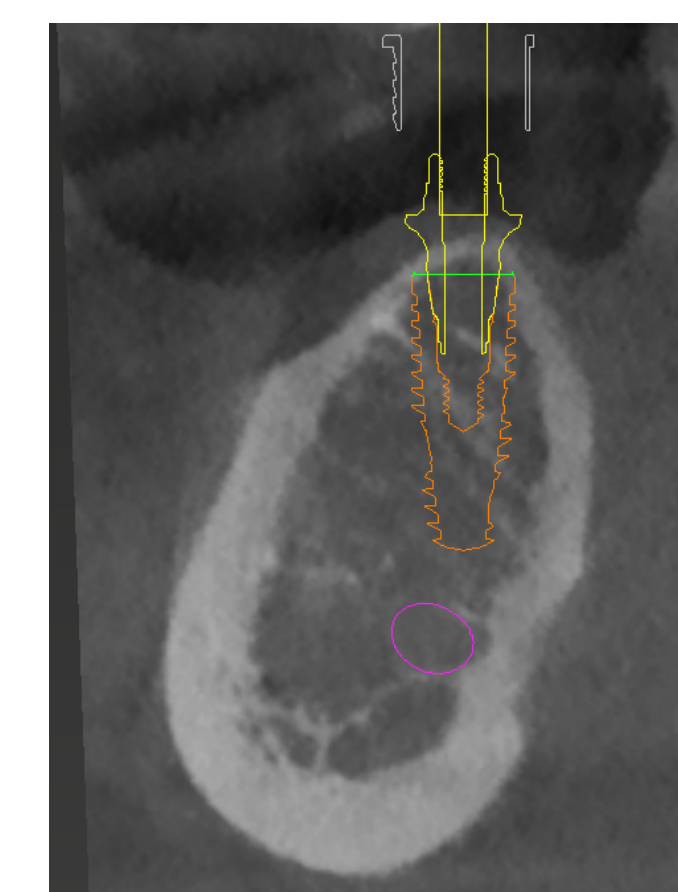
Lower scan



Upper scan



Initial bite view



CT-scan cross-section of the surgical planning



Initial occlusal view



Initial buccal view

CLINICAL CASE REPORT 4

GUIDED SINGLE TOOTH IMPLANT

SURGICAL PROCEDURE

The patient was premedicated with betamethasone and an anxiolytic. Local anesthesia was administered using Articaine 4% (1:100,000, DFL).

A printed surgical guide was positioned to ensure precise implant placement. In this case, an incision was made to preserve the gingival margin. The selected implant was a Neodent® GM Helix Aqua.

Postoperative medications included Amoxicillin 500 mg and Spidufen 600 mg.



Surgical guide outside the mouth



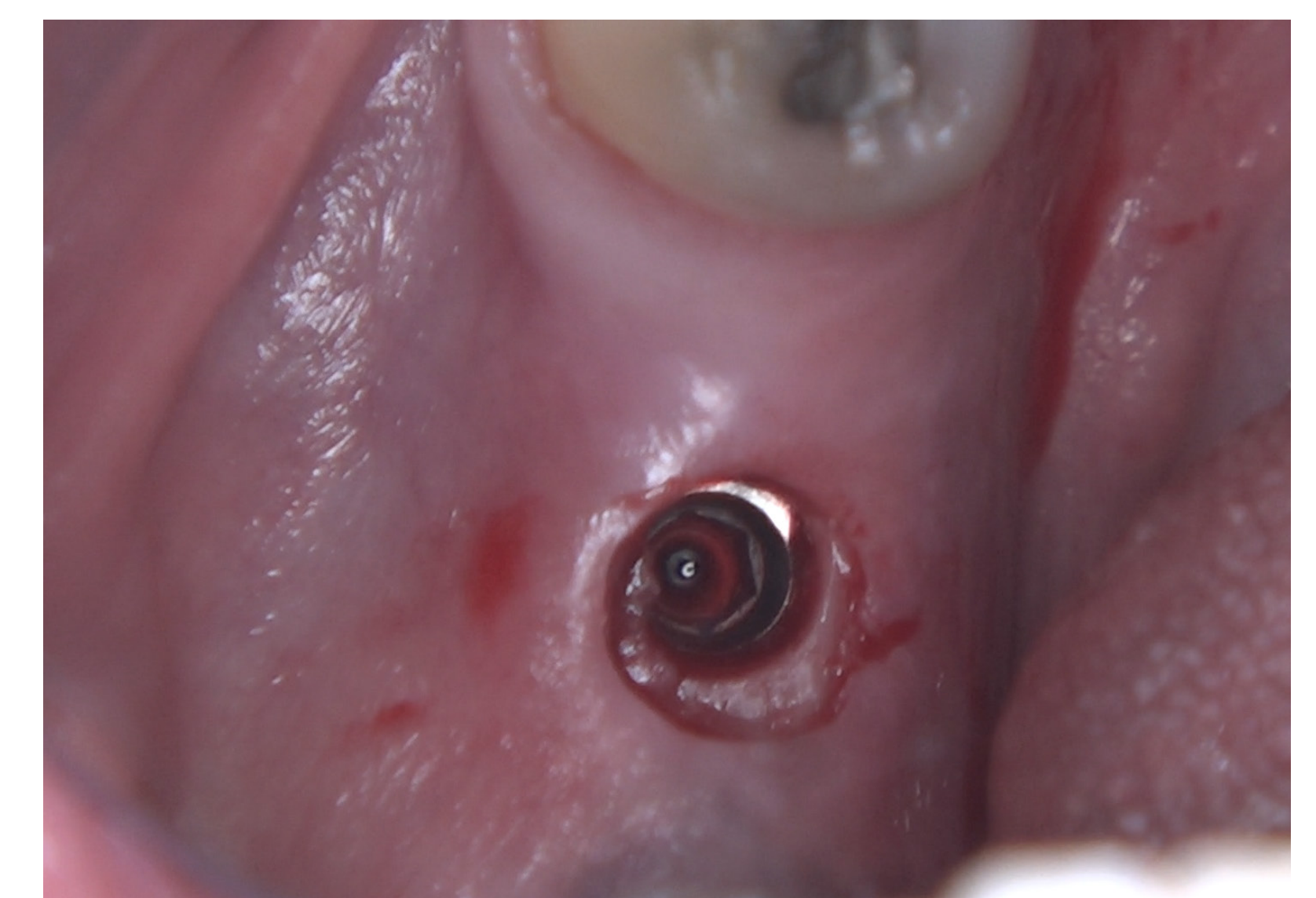
Surgical guide positioned inside the mouth



Occlusal view of the surgical guide in-mouth



Drilling with the guide



Final Implant placement

CLINICAL CASE REPORT 4

GUIDED SINGLE TOOTH IMPLANT

PROSTHETIC PROCEDURE

Following the postoperative phase, a Neodent® GM scanbody was placed on the implant and scanned using the Straumann SIRIOS™ scanner. A temporary PMMA crown was designed and milled using a DMG Sauer Ultrasonic machine. It was then cemented onto a Neodent® Titanium Base GM Exact (4.5 × 1.5 × 4 mm).

The crown was screwed to 20 N.cm, and occlusal adjustments were performed. A final CBCT confirmed the success of the treatment, showing the precise positioning of the pre-planned implant.



Final crown



Cross section of final CT-scan



Crown fit on model



Bite view of final crown placement



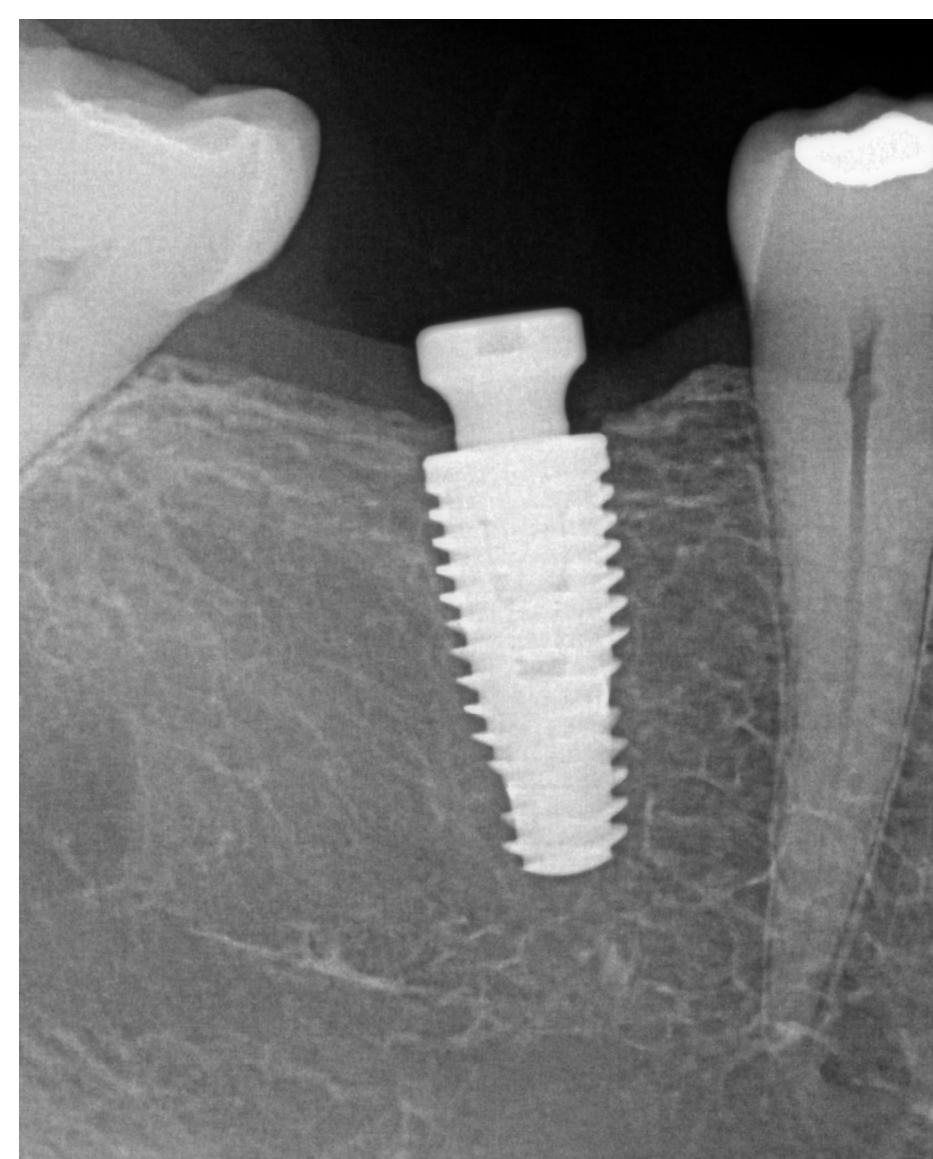
Buccal view of the final crown placement

CLINICAL CASE REPORT 4

GUIDED SINGLE TOOTH IMPLANT

CONCLUSION

The use of a surgical guide for implant placement, combined with the digital fabrication of the prosthesis, provided significant comfort and safety for the patient. The digital workflow ensured a predictable procedure for the dentist, minimizing the risk of errors and enhancing overall treatment precision.



Final periapical x-ray



Final bite view of the crown placement



Comparison between planned and final CBCT





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CLINICAL CASE REPORT 5

ONLY RESTORATION FOR UPPER MOLAR

INTRODUCTION

For years, large restorative procedures have raised concerns about the durability and aesthetics of materials. Additionally, due to individual patient sensitivities, clinicians often faced challenges when performing traditional impressions, sometimes leading to issues with impression accuracy.

With the introduction of digital workflows, certain steps have become more efficient; however, achieving precision has remained a challenge in some cases. Advances in intraoral scanning technology have significantly improved outcomes. This case report aims to demonstrate the ease and precision of the Straumann SIRIOS™ scanner in restorative procedures.

INITIAL SITUATION

A 39-year-old male patient in good health presented at the practice seeking a restorative solution for a fractured tooth (first right upper molar). Clinical assessment revealed a temporary restoration covering the occlusal, mesial, buccal, and palatal surfaces of tooth 16, along with a stable occlusion.



Initial periapical x-ray



Initial bite view



buccal view of tooth 16

CLINICAL CASE REPORT 5

ONLAY RESTORATION FOR UPPER MOLAR

PLANNING

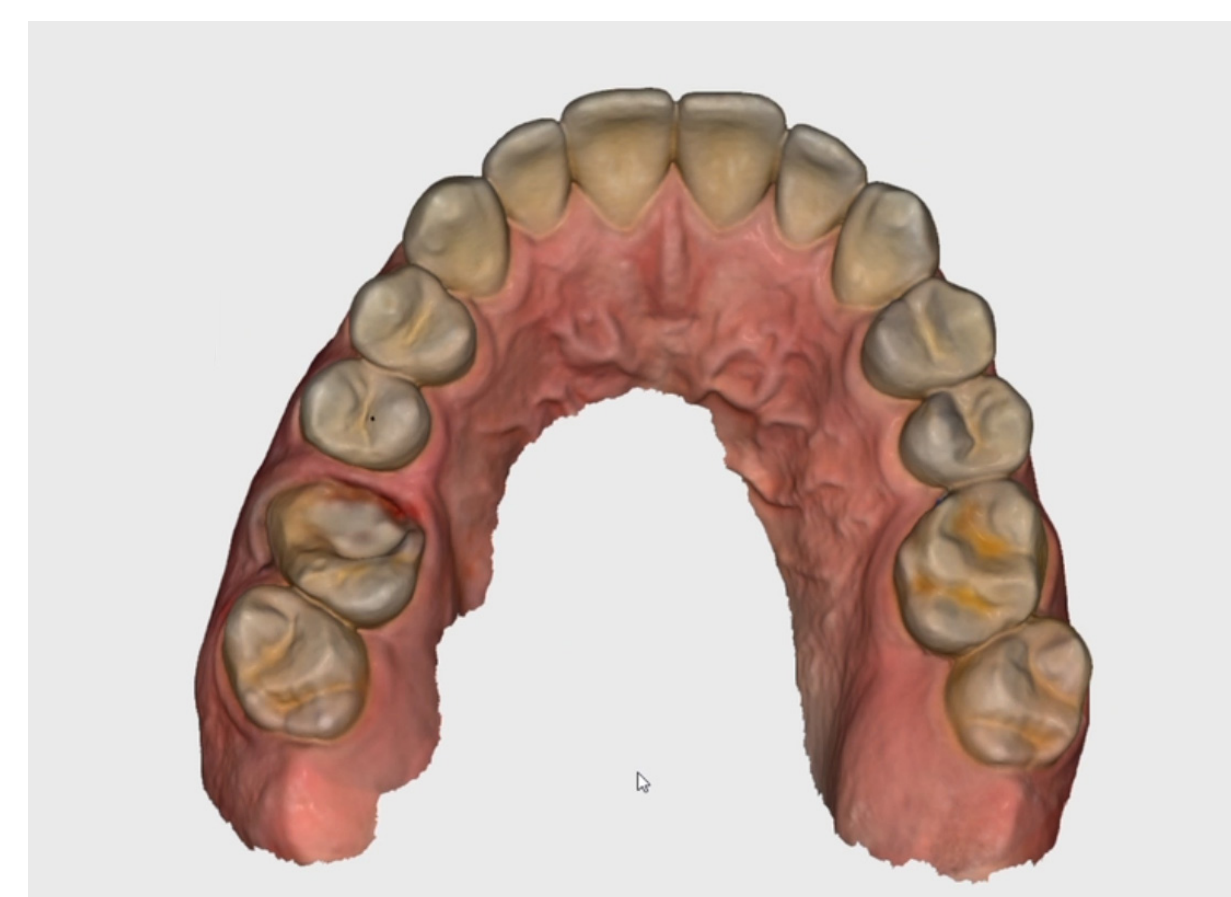
The treatment plan involved removing the temporary restoration, preparing the tooth cavity, scanning the arch, and milling an IPS e.max® restoration.

PROCEDURE

During the first appointment, initial photographs and x-rays were taken. After removing the temporary restoration and preparing the cavity, the tooth and both arches were scanned. A model was printed in the lab, and the IPS e.max® restoration was milled using a Ceramill Motion 2 machine.

The following day, the IPS e.max® restoration was cemented using dual-cure resin cement. Final x-rays and photographs were taken, and the procedure was completed with an occlusal adjustment.

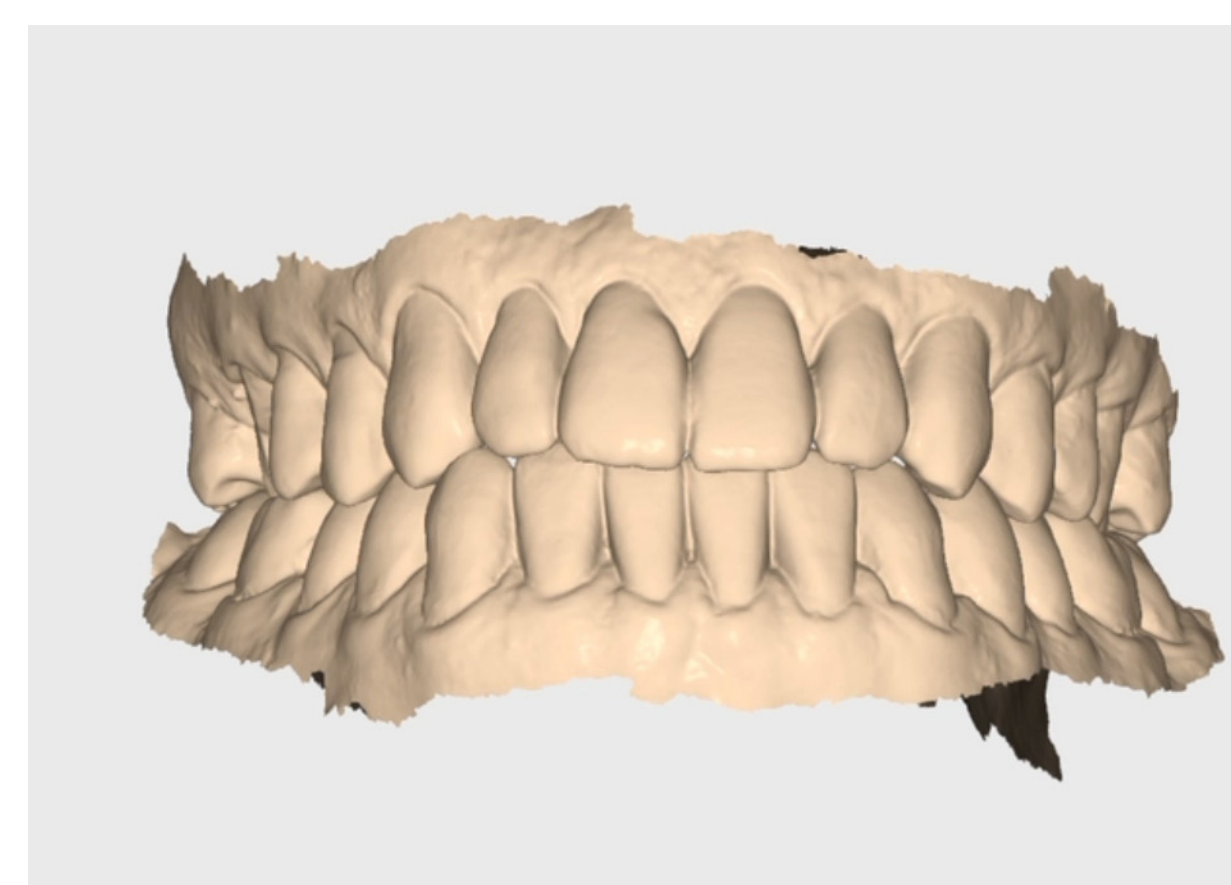
3D scans obtained with Straumann SIRIOS™



Initial upper scan



Initial lower scan



Scan in occlusion



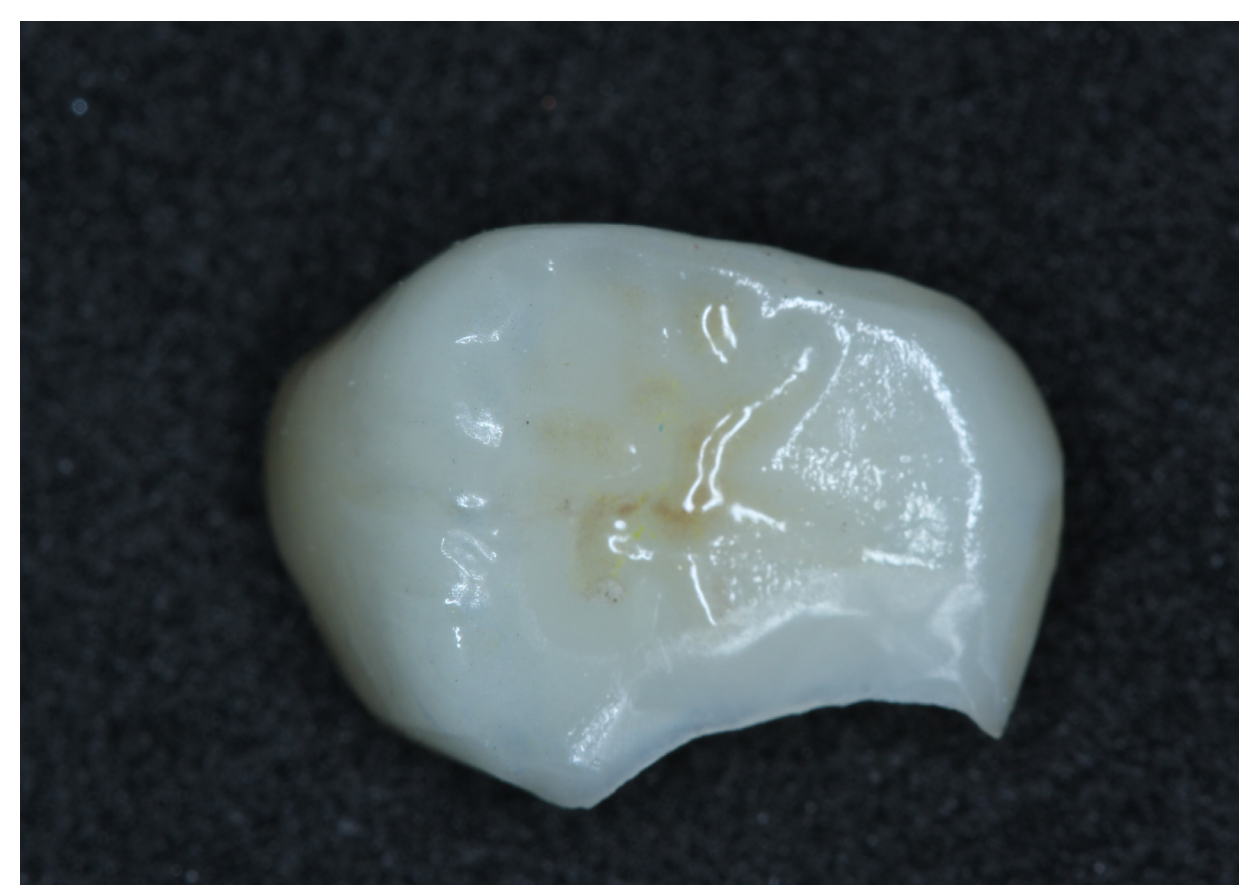
Model die of tooth 16



Model in occlusion



Onlay fit on model



Final onlay

CLINICAL CASE REPORT 5

ONLAY RESTORATION FOR UPPER MOLAR

CONCLUSION

The procedure was straightforward, and the patient was highly satisfied with the comfort, speed of the appointments, and the overall treatment timeline. From the clinician's perspective, the Straumann SIRIOS™ scanner is intuitive and easy to use, making the workflow cleaner and more efficient compared to traditional impressions, while delivering excellent results.



Final occlusal photograph



Final periapical x-ray



Final buccal photograph

CLINICAL CASE REPORT 6

GUIDED SURGERY WITH STRAUMANN® BLX

INTRODUCTION

In recent decades, access to dental care and awareness of oral health have significantly increased. As a result, it has become less common for individuals to have multiple missing teeth. Today, the most common causes of tooth loss include trauma or the failure of large restorations due to secondary decay.

Some patients may not consider a missing tooth a major issue and, as a result, may delay seeking treatment. However, even a single missing tooth can lead to complications affecting adjacent teeth and overall oral function. Additionally, prolonged tooth loss can result in bone resorption, making future implant placement more challenging.

For many years, dental bridges were the standard treatment for replacing a single missing tooth. However, with advancements in dental technology, implants have become the preferred solution, offering long-term benefits for both function and aesthetics.

INITIAL SITUATION

A 46-year-old male patient in good health presented at the practice with missing first upper molars on both the left and right sides. On the left side, adequate space was available between adjacent and opposing teeth, as confirmed by CBCT. The bone and gingival conditions were favorable for a single implant placement. On the right side, CBCT revealed less than 5 mm of apical bone, making a bone graft necessary before implant placement.



Initial smile



Buccal initial situation photograph



Initial periapical x-ray



Initial buccal photograph



Initial occlusal photograph

CLINICAL CASE REPORT 6

GUIDED SURGERY WITH STRAUMANN® BLX

PLANNING

The treatment plan involved placing a single implant with immediate loading in the region of tooth 26. To enhance patient comfort and ensure a more predictable procedure, guided surgery was chosen. The Straumann SIRIOS™ scanner was used to take a digital impression for fabricating the surgical guide and a PMMA-milled crown.

SURGICAL PROCEDURE

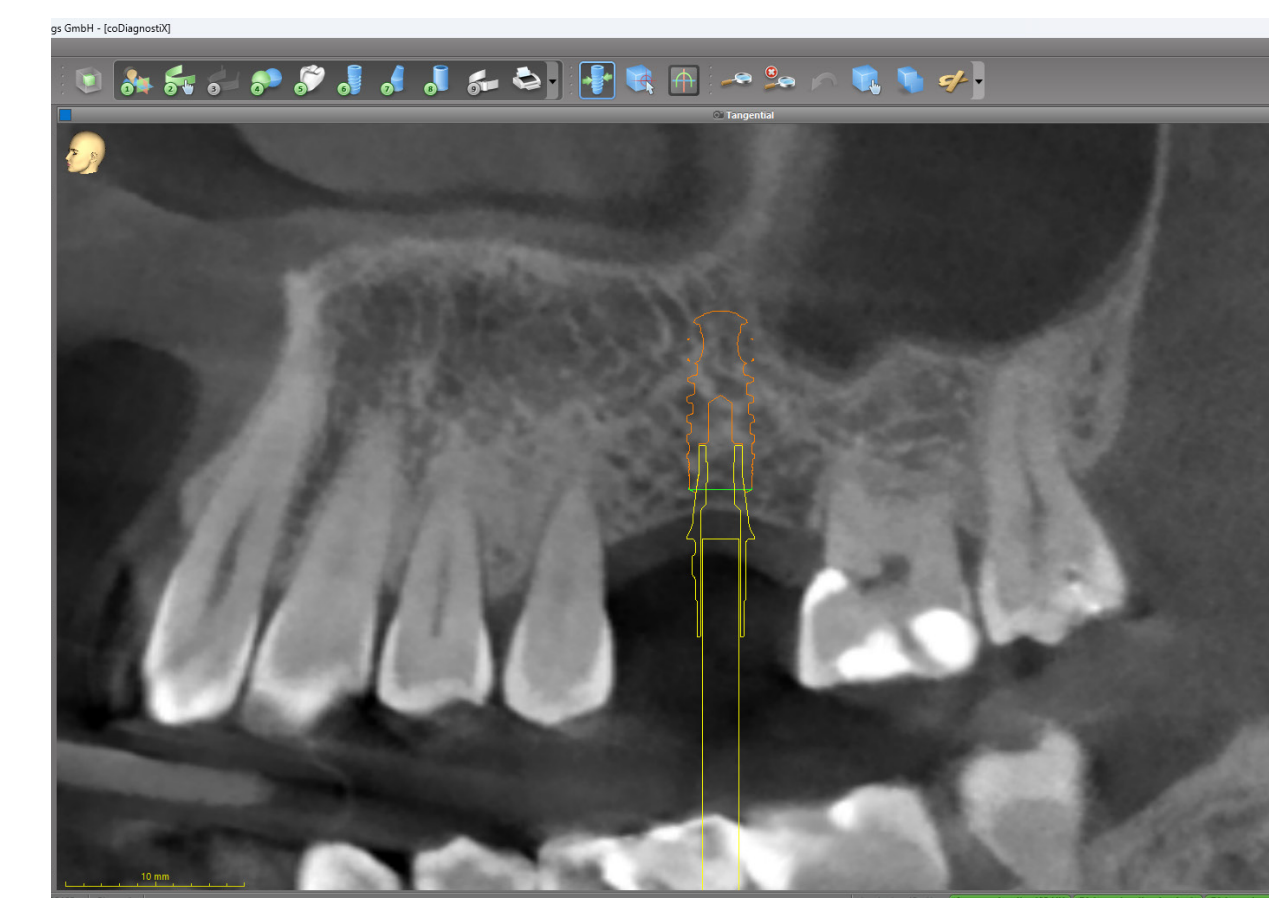
The patient was premedicated with betamethasone and an anxiolytic. The procedure began with the placement of the pre-fabricated surgical guide, which had been designed using digital impressions from the Straumann SIRIOS™ scanner.

Under local anesthesia (articaine), the perforations were made using the appropriate drills from the Straumann® Guided Surgery System. The implant was then placed with a torque exceeding 60 N.cm, allowing for immediate loading of the prosthesis.

Postoperative medications included amoxicillin and Spidufen® 600 mg.



3D scan obtained with Straumann SIRIOS™



CBCT planning



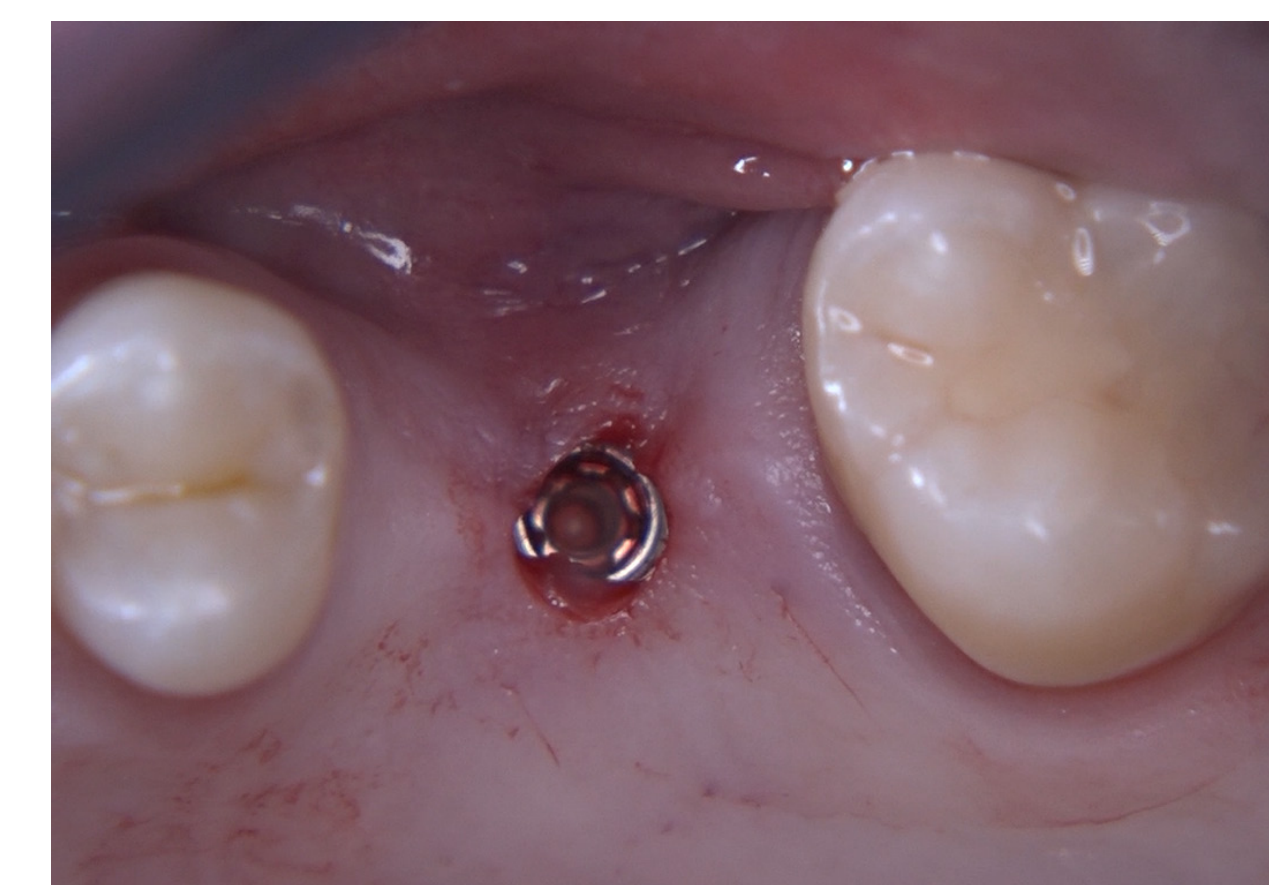
Surgical guide



Drilling with guide



Periapical x-ray of the implant placement



Occlusal view of the implant after placement

CLINICAL CASE REPORT 6

GUIDED SURGERY WITH STRAUMANN® BLX

PROSTHETIC PROCEDURE

Following the surgery, the Straumann® RB/WB Temporary Abutment (4.5 mm) was placed, and the crown was fabricated with acrylic resin. As planned, the PMMA prosthesis was milled using a DMG Sauer Ultrasonic machine.

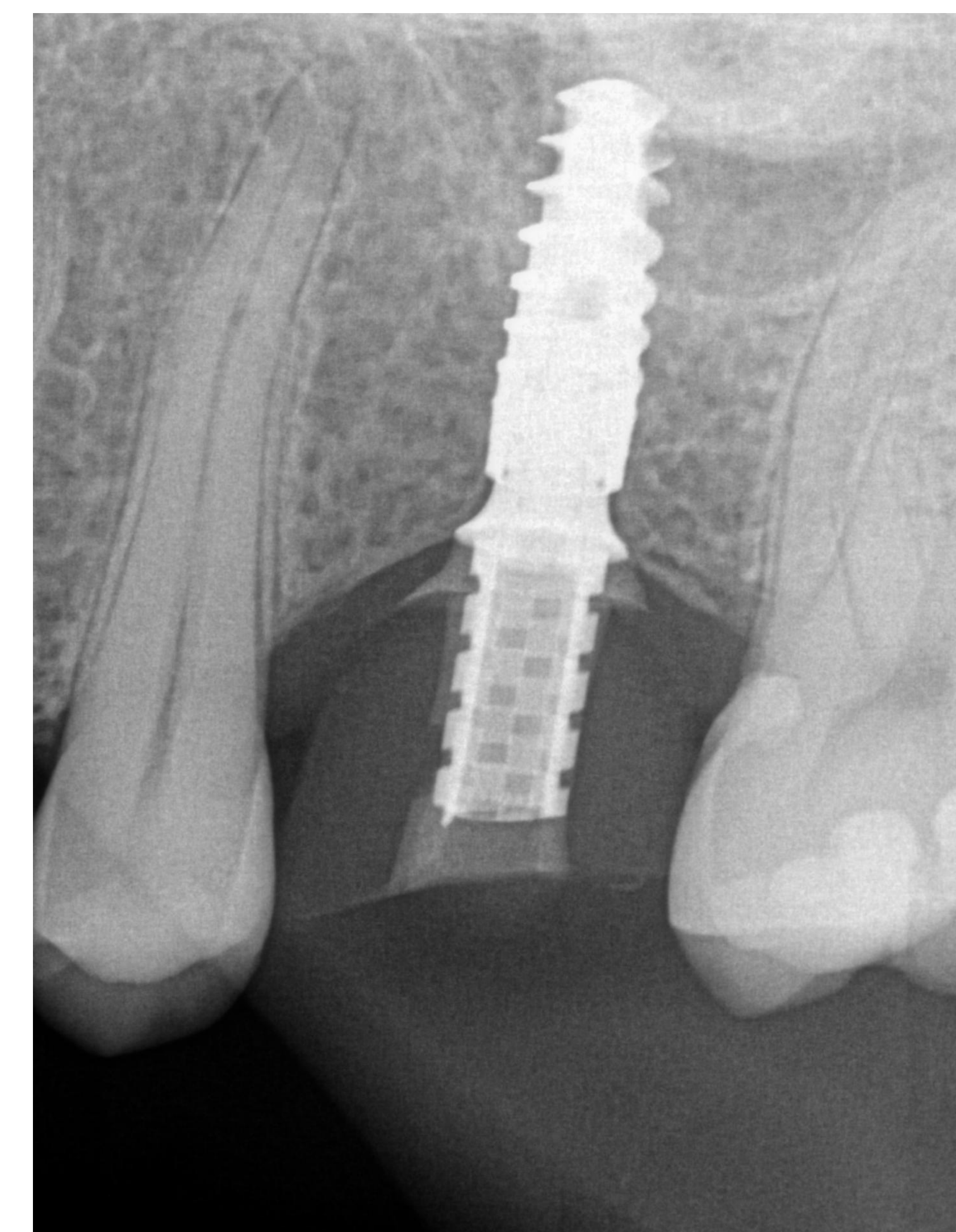
The crown was screwed into place with a torque of 20 N.cm, and occlusal adjustments were performed. A final x-ray confirmed the success of both procedures, showing ideal implant angulation and a proper distance from the roots of adjacent teeth.



Final buccal view



Final Crown with abutment



Final periapical x-ray

CLINICAL CASE REPORT 6

GUIDED SURGERY WITH STRAUMANN® BLX

CONCLUSION

A digital workflow was used in this case for guided surgery with immediate loading. By utilizing the Straumann SIRIOS™ scanner and CBCT, the procedure was meticulously planned, and both the surgical guide and temporary prosthesis were digitally designed and fabricated. This approach enhanced treatment precision while significantly reducing chair time. The patient reported feeling safe and comfortable with the final outcome.



Final crown occlusal view



Final crown buccal view



Final crown bite view

CLINICAL CASE REPORT 7

ZIRCONIA DENTAL CROWN FOR LOWER MOLAR

INTRODUCTION

In clinical practice, we frequently encounter patients with large restorative fillings. Until the 2000s, the use of amalgam fillings and the preference for composite restorations over porcelain crowns or onlays were primarily driven by cost considerations. As a result, many patients have extensive fillings that, over time, can lead to fractures of the crown, the root, or both.

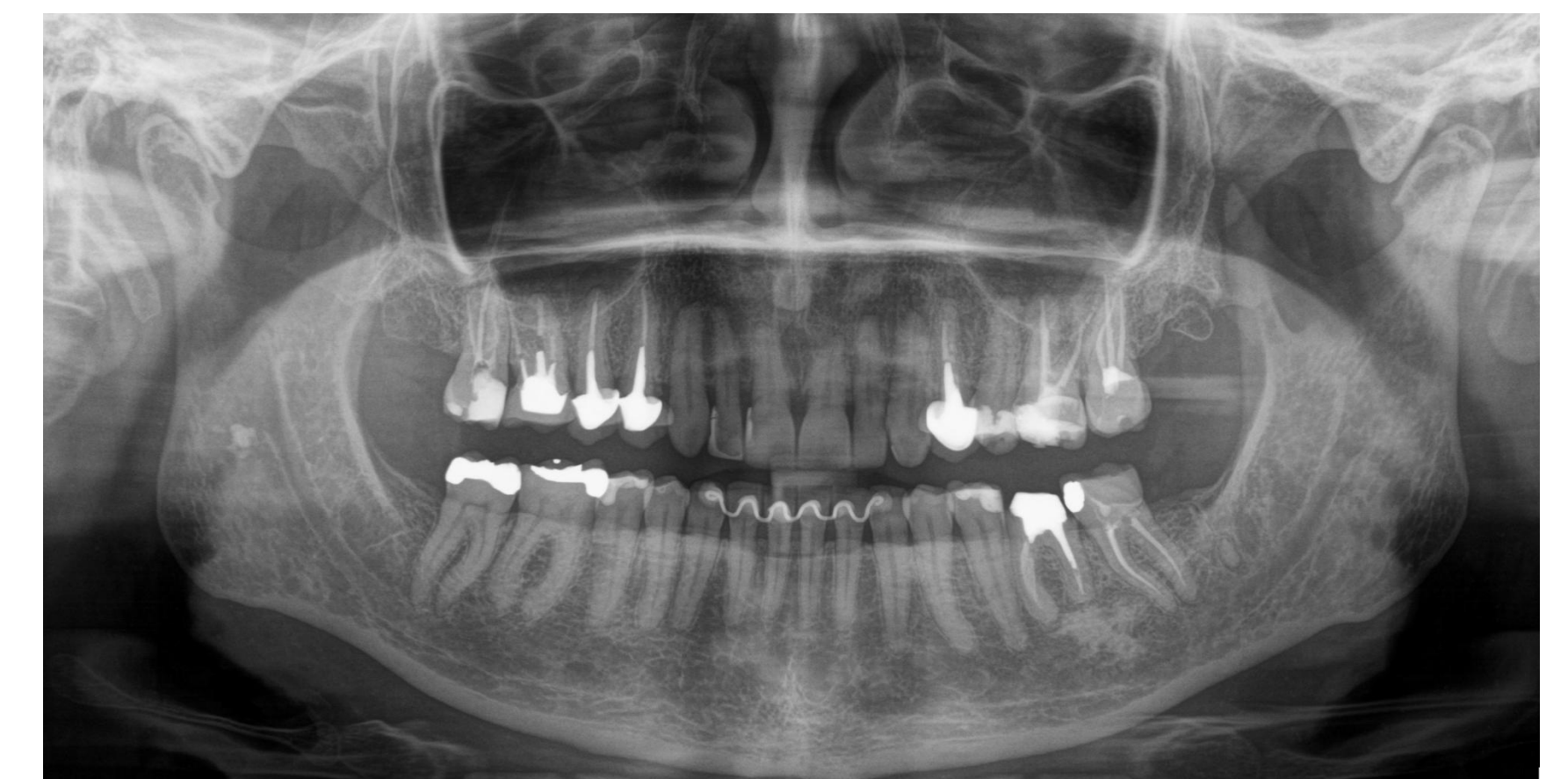
Today, the use of porcelain or zirconia crowns has become more common due to the reduced cost of fabrication and the increased accessibility of intraoral scanners and 3D printers. This advancement has made it easier to implement a fully digital workflow in dental offices, allowing for more efficient, high-quality, and faster treatment for patients.

INITIAL SITUATION

A 51-year-old female patient in good health presented at the practice with a missing crown on tooth 36. A cast metal post with good adaptation was present. The patient had healthy gingival conditions and sufficient occlusal space for a metal-free single crown.



Initial buccal photograph



Initial panoramic x-ray



Initial periapical x-ray

CLINICAL CASE REPORT 7

ZIRCONIA DENTAL CROWN FOR LOWER MOLAR

PLANNING

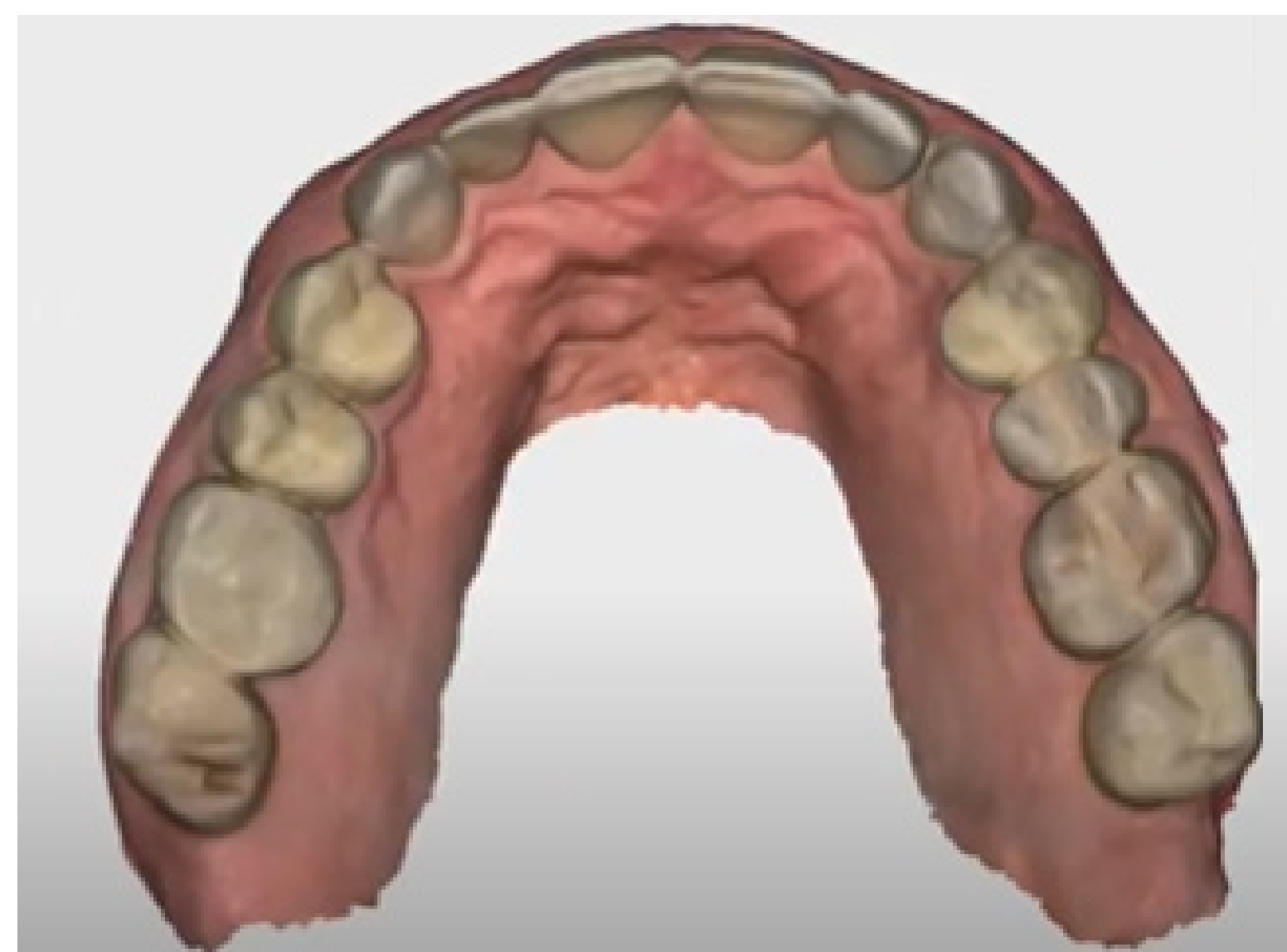
The treatment plan involved utilizing the existing cast metal post and implementing a fully digital workflow to fabricate a monolithic zirconia crown.

PROSTHETIC PROCEDURE

After placing gingival retraction cords, the impression was taken using the Straumann SIRIOS™ scanner, and the tooth shade was selected. The STL file was then sent to the lab for digital planning and crown design. The monolithic zirconia crown was milled using a Ceramill Motion 2 machine.

The adaptation of the crown was clinically evaluated before cementation with dual-cure resin cement. A final periapical x-ray confirmed the success of the rehabilitation. The procedure was completed with final occlusal adjustments.

3D scans obtained with Straumann SIRIOS™



Upper scan



Lower scan



Bite scan



Initial occlusal view



Shade selection

CLINICAL CASE REPORT 7

ZIRCONIA DENTAL CROWN FOR LOWER MOLAR

CONCLUSION

The integration of a digital workflow in this type of treatment has transformed the clinical process by minimizing errors and reducing the need to repeat steps. For patients, digital scanning is significantly more comfortable compared to traditional impressions, while also reducing chair time.

As a result, patients can restore their oral health and function with high satisfaction.



Final occlusal view



Final buccal view



Final bite view



Final periapical x-ray



Dr. Geninho Thomé, PhD, MSc
Graduate in Dentistry from the UFSC;
Scientific President and Chairman
of the Board at Neodent; Director
of Innovation and Development
at ILAPEO.

CLINICAL CASE REPORT 8

GUIDED **FULL ARCH** IMPLANT

INTRODUCTION

Periodontitis is a significant concern for some patients, often caused by poor oral hygiene or systemic problems. In severe cases, periodontitis can lead to the loss of some or all teeth. For many years, removable dentures were the only solution for full-arch tooth replacement. However, in recent decades, the use of implants and implant-supported dentures has become increasingly popular.

Initially, these procedures required extensive planning and long chair times. However, with advancements in digital workflows and guided surgery, the technique has become more efficient, predictable, and faster to execute.

INITIAL SITUATION

A 50-year-old male patient with obesity and kidney problems presented at the practice with a poorly fitting upper denture supported by implants, which did not properly adapt to the gingival margin and lacked esthetic appeal. Additionally, the patient was missing posterior teeth in the lower jaw, and the existing crowns on the anterior lower teeth were in poor condition.



Initial x-ray



Initial buccal photograph



Initial smile

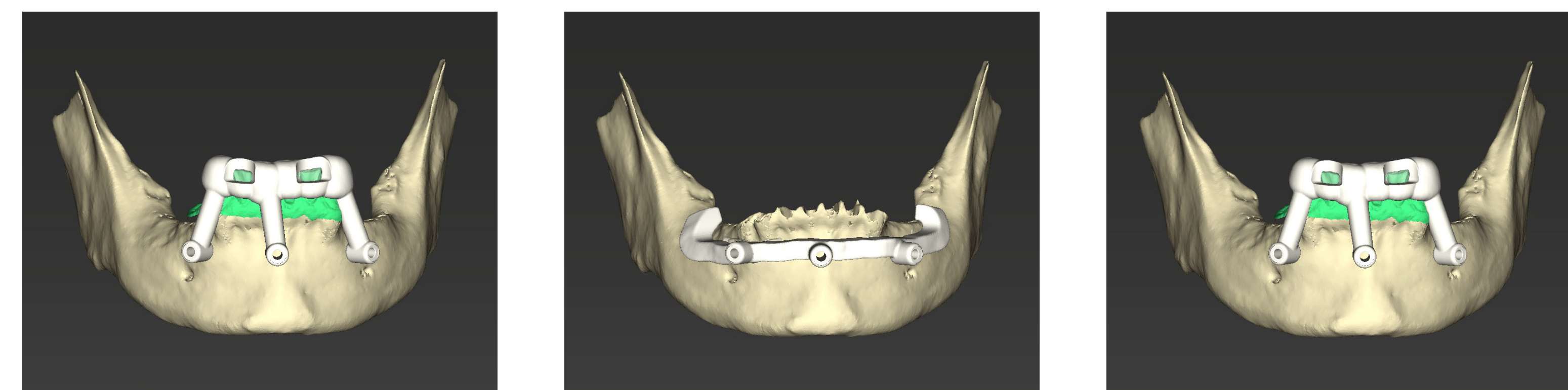
CLINICAL CASE REPORT 8

GUIDED **FULL ARCH** IMPLANT

TREATMENT PLANNING

The treatment plan involved extracting all lower teeth, followed by guided surgery and the replacement of the upper prosthesis using a fully digital workflow with the Straumann SRIOS™ scanner.

Additionally, digital scanning allowed for the planning and printing of a temporary lower denture, which was converted on the day of surgery, as well as a new temporary upper denture.



CBCT images of the three guides



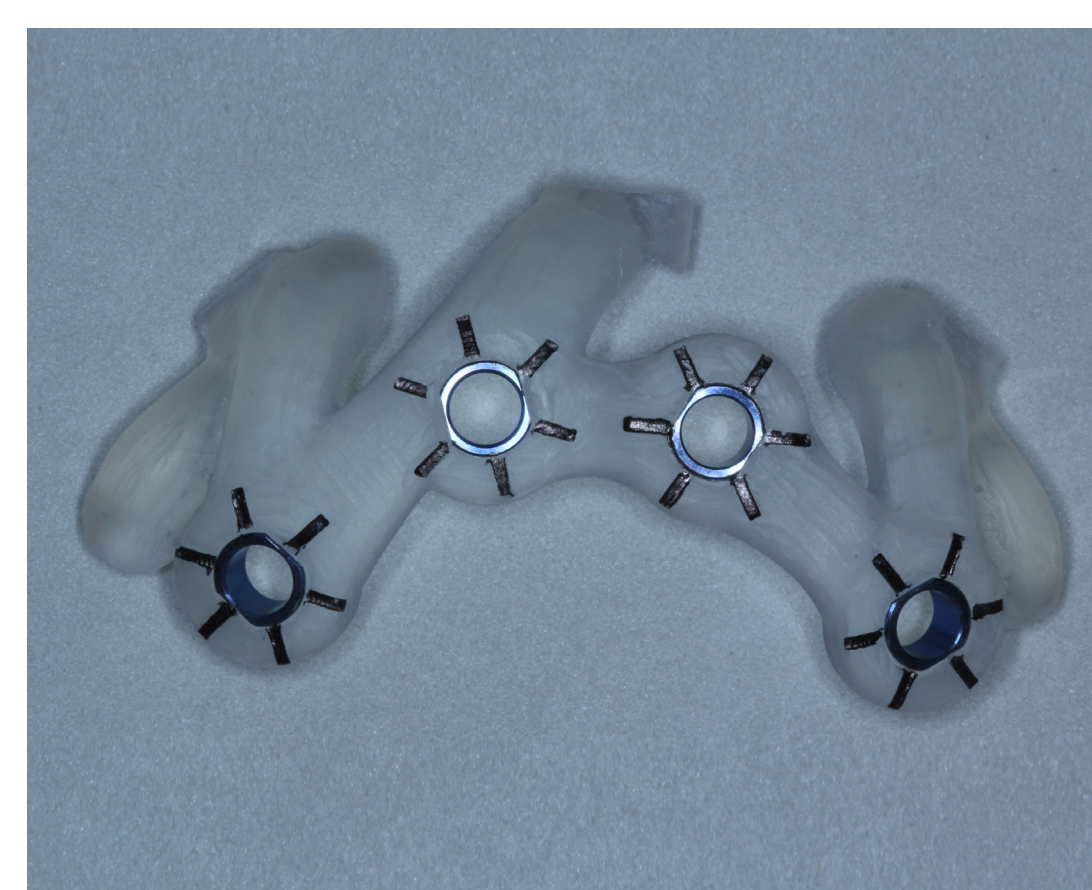
CBCT images showing implant positions



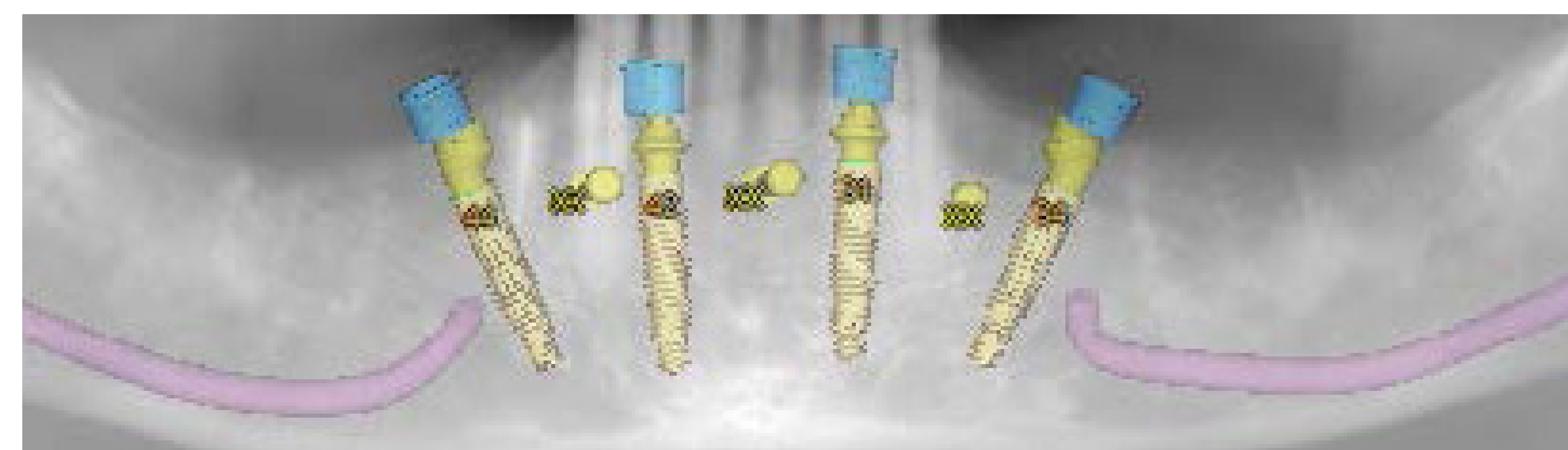
Fixation guide



Osteotomy guide



Implant perforation guide



CBCT of lower implant planning

CLINICAL CASE REPORT 8

GUIDED **FULL ARCH** IMPLANT

SURGICAL PROCEDURE

The patient was premedicated with betamethasone and an anxiolytic, and the surgery was performed under local anesthesia (articaine). The technique for placing the lower implants involved the use of three surgical guides:

- **First guide:** Adapted to the existing teeth, this guide was used to position bone fixation screws to support the second guide
- **Second guide:** Positioned after extractions, this guide was used to flatten the bone border to the required level
- **Third guide:** Placed over the second guide to ensure precise implant placement

Four Neodent® Helix® Grand Morse® Acqua implants ($\varnothing 3.75 \times 16$ mm) were placed, each achieving a torque of over 60 N.cm.

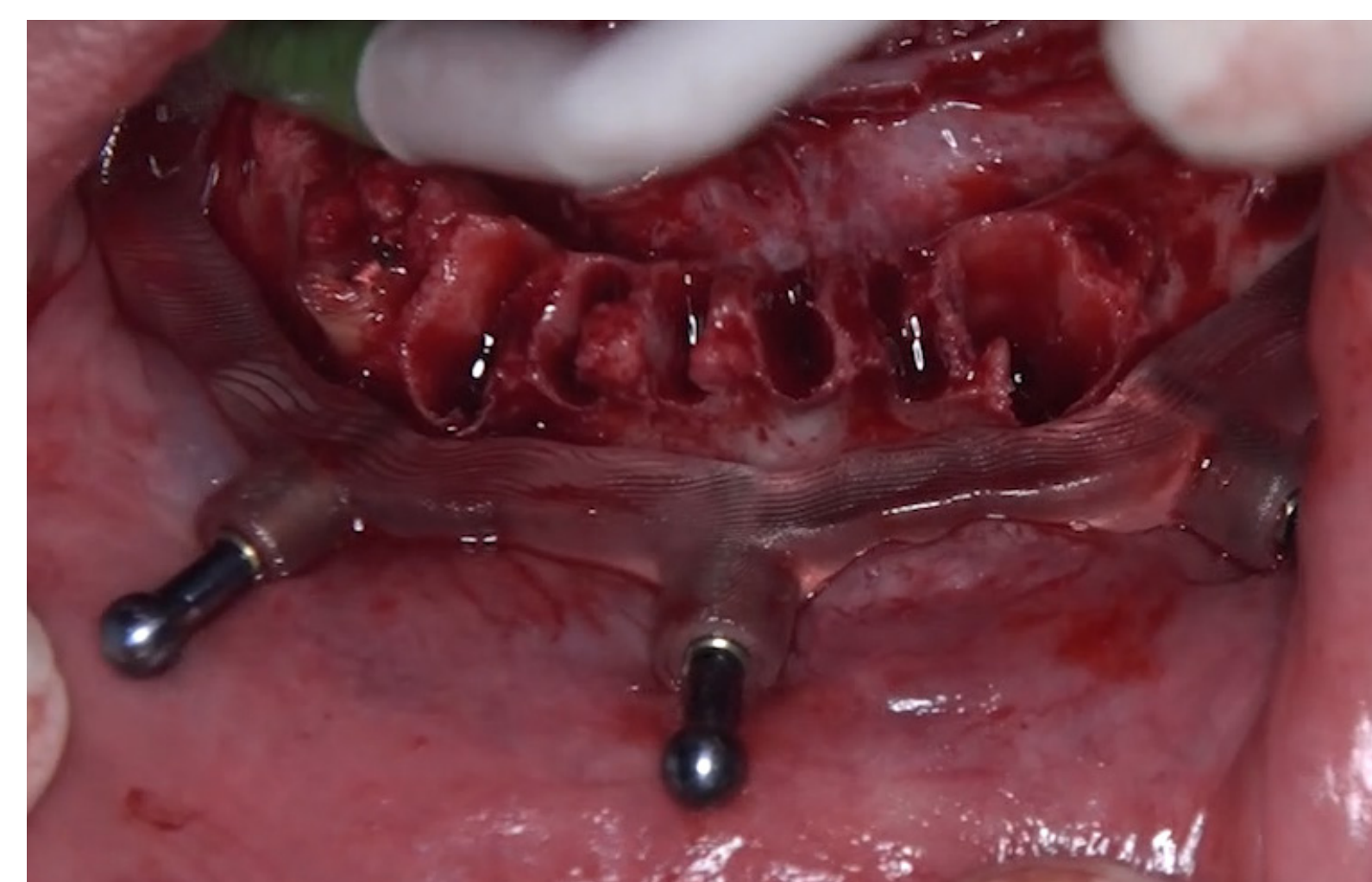
For the abutments:

- Two Neodent® GM Mini Conical Abutments $17^\circ \times 3.5$ mm with removable screws were used for the distal implants
- Two GM Mini Conical Abutments were placed on the remaining implants

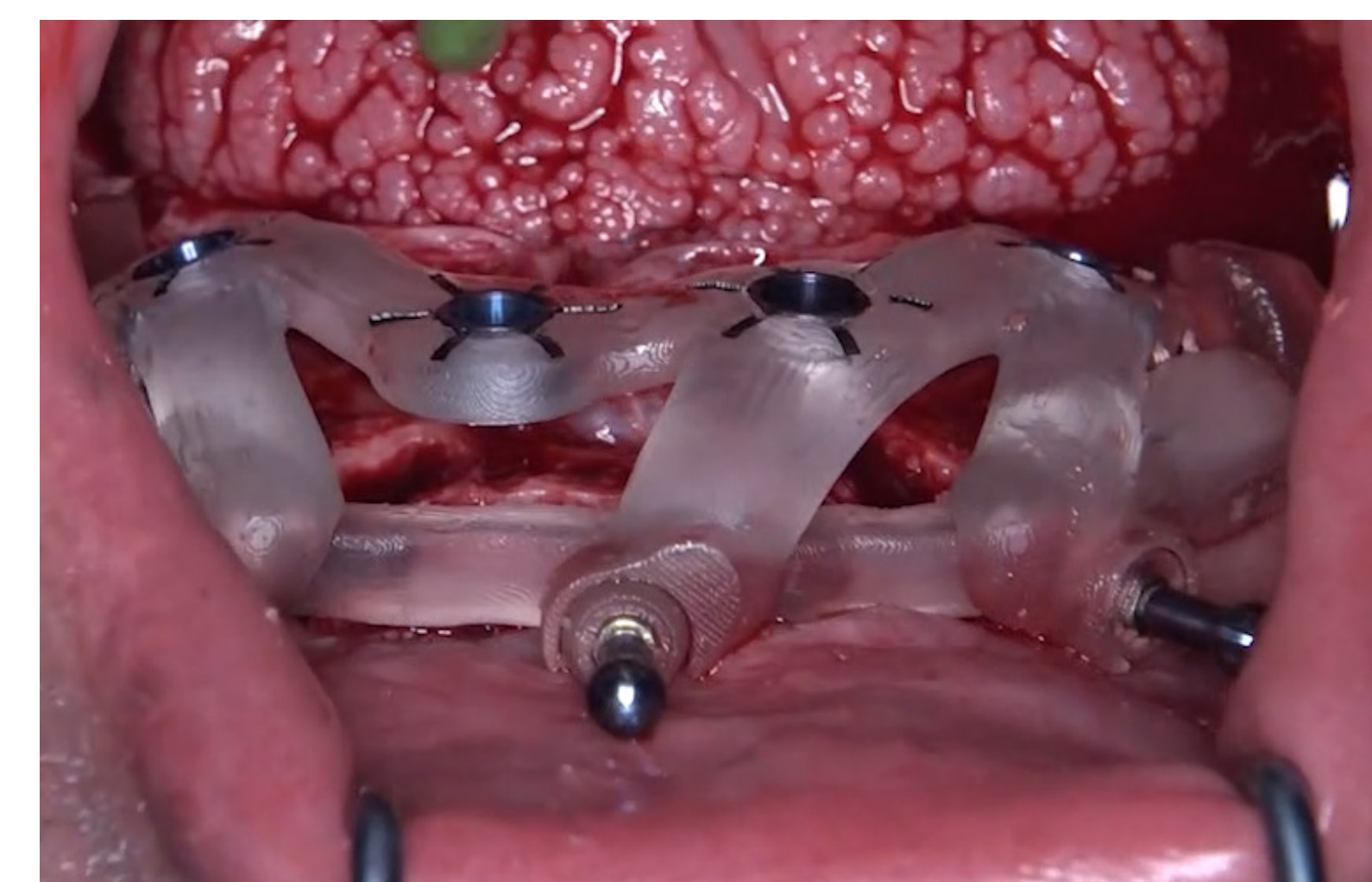
Postoperative medications included amoxicillin and Spidufen® 600 mg.



Fixation guide in-mouth placement



Osteotomy guide placement



Surgical guide placement



Implants placed with NeoConvert

CLINICAL CASE REPORT 8

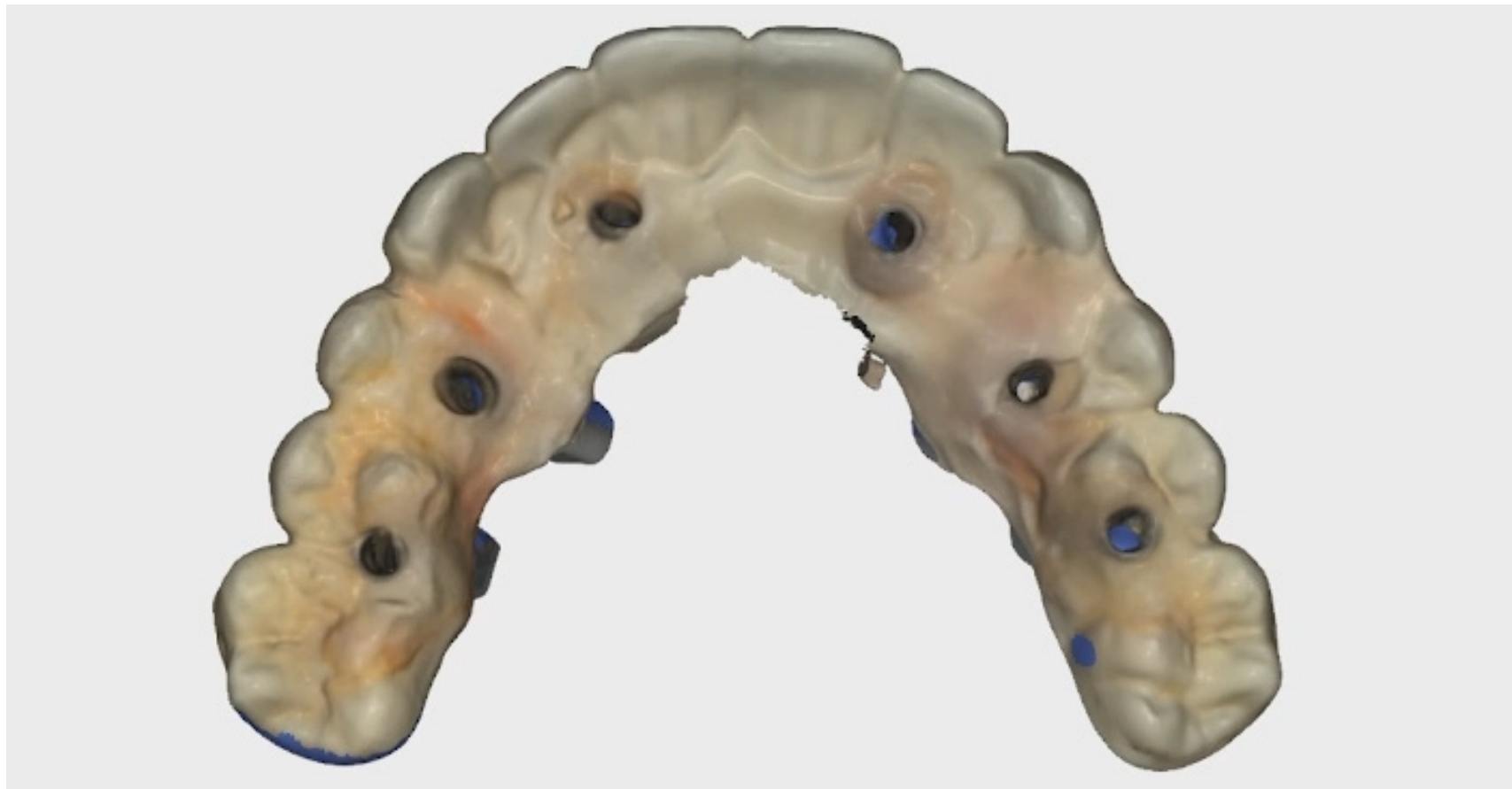
GUIDED FULL ARCH IMPLANT

PROSTHETIC PROCEDURE

On the day of surgery, the printed upper denture was installed. Using the Neodent® Neoconvert System, the printed lower denture was converted into an implant-supported temporary prosthesis.

Both prostheses were screwed into place, and occlusal adjustments were performed to ensure proper function and comfort.

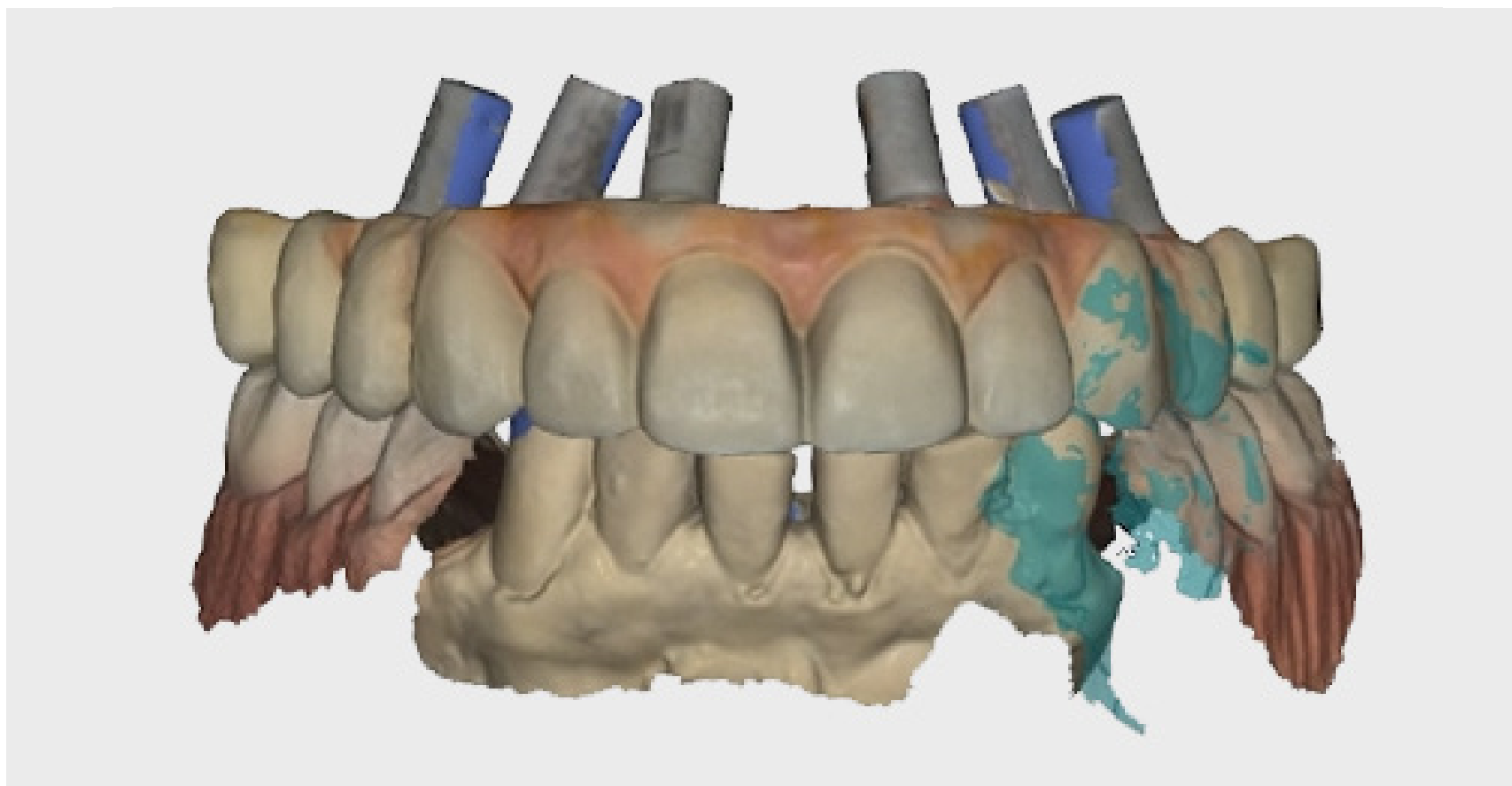
3D scans obtained with Straumann SIRIOS™



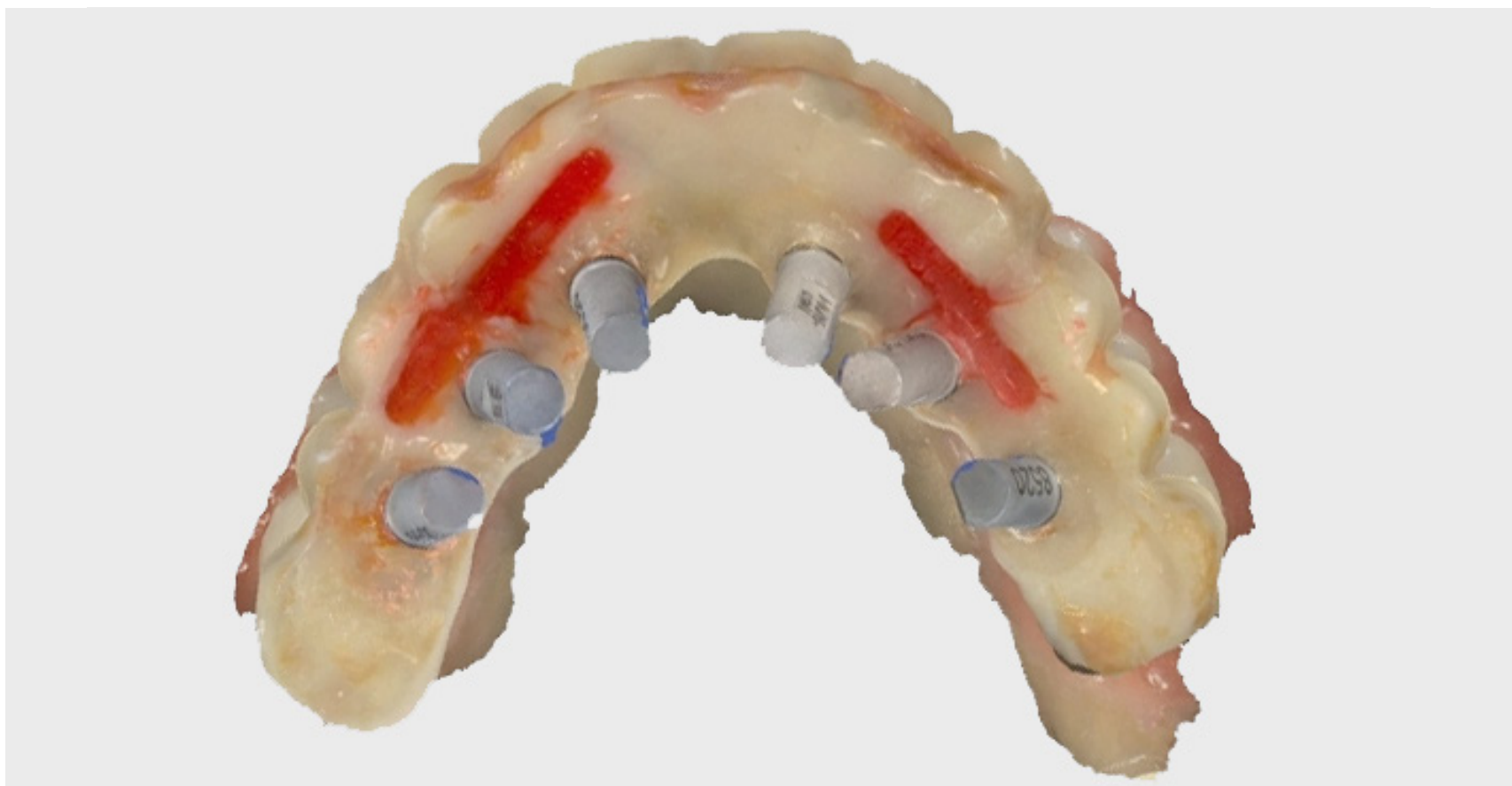
Intraoral scan of the upper jaw with denture



Scans in occlusion



Bite scan



Intaglio scan of the upper prosthesis



Dentures outside the mouth



Intaglio of the upper denture



Intaglio of the lower denture

CLINICAL CASE REPORT 8

GUIDED **FULL ARCH** IMPLANT

CONCLUSION

The patient remained comfortable throughout the entire process, including both the surgical and prosthetic procedures. The use of a guided approach during surgery and the Straumann SIRIOS™ scanner for the prosthetic phase made each step more efficient and precise.

For the clinician, implementing a digital workflow improved procedural ease, enhanced predictability, and significantly reduced chair time.



Final panoramic x-ray



Final buccal photograph



Final smile



Dr. Dalton Marques. DDS, MsC, PhD

Graduation in Dental Medicine
from the UFPR-Brazil; Director of
the Postgraduate Training Program in
Implantology at the ILAPEO;
ITI Fellow and ITI Speaker;
Teacher and lecturer on national
and international level.

CLINICAL CASE REPORT 9

UPPER FULL ARCH WITH STRAUMANN® BLX

INTRODUCTION

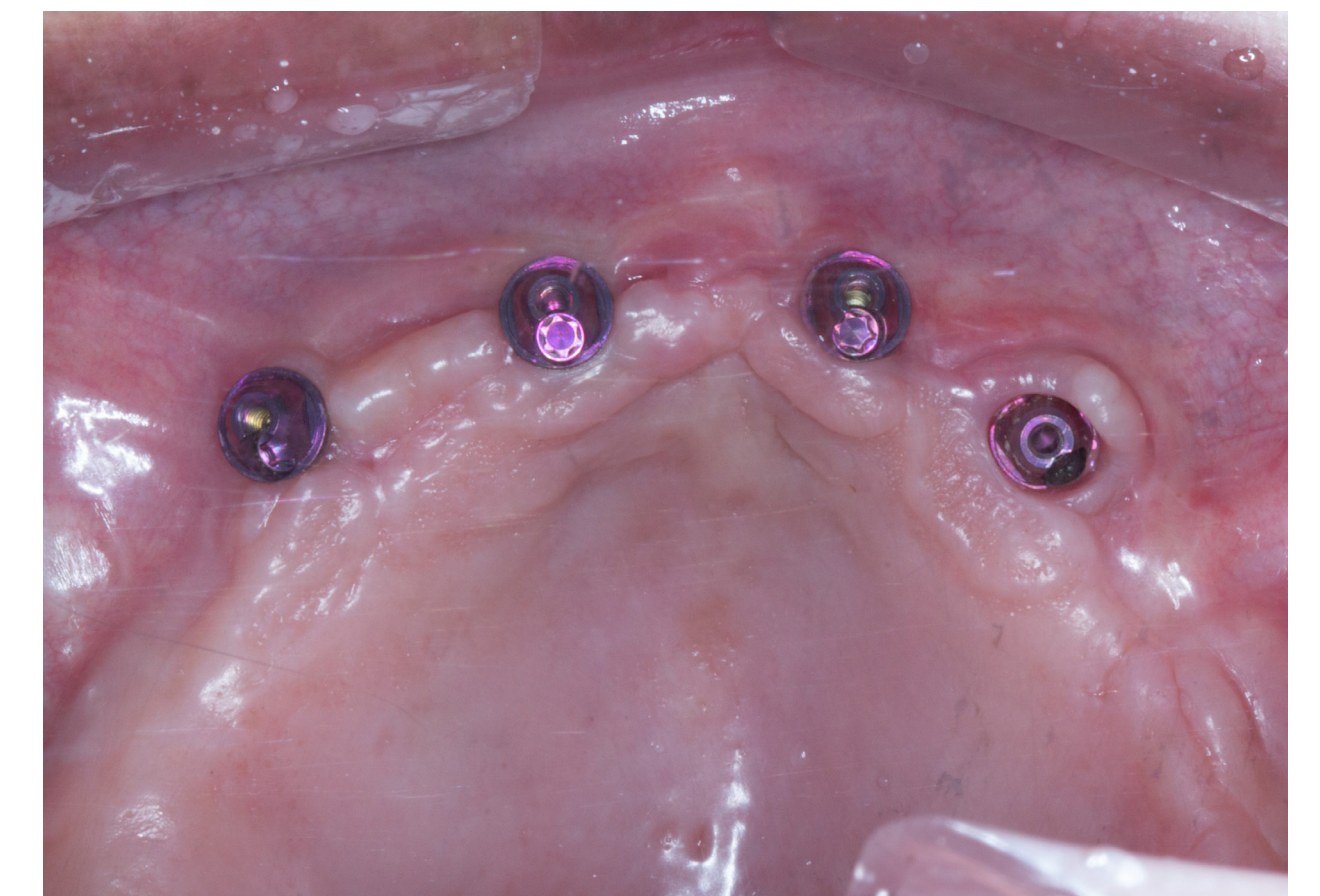
The demand for full-arch treatments has increased significantly in recent decades. There are two primary reasons for this trend.

First, individuals born before 1970 had limited access to information and preventive care regarding dental health, leading to a higher prevalence of multiple missing teeth.

Second, advancements in dental technology and an increasing number of practitioners have made these treatments more affordable. As a result, more patients today have both the need and financial ability to pursue complex and comprehensive dental rehabilitation.

INITIAL SITUATION

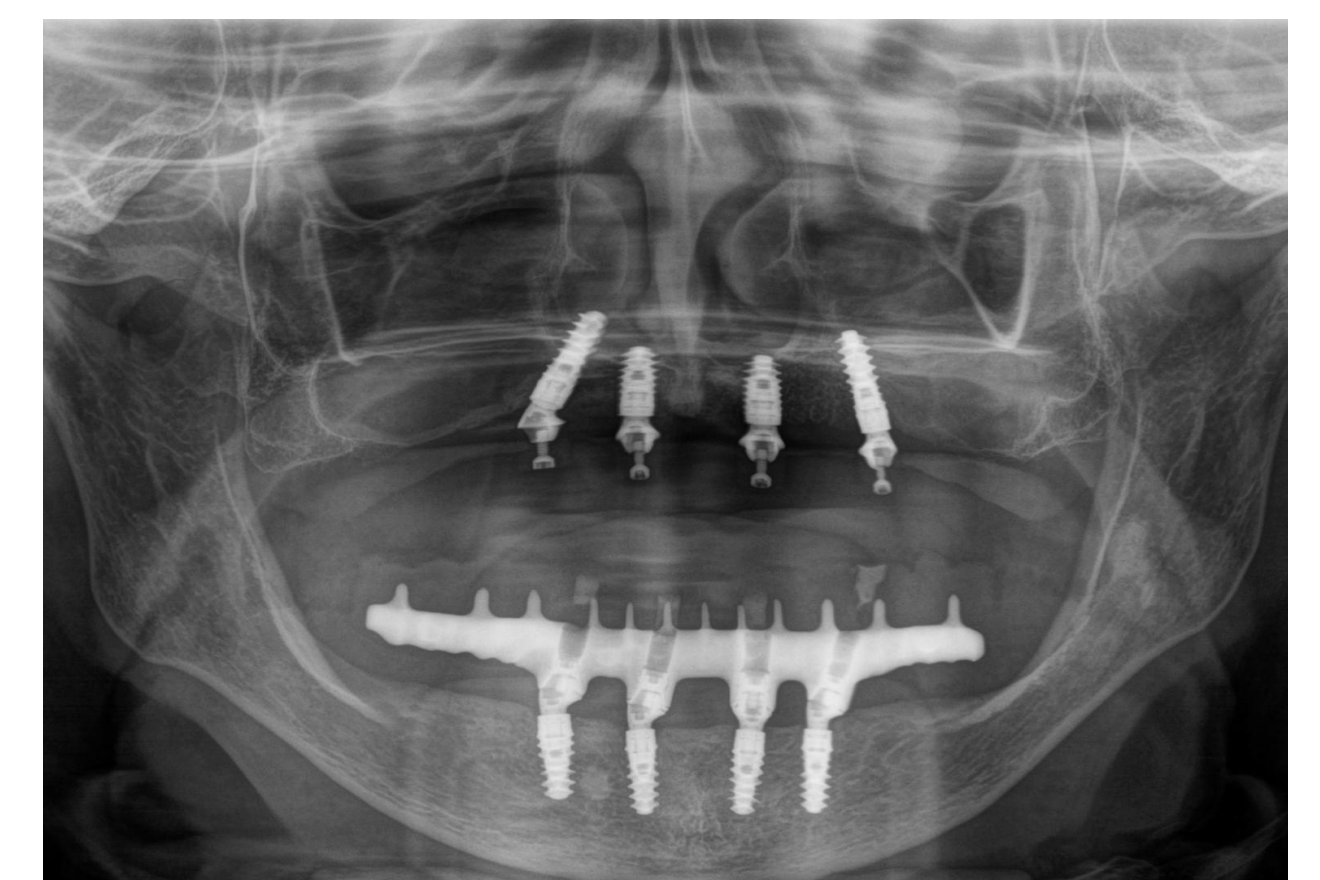
A 69-year-old female patient in good health presented at the practice with a lower full-arch prosthesis and a full-arch implant-supported restoration in the upper arch. The upper implants were Straumann® BLX.



Upper abutment occlusal view



Lower prosthesis occlusal view



Initial panoramic x-ray

CLINICAL CASE REPORT 9

UPPER FULL ARCH WITH STRAUMANN® BLX

PLANNING

The treatment plan involved the fabrication of an upper full-arch prosthesis.

PROSTHETIC PROCEDURE

First, the lower fixed denture and the removable upper denture were removed to perform a scan, which served as a reference for the new upper prosthesis.

Next, Straumann® scanbodies were placed on the upper abutments to register the implant positions:

→ Two SRA 4.6 × 2.5 mm 0° RB

→ Two SRA 4.6 × 3.5 mm 17° RB

An intraoral scan was then performed using the Straumann SIRIOS™ scanner. The STL files were sent to the lab, where a titanium bar was milled using a DMG Sauer Ultrasonic machine, and the prosthesis was fabricated with acrylic teeth.

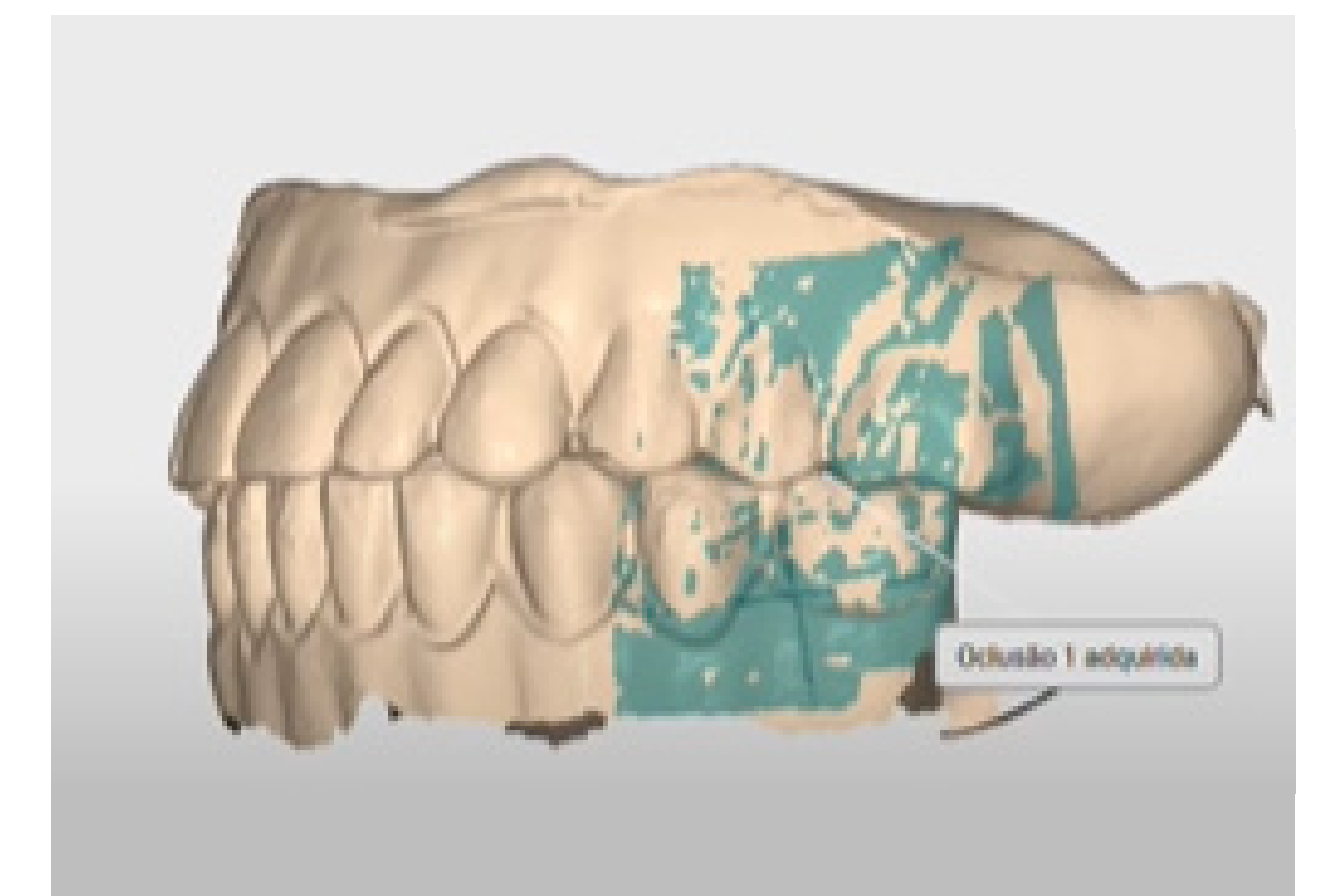
The final prosthesis was cemented onto four Straumann® Variobase® SRA abutments and secured with screws. Occlusal adjustments were performed to ensure proper function.

Intermediate x-rays were taken to evaluate the adaptation between the prosthesis and the abutments, confirming the success of the procedure.

3D scans obtained with Straumann SIRIOS™



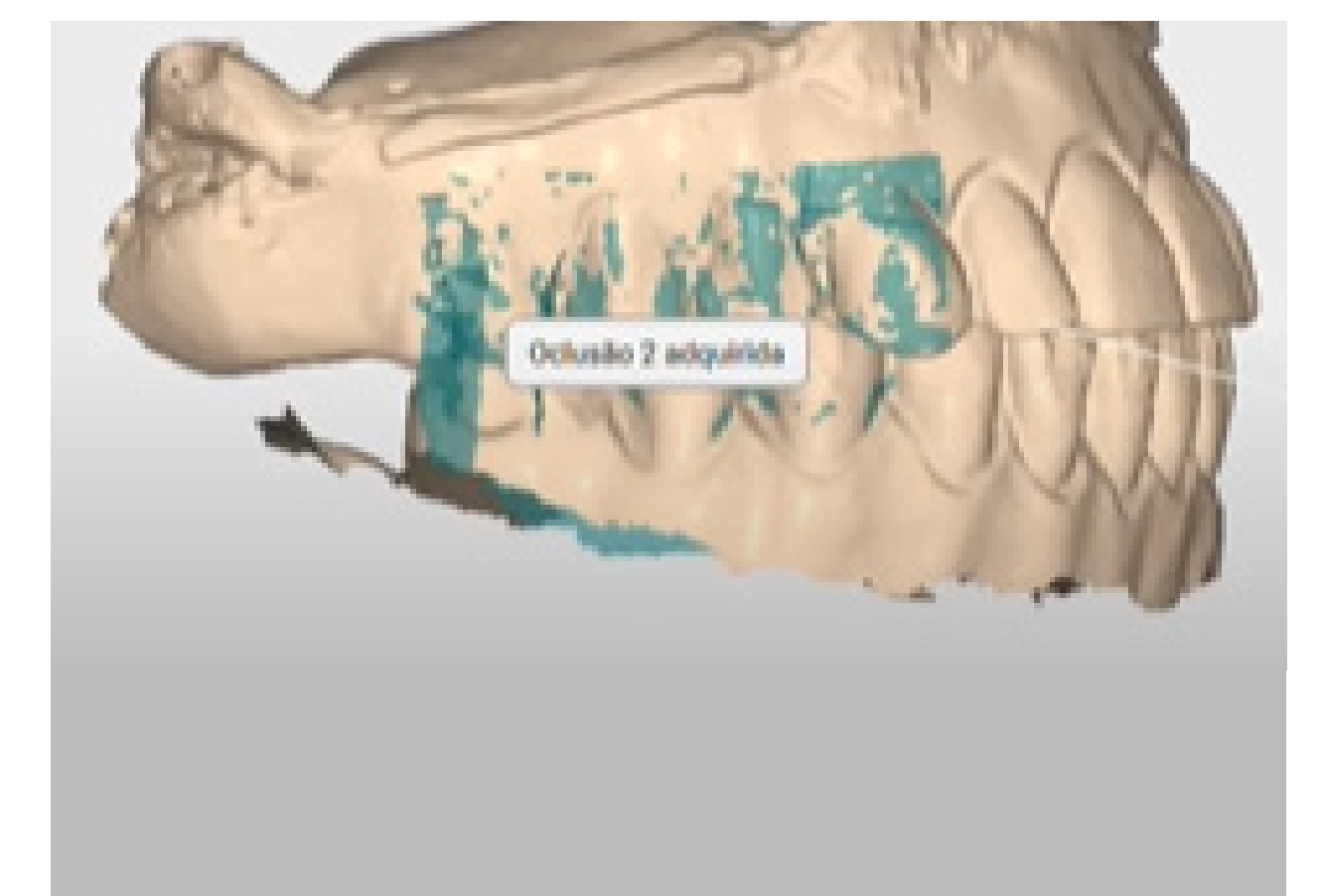
Upper scan



Bite scan



Lower scan



Bite scan



Upper scan with scan bodies

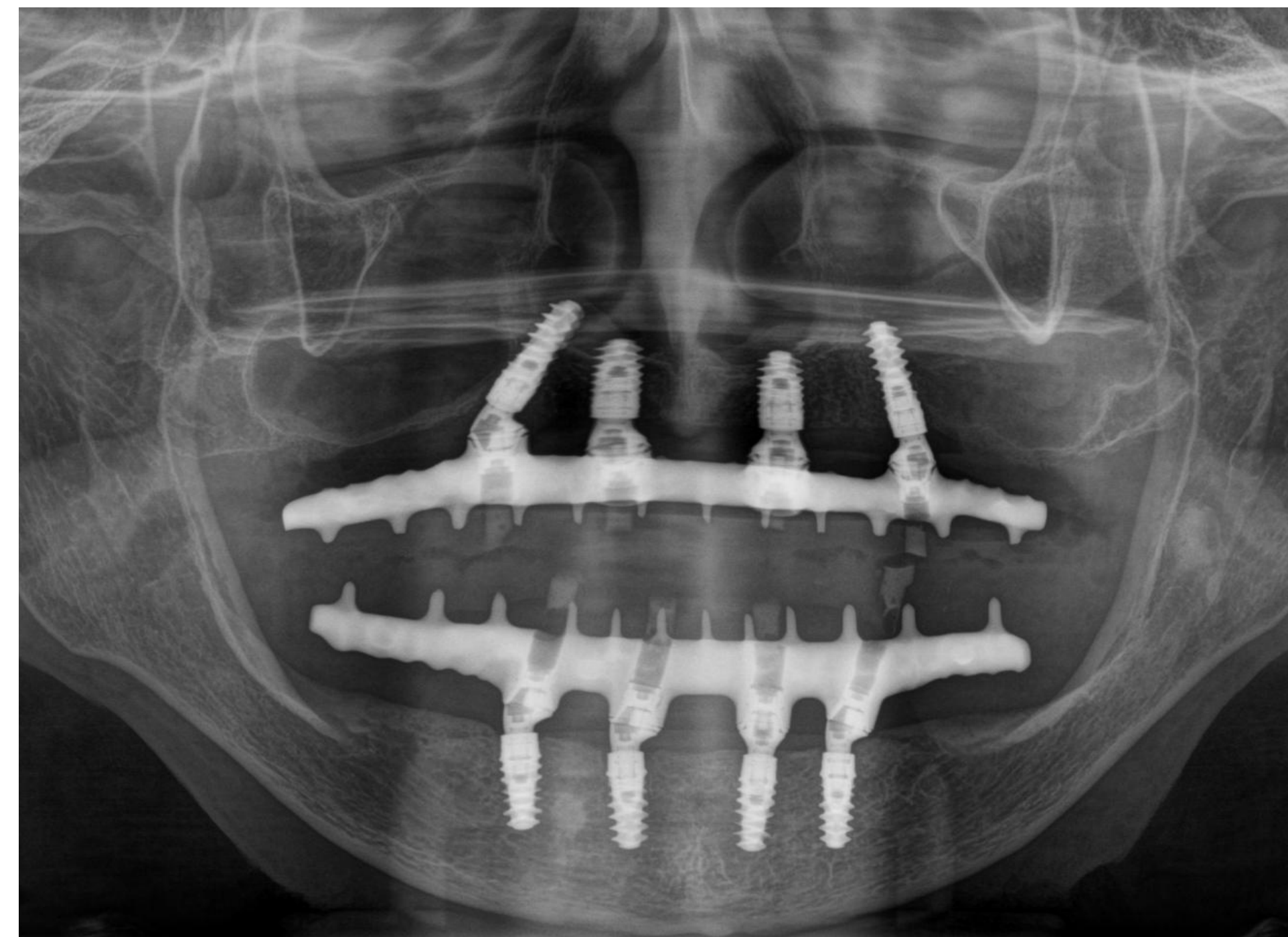
CLINICAL CASE REPORT 9

UPPER FULL ARCH WITH STRAUMANN® BLX

CONCLUSION

The use of an intraoral scanner to facilitate fabrication of a full-arch prosthesis provides a safer and more predictable treatment approach. Digital workflows significantly reduce chair time, making the procedure more efficient and cost-effective, while also enhancing patient comfort.

Patients report high satisfaction with the outcome in terms of aesthetics, function, comfort, and affordability. For clinicians, the Straumann SIRIOS™ scanner offers several advantages, including lower costs by eliminating the need for impression materials, reduced chair time, and minimized risk of errors, as digital impressions prevent the need for repeat procedures due to inaccuracies.



Final panoramic x-ray



Final prosthesis buccal view



Final profile smile



Final smile



Dr. Roberto Shimizu,
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Graduate in Dental Medicine
by UEPG; M.Sc, PhD and postdoc in
Orthodontics by UNESP;
Professor in Orthodontics and
Child Clinics in Tuiuti of
Paraná University; Professor of Master
and PhD courses focused in
Orthodontics and Implantodontics
in ILAPEO; KOL for ClearCorrect;
Member of Orthodontics
Brazilian Board.

CLINICAL CASE REPORT 10

CLEARCORRECT® CLEAR RETAINER

INTRODUCTION

The use of retainers after orthodontic treatment has been established as a fundamental method for maintaining teeth alignment. For the upper arch, orthodontists commonly prescribe removable retainers, while for the lower arch, fixed retainers are typically used due to bite forces and other factors. Fixed retainers are often intended for lifelong use.

However, patients frequently report challenges with retainers. Regarding upper removable retainers, the most common complaint is difficulty with speech, as adaptation can take time. For lower fixed retainers, patients often express concerns about tongue discomfort and difficulty maintaining oral hygiene, as plaque accumulation can be a significant issue.



Initial occlusal photographs

INITIAL SITUATION

A 36-year-old female patient in good health presented at the practice with a fixed lower retainer bonded to her anterior teeth and a traditional removable upper retainer (Hawley appliance). She was dissatisfied with her retainers, particularly due to hygiene challenges and, most notably, the aesthetic appearance of the upper retainer.

CLINICAL CASE REPORT 10

CLEARCORRECT® CLEAR RETAINER

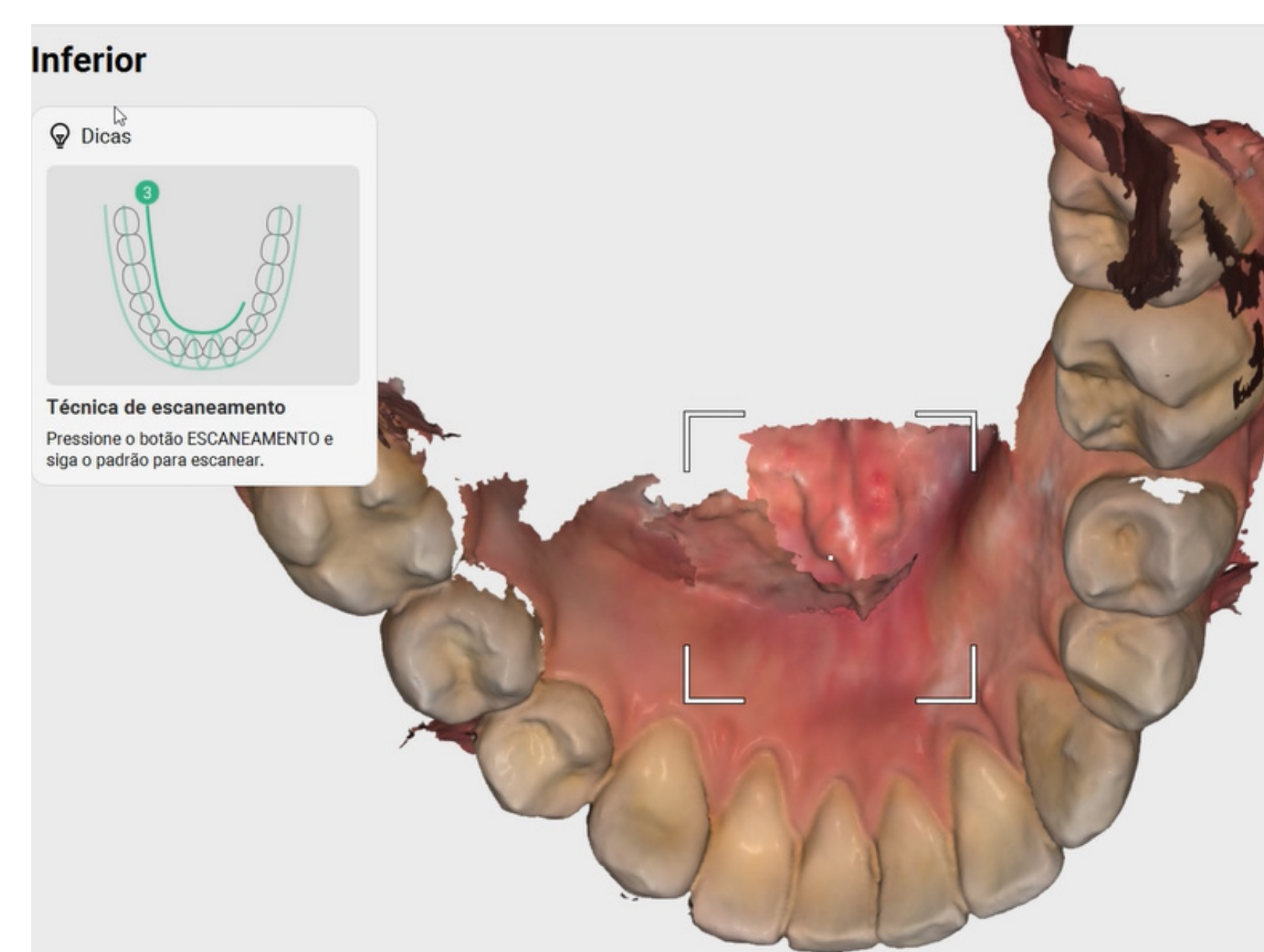
PLANNING

The treatment plan involved removing the lower fixed retainer and replacing both retainers with ClearCorrect® clear retainers, made from a thermoformed material that is both esthetic and resistant to stains and distortions.

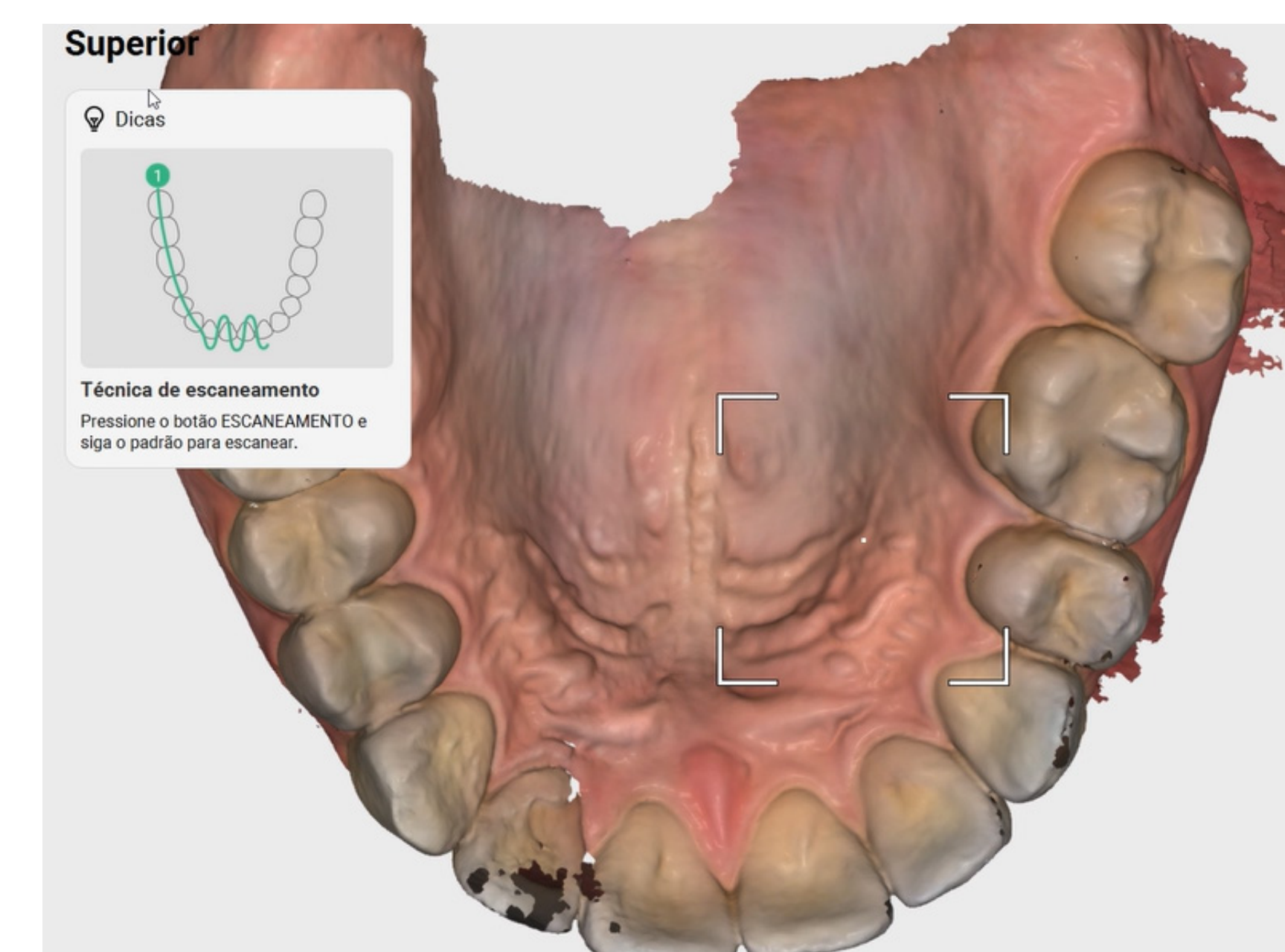
PROCEDURE

After removing the lower fixed retainer, the patient was scanned using the Straumann SIRIOS™ scanner, and the STL file was sent for printing. The retainers were produced at ClearCorrect's factory and were installed in the patient's mouth the following day, after a prophylaxis session.

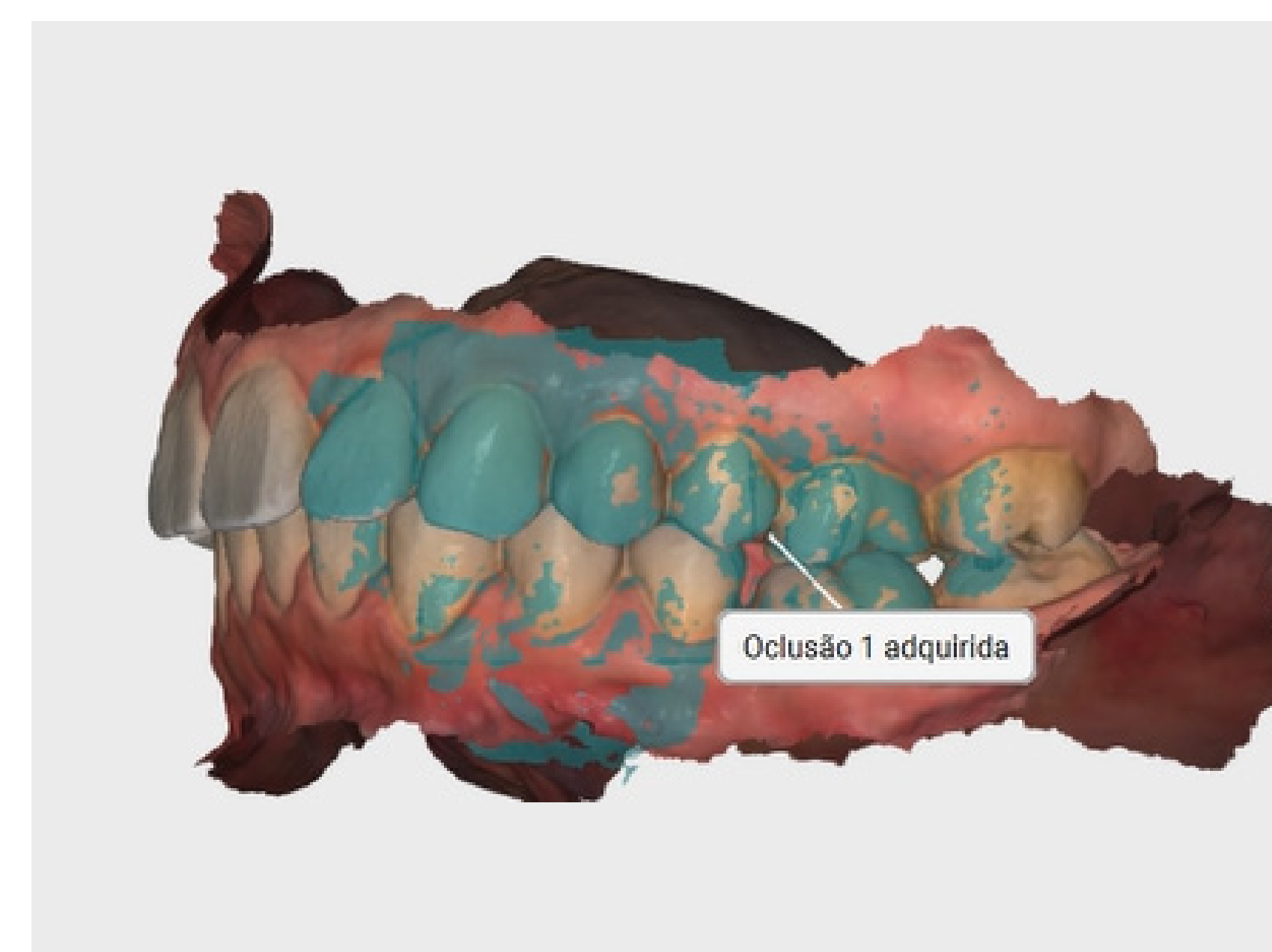
3D scans obtained with Straumann SIRIOS™



Lower scan



Upper scan



First bite key scan



both bite key scan

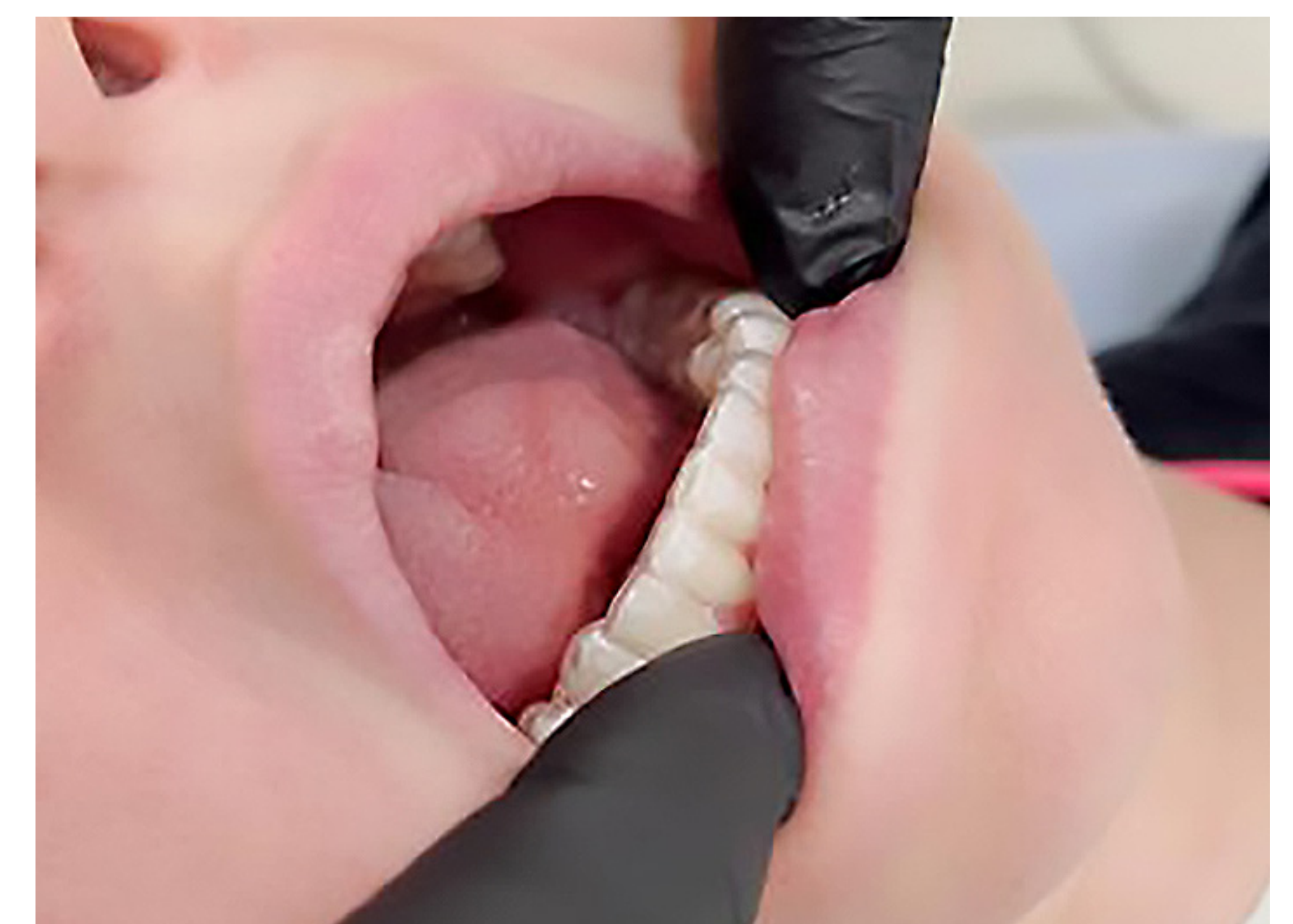
CLINICAL CASE REPORT 10

CLEARCORRECT® CLEAR RETAINER

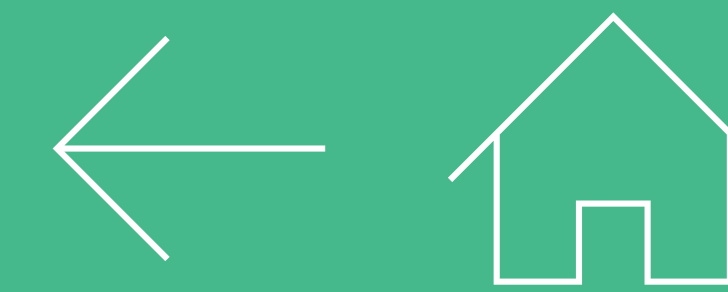
CONCLUSION

The use of a digital workflow to produce removable retainers streamlines both clinical and laboratory steps in dentistry.

Additionally, the comfort provided to the patient – both during the impression process and with the materials used for the retainer – is significantly improved, leading to better patient collaboration and compliance with the treatment plan.



In-mouth placement of the final retainers
upper and lower



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