



Restaurare directă

Raport de caz

Raport de caz

Pacienta în vârstă de 23 de ani, s-a prezentat la consultație în cadrul clinicii pentru dizarmonia estetică de la nivelul incisivilor laterali superiori (12 și 22). Primul pas a constat în achiziția de date: radiografie panoramică – ortopantomografie (Fig. 1), fotografii extraorale (Fig. 2; Fig. 3), fotografii intraorale (Fig. 4; Fig. 5; Fig. 6; Fig. 7) și scanare inițială. În urma acestor achiziții, s-a realizat un plan de tratament etapizat, care a inclus toate procedurile necesare pentru restabilirea sănătății orale și a esteticii zâmbetului: profilaxie, extracția molarilor de minte, tratamentele cariilor, tratament ortodontic, albire dentară și rezolvarea dizarmoniei la nivelul incisivilor laterali, fie prin fațetare directă cu compozit, fie prin două fațete ceramice. În momentul în care s-a ajuns la etapa de tratament ortodontic, au intervenit anumite schimbări în viața pacientei, motiv pentru care, de comun acord, s-a decis amânarea aplicării aparatului dentar. Totuși, s-a dorit corectarea problemei estetice de la nivelul dinților 12 și 22.

S-a efectuat o nouă scanare (Fig. 8; Fig. 9; Fig. 10) pentru crearea unui wax-up digital (Fig. 11). Laboratorul a realizat designul (Fig. 11), care a fost prezentat și aprobat de către pacienta. Pe baza acestuia, s-a printat modelul (Fig. 12), iar decizia finală a fost realizarea unei fațetări directe cu compozit la nivelul incisivilor laterali (12 și 22). Înaintea procedurii de fațetare, pacienta a efectuat o albire dentară pentru obținerea unei nuanțe mai deschise și a unui zâmbet natural. Albirea s-a realizat cu ajutorul lămpii Zoom (Philips), utilizând kitul original cu o concentrație de 25%. S-au efectuat trei ședințe a câte 15 minute, iar ulterior s-a așteptat aproximativ două săptămâni și jumătate pentru stabilizarea culorii.

Tehnica aleasă pentru realizarea fațetării directe a fost **Injection Moulding Technique**, folosind un silicon transparent **Exaclear (GC)** (Fig. 13) pentru dinții 12 și 22.

S-a realizat ghidul de silicon transparent, s-a îndepărtat excesul și s-au creat două orificii de injectare a compozitului.

Primul pas al intervenției a fost realizarea anesteziei plexale, urmată de izolarea câmpului operator cu folie de digă groasă (**Nic Tone – thick blue**), întinsă de la molar la molar (16–26), și două ligaturi simple pe dinții 12 și 22 (Fig. 16). De obicei, în zona frontală izolez fie molar–molar, fie premolar–premolar, această metodă oferind medicului și asistentei un câmp vizual optim și acces facil. Pentru o izolare suplimentară a dinților vecini s-a utilizat bandă de teflon, protejându-i de acțiunea acidului și a adezivului.

S-a început cu dintele 12: s-a aplicat acid ortofosforic 35% (**Ultradent**) la nivelul smalțului (Fig. 17), prin tehnica de gravare totală, timp de 15 secunde. Acidul a fost îndepărtat cu jet de apă, iar smalțul a fost bine uscat. Ulterior a fost aplicat adezivul **G-Premio BOND** timp de 10 secunde (Fig. 18), s-a uscat pentru îndepărtarea excesului și s-a fotopolimerizat timp de 10 secunde (**LED Elipar DeepCure-L, 3M**). Materialul de restaurare utilizat pentru fațetarea directă a fost compozitul universal fluid injectabil **G-aenial Universal Injectable (AE)**. Acesta a fost injectat prin orificiul ghidului de silicon, luând forma dintelui, apoi s-a fotopolimerizat timp de 10 secunde. Excesul a fost îndepărtat cu o lamă de bisturiu nr. 12D montată pe un mâner clasic.

După finalizarea dintelui 12, s-a trecut la 22, urmând același protocol: aplicarea acidului ortofosforic 35% (**Ultradent**) la nivelul smalțului (Fig. 19) pentru 15 secunde, spălare, uscare, aplicarea adezivului **G-Premio BOND** timp de 10 secunde (Fig. 20), uscarea excesului și fotopolimerizarea 10 secunde (**LED Elipar DeepCure-L, 3M**). S-a utilizat același compozit **G-aenial Universal Injectable (AE)**, injectat și fotopolimerizat prin aceeași metodă. Excesul a fost îndepărtat cu lama de bisturiu nr. 12D.

La final, pe dinții 12 și 22 s-a aplicat un strat de glicerină, urmat de fotopolimerizare suplimentară timp de 10 secunde, pentru închiderea barierei de oxigen. După îndepărtarea ligaturilor, înainte de demontarea digii, s-a realizat o fotografie de final (Fig. 22). Folia de digă a fost apoi îndepărtată, iar ocluzia a fost verificată cu hârtie de articulație de 40 μm (**Bausch**) și 8 μm (**Arti-Fol, Bausch**). S-au efectuat mici ajustări ocluzale cu piatra **Arkansas**. Fațetele directe au fost finisate cu freze efilate pentru contrunghi (F4 și F5) (Fig. 23) la turație redusă (16.000 rpm), lustruite cu gume **OptraGloss Composite (Ivoclar)** (Fig. 24) și pastă de lustruire **Lucida DiaShine®**. Post intervenției au fost realizate o serie de poze intraorale (Fig. 25; Fig. 26; Fig. 27; Fig. 28) și o poza cu zâmbetul final (Fig. 29)

Pacienta a fost chemată la reevaluare după o săptămână, moment în care s-au realizat fotografii în ocluzia habituală (Fig. 30; Fig. 31; Fig. 32) și s-a verificat ocluzia pentru absența interferențelor. La o lună, pacienta a fost rechemata pentru o nouă scanare și un set complet de fotografii extraorale (Fig. 39; Fig. 40), intraorale cu arcada superioară (Fig. 41), unde se observă pe muchia dintelui 22 testarea ocluziei cu hârtie de articulație de 8 μm (**Arti-Fol, Bausch**), cu arcada inferioară (Fig. 42), în ocluzie habituală (Fig. 43), în ocluzie cap la cap (Fig. 44), în protruzie (Fig. 45), în lateralitate dreaptă (Fig. 46) și în lateralitate stângă (Fig. 47).

La reevaluarea de 6 luni s-au efectuat aceleași teste și fotografii ca la controlul de la o lună (Fig. 50–Fig. 61). Toate structurile au rămas stabile, iar pacienta s-a declarat foarte mulțumită de rezultat.

Am dorit să compar cantitatea teoretică de compozit necesară față de cea efectiv utilizată. Astfel, am analizat cazul în **SmileCloud**, unde am măsurat situația inițială (Fig. 62) și wax-up-ul digital (Fig. 63) pentru a determina volumul de material ce urma să fie injectat (Fig. 64; Fig. 65). Ulterior, am comparat situația la o lună post-intervenție (Fig. 66) cu cea inițială (Fig. 67; Fig. 68), iar în final am evaluat diferențele dintre situația de la o lună și wax-up-ul digital, pentru a observa eventualele deviații (Fig. 69; Fig. 70).

Ca și concluzie a acestei analize, s-a constatat că erorile pot proveni în special din procesul de scanare sau pot reprezenta mici diferențe reale, de ordinul a 0,1 mm. Studiul personal este încă în desfășurare, însă ideea s-a dovedit interesantă și utilă pentru o mai bună înțelegere a preciziei tehnicii de injectare.

În încheiere, rezultatul final (Fig. 72) a fost un zâmbet armonios, natural, cu integrare perfectă a celor două restaurări în conformitate cu aspectul facial al pacientei.

English version

The 23-year-old female patient presented to the clinic for consultation due to an aesthetic disharmony at the level of the upper lateral incisors (12 and 22). The first step consisted of data acquisition: panoramic radiograph – orthopantomography (Fig. 1), extraoral photographs (Fig. 2; Fig. 3; Fig. 6), intraoral photographs (Fig. 4; Fig. 5; Fig. 6; Fig. 7), and an initial scan. Based on the collected data, a stepwise treatment plan was developed, including all necessary procedures to restore both oral health and smile aesthetics: prophylaxis, extraction of wisdom teeth, caries treatment, orthodontic therapy, tooth whitening, and correction of the lateral incisor disharmony, either through direct composite veneers or two ceramic veneers. When reaching the orthodontic phase, certain changes occurred in the patient's personal life, and by mutual agreement, it was decided to postpone the orthodontic treatment. However, the patient wished to correct the aesthetic issue involving teeth 12 and 22.

A new scan was performed (Fig. 8; Fig. 9; Fig. 10) to create a digital wax-up (Fig. 11). The laboratory completed the design (Fig. 11), which was presented to and approved by the patient. Based on this, the model was printed (Fig. 12), and the final decision was to proceed with direct composite veneering of the lateral incisors (12 and 22). Before the veneering procedure, the patient underwent a whitening treatment to achieve a lighter and more natural tooth shade. Whitening was performed using the Philips Zoom lamp with the original kit at a 25% concentration. Three sessions of 15 minutes each were carried out, followed by a two-and-a-half-week stabilization period for color adjustment.

The technique chosen for the direct veneering was the Injection Moulding Technique, using transparent silicone Exaclear (GC) (Fig. 13) for teeth 12 and 22. A transparent silicone guide was fabricated, the excess was trimmed, and two injection openings were created for composite application.

The procedure began with plexal anesthesia, followed by isolation of the operative field using a thick rubber dam (Nic Tone – thick blue), stretched from molar to molar (16–26), and two simple ligatures on teeth 12 and 22 (Fig. 16). In the anterior region, isolation is usually performed either molar-to-molar or premolar-to-premolar, providing both the operator and assistant with optimal visibility and accessibility. To further protect the adjacent teeth from etching and bonding, Teflon tape was applied.

The restoration started with tooth 12: 35% phosphoric acid (Ultradent) was applied to the enamel (Fig. 17) using the total-etch technique for 15 seconds. The acid was rinsed off with water, and the enamel was thoroughly dried. Then, G-Premio BOND adhesive was applied for 10 seconds (Fig. 18), air-thinned to remove excess, and light-cured for 10 seconds (LED Elipar DeepCure-L, 3M). The restorative material used for the direct veneer was the universal flowable composite G-aenial Universal Injectable (AE). The material was injected through the silicone guide, taking the precise shape of the tooth, and light-cured for 10 seconds. The excess was removed with a No. 12D scalpel blade mounted on a handle.

After completing tooth 12, the same protocol was followed for tooth 22: 35% phosphoric acid (Ultradent) was applied to the enamel (Fig. 19) for 15 seconds, rinsed, dried, followed by application of G-Premio BOND adhesive for 10 seconds (Fig. 20), air-thinning, and light-curing for 10 seconds (LED Elipar DeepCure-L, 3M). The same composite G-ænial Universal Injectable (AE) was used, injected, light-cured, and finished similarly. The excess was again removed with a No. 12D scalpel blade.

Finally, a layer of glycerin was applied on teeth 12 and 22, followed by an additional 10-second light-curing step to eliminate the oxygen inhibition layer. After removing the ligatures, a final photograph was taken before rubber dam removal (Fig. 22). The rubber dam was then removed, and the occlusion was checked using 40 µm (Bausch) and 8 µm (Arti-Fol, Bausch) articulating paper. Minor occlusal adjustments were performed with an Arkansas stone. The direct veneers were finished with fine tapered diamond burs for contra-angle handpiece (F4 and F5) (Fig. 23) at a reduced speed (16,000 rpm), then polished using OptraGloss Composite polishers (Ivoclar) (Fig. 24) and Lucida DiaShine® polishing paste. Postoperatively, a series of intraoral photographs were taken (Fig. 25; Fig. 26; Fig. 27; Fig. 28) along with a final smile photograph (Fig. 29).

The patient was recalled for evaluation after one week, when photographs were taken in habitual occlusion (Fig. 30; Fig. 31; Fig. 32), and the occlusion was checked for the absence of interferences. After one month, the patient was recalled for a new scan and a full set of extraoral photographs (Fig. 39; Fig. 40), intraoral photographs of the upper arch (Fig. 41), showing occlusal testing on tooth 22 using 8 µm articulating paper (Arti-Fol, Bausch), lower arch photographs (Fig. 42), habitual occlusion (Fig. 43), edge-to-edge bite (Fig. 44), protrusive (Fig. 45), right lateral (Fig. 46), and left lateral (Fig. 47). At the six-month follow-up, the same tests and photographs were repeated as at the one-month control (Fig. 50–Fig. 61). All structures remained stable, and the patient expressed great satisfaction with the outcome.

Out of curiosity, I wanted to compare the theoretical amount of composite required with the actual quantity used. Therefore, the case was analyzed using SmileCloud, where the initial situation (Fig. 62) and the digital wax-up (Fig. 63) were measured to determine the material volume intended for injection (Fig. 64; Fig. 65). Subsequently, the one-month postoperative situation (Fig. 66) was compared to the initial one (Fig. 67; Fig. 68), and finally, the one-month situation was compared to the wax-up to identify any deviations (Fig. 69; Fig. 70).

As a conclusion to this analysis, it was observed that the discrepancies likely originated from the scanning process or represented minimal real differences of approximately 0.1 mm. This personal study is still ongoing but proved to be an interesting and valuable approach for understanding the precision of the injection technique.

In conclusion, the final result (Fig. 72) showed a harmonious, natural smile, with perfect integration of the two restorations in accordance with the patient's facial features.

Panoramic X-Ray

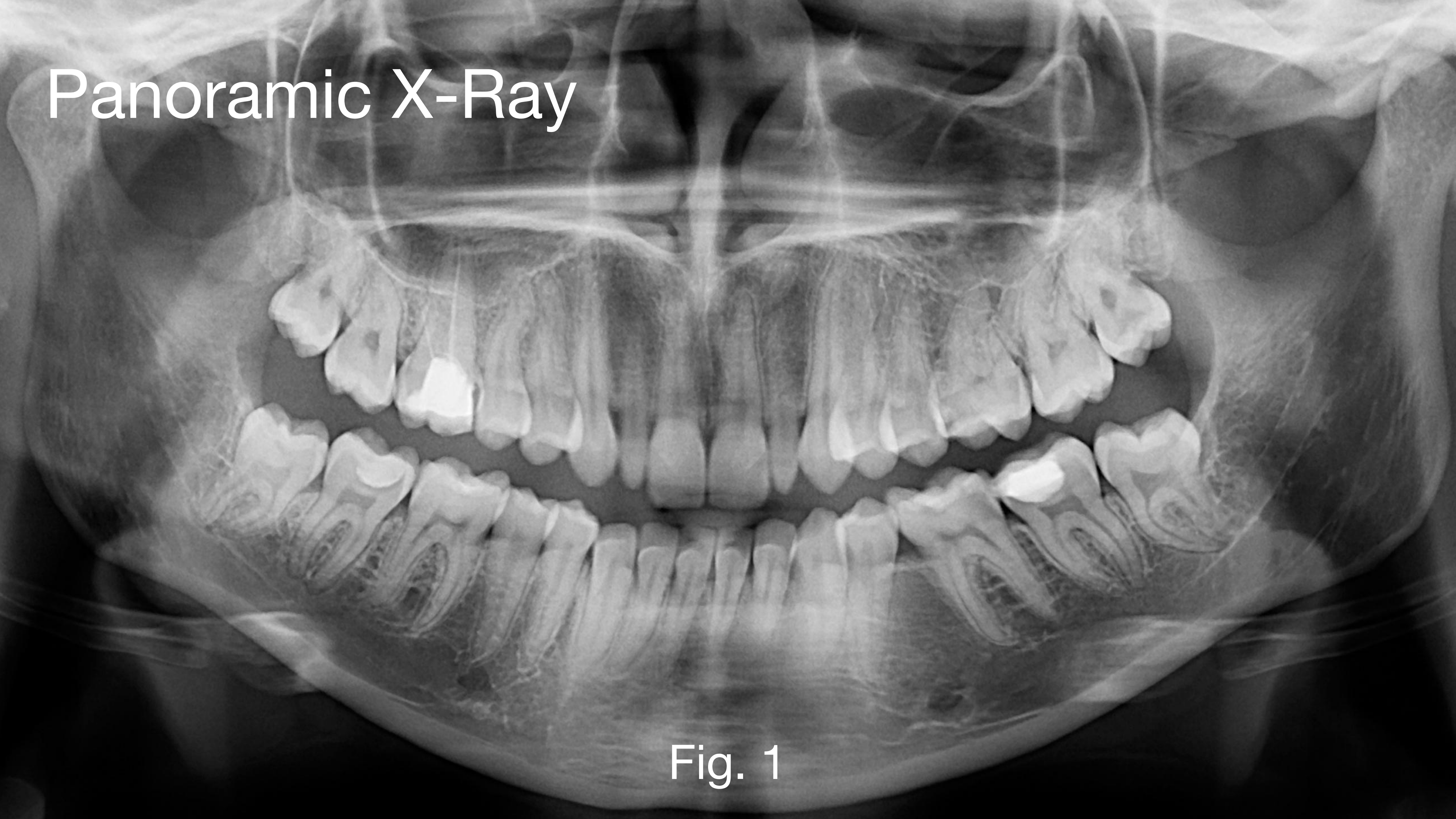


Fig. 1

Extraoral photo documentation



Fig. 2

Smile documentation

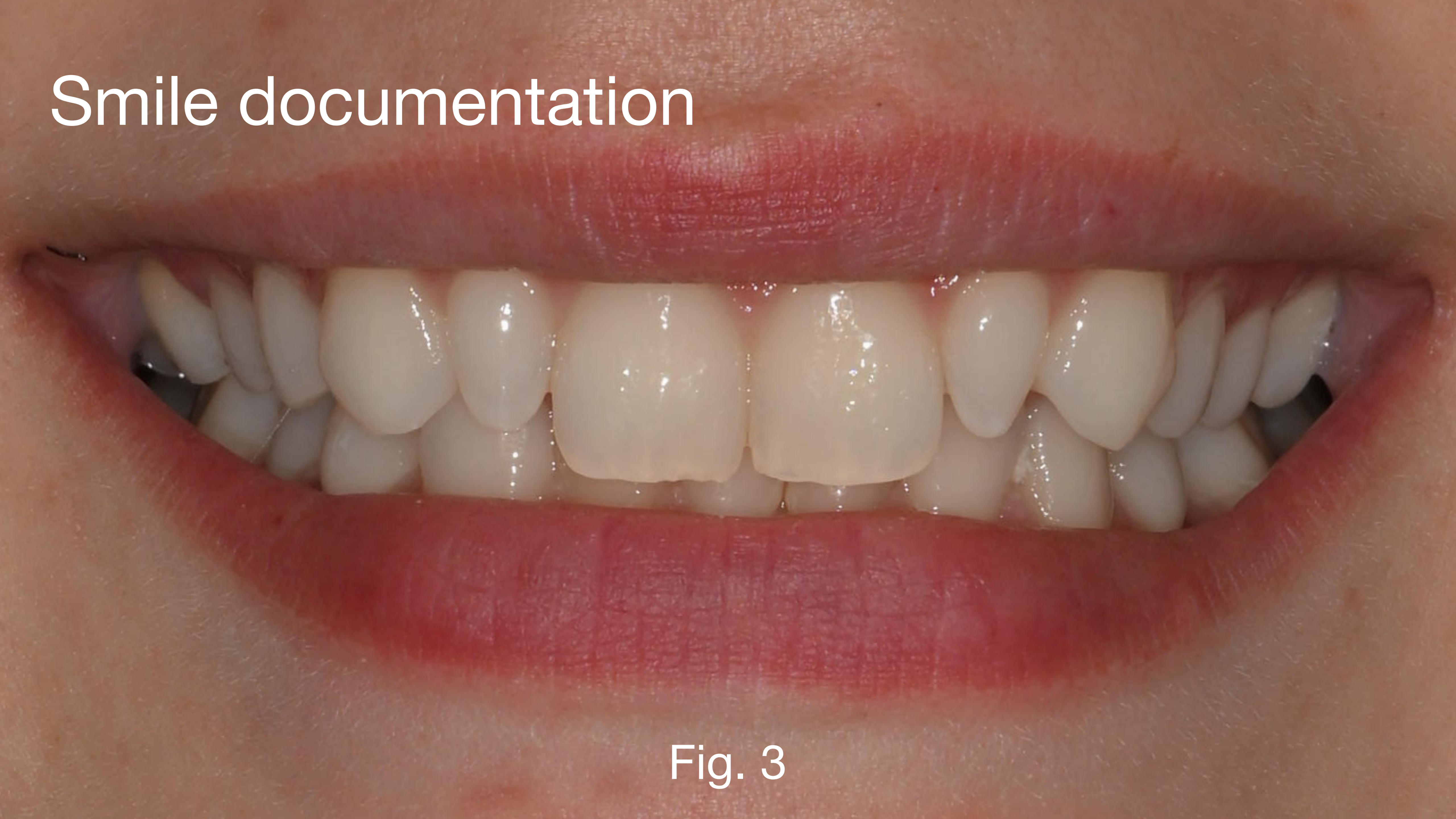


Fig. 3

Intraoral documentation



Fig. 4

Intraoral documentation

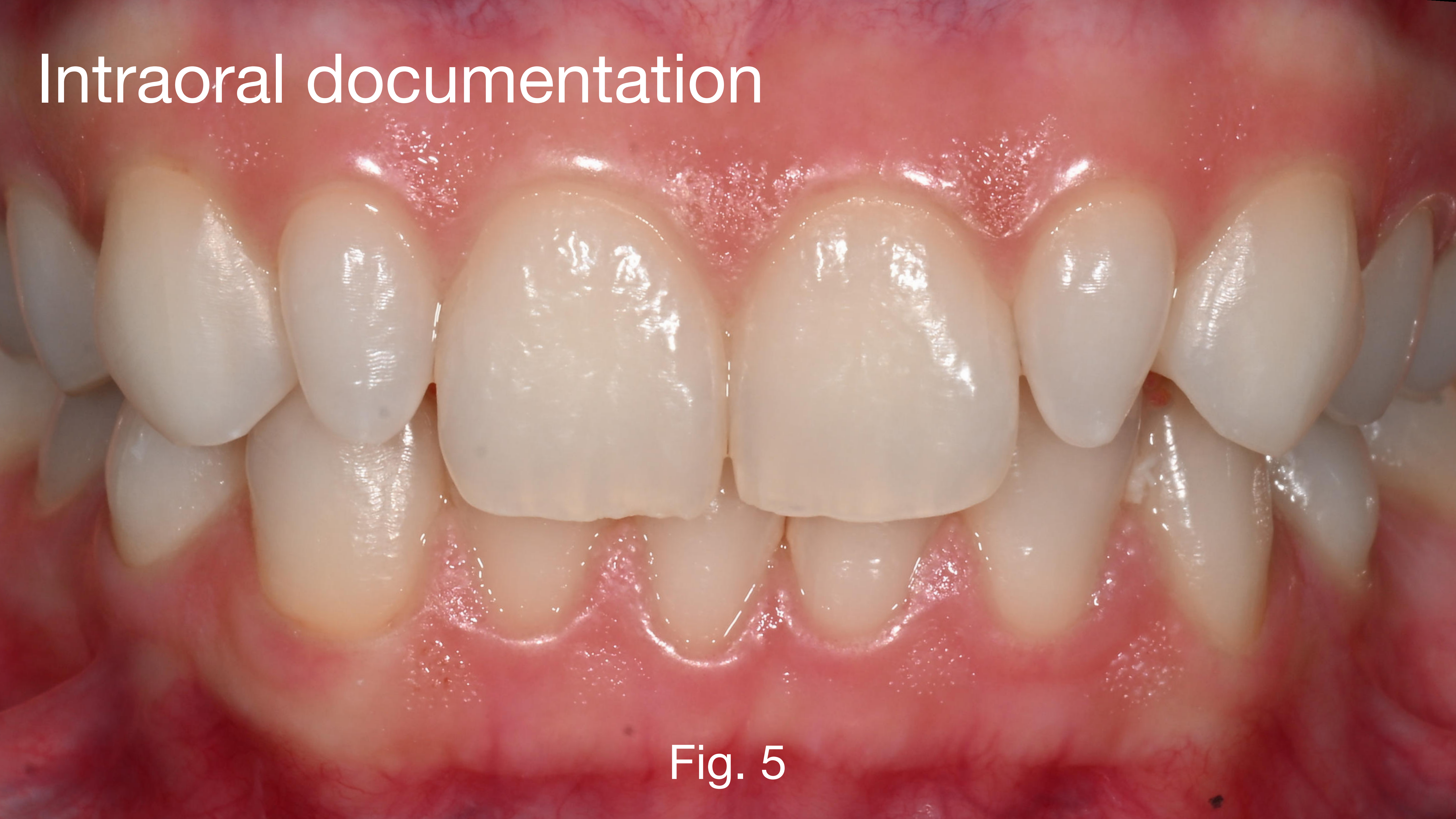


Fig. 5

Intraoral documentation

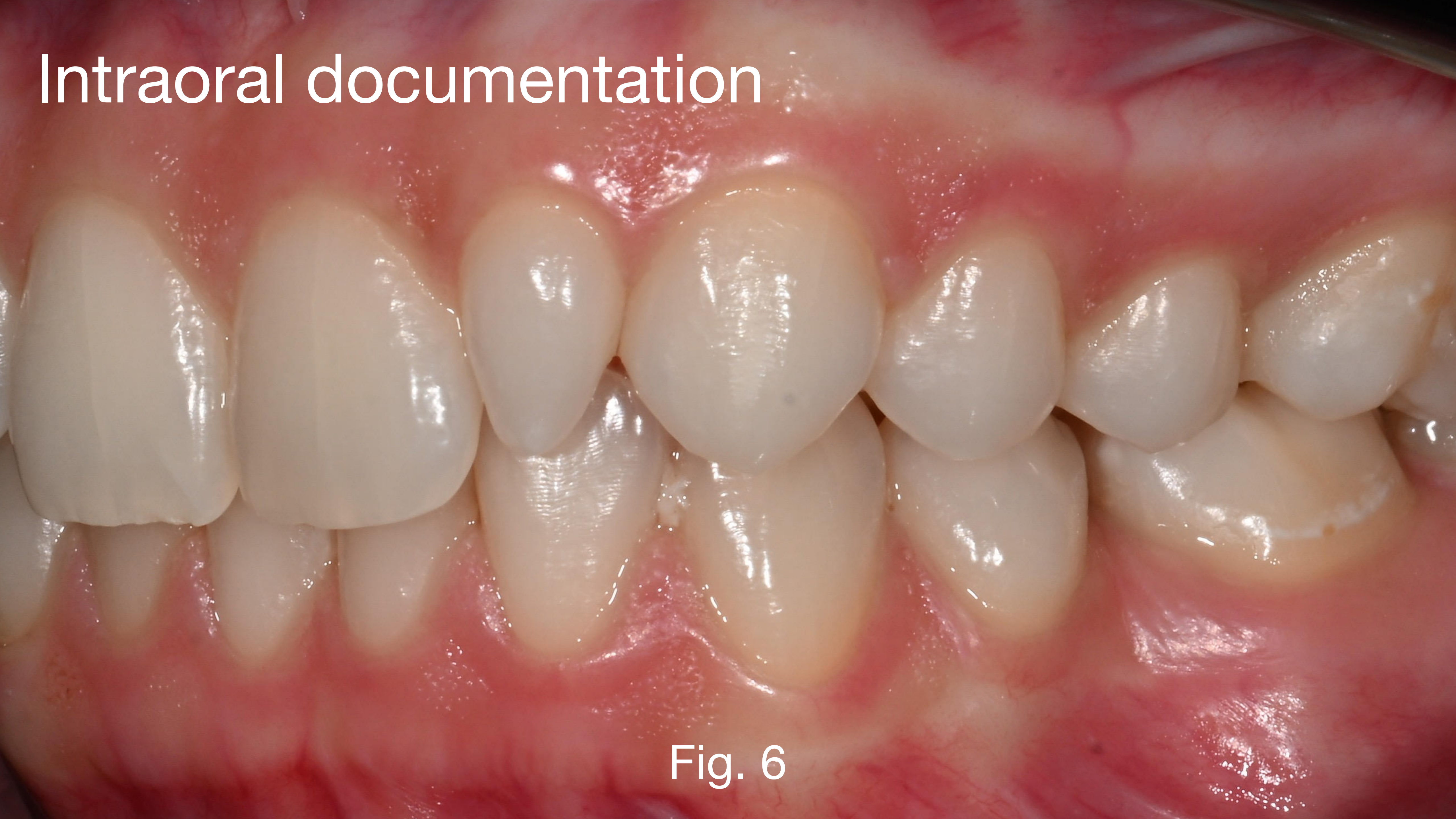


Fig. 6

Intraoral documentation

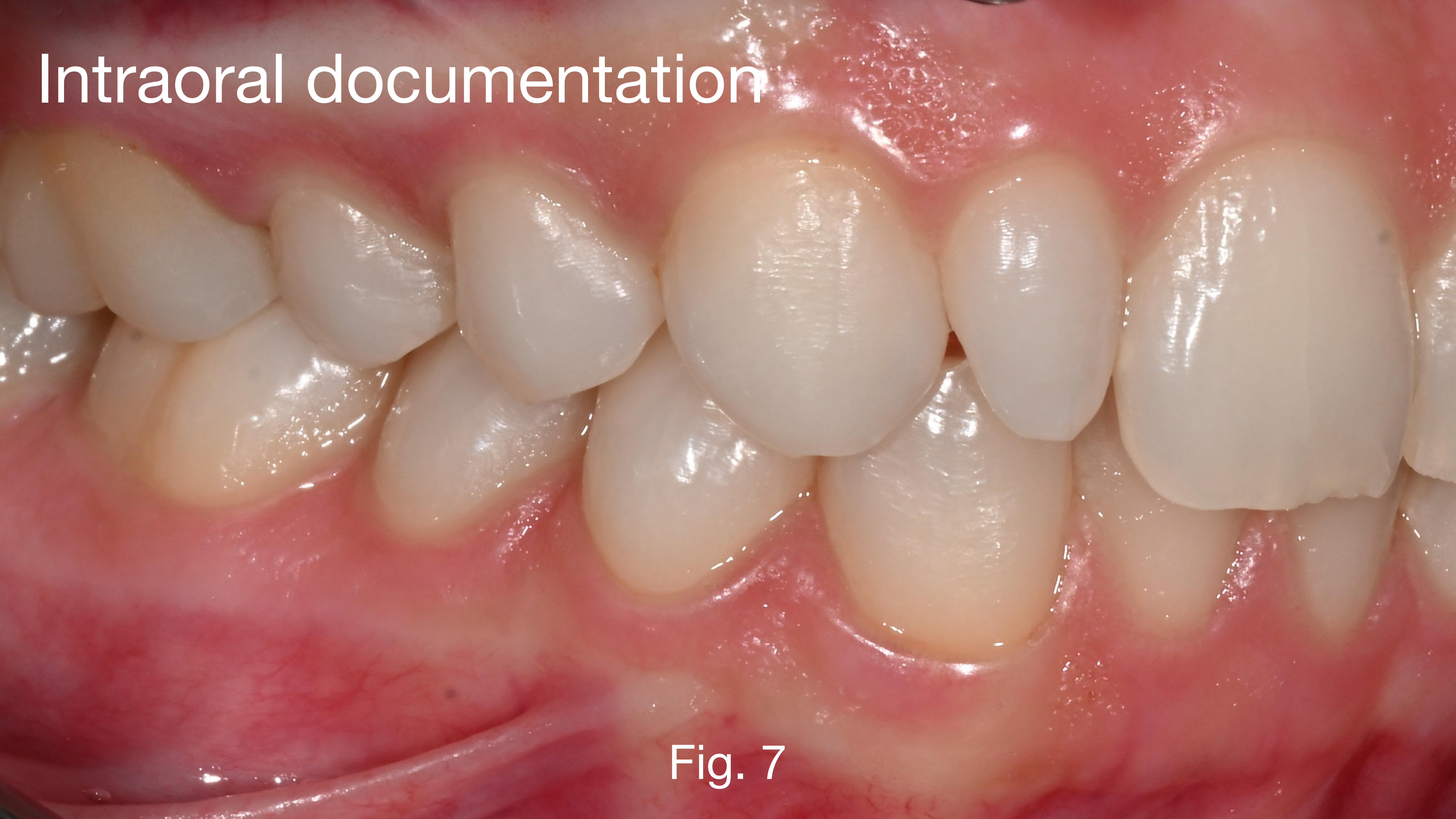


Fig. 7

Initial scan documentation



Fig. 8

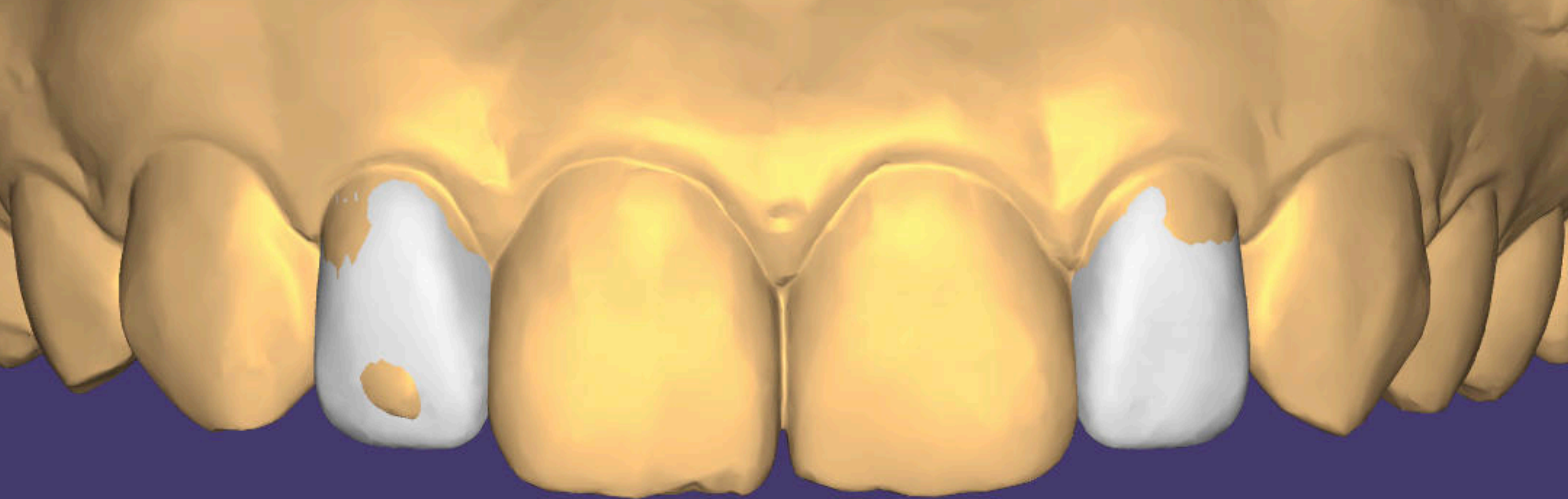


Initial scan documentation
Fig. 9

Superior arc model

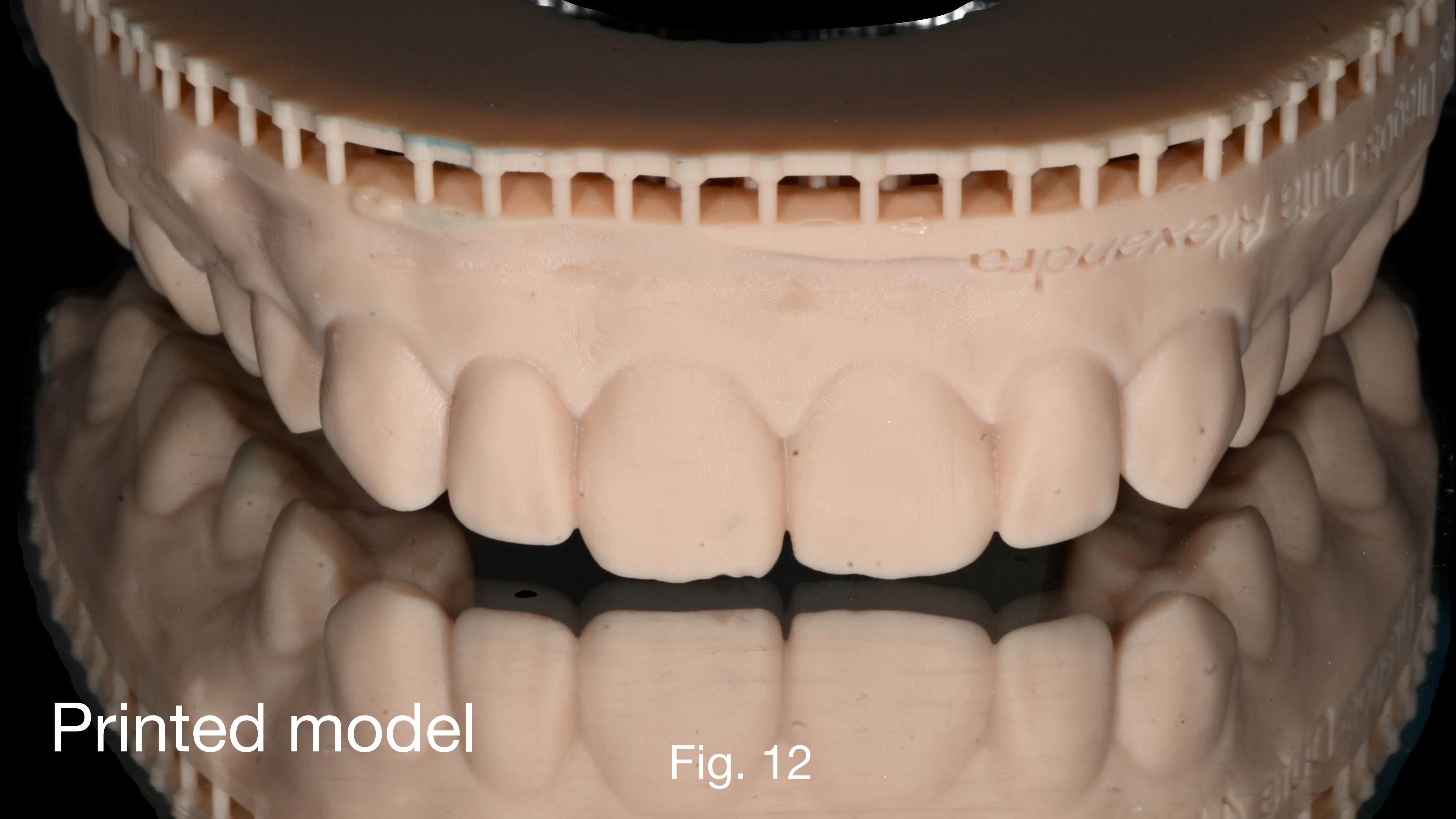


Fig. 10



Wax-up

Fig. 11



Printed model

Fig. 12

Silicon Key with Exaclear



Fig. 13

Injection Moulding Technique



Fig. 14

Rubberdam Isolation

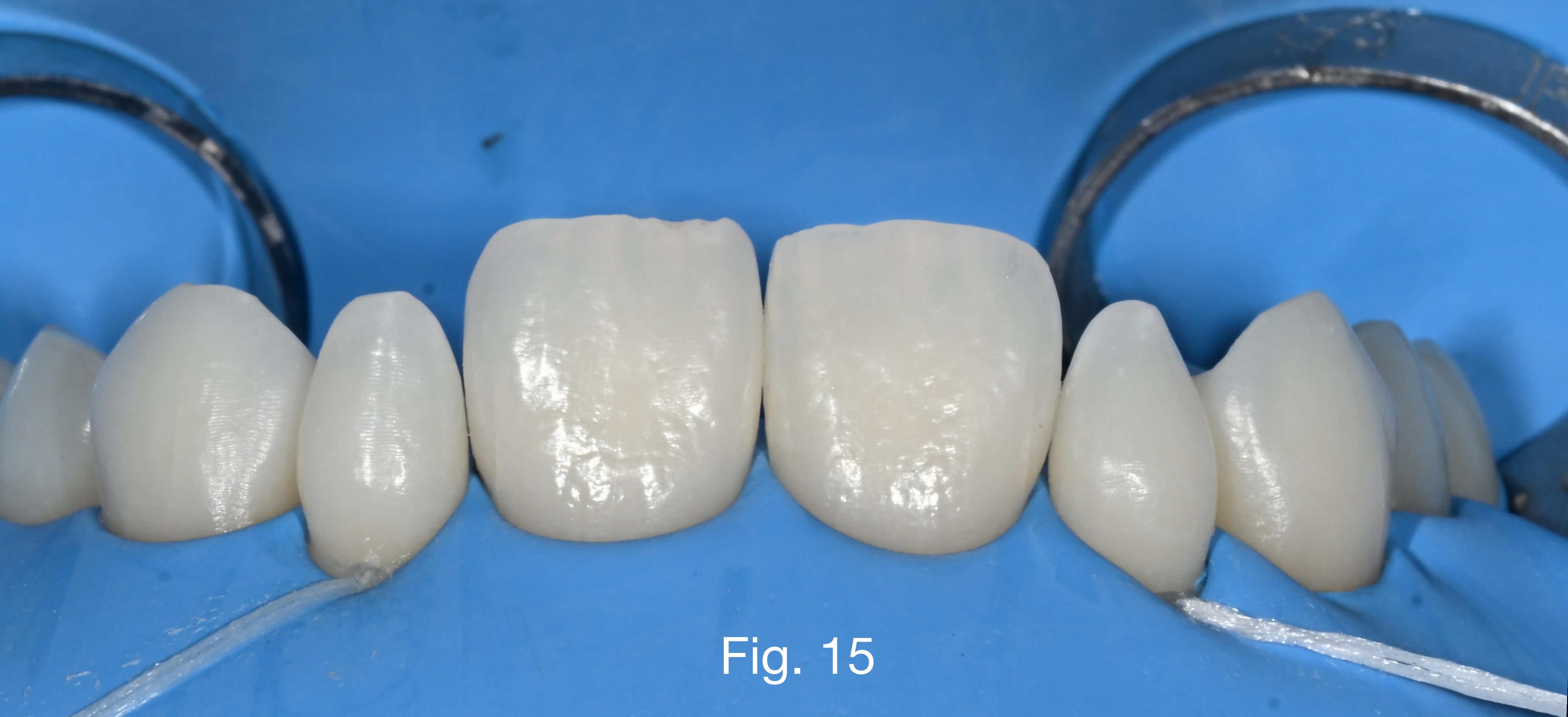


Fig. 15

Rubberdam Isolation

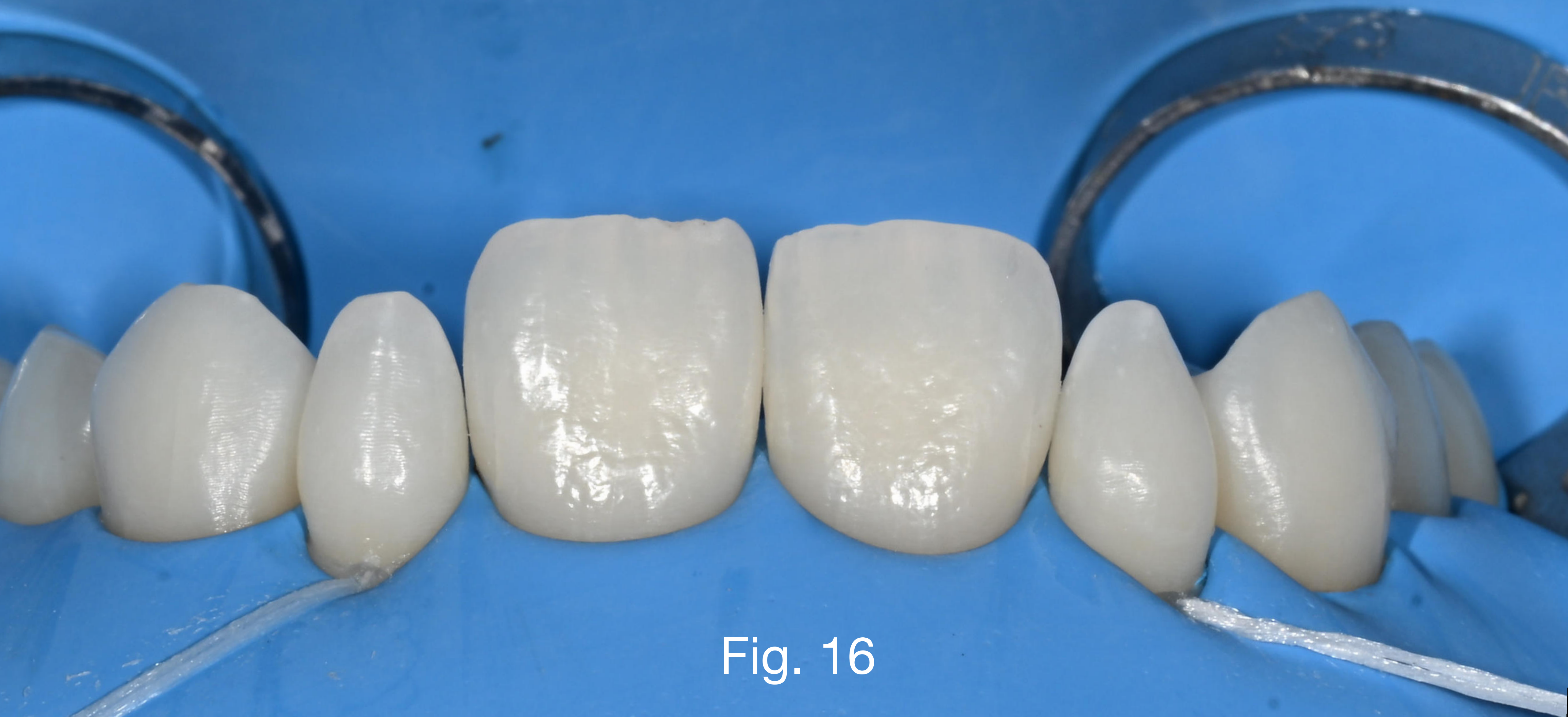


Fig. 16

Etching tooth 12

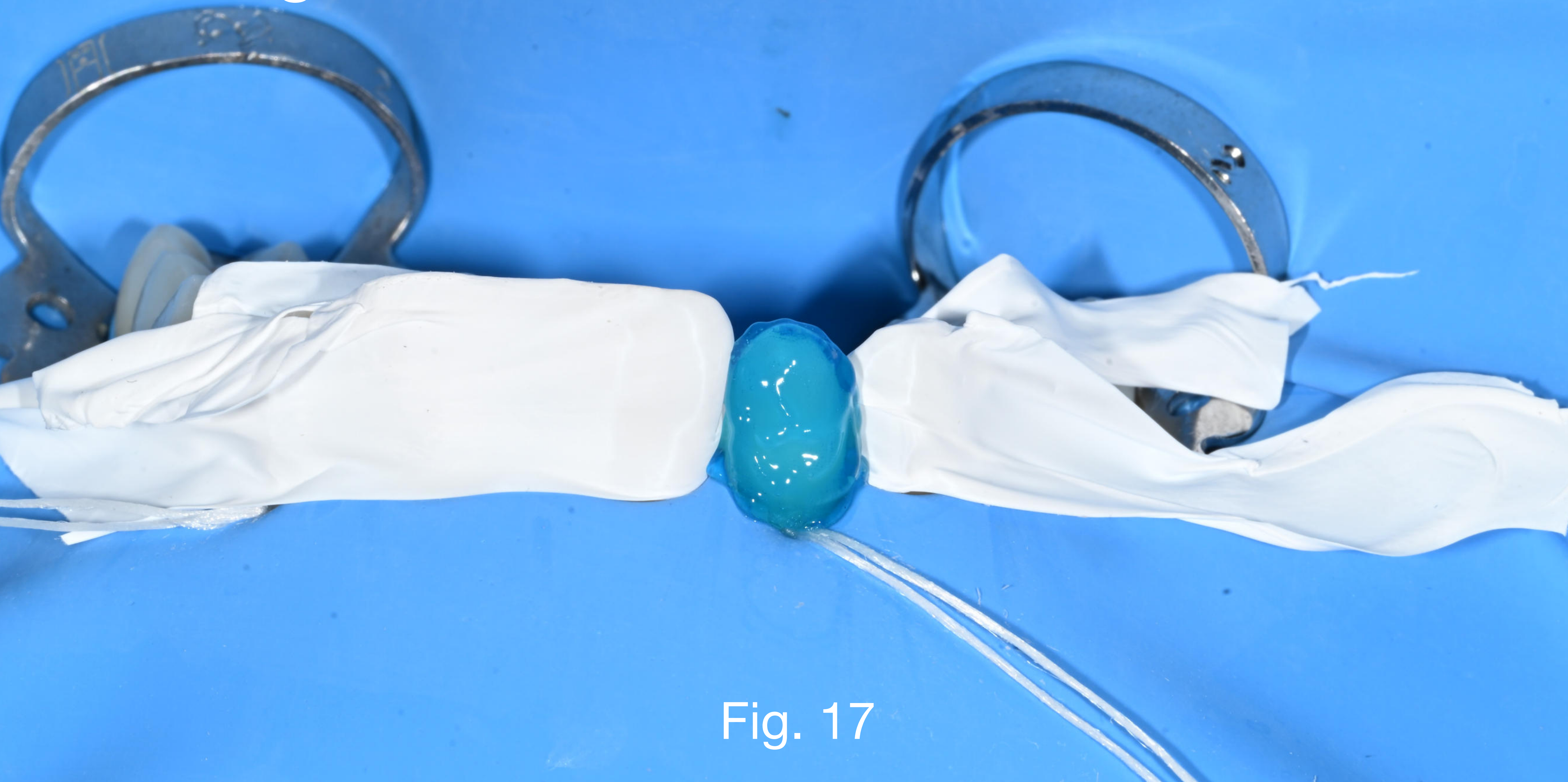


Fig. 17

Bonding tooth 12

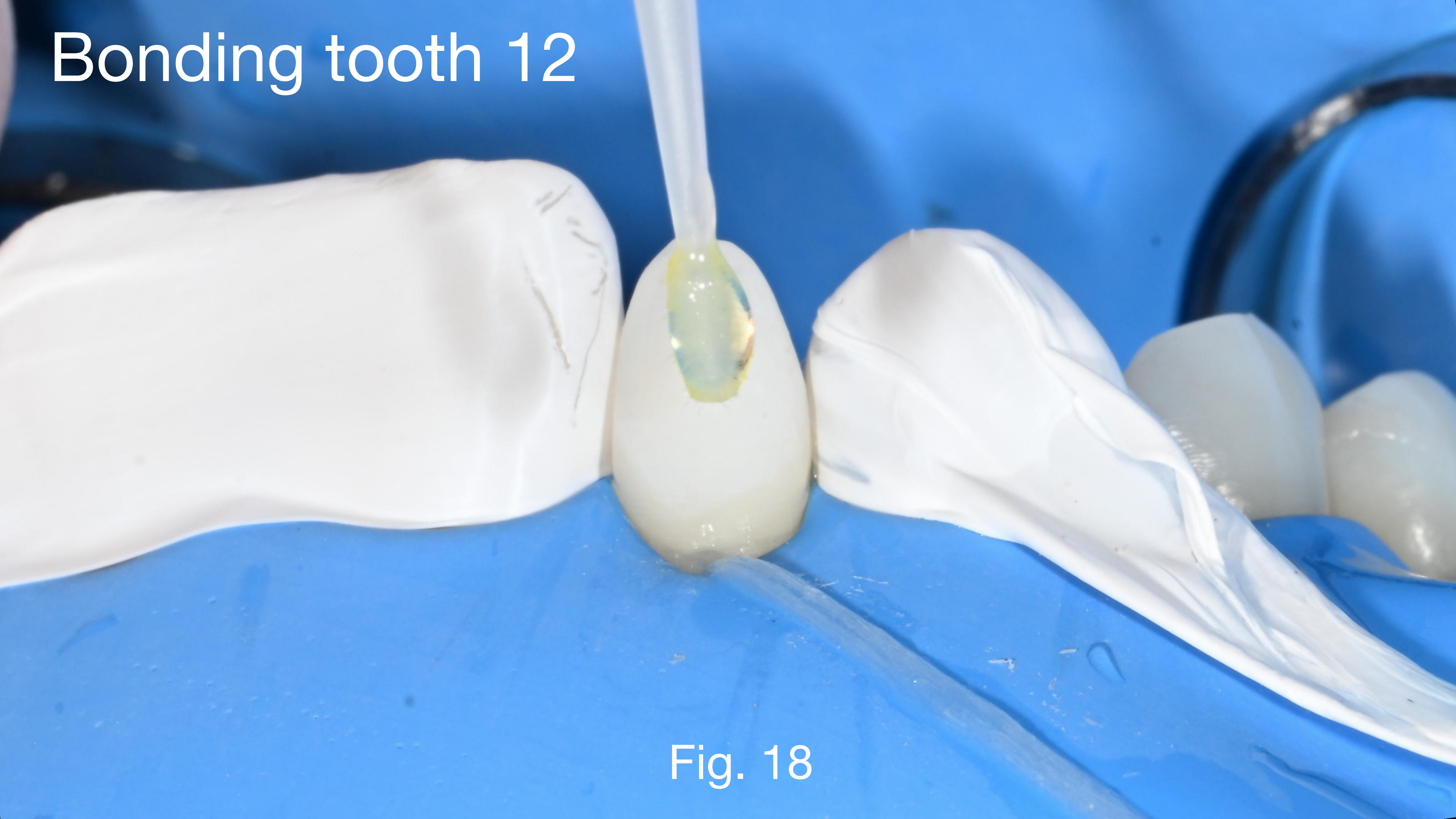
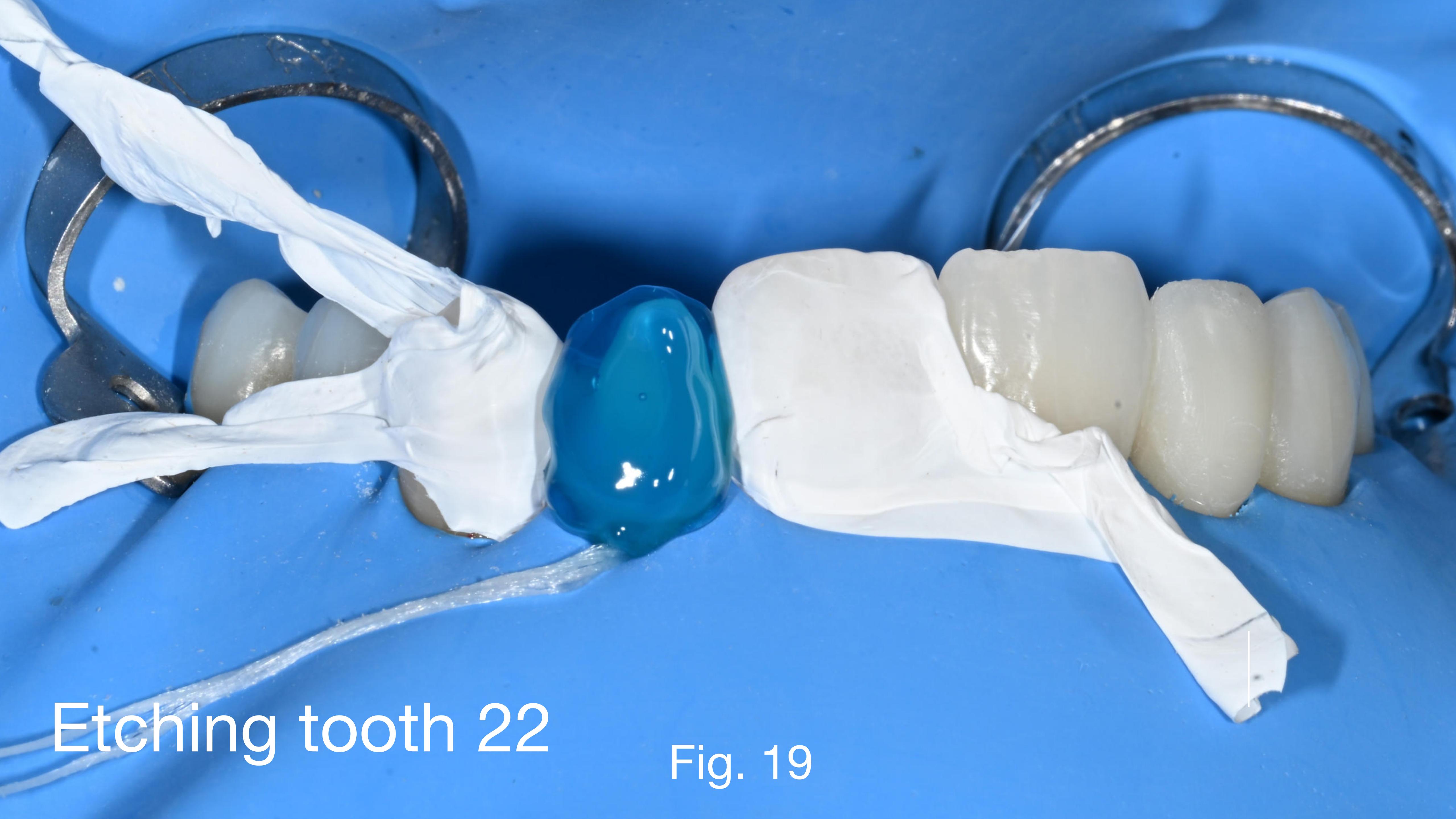
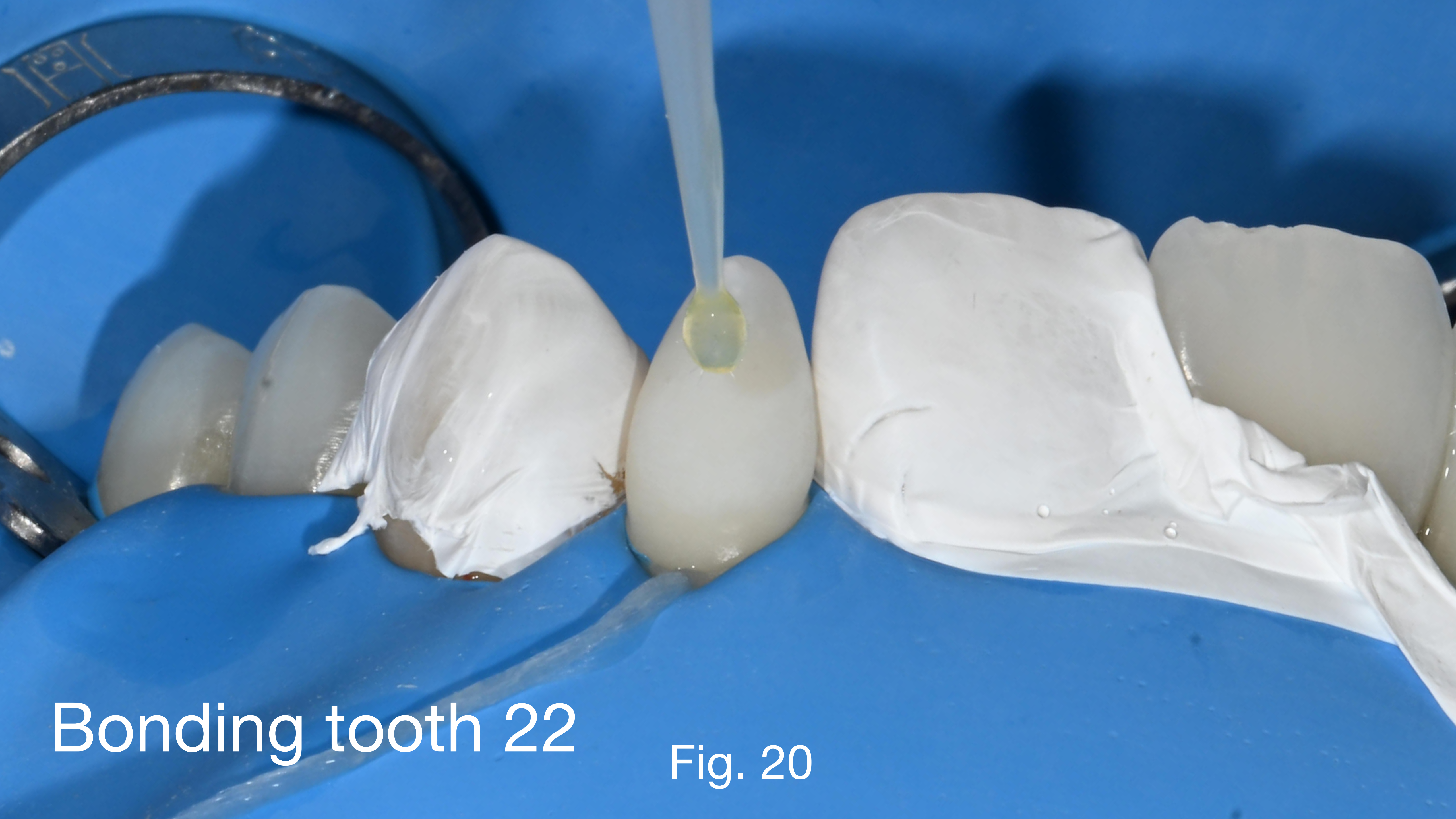


Fig. 18



Etching tooth 22

Fig. 19



Bonding tooth 22

Fig. 20

After with rubberdam in place



Fig. 21



After with rubberdam in place

Fig. 22

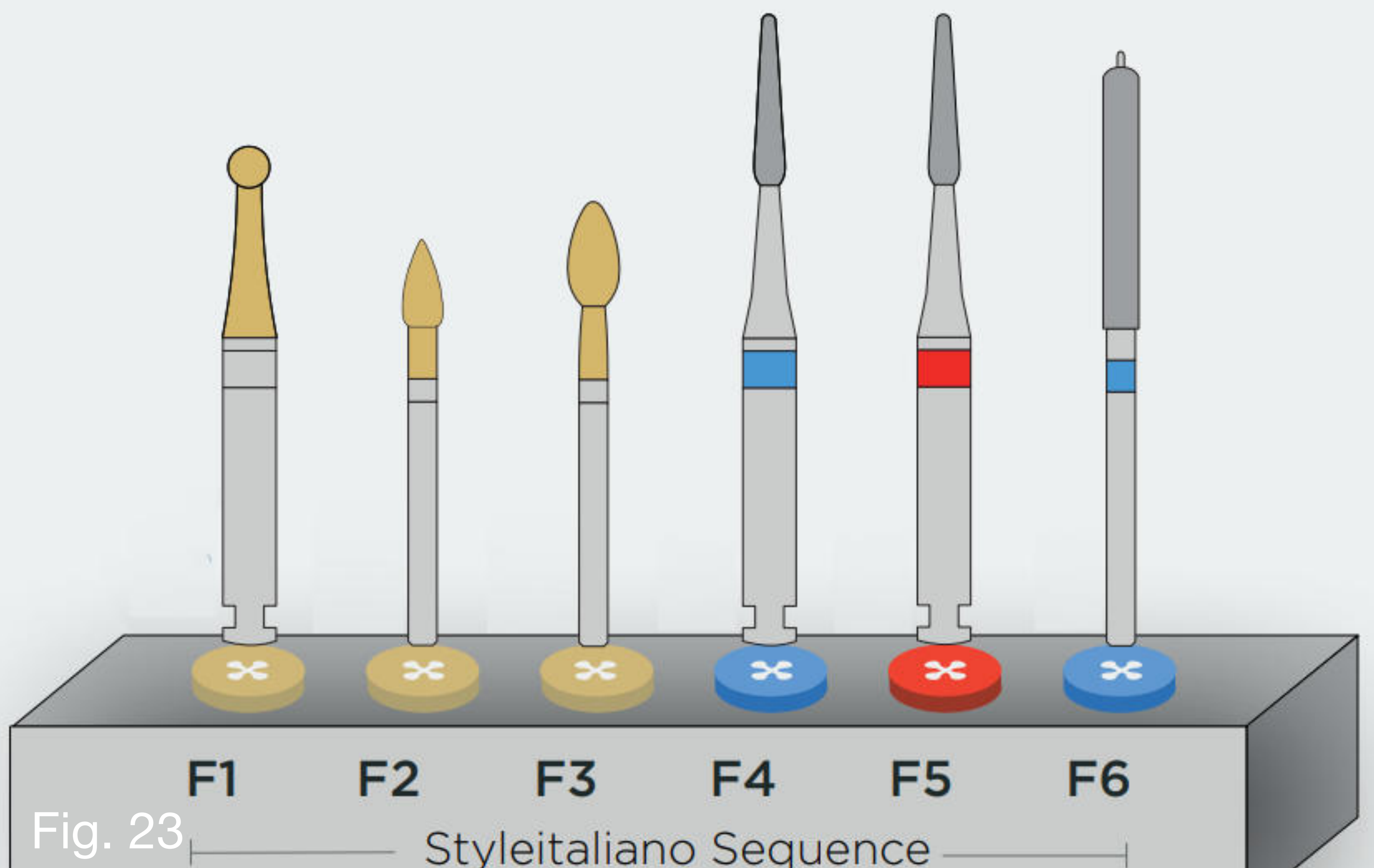




Fig. 24



Post intervention

Fig. 25

Post intervention



Fig. 26

Post intervention



Fig. 27

Post intervention



Fig. 28

The smile post intervention

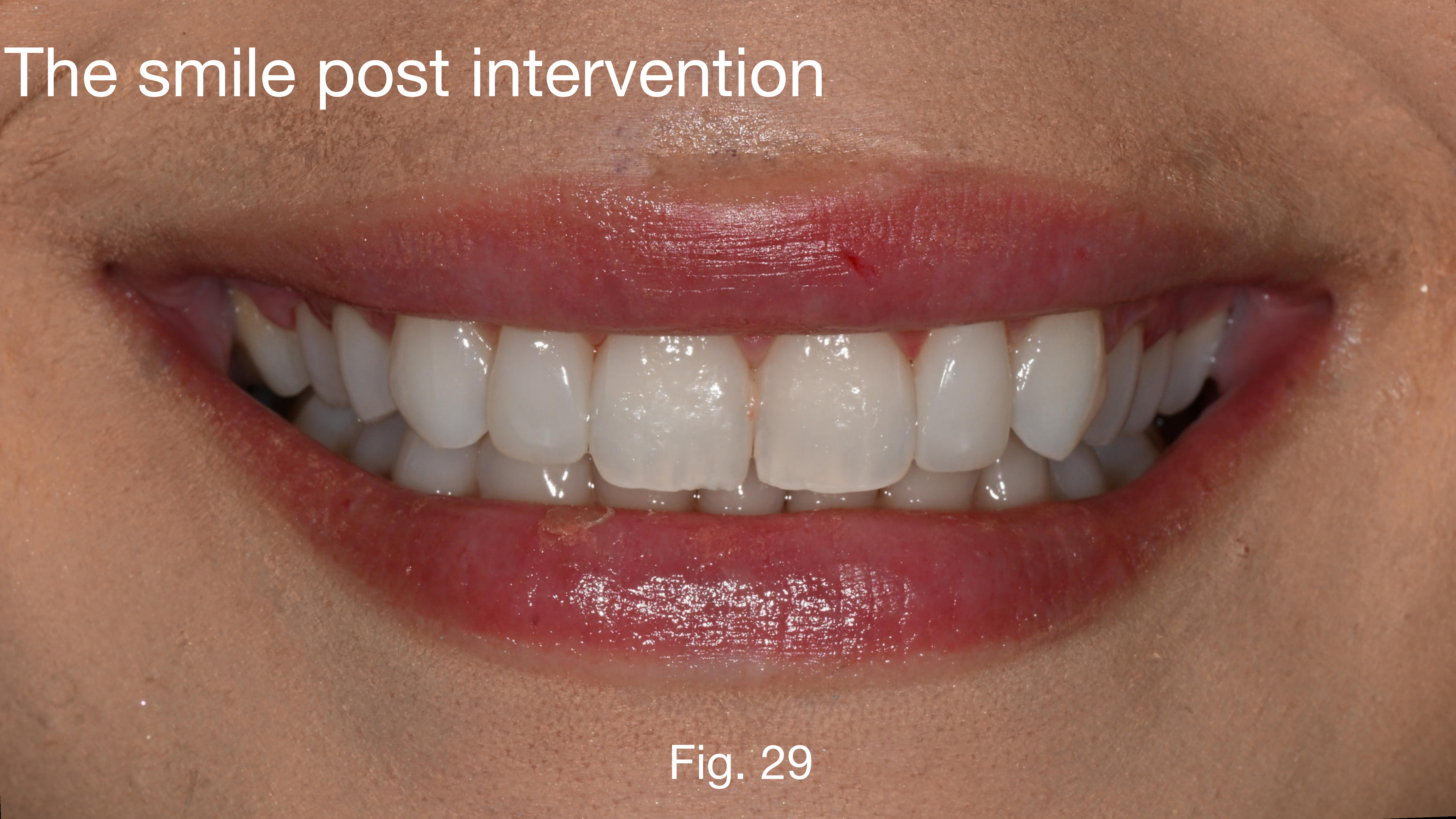


Fig. 29

1 week post intervention

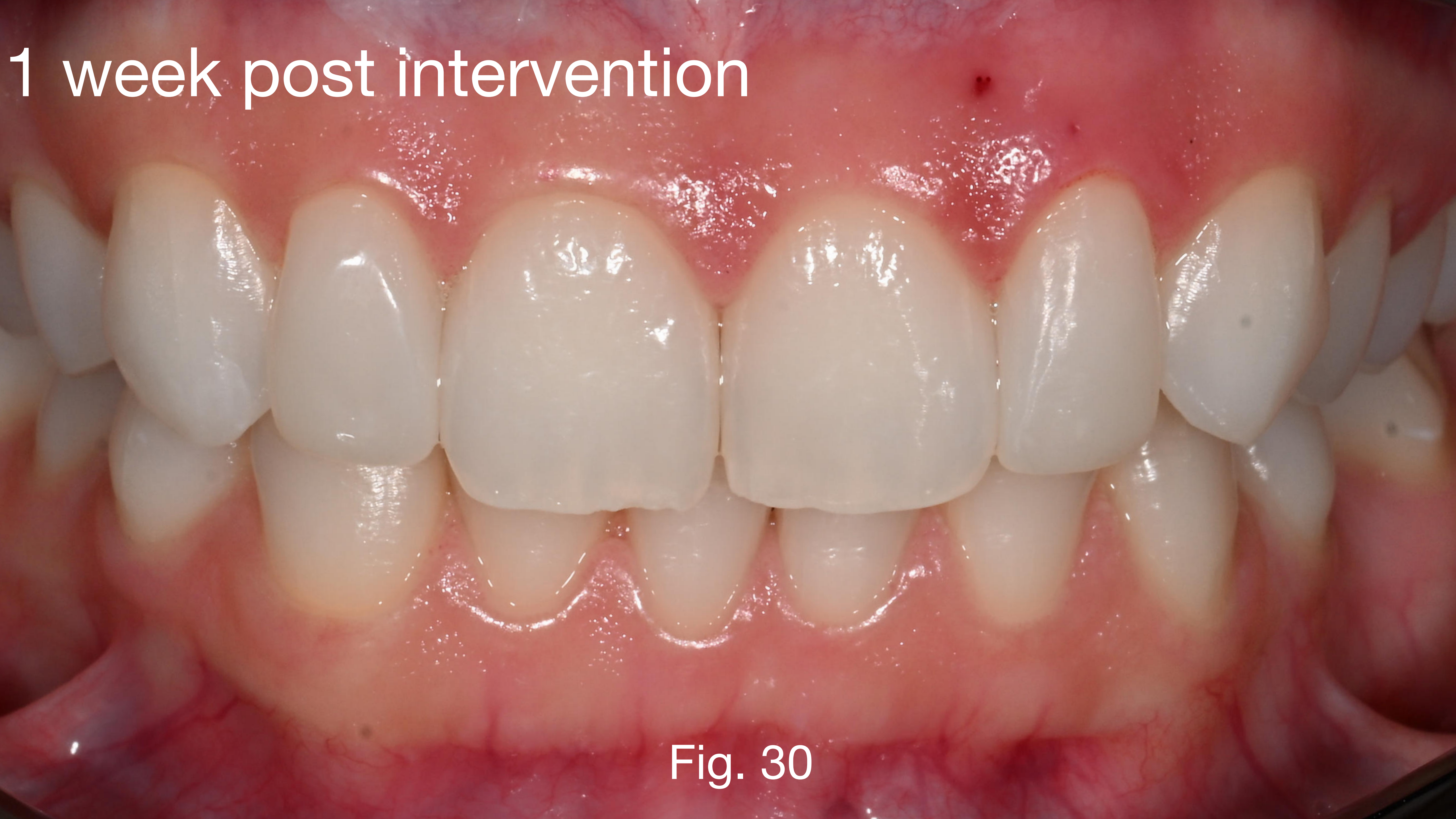


Fig. 30

1 week post intervention



Fig. 31

1 week post intervention

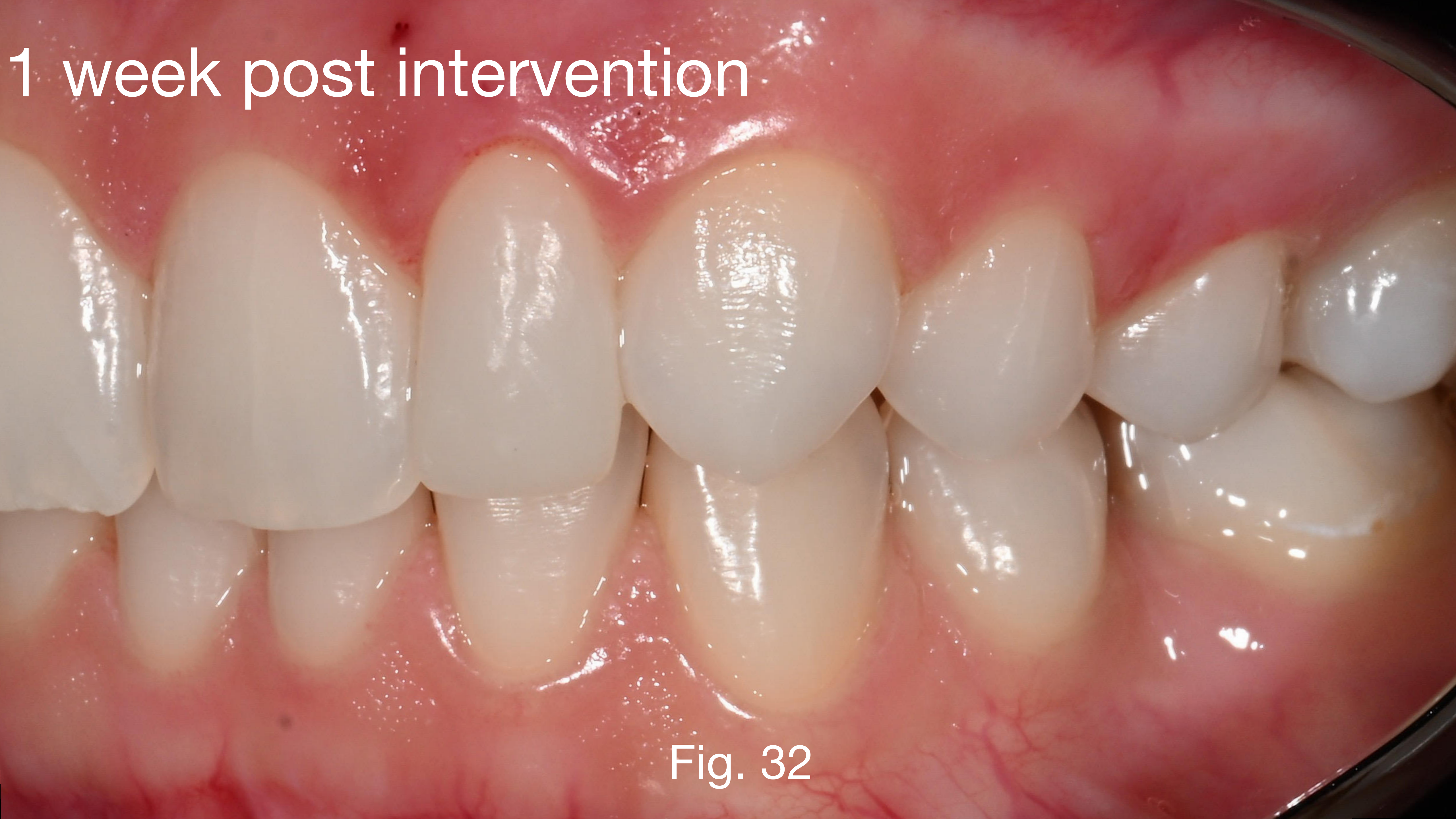


Fig. 32

1 week post intervention



Fig. 33



1 week post intervention

Fig. 34



1 week post intervention

Fig. 35



1 week post intervention

Fig. 36



1 week post intervention

Fig. 37

1 week post intervention

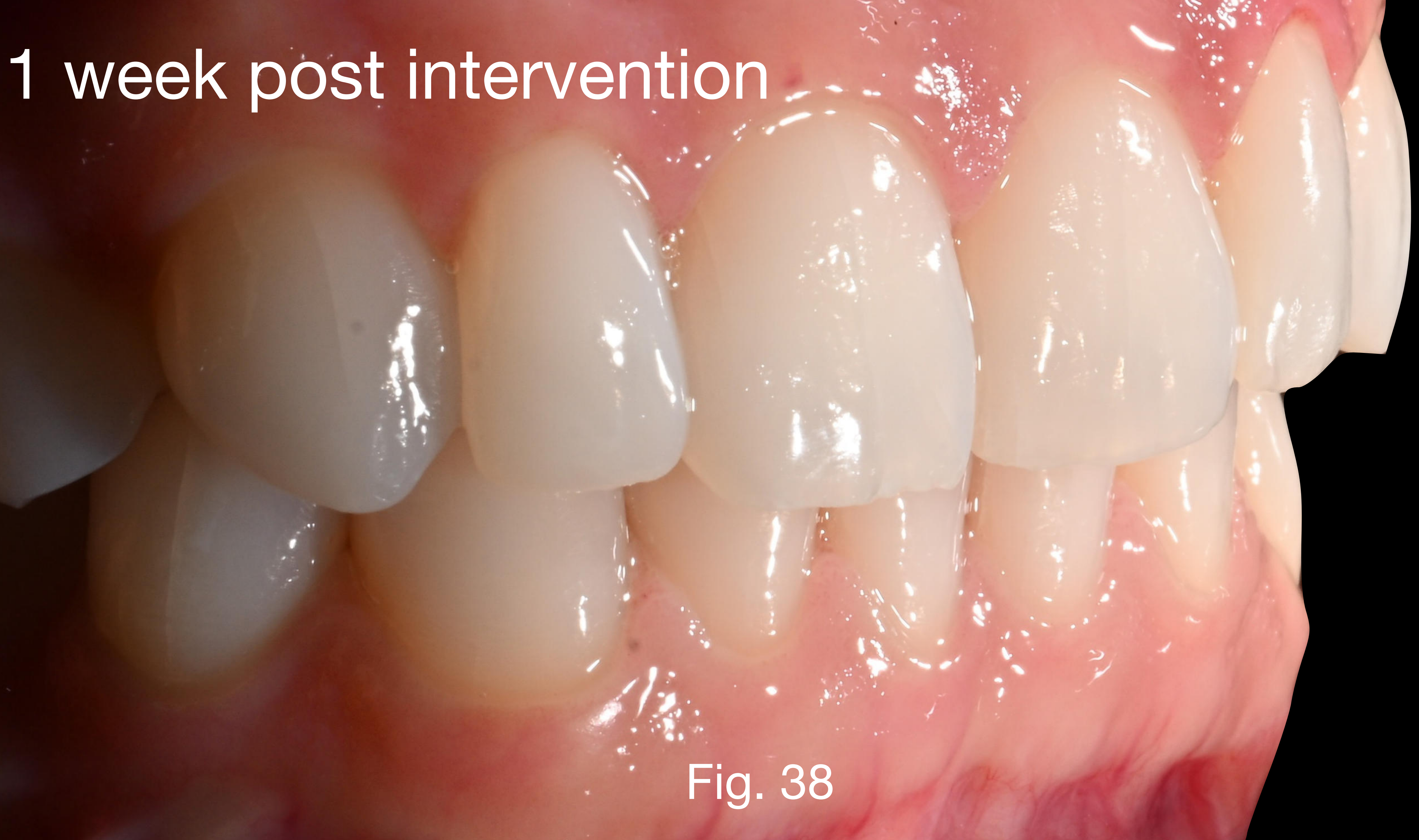


Fig. 38

1 Month post intervention

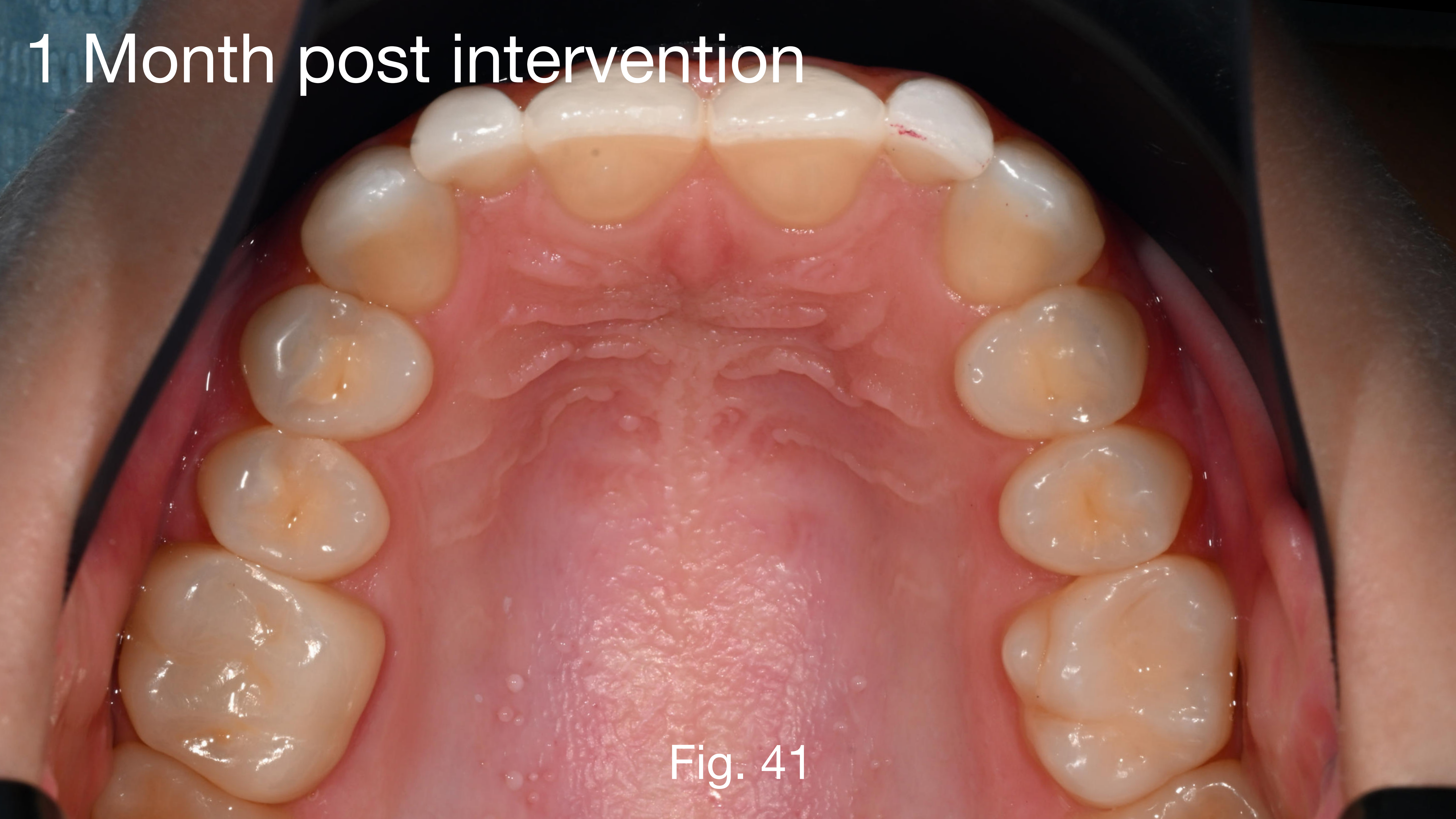


Fig. 39

1 Month post intervention



Fig. 40



1 Month post intervention

Fig. 41

1 Month post intervention



Fig. 42

1 Month post intervention

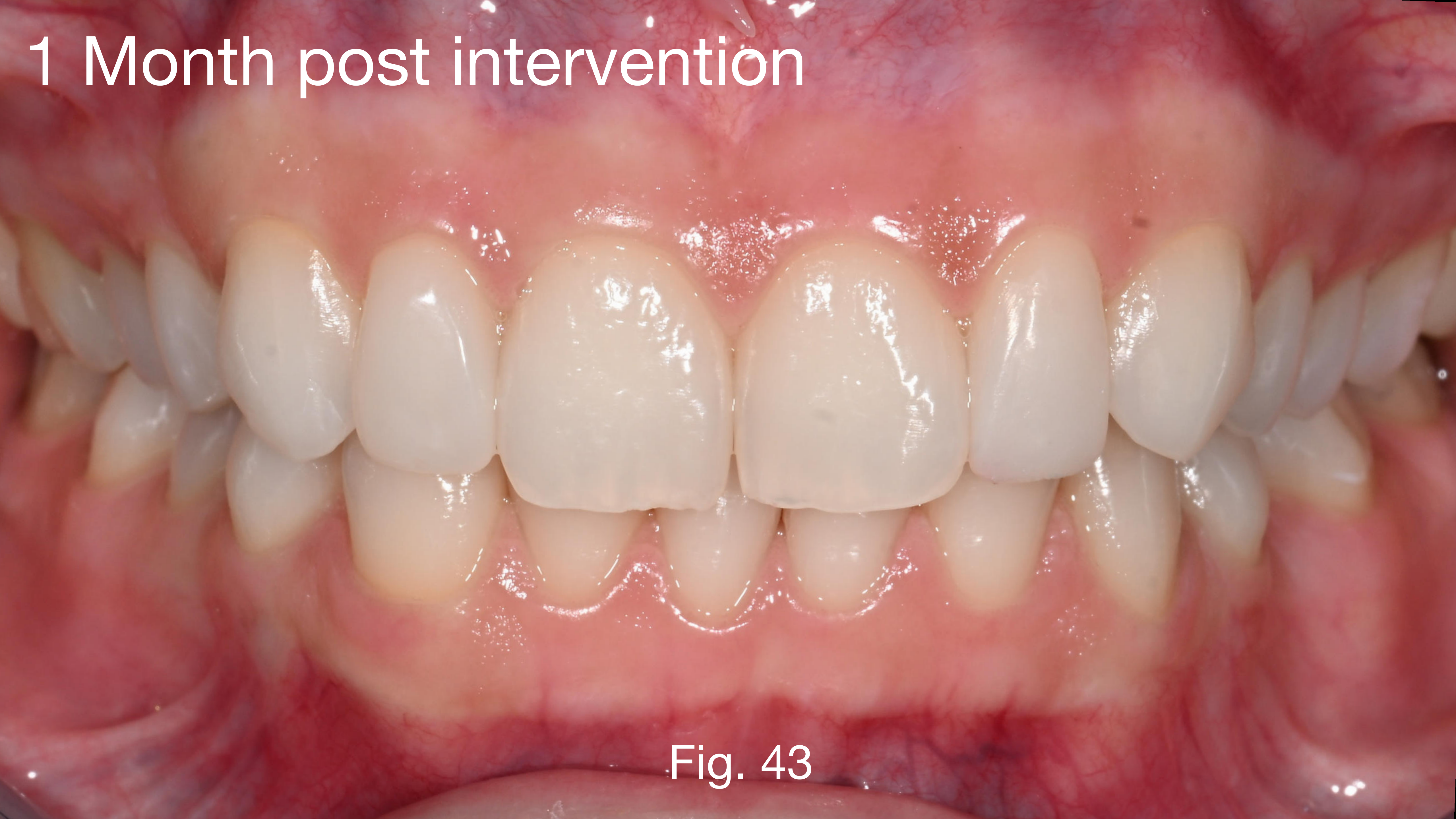
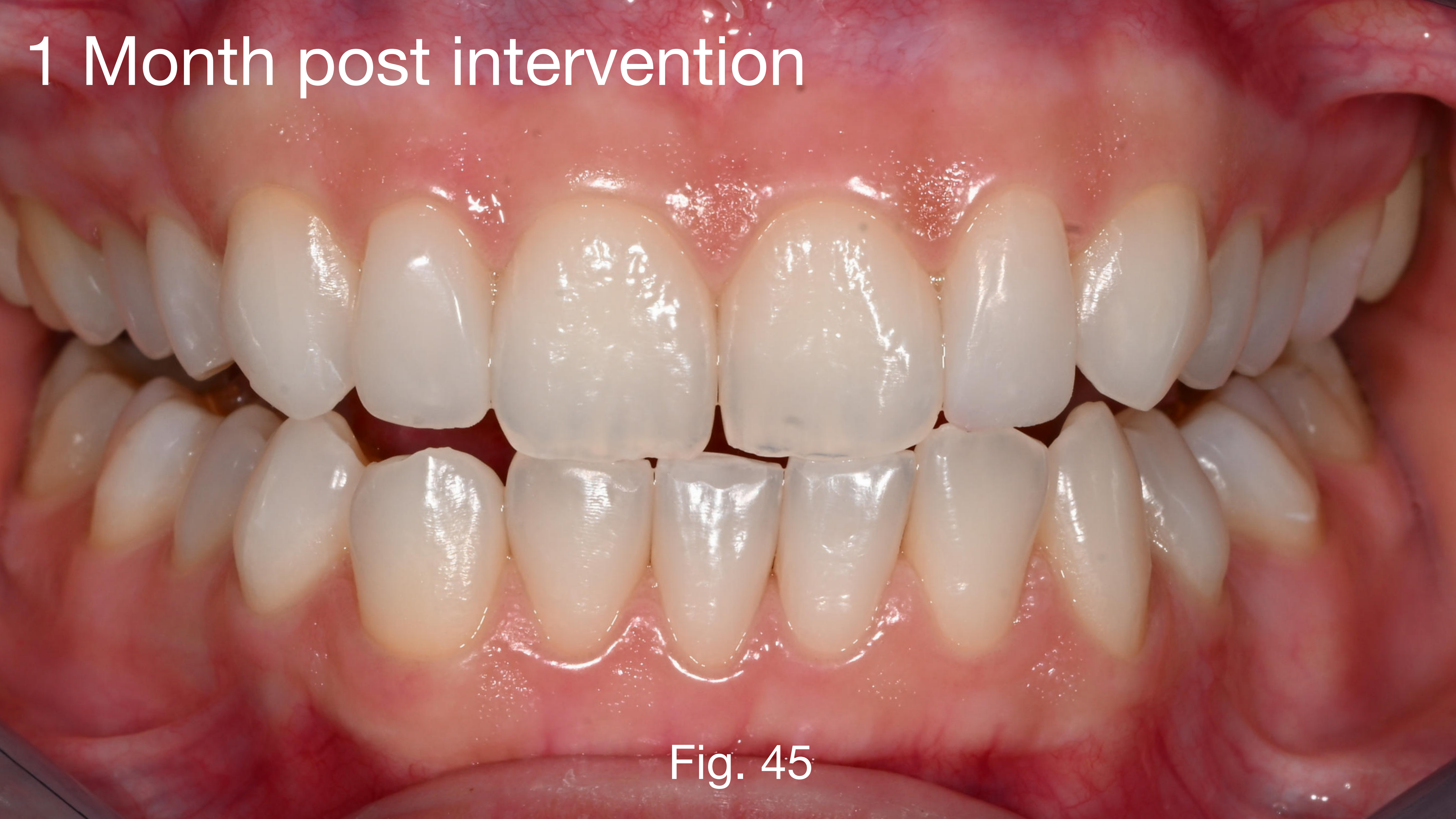


Fig. 43



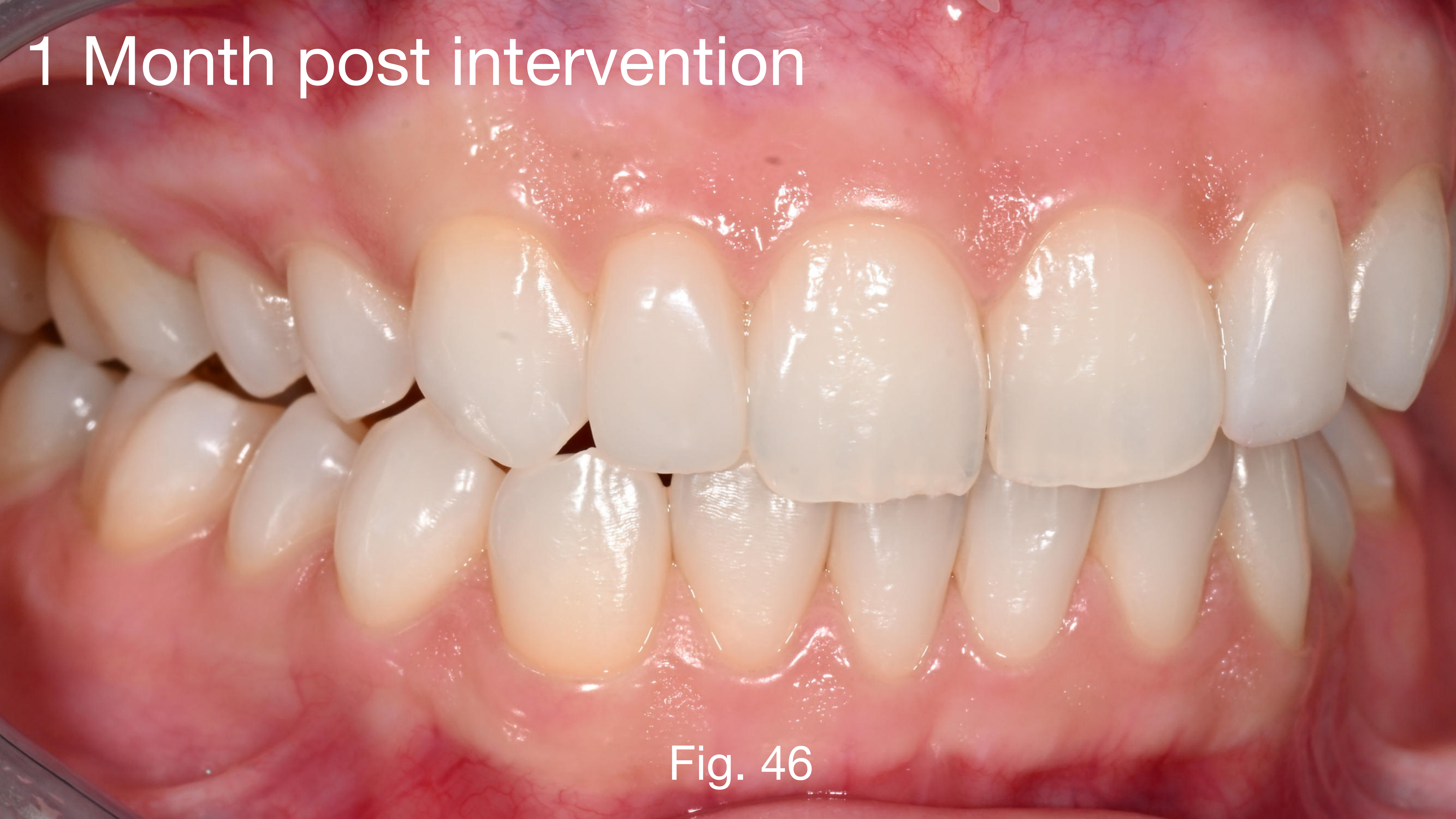
1 Month post intervention

Fig. 44



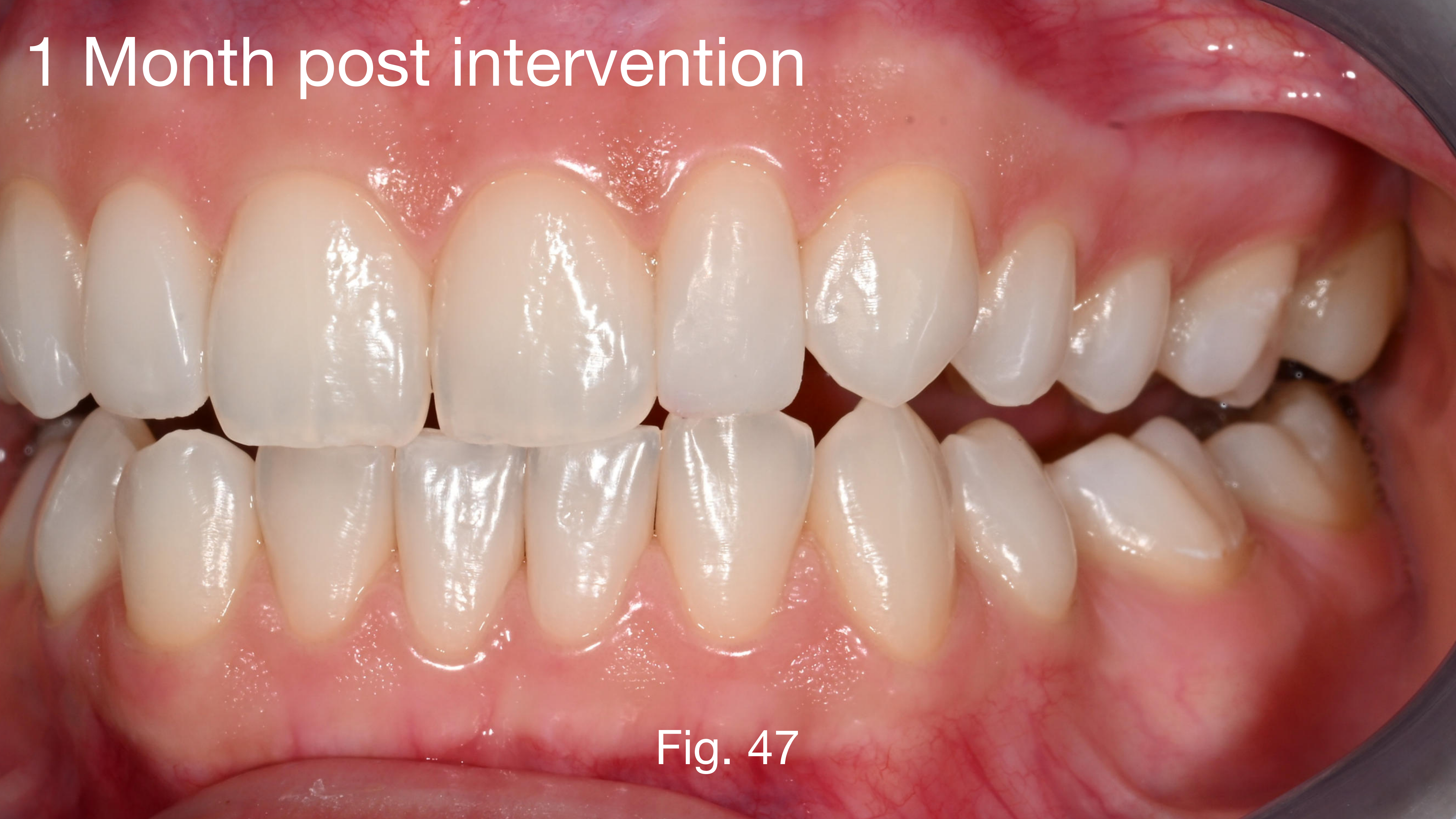
1 Month post intervention

Fig. 45



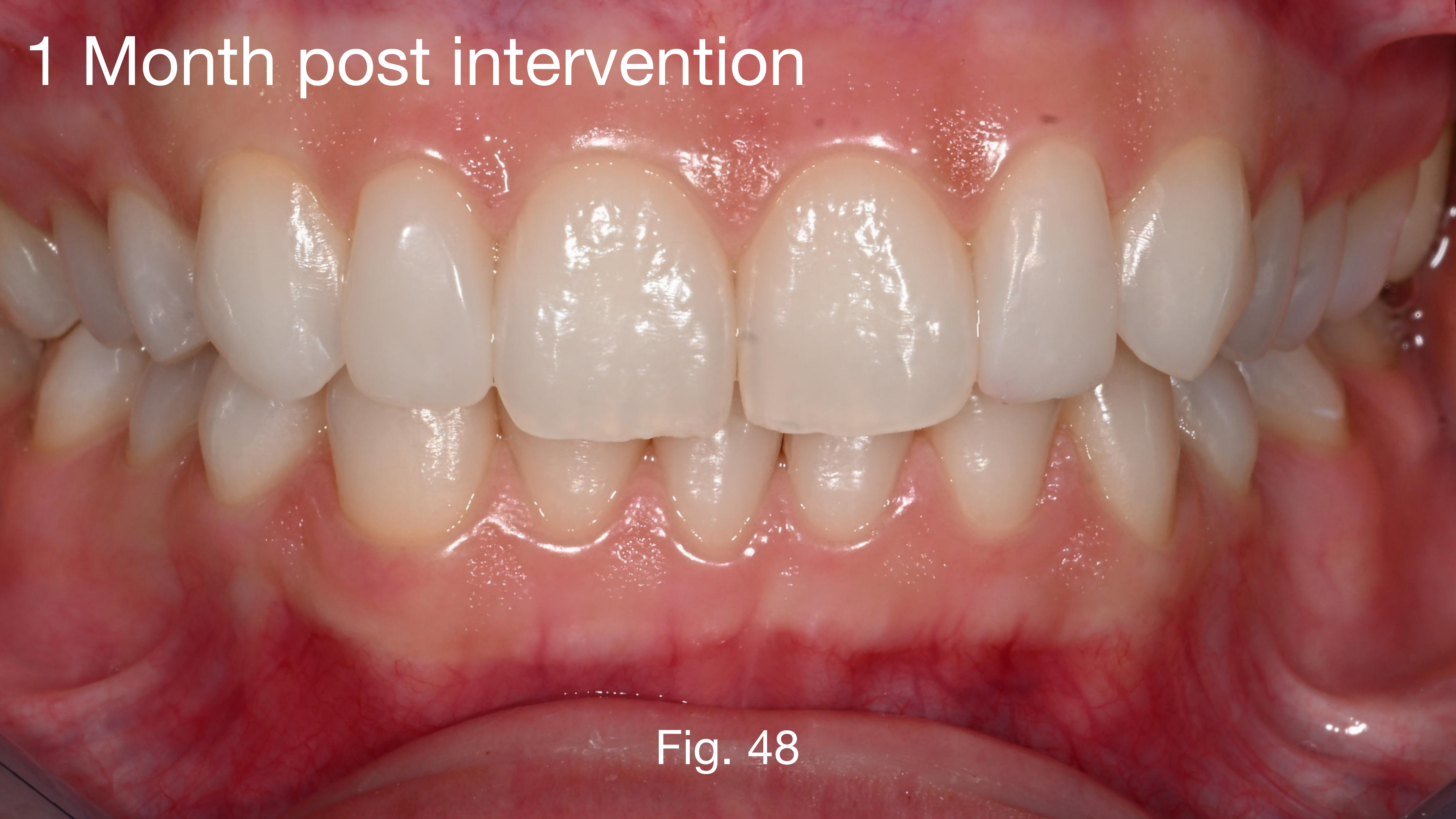
1 Month post intervention

Fig. 46



1 Month post intervention

Fig. 47



1 Month post intervention

Fig. 48



1 Month post intervention

Fig. 49

6 Months post interventions

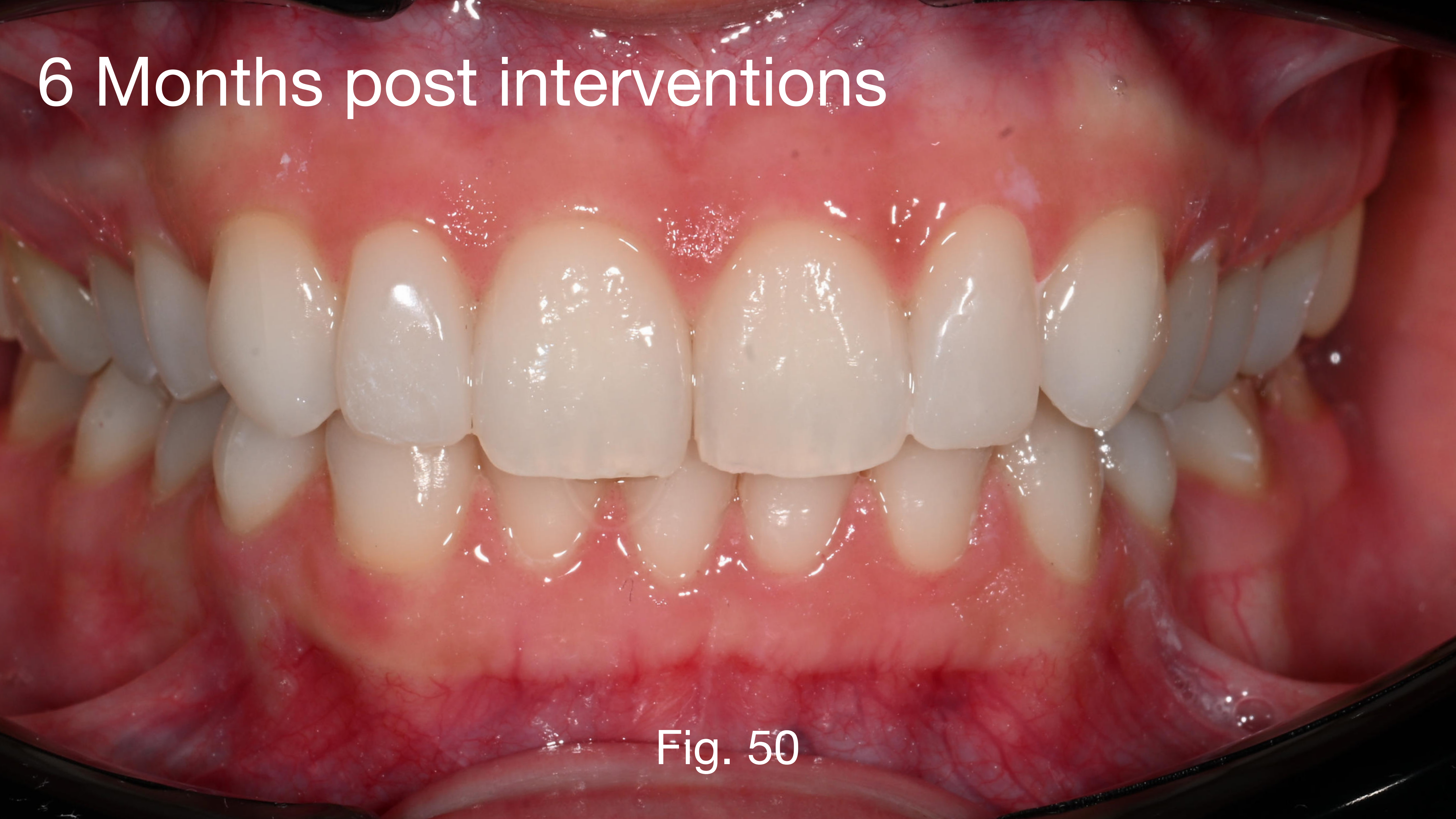


Fig. 50

6 Months post interventions



Fig. 51

6 Months post interventions

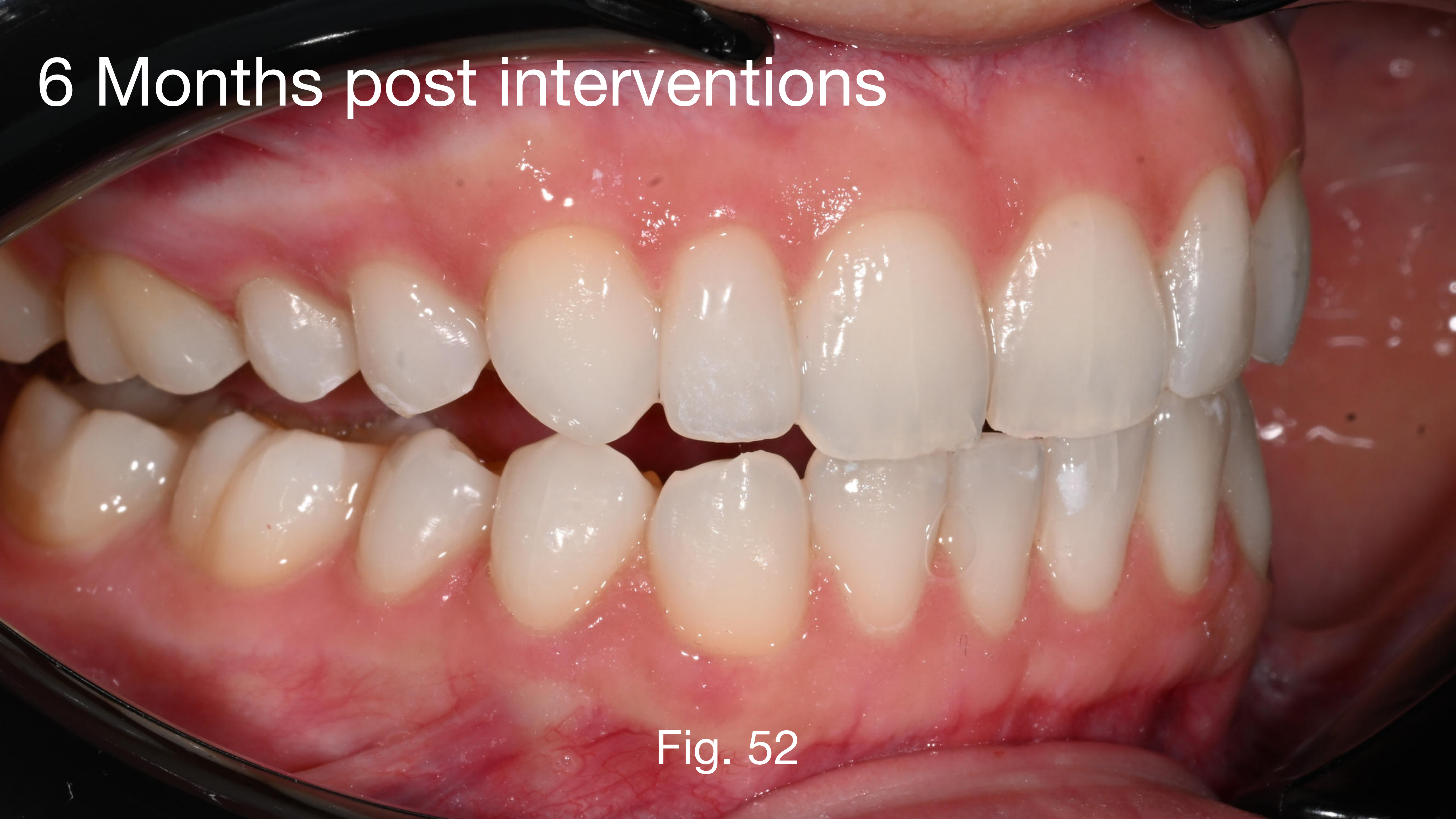


Fig. 52

6 Months post interventions

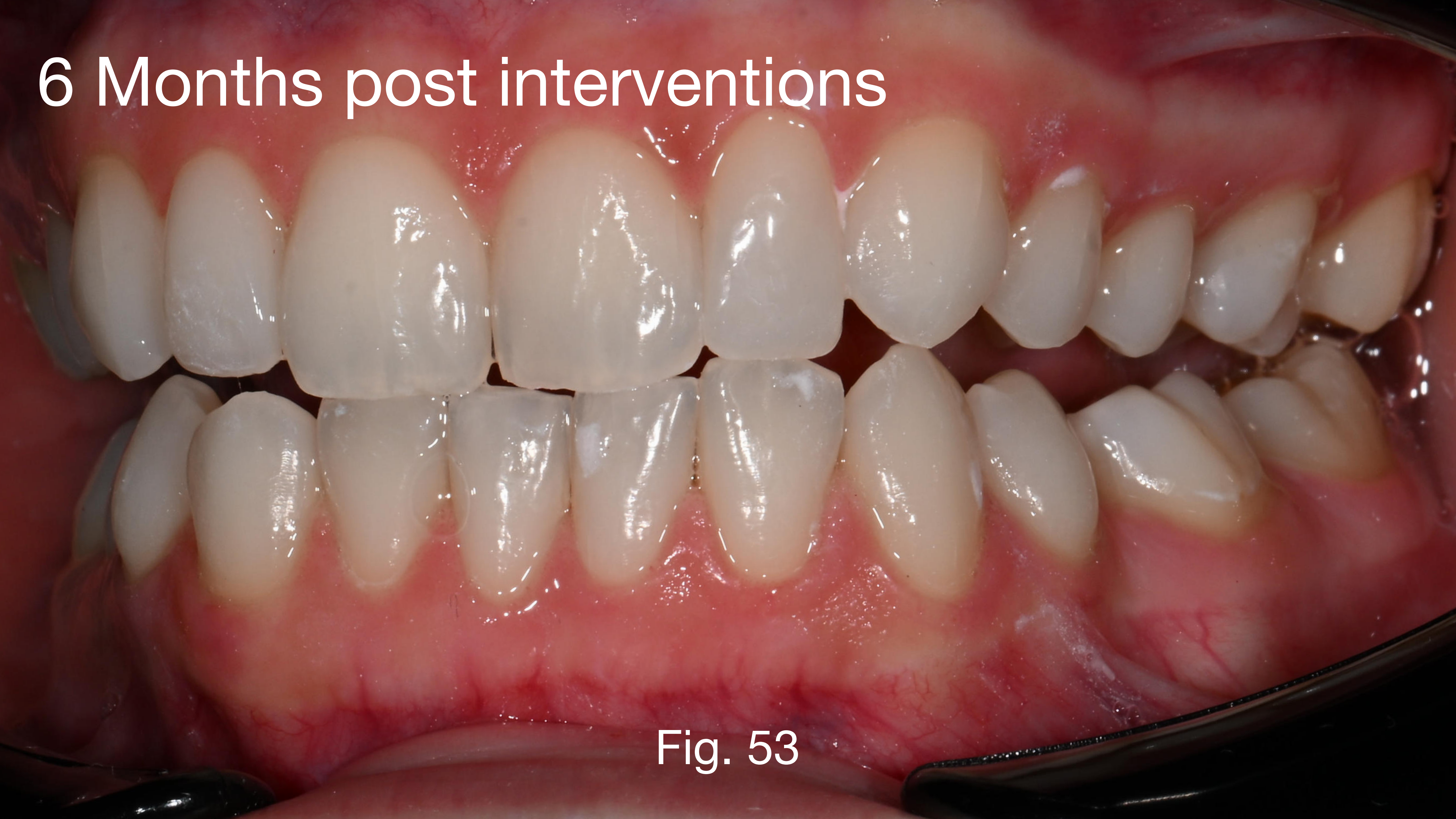


Fig. 53

6 Months post interventions

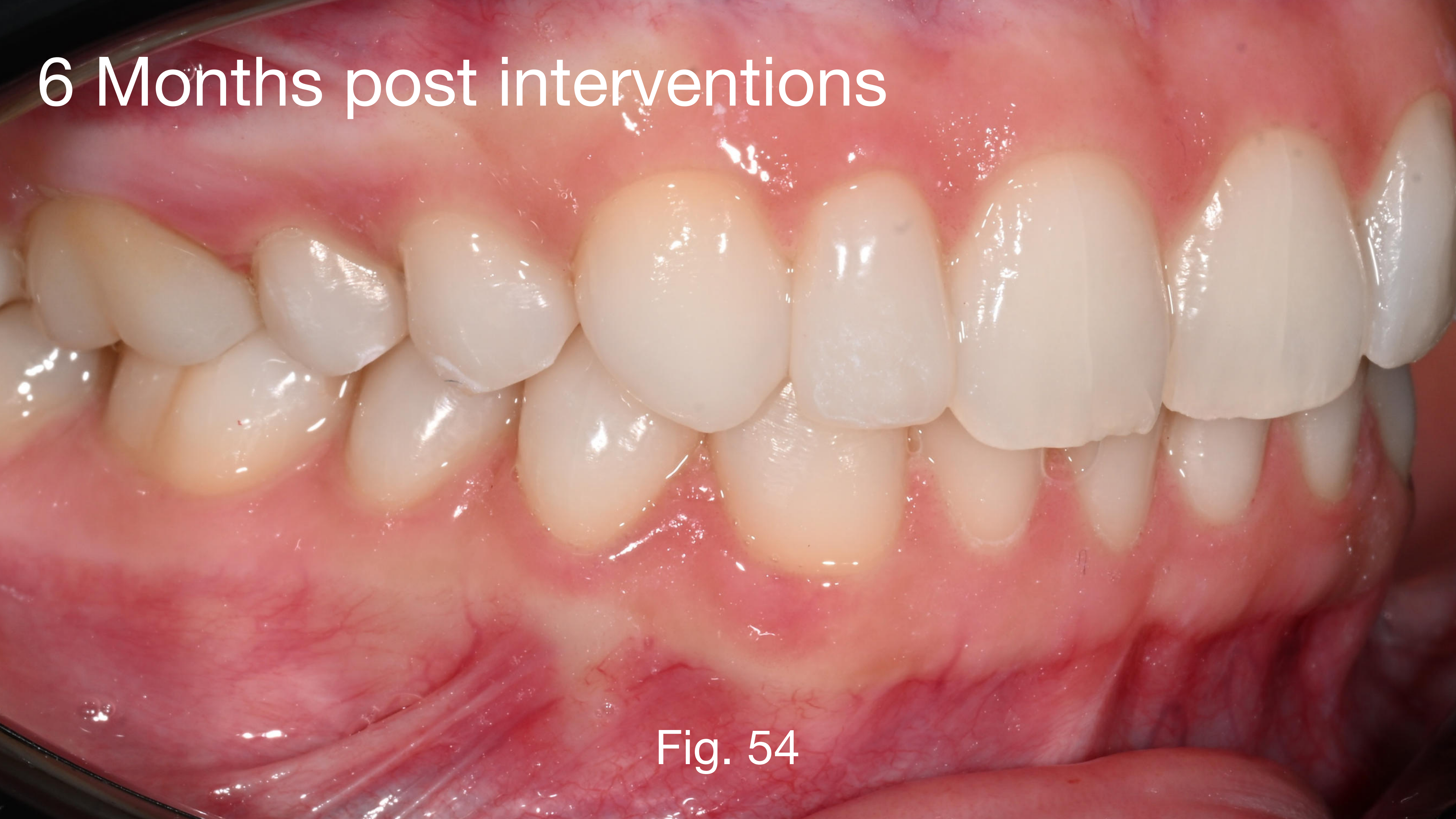


Fig. 54

6 Months post interventions

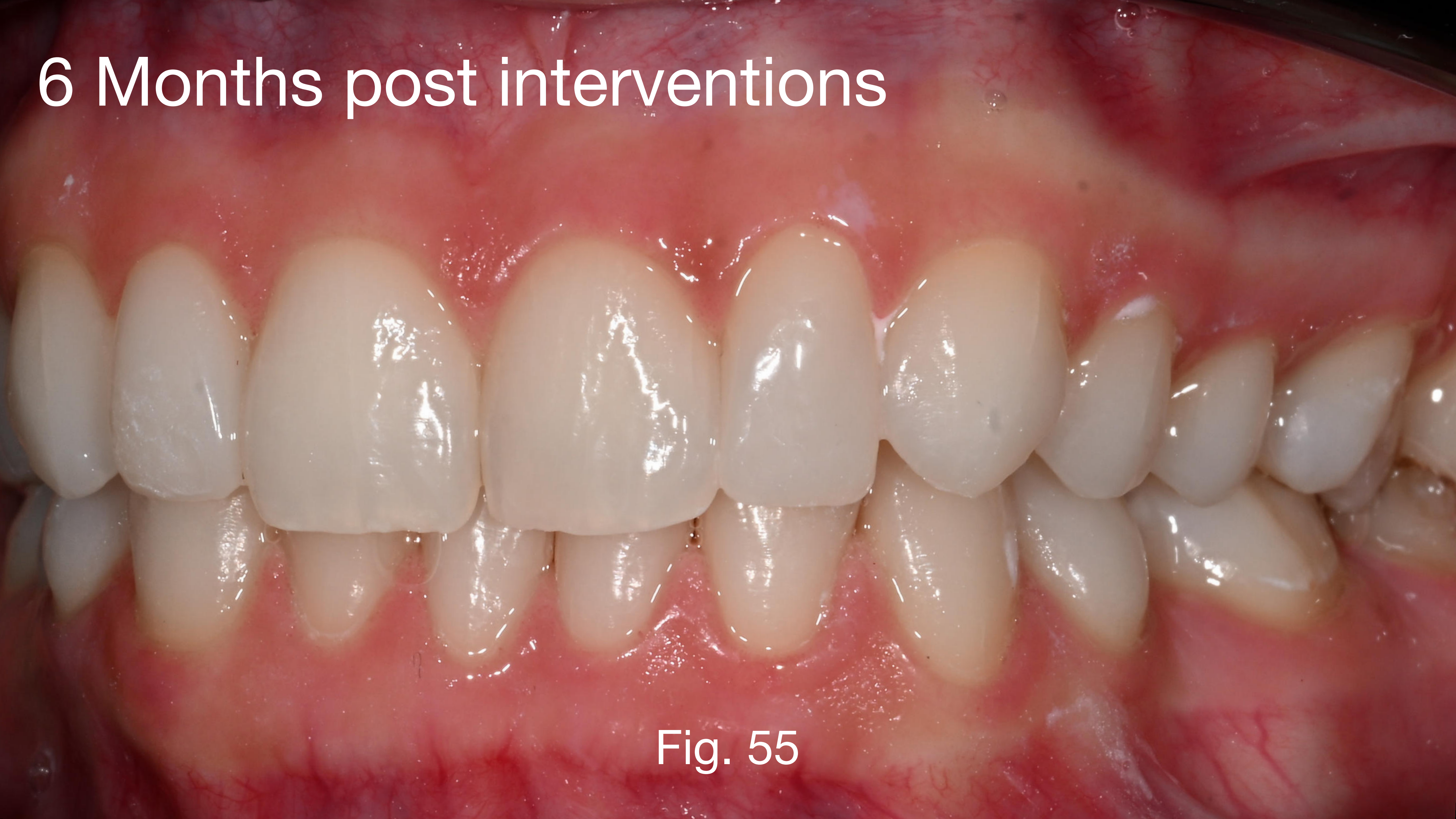


Fig. 55

6 Months post interventions

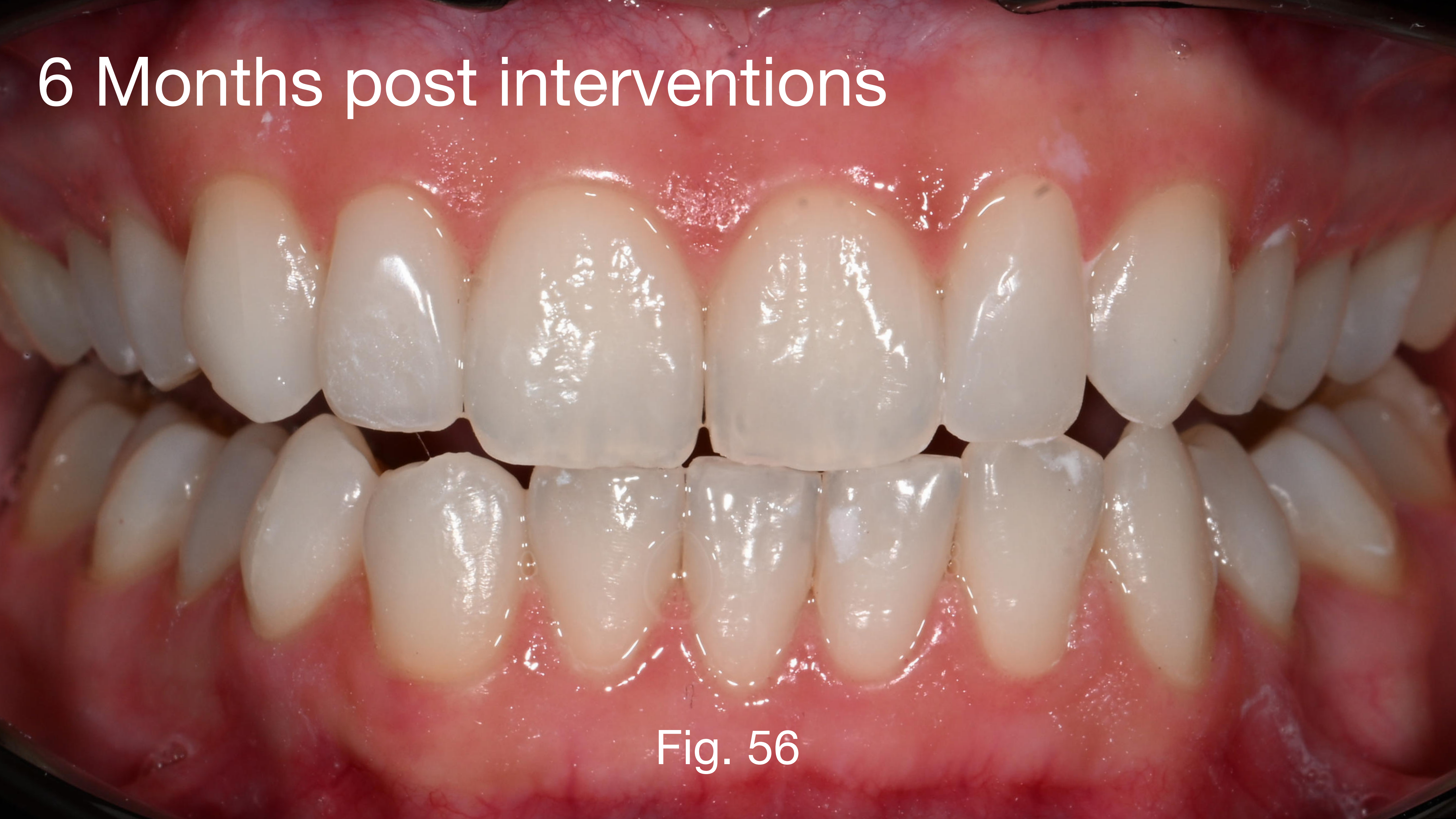


Fig. 56

6 Months post interventions

A close-up photograph of the upper front teeth (incisors) showing a healthy gingival margin. The teeth are white and well-aligned. The gum tissue is pink and appears firm, with no visible inflammation or recession. The text "6 Months post interventions" is overlaid in the top left corner.

Fig. 57



6 Months post interventions

Fig. 58

6 Months post interventions

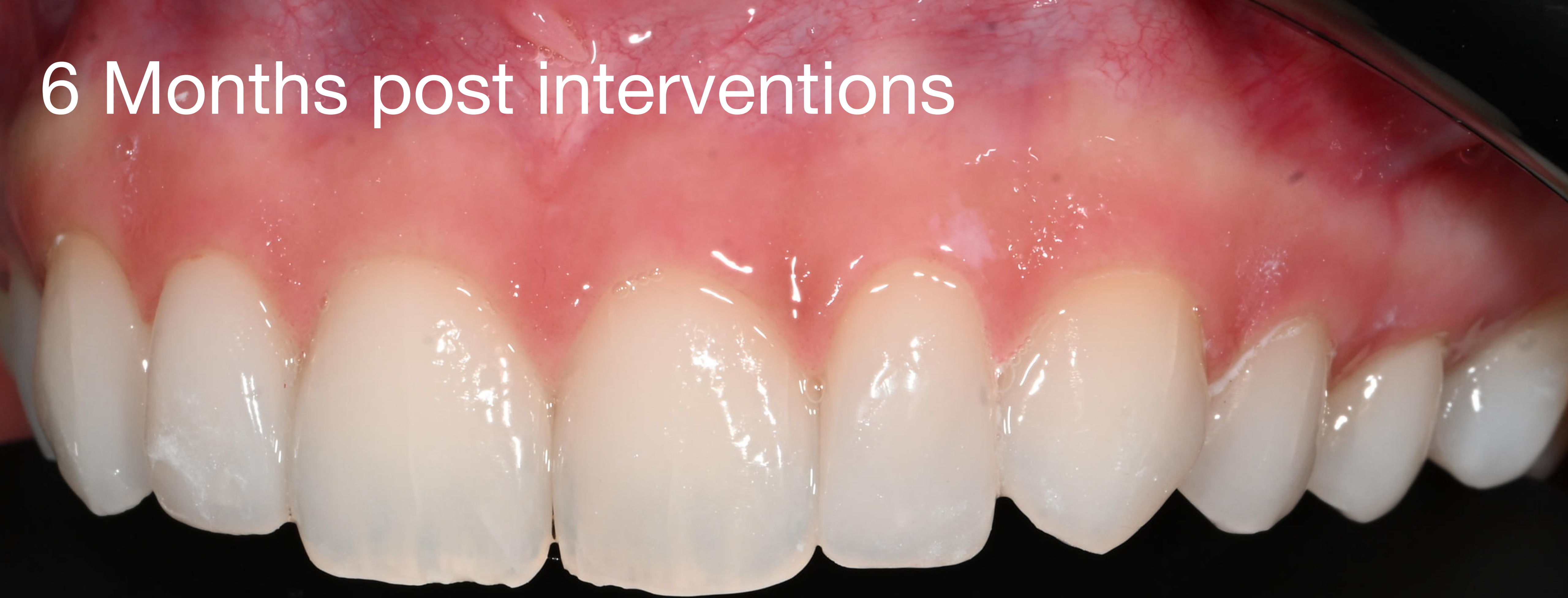


Fig. 59

6 Months post interventions



Fig. 60

6 Months post interventions



Fig. 61

Initial Scan

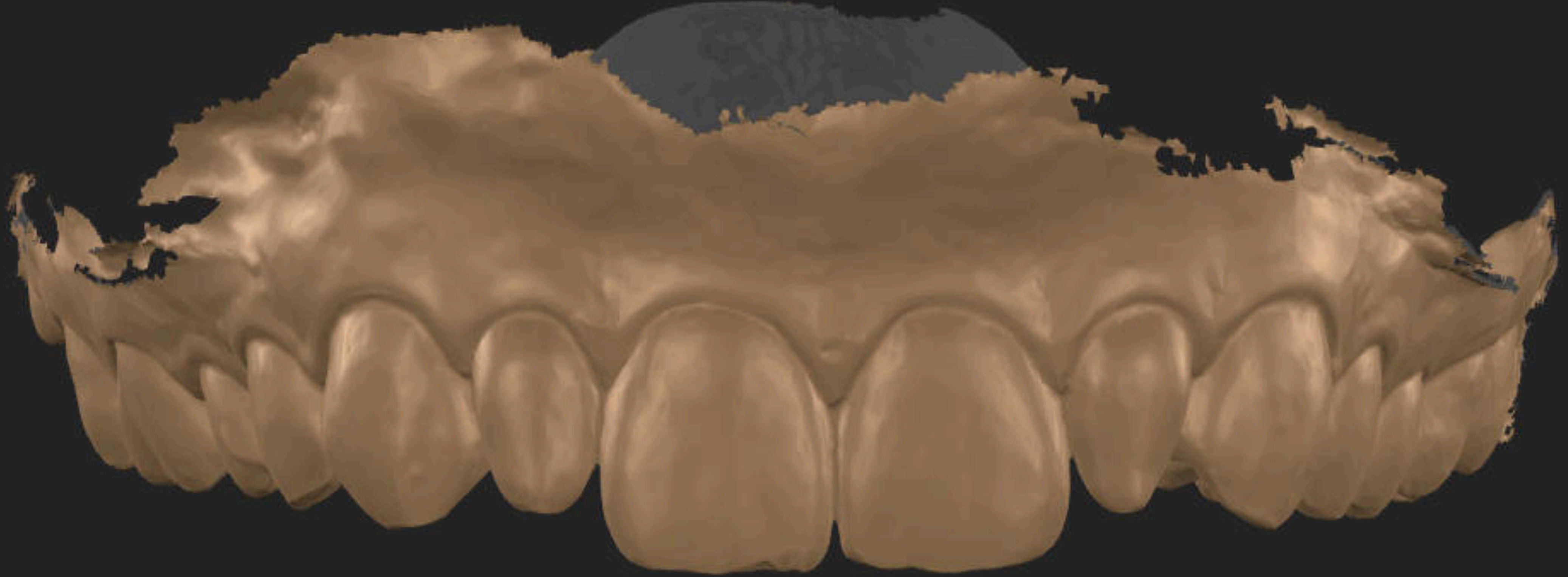


Fig. 62

Wax up

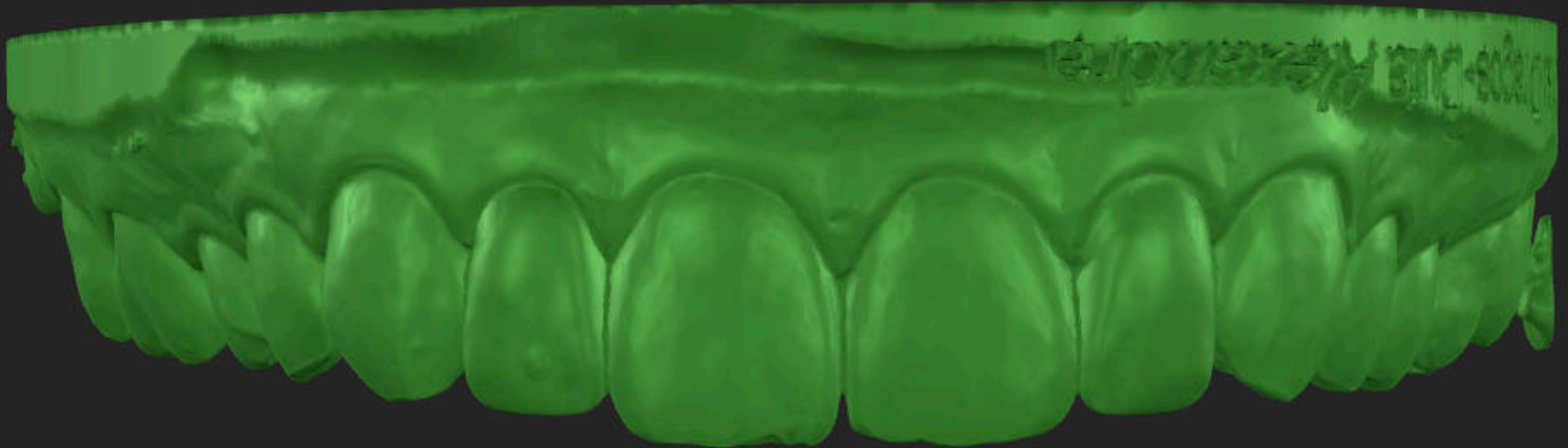
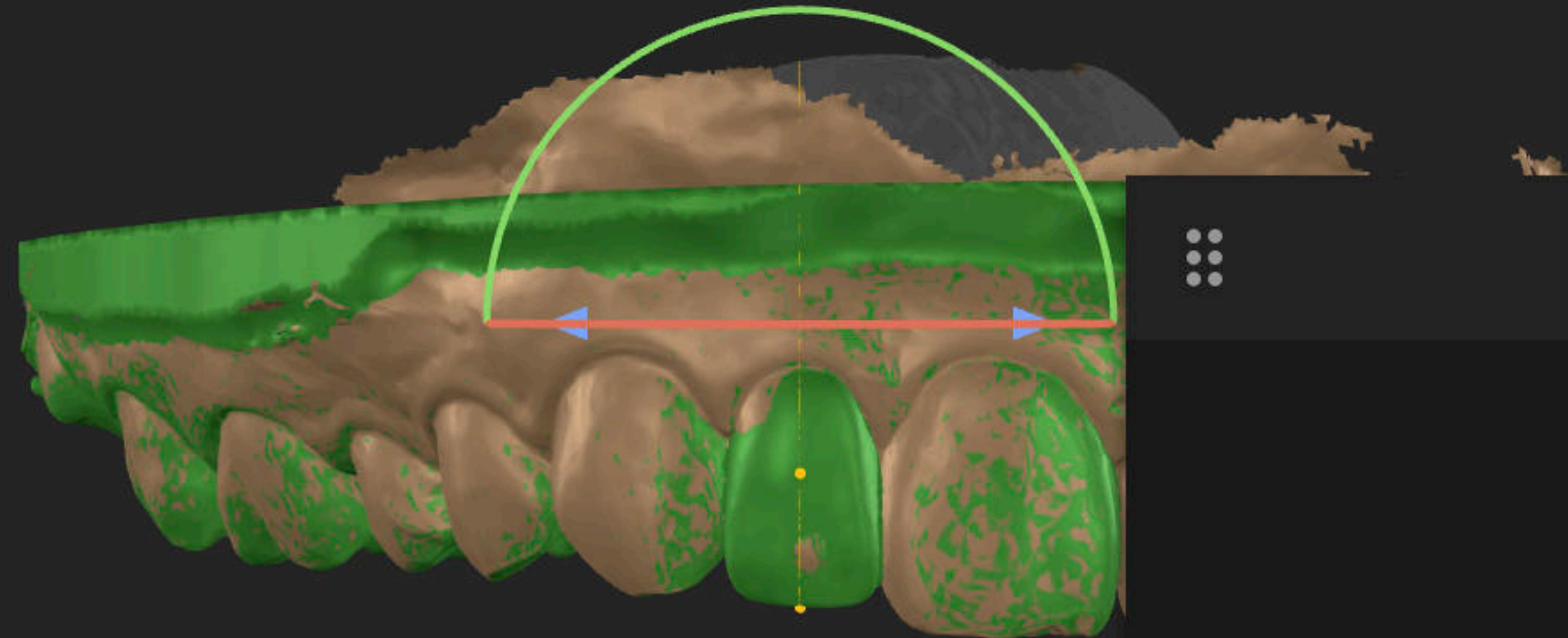


Fig. 63

Measurements between the initial scan and the wax-up



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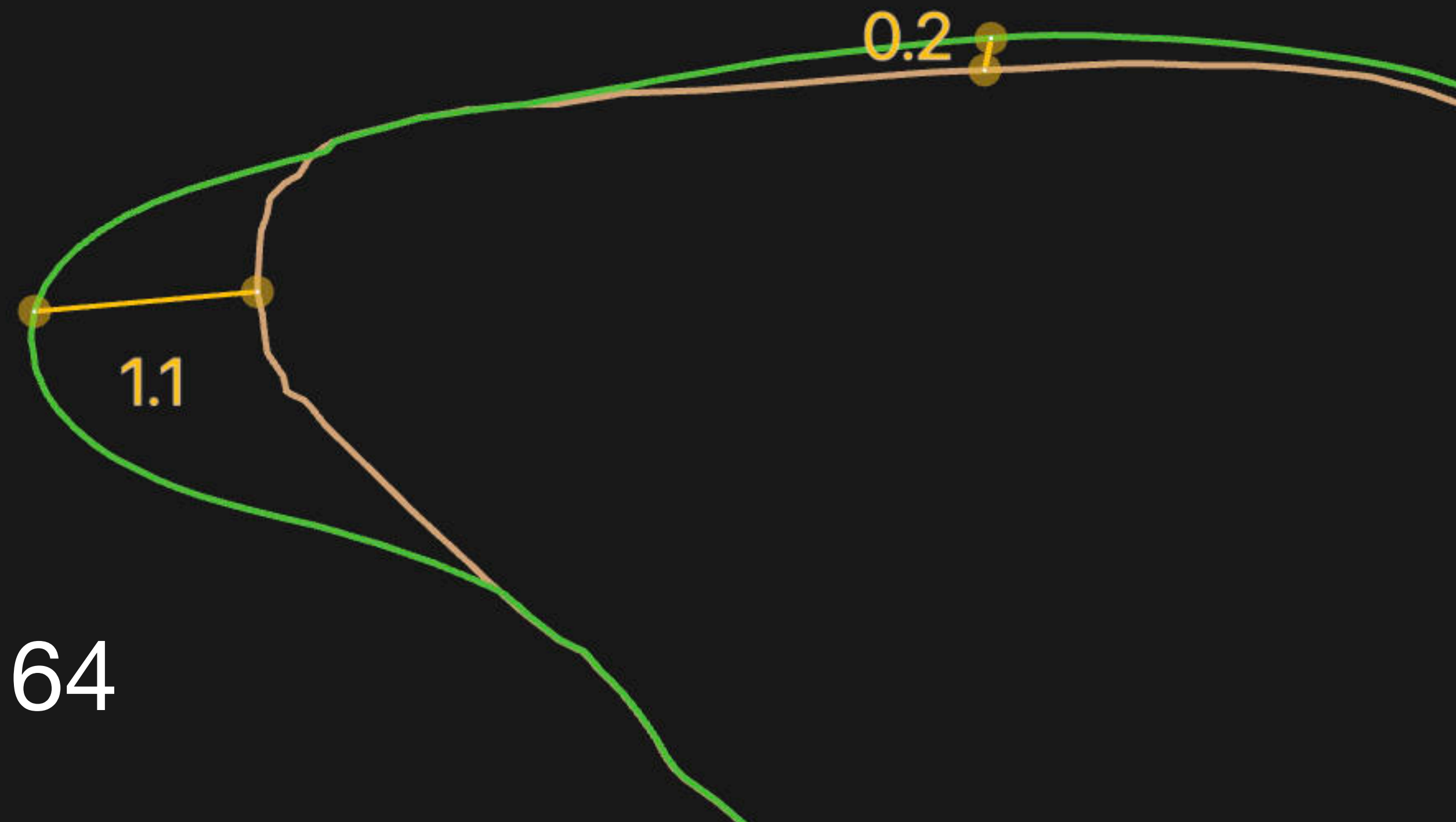


Fig. 64

Measurements between the initial scan and the wax-up

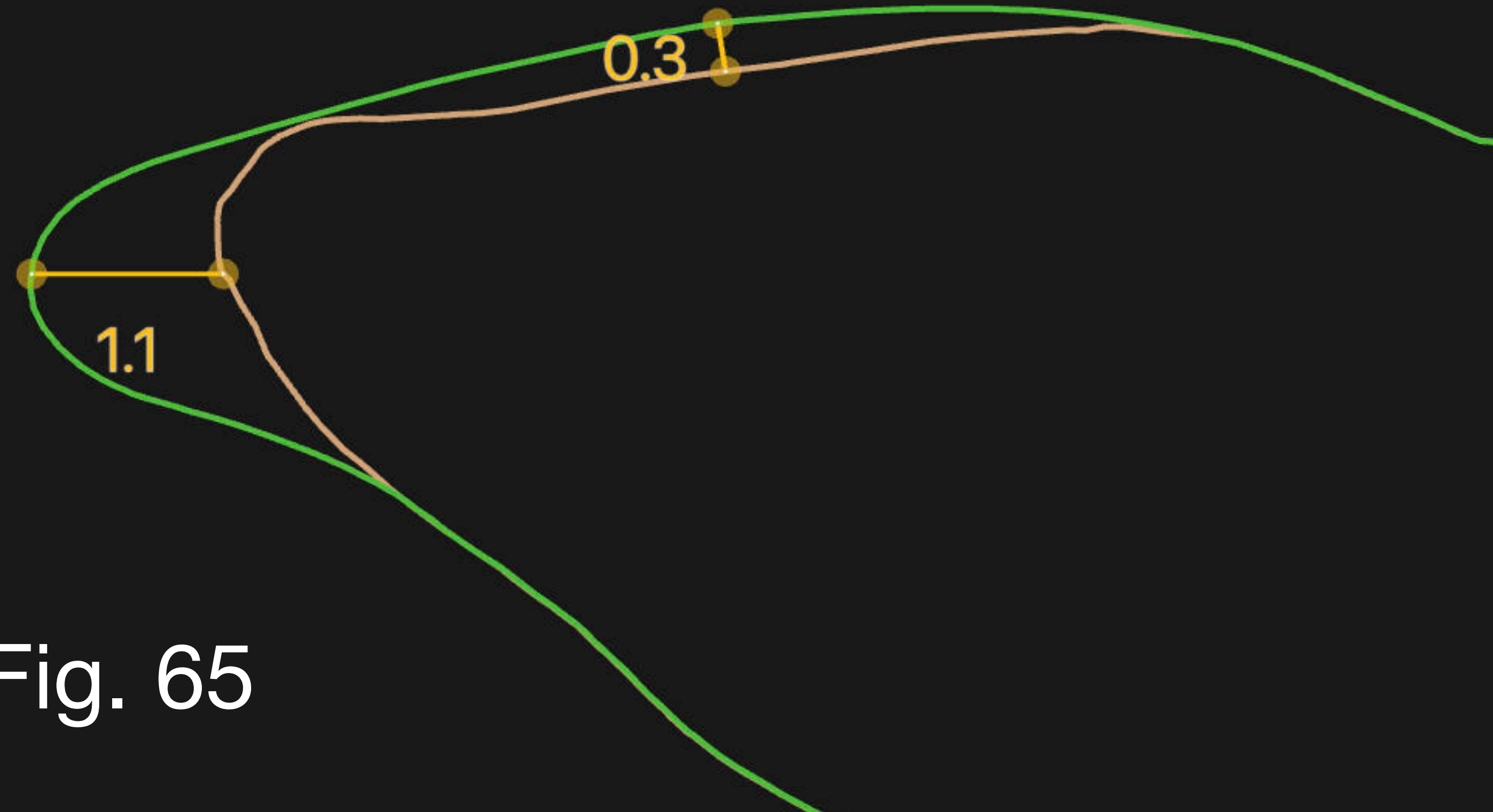
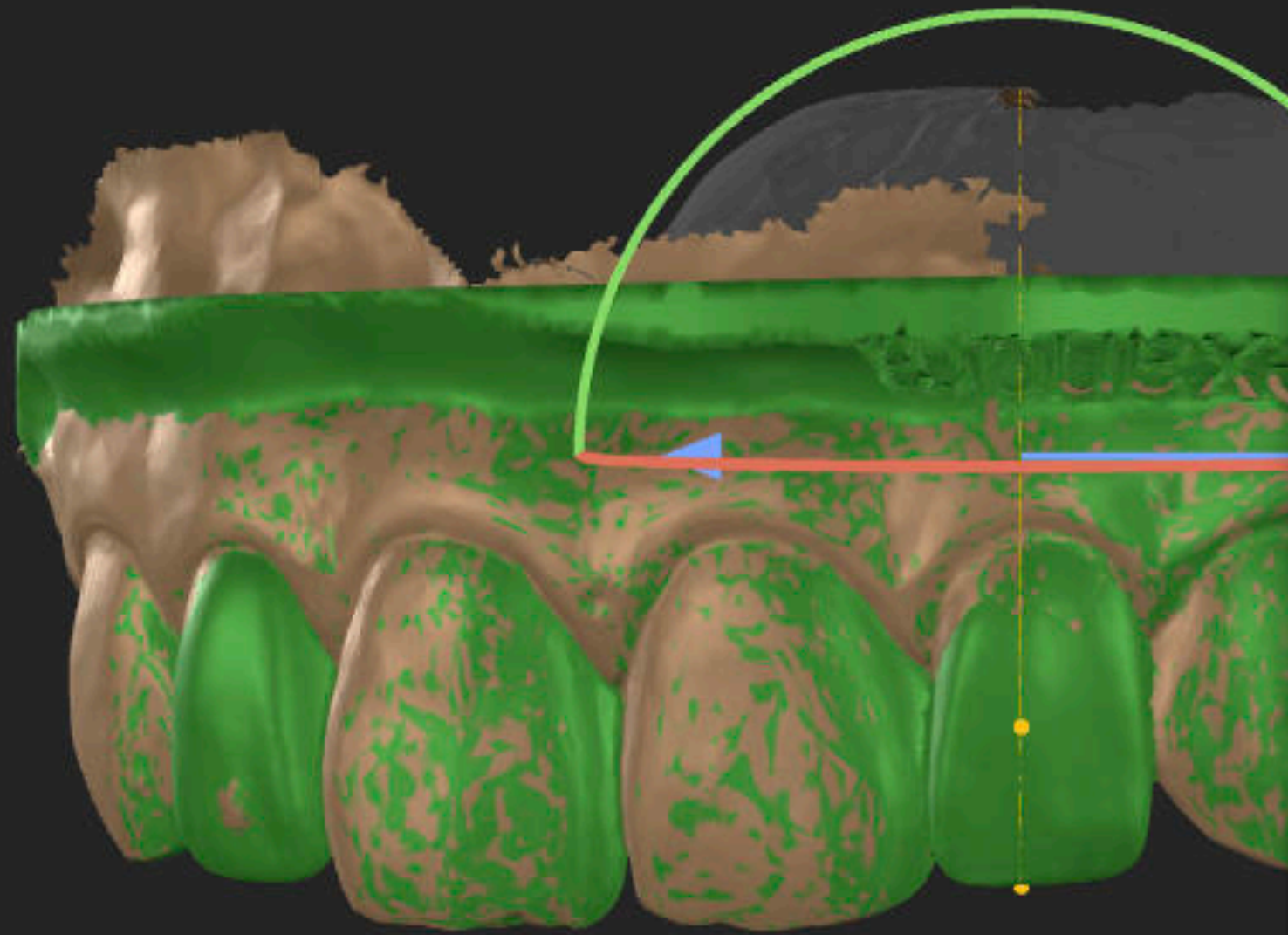


Fig. 65

Scan after 1 month of direct composite

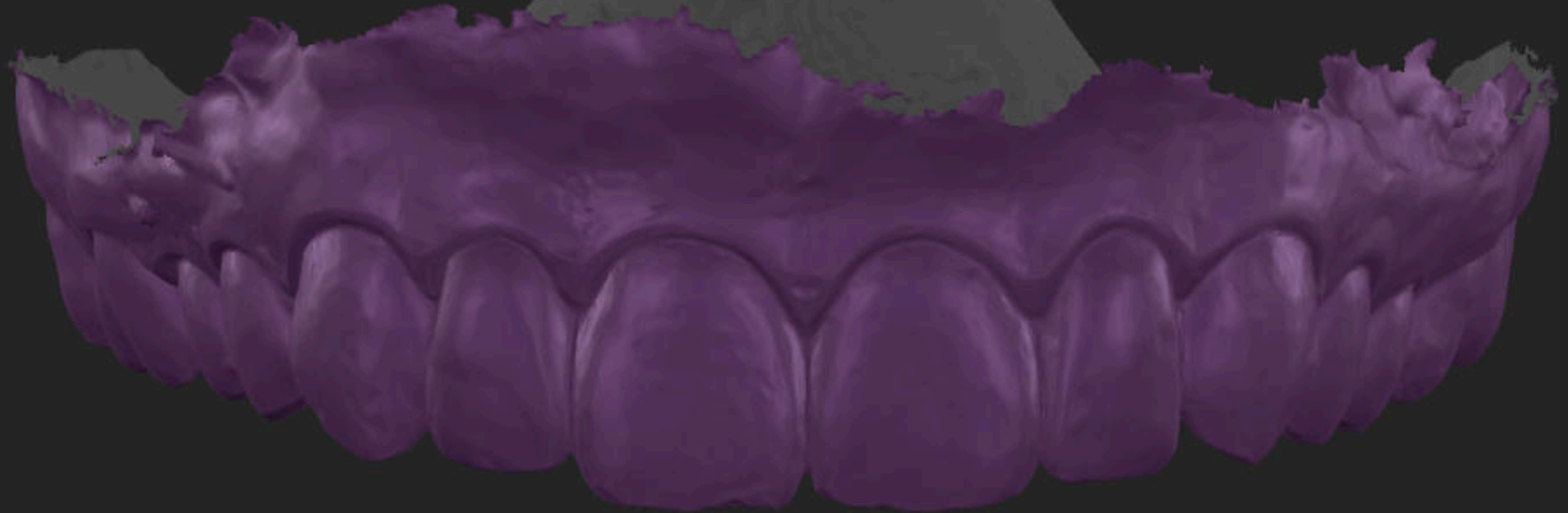


Fig. 66

Measurements between the 1 month after and the initial scan

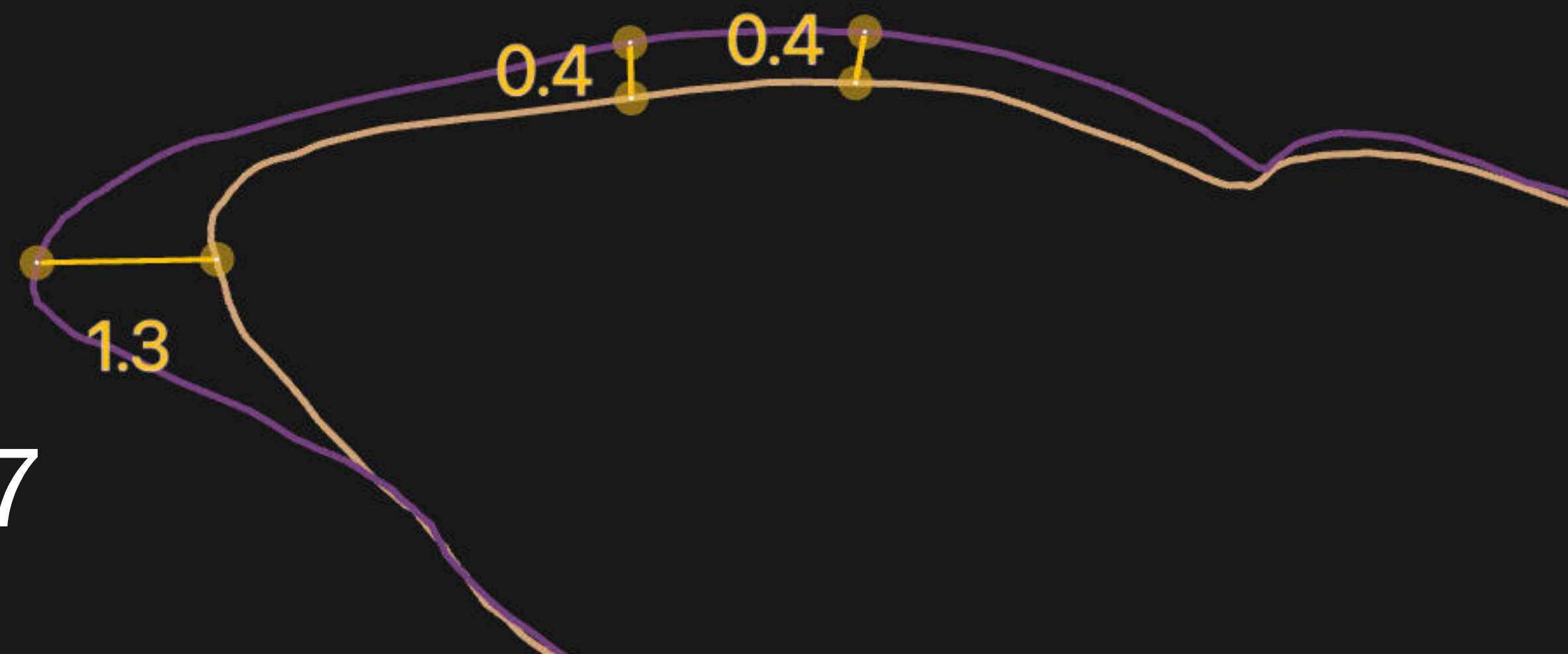
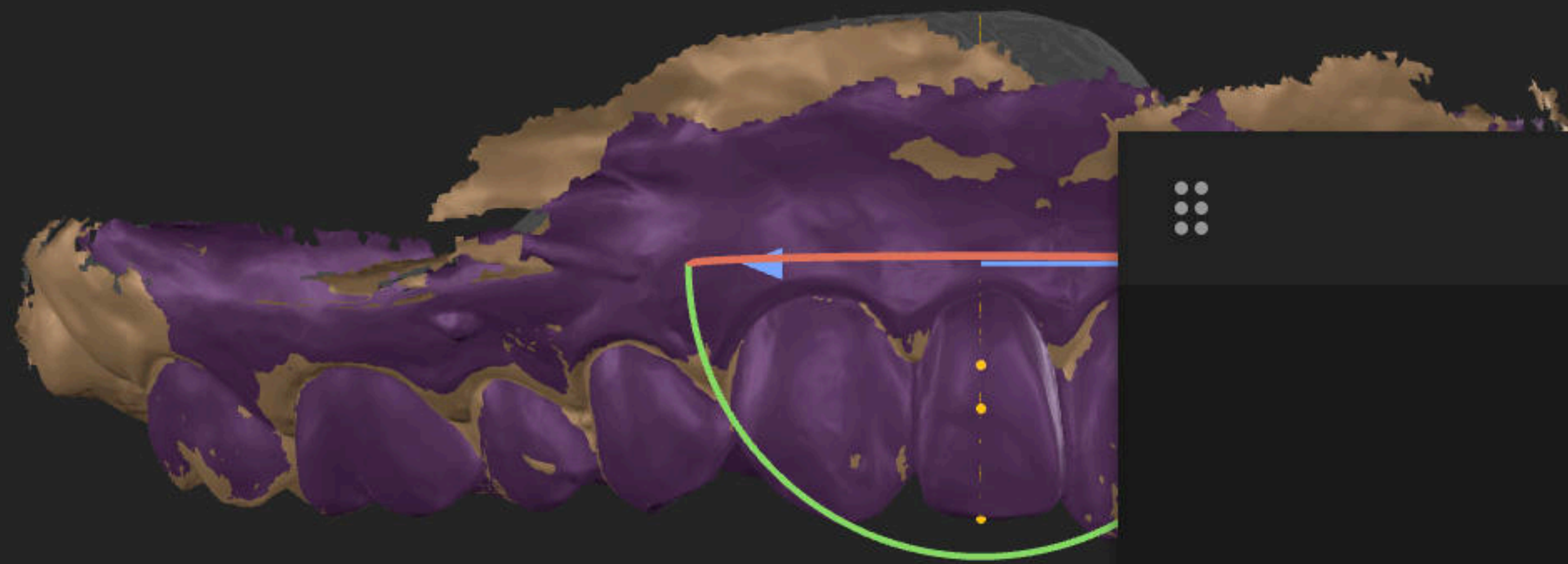


Fig. 67

Measurements between the 1 month after and the initial scan

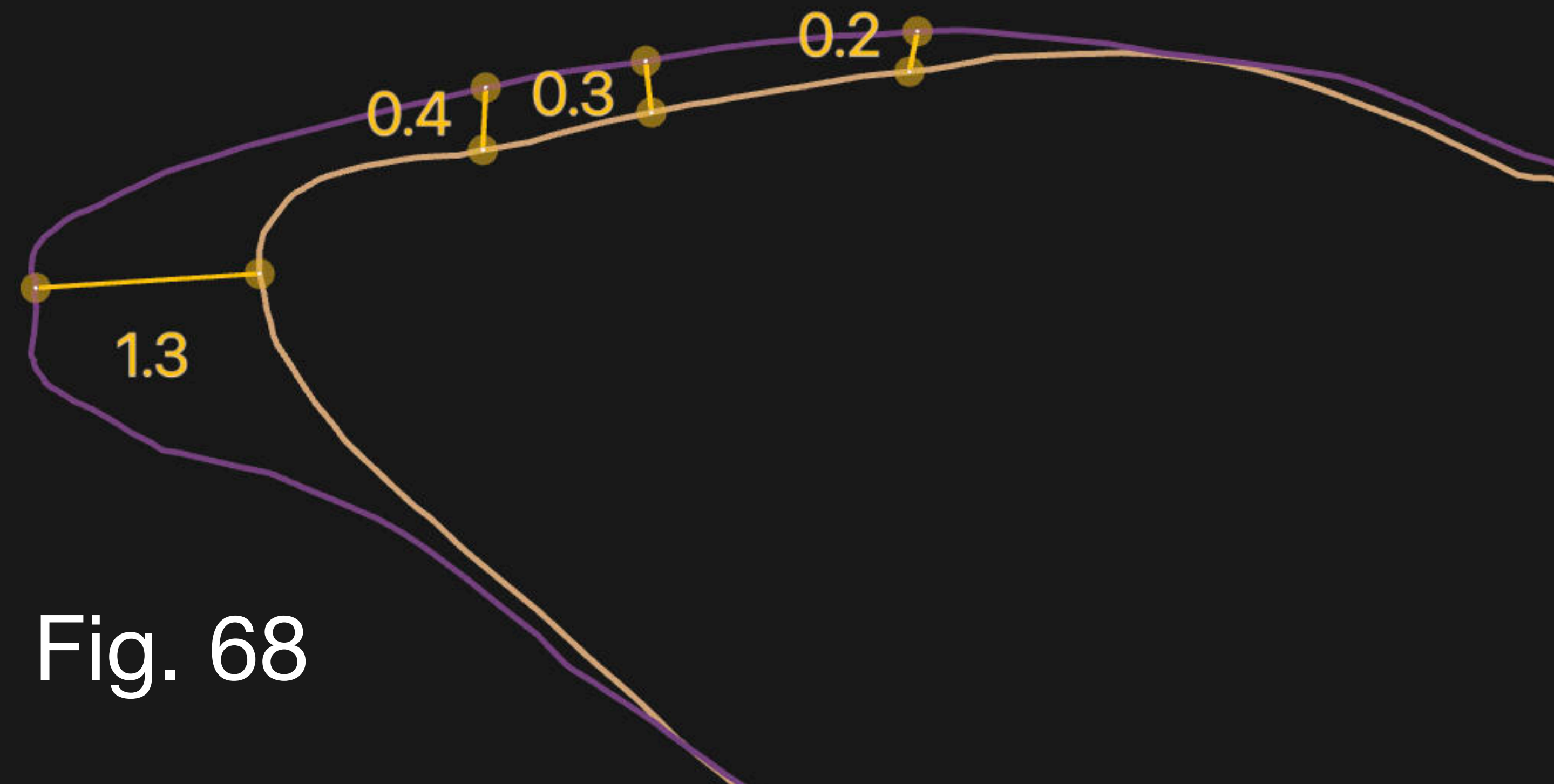
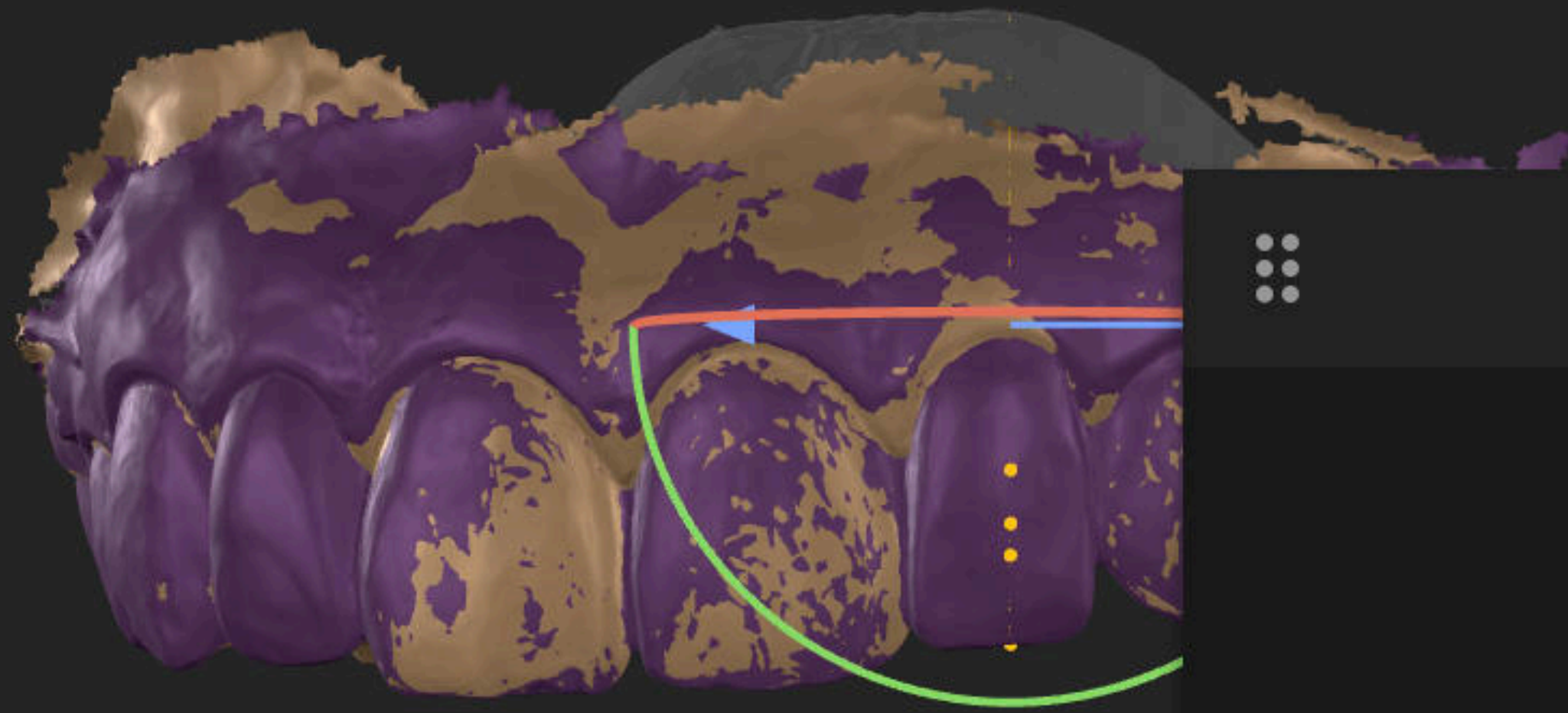


Fig. 68

Measurements between the 1 month after and wax up

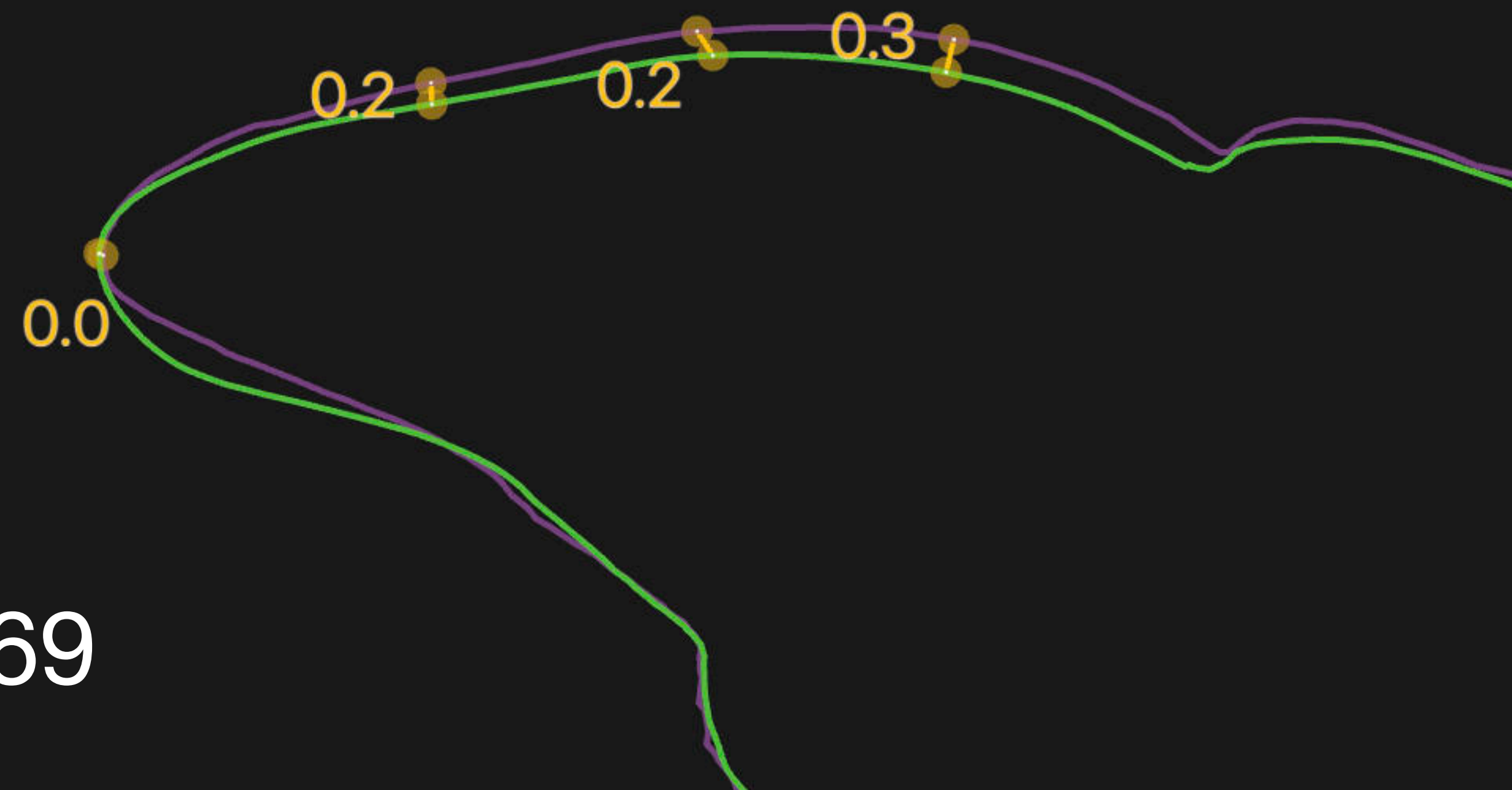
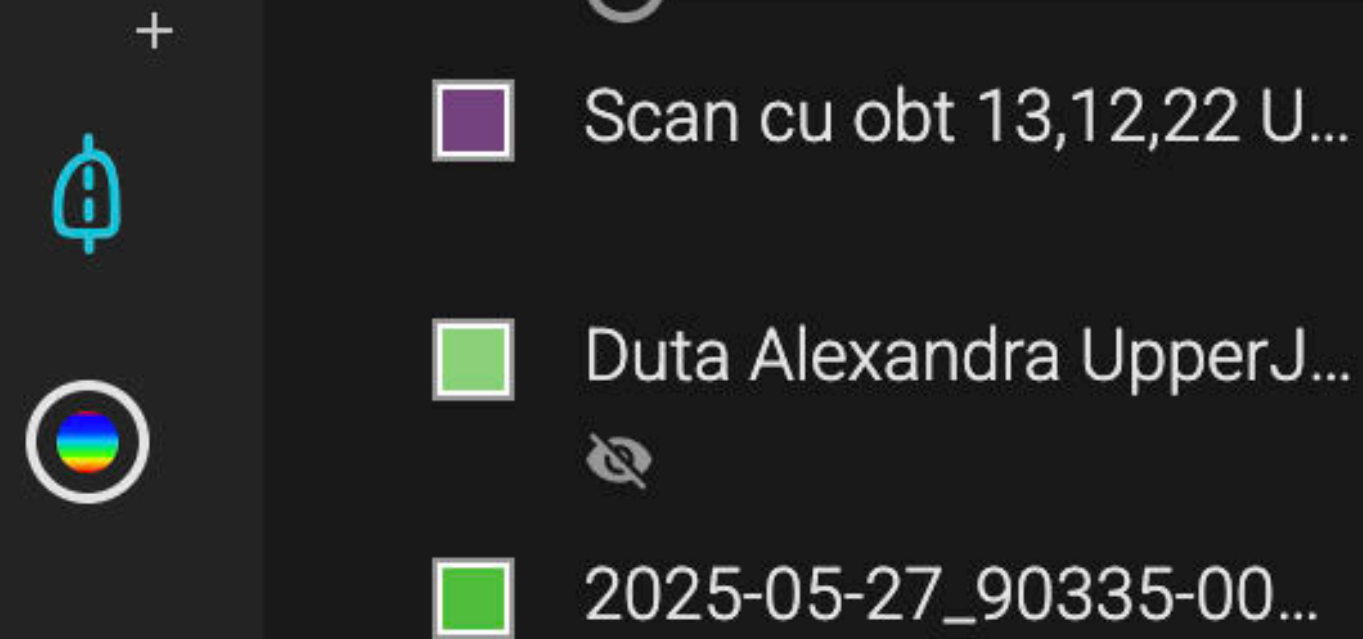
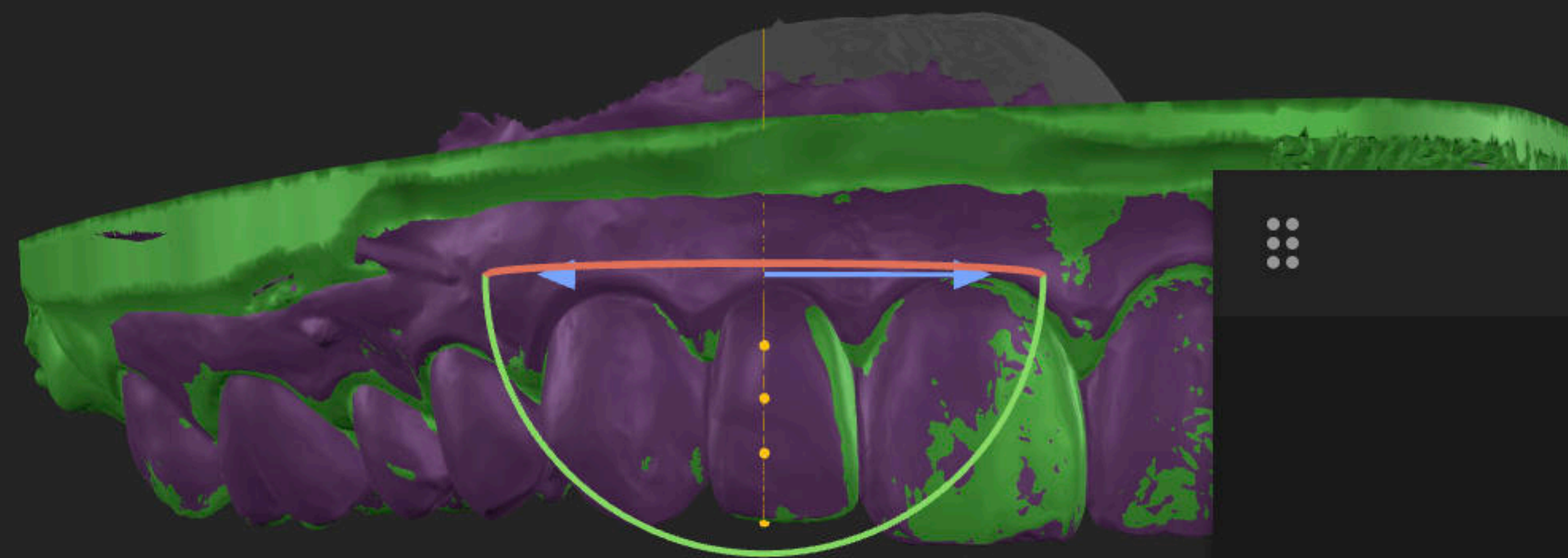


Fig. 69

Measurements between the 1 month after and wax up

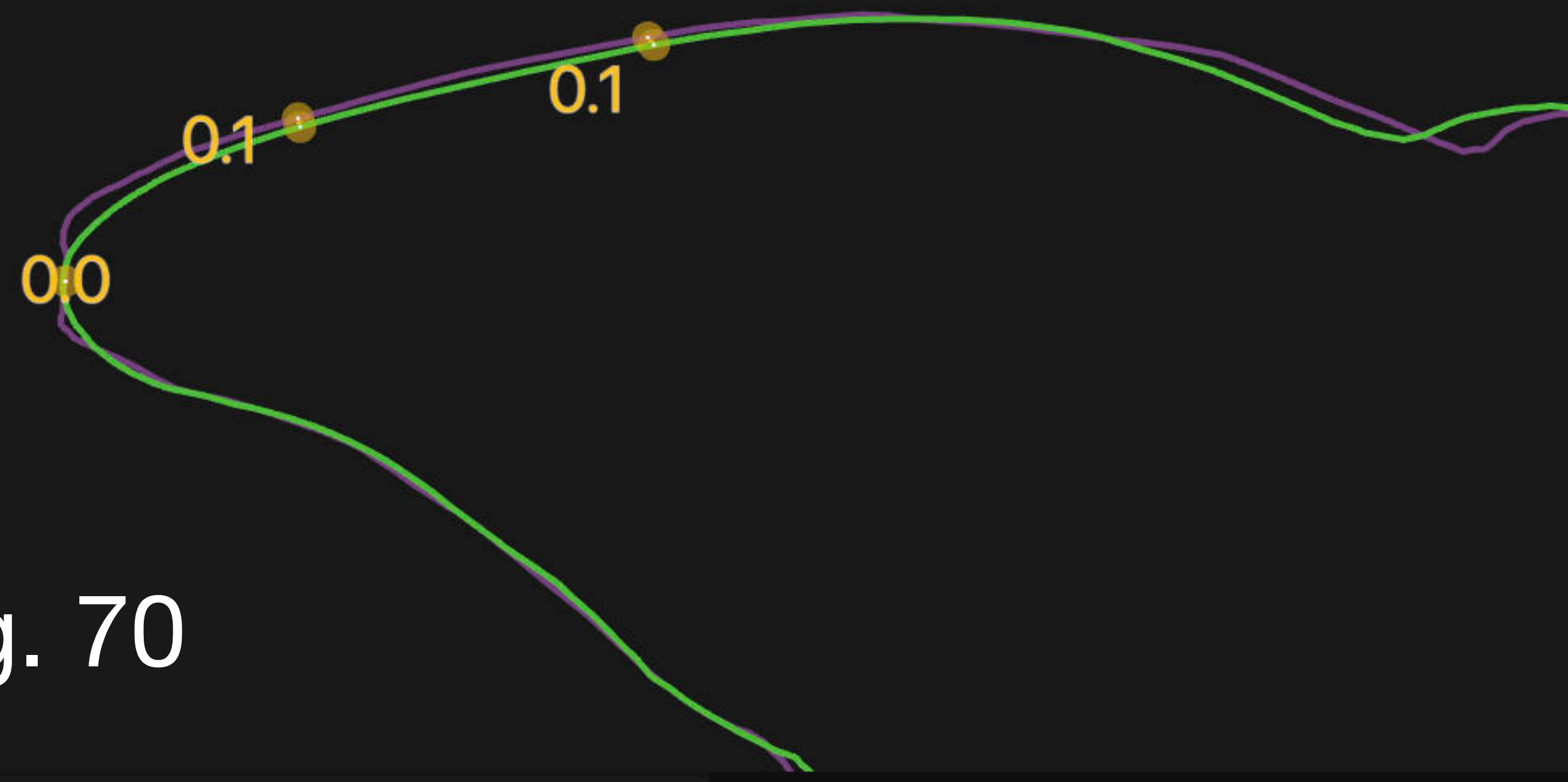
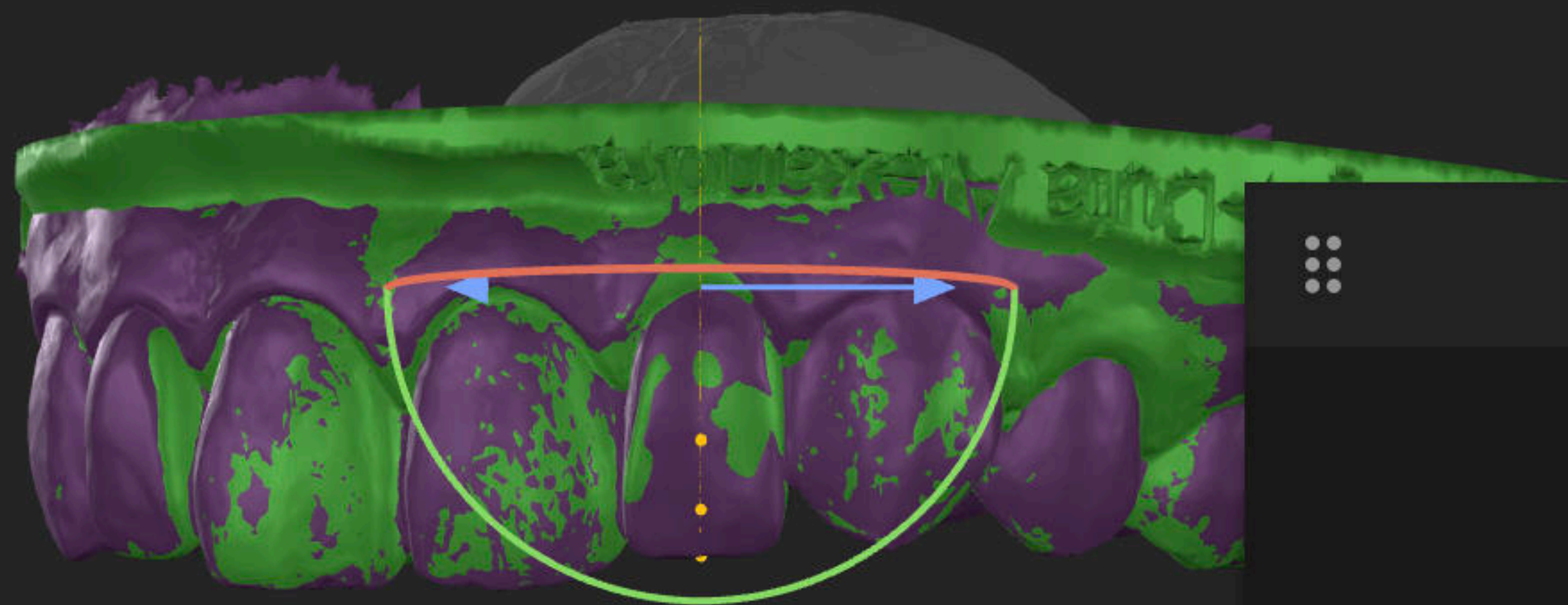


Fig. 70

Initial Smile



Fig. 71

6 Months post interventions



Fig. 72

Fig. 73



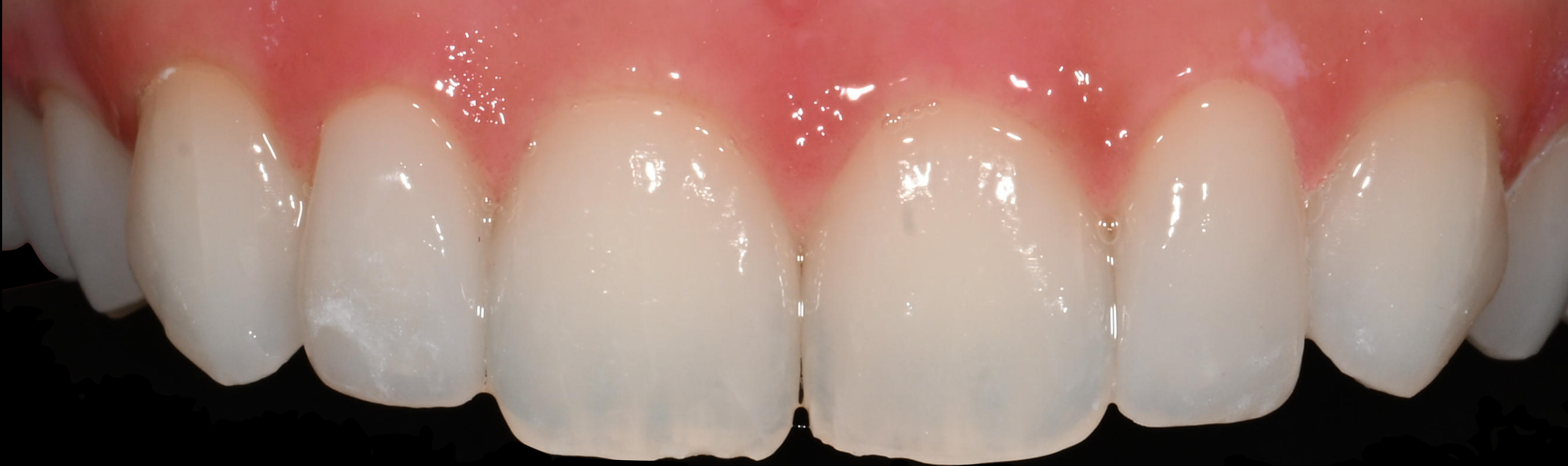


Fig. 74