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Rejuvenating the smile.

By Dr Giancarlo Pongione, Italy

A smile can sometimes reveal more than is desired. The condition of the teeth and gums can make someone look older than he or she really is. This can affect the appearance, confidence, and even the general well-being of a person. In this case report, it is shown how aesthetic dentistry can mean a real difference in someone's appearance.

A 31-year-old woman consulted the clinic because she was dissatisfied with her smile. She had a passively erupted tooth 21 with an old crown that caused discoloration of the marginal gingiva (Fig. 1). The tooth had previously undergone an endodontical treatment that was inadequate. On tooth 11, there was a gingival recession and the 22 had a small fracture of the incisal edge. The gingival line was asymmetrically which was apparent when the patient was smiling.

After conversation with the patient and gauging her expectations, the treatment options were discussed, leading to the following treatment plan:

- Pinhole Surgical Technique (PST)¹ on tooth 11 (by Dr Stefano Tammaro)
- Endodontic retreatment and post on tooth 21
- Flapless surgery with diode laser and Biologically oriented preparation technique (BOPT)^{2,3} on tooth 21 (Fig. 2)



Fig. 1: Preoperative situation. The irregular gingival line is perceived as disruptive during normal smile and forced smile.



Fig. 2: Biologically oriented crown preparation of tooth 21. The previously existing crown margin was eliminated and the final finish line was moved apically, to balance the gingival smile line.

- After temporisation, placement of a microlayered zirconia crown (by MDT Roberto Della Neve) on tooth 21 (Fig. 3), cemented with G-CEM ONE (Figs. 4-7).



Fig. 3: Microlayered zirconia crown (MDT Roberto Della Neve)



Fig. 4: Priming the zirconia crown with the MDP-containing G-Multi PRIMER (GC)



Fig. 5: Adhesive Enhancing Primer on the tooth preparation



Fig. 6: Cementing the crown with G-CEM ONE universal adhesive resin cement



Fig. 7: Seating of the crown

- Direct composite restoration on tooth 22 (G-ænial A'CHORD, GC) (Figs. 8-12)



Fig. 8: Isolation of tooth 22 prior to restoration



Fig. 9: Enamel etching with phosphoric acid improves micromechanical retention and minimises marginal discoloration on the long term.



Fig. 10: A silicone index was used to create the palatal shell (G-ænial A'CHORD, GC) in shade JE – Junior Enamel. Thereafter, the core of the tooth was built in shade A2 and AO2 (Opaque), to finish again with a thin layer of JE.



Fig. 11: Final polymerization underneath a layer of glycerin gel to prevent oxygen inhibition of the surface layer, which facilitates the finishing process.

It has been scientifically proven that smiling improves your physical and emotional health. However, most people only feel comfortable smiling if they are at least generally satisfied with the appearance of their smile. In this case, the irregular gingival smile line was corrected with a PST and BOPT on the central teeth. Both are minimally invasive procedures that do not require flap preparations. This could reduce post-operative symptoms such as pain, swelling and bleeding to a minimum.

The crown was cemented with a universal self-adhesive resin cement (G-CEM ONE, GC). Prior to cementation, the crown was sandblasted with Al_2O_3 (<50 μm) at mild pressure no more than 0.25 MPa⁴. The retention and resistance form of the crown preparation was sufficient to use G-CEM ONE without pre-treatment of the tooth. However, the Adhesive Enhancing Primer can optionally be used to accelerate the setting of the cement in absence of light-curing and to insure a high immediate bond strength, as was done in this case.

Tooth 22 was slightly lengthened to improve the symmetry of the smile. Again, this was done in a minimally invasive way, using a universal composite (G-ænial A'CHORD). No preparation other than etching and surface roughening were necessary. In aesthetic dentistry, one must pay close attention to every detail before work is even begun. In this case, correcting the smile line and changing merely two teeth had a profound effect on the aesthetic appearance (Figs. 13-15). This effect was immediately translated in a genuinely happy smile!



Fig. 12: After finishing and polishing



Fig. 13: End result; changing the appearance of just two teeth can have a tremendous effect on the aesthetic perception of the smile.



Fig. 14: Before (left) and after (right) treatment. Minimally invasive with a maximal effect.



Fig. 15: Six months after the treatment.

References

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