From urgent care to comprehensive oral rehabilitation

Interdisciplinary management of a patient with dental anxiety

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After undergoing numerous restorative and surgical dental procedures, many treatment-weary patients seek professional care only when an acute problem arises. They often present to a new dental practice with a clear request for a rapid, minimally invasive solution. However, clinical assessment frequently reveals conditions that require comprehensive and time-consuming treatment to protect both oral and systemic health.

Establishing trust is essential in these cases. Patients should be helped to understand that their condition may be influenced not only by genetic predisposition but also by behavioural and other factors that modulate inflammatory processes.[1] Empathetic, open discussion is required to identify these underlying causes and encourage patients to make voluntary behavioural changes that will benefit their overall health.

In the following case, the successful resolution of the patient's immediate problem, together with smoking cessation[2], motivated her to undertake an extensive course of treatment aimed at improving both her oral and general health.

Dental anxiety and a lack of trust are common reasons for repeatedly changing clinicians.[3] Consequently, patients may fail to attend routine examinations and oral hygiene appointments, allowing dental problems to progress without timely intervention. When treating anxious patients, it is essential to devote sufficient time to discussing their concerns, exploring the causes of their anxiety, building trust, and encouraging a change in attitude and behaviour.

In addition to providing cause-related dental care—including restorative treatment and the necessary oral hygiene measures—the clinician should carry out a functional assessment to identify any temporomandibular joint or skeletal disorders.[4,5] These issues should be addressed as an integral part of the consultation and discussed openly with the patient.

Clinical and radiographic assessment

In spring 2021, a female patient presented with inflammation and aesthetic concerns involving an implant at site 11 and the adjacent tooth #12. Given her extensive history of dental treatment, she was seeking a rapid solution to the immediate problem. Clinical examination revealed an exposed implant collar that could not be adequately cleaned, together with a visible crown–abutment interface. Radiographic assessment showed severe peri-implant bone loss associated with pronounced palatal angulation and malpositioning of the implant. Periodontal inflammation was also evident around the lateral incisor, which had previously been restored elsewhere with a post-and-core reconstruction (Figs. 1–3).

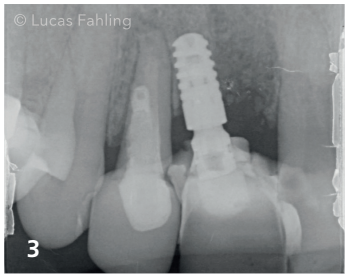
Further clinical examination revealed a veneer on tooth #21, an implant-supported crown at site 24, an implant-supported bridge in the lower right quadrant spanning sites 44–46, and a combined tooth- and implant-supported bridge spanning sites 35–37. The natural teeth exhibited marked wear, suggesting functional disturbance and possible temporomandibular joint involvement.[6] Oral hygiene also required improvement, particularly in areas that were difficult to access. Neither the anterior implant nor the post-restored maxillary lateral incisor was considered salvageable.

The findings and proposed treatment were discussed with the patient. The recommended approach included extraction of tooth #12, removal of the implant at site 11 and the veneer on tooth #21, followed by a staged protocol comprising alveolar ridge reconstruction, a therapeutic provisional restoration, and delayed implant placement. Although the patient wished to receive another implant-supported restoration, she declined immediate bone augmentation and would not accept a removable interim prosthesis.

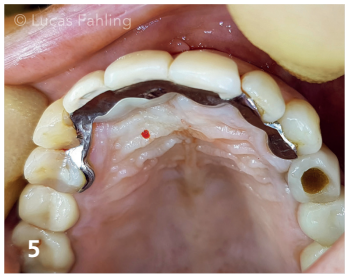
Following impressions, facebow transfer, bite registration, and analysis of the occlusal relationship,[7] a metal-reinforced resin-bonded provisional bridge was fabricated in the laboratory before surgery. The restoration incorporated rests on teeth #14, #13, #22, and #23; pontics replacing teeth #12 and #11; and a long-term provisional crown on tooth #21. It was placed immediately after removal of the implant at site 11, extraction of tooth #12,











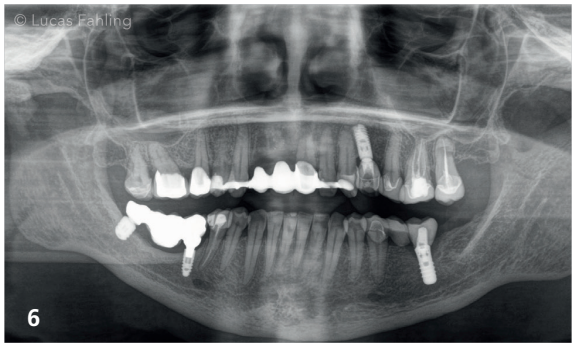
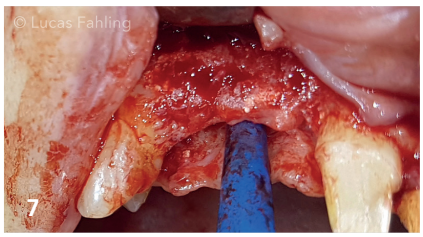


Fig. 1: Initial presentation with inflammatory and aesthetic concerns. – **Fig. 2:** Failing implant and crown restorations. – **Fig. 3:** Radiograph at initial presentation showing a non-salvageable implant at site 11 and periodontal inflammation associated with tooth 12. – **Figs. 4+5:** Modified metal-reinforced resin-bonded bridge, with rests on teeth #13, #14, #22, and #23, pontics replacing teeth #12 and #11, and a long-term provisional crown on tooth #21. The restoration was placed following explantation at site 11, extraction of tooth #12, and removal of the veneer from tooth #21. – **Fig. 6:** Radiographic evaluation following extraction of tooth #12 and removal of the implant at site 11, with the long-term provisional restoration in place.

curettage of the resulting defects, and preparation of tooth #21 (Figs. 4–6). To establish optimal conditions for tissue healing, the patient was strongly encouraged to stop smoking.[2]

In October 2021, after the patient had remained smoke-free for several months, the combined tooth- and implant-supported bridge in the lower left quadrant fractured. The pontic was initially removed, and tooth #35 was provisionally restored. The implant-supported restoration at site 37 remained intact, while the space at site 36 was left unrestored.

Implant placement in the anterior maxilla was subsequently planned using CBCT data. The advanced horizontal and vertical bone defect was to be reconstructed using the shell technique, followed approximately six months later by the placement of two implants at sites 12 and 11.[8] A connective tissue graft was also planned at the time of implant uncovering to increase peri-implant soft-tissue thickness. At this stage, the prosthetic treatment plan was limited to the region spanning sites 12–21, a crown on tooth #35, and an implant-supported restoration at site 36.



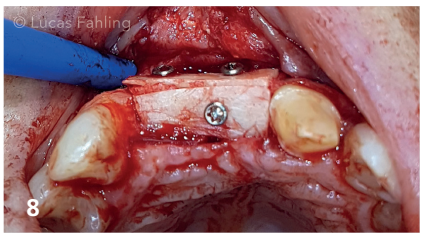






Fig. 7: Surgical exposure of the vertical and horizontal alveolar ridge defect prior to augmentation. – **Fig. 8:** Fixation of the prepared bone plates. – **Fig. 9:** Radiographic evaluation following alveolar ridge augmentation. – **Fig. 10:** Uneventful healing and improved aesthetics at suture removal two weeks postoperatively.

Bone augmentation

In November 2021, alveolar ridge reconstruction was performed to address the horizontal and vertical bone loss resulting from physiological remodelling after extraction and implant removal. Reconstruction was necessary both to create a sufficiently wide bony foundation for implant placement and to establish stable hard- and soft-tissue conditions for a predictable long-term aesthetic outcome in the anterior maxilla. Given the extent of the original defect and the anticipated remodelling of the graft, additional augmentation at the time of implant placement could not be ruled out.

Two cortical bone plates were harvested from the left mandibular retromolar region, adapted to the defect, and rigidly secured with osteosynthesis screws.[9–11] After smoothing any sharp bony edges, the defect was filled with autogenous bone chips and covered with a collagen membrane.[12] The soft tissues were then mobilised to achieve tension-free primary closure.

The metal-reinforced provisional restoration was cleaned, and the pontics were adjusted to avoid pressure on the augmented site during healing (Figs. 7–10). Two weeks after augmentation, healing was uneventful, with no signs of inflammation and a visible improvement in aesthetics, allowing the sutures to be removed.

Implant placement

Six months later, in June 2022, implant placement was performed in the anterior maxilla. Upon elevation of a mucoperiosteal flap, the vertical cortical bone plate was found to be incompletely osseointegrated and was therefore removed in its entirety. The underlying augmented bone was well vascularised and fully integrated (Fig. 11).

Given the potential for subsequent bone resorption, two CAMLOG® SCREW-LINE Promote Plus implants (3.8 mm in diameter and 11 mm in length) were placed subcrestally at sites 12 and 11 despite the residual vertical bone deficiency

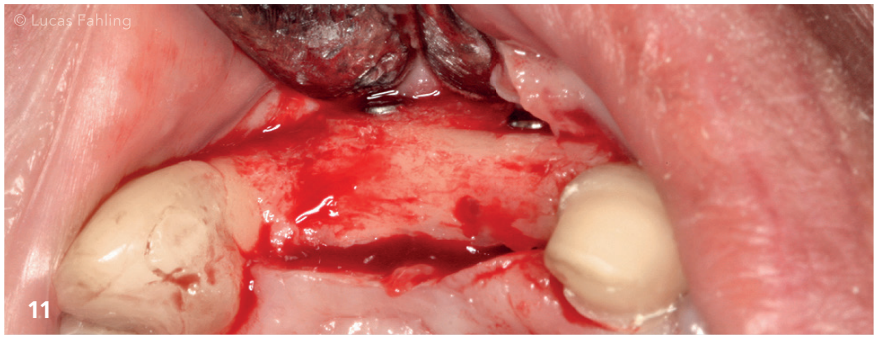


Fig. 11: Decision to remove the vertical bone plate because it had not fully osseointegrated.

(Figs. 12+13).[13] Autogenous bone chips collected during osteotomy preparation were grafted around the implants. The soft tissues were closed with microsurgical sutures, and the provisional restoration was adjusted to the new clinical situation and reinserted.

In July 2022, an additional implant was placed at bone level at site 36.

Management of the temporomandibular dysfunction

Following uneventful osseointegration, the three implants were uncovered in November 2022. A connective tissue graft harvested from the palatal sites 13–15 was placed in a prepared pouch and secured with sutures to increase peri-implant soft-tissue thickness and help preserve the underlying bone over the long term (Figs. 14+15).

At this appointment, the patient reported increasingly frequent pain in the masticatory and cervical muscles and revisited the possibility of increasing the vertical dimension of occlusion, which had been discussed at the initial consultation.[5] It was explained that correcting the reduced vertical dimension to improve masticatory function would require a prolonged course of treatment but could also have wider benefits for her musculoskeletal well-being. She was also advised that, following occlusal splint therapy, definitive correction of the occlusion would require comprehensive full-mouth rehabilitation.

Functional assessment revealed pronounced bilateral muscle tension, mandibular deviation to the left on opening, a lack of occlusal contact in the left posterior region, and a dental midline discrepancy equivalent to approximately three-quarters of the width of a mandibular incisor. In habitual intercuspation, the chin deviated to the right, and the resulting asymmetry contributed to an unbalanced facial appearance. Clicking was also noted in the right temporomandibular joint during mouth opening. The panoramic radiograph showed morphological changes in the right condyle compared with the left.

The proposed treatment plan comprised:

- an implant-supported long-term provisional restoration;
- physiotherapy to relieve muscular tension;
- occlusal splint therapy to guide the mandible to the left and establish a centric condylar position;
- subsequent restoration of the vertical dimension through comprehensive full-mouth rehabilitation.

The patient accepted the proposed treatment plan. Before the fabrication of the occlusal splint, her natural head position was determined using Udo Plaster's PlaneFinder® system.[14,15] An Aqualizer® was used to deprogramme the masticatory muscles and assist in resolving the temporomandibular dysfunction. The vertical dimension was assessed by phonetic testing. Pronunciation of the vowels i and e revealed an excessive interocclusal distance, indicating a reduced vertical dimension. This finding was supported by the absence of maxillary incisor display with the face at rest.

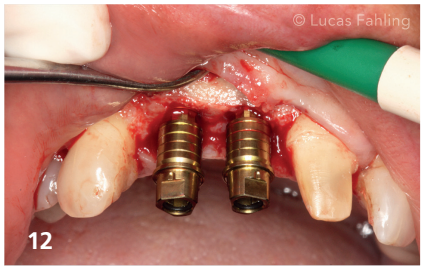
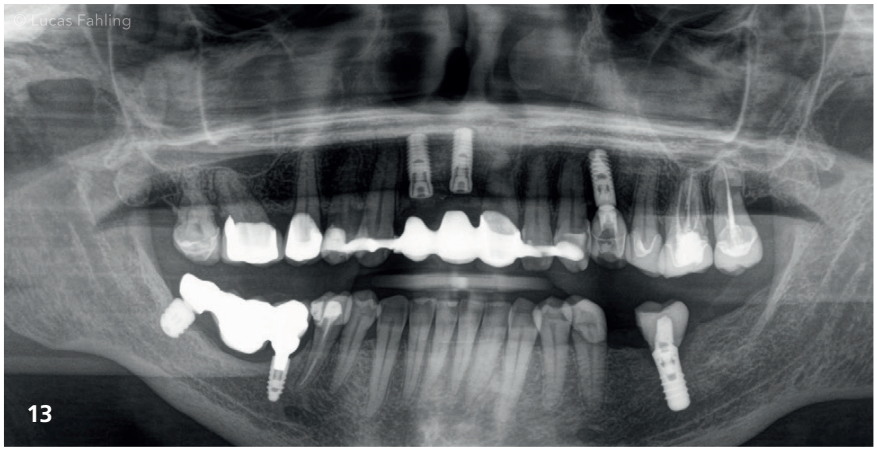


Fig. 12: Subcrestal placement of CAMLOG® SCREW-LINE Promote Plus implants. – **Fig. 13:** Submerged implant healing with pressure-free soft-tissue contouring.



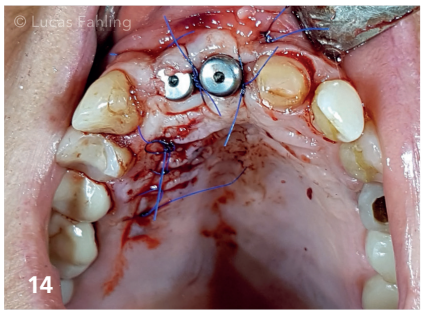
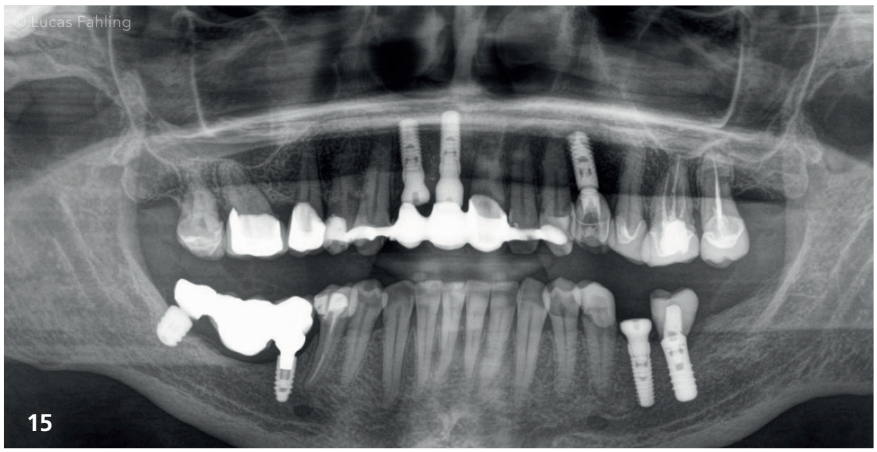


Fig. 14: Implant uncovering and placement of a connective tissue graft to increase soft-tissue thickness. – **Fig. 15:** Modified long-term provisional restoration positioned over the healing abutments.



In December 2022, 18 months after the initial presentation, the implant-supported long-term provisional restoration and occlusal splint were delivered (Figs. 16+17). As the vertical bone plate had been removed at the time of implant placement, the gingival contour was initially asymmetrical. It was planned to compensate for this in the definitive restoration through crown lengthening and the use of pink ceramic.

After several physiotherapy sessions and repeated occlusal adjustments to the splint, the patient returned for further treatment in March 2023. She was very satisfied with the outcome of splint therapy: muscular tension had resolved, joint sounds were no longer present, and extra-oral examination showed a symmetrical facial appearance without the previously retrusive chin profile. She was also proud to have remained smoke-free.

The newly established occlusal relationship was stabilised for a further three months. During this retention phase, the proposed full-mouth rehabilitation was discussed in detail. In July 2023, the facial reference lines were reassessed and impressions were taken for an aesthetic mock-up. The maxillomandibular relationship was recorded with the occlusal splint in place to transfer the corrected vertical dimension and occlusal plane accurately.

In the laboratory, the casts were mounted in an articulator and a functional diagnostic wax-up was completed. The waxed-up casts were then duplicated, and thermoformed matrices were fabricated for production of the provisional mock-up following tooth preparation (Fig. 18).

Definitive rehabilitation

The teeth were prepared using a minimally invasive approach, with partial crowns and veneers used wherever possible to preserve tooth structure (Figs. 19a+b). Full-arch impressions of both jaws, including the natural teeth and implants, were taken to

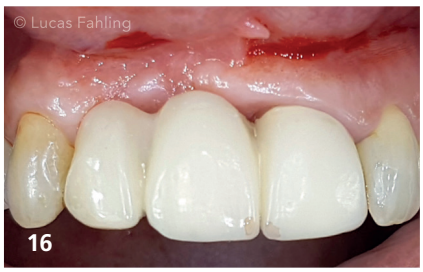




Fig. 16: Implant-supported long-term provisional restoration with a pontic at site 12 and a crown on tooth #21. – **Fig. 17:** Occlusal splint therapy for craniomandibular dysfunction.



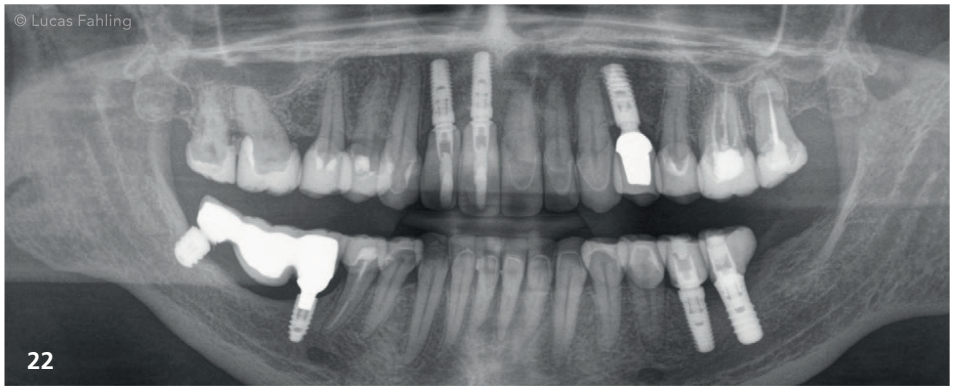












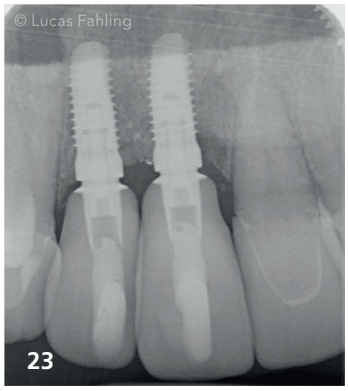


Fig. 18: Aesthetic makeover following completion of craniomandibular therapy and a three-month retention phase. – **Figs. 19a+b:** Final minimally invasive tooth preparations: all-ceramic crowns in the maxilla and predominantly partial crowns and veneers in the mandible. – **Figs. 20a+b:** Definitive all-ceramic rehabilitation consisting predominantly of single crowns, veneers, and partial crowns, with an implant-supported bridge in the lower right quadrant. – **Fig. 21:** The soft-tissue deficit at site 12 was aesthetically masked with pink ceramic. – **Fig. 22:** Completed full-mouth rehabilitation of the maxilla and mandible. – **Fig. 23:** Twelve-month follow-up after delivery of the definitive restorations, showing stable bone levels following remodelling and healthy, inflammation-free tissues.

produce the master casts. Based on the updated facial measurements, the casts were cross-mounted in an articulator, and the definitive all-ceramic restorations were fabricated.[16] Surgical crown lengthening, combined with pink ceramic at the implant-supported crown at site 12, helped create a harmonious gingival contour (Figs. 20–22).

At the one-year follow-up, the patient was delighted with the outcome. Her neuromuscular tension had resolved, the condyles were positioned symmetrically, and a stable, well-balanced occlusion had been established. The residual vertical bone defect resulting from removal of the cortical bone plate remained stable and free of inflammation (Fig. 23).

Conclusion

Empathetic, patient-centred communication can help patients overcome dental anxiety and reluctance to undergo treatment. It can also motivate them to adopt beneficial lifestyle changes—in this case, smoking cessation. Management of the patient's temporomandibular dysfunction alleviated her pain and muscular tension, improved her quality of life, and provided a stable foundation for an aesthetic and functional full-mouth rehabilitation.

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References



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