Modern adhesive dentistry has provided clinicians with simpler reconstructive procedures by opening new scenarios that were once unthinkable, thanks to adhesive techniques. To this end we nowadays have the possibility to make partial restorations, both with feldspathic and glass ceramic on anterior teeth, with nearly no preparation, by performing minimal intervention on enamel that is, in any case, preserved with its integrity, enabling us to get the best possible adhesion. The approach presented hereafter is a modern approach to partial anterior restorative procedures and a useful workflow to follow in all of the cases that wonâ€™t allow occlusal checks, if not after cementation.

The patient has undergone treatment at our office since 2009, year in which restorations on teeth 1.5 1.6 1.7 2.4 2.5 2.6 2.7 3.6 3.7 4.5 4.6 4.7 had been made because of the presence of primary carious proximal and occlusal lesions, and root canal treatment was carried out on tooth 2.6 because of penetrating caries. She reports trauma on anterior teeth during her childhood: in fact, fracture signs are present on the enamel of tooth 1.2, without symptoms. Early wear signs are also visible on the enamel of teeth 2.1 3.1 3.2 4.1 4.2 as a consequence to malocclusion with a deep bite.

In March 2011, under my advice, once the restorative treatments had been finished, the patient accepts to undergo an orthodontic treatment to correct II class II division malocclusion with a deep bite and right-sided open bite. She was therefore referred to my Orthodontist who carried out the malocclusion correction and teeth alignment.

In December 2013, after two-years buccal, fixed ortho treatment, the patient is sent back to my attention from the Orthodontist, who has ideally finalized the treatment: under the skeletal situation and the available space, some diastemas were still around 1.2 and 2.2, both mesially and distally. Orthodontic treatment had produce and increase in the overjet and a reduction of the overbite while solving the deep bite former status. Overbite was caused also by wear of incisal margins of 2.1 3.1 3.2 4.1 4.2, and, as a result, was particularly insufficient by the end of the orthodontic treatment, and a poor anterior protrusion guide resulted as well.

I thus was asked by the orthodontist for an intervention to increase the overbite and to restore the anterior guide in protrusion, to achieve an improvement in posterior disclusion and closing of the residual, post-orthodontic diastemas. The patient also asked for the best esthetic solution both in the short and in the long term.
Fig. 1 – Patient close-up before orthodontic treatment.
Fig. 2 – Initial situation before orthodontic treatment, frontal view.
Fig. 3  Img. 3 – Face close-up during orthodontic treatment.

Fig. 4  Img. 4 – Frontal view during orthodontic treatment.
Fig. 5 – Initial situation, after orthodontic treatment. Frontal view, maximum intercuspatation and open mouth.
Fig. 6 – Initial situation after orthodontic treatment, frontal view in maximum intercuspation and open mouth.
Fig. 7 – Initial situation after orthodontic treatment, frontal view. Protruded position. Reduced anterior guidance during protrusion.
Fig. 8  Img. 8 – Close-up on the overbite and on the missing contacts between 3.1 3.2 4.1 and their antagonists.

Fig. 9  Img. 9 – Initial situation in upper and lower anterior sextant.

Fig. 10  Img. 10 – Initial situation, occlusal view of both arches after orthodontic treatment.
Fig. 11  Img. 11 – Initial situation after orthodontic treatment, lateral view.

Fig. 12  Img. 12 – Post-orthodontic detail of teeth 1.2 and 2.2.
Fig. 13 – Face bow is perfectly positioned, parallel to the horizon with the patient standing.

Fig. 14 – Details of the articulator used for wax-up.

Fig. 15 – Details of analysis wax-up of 1.2, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2.
Fig. 16 – Two transparent, rigid (Shore72 hardness) silicone indexes are made on the wax-up. After try-on, the indexes are filled with two flowable composites having same hue but different chroma. An A1 flowable is put on the incisal margins of the index and an A3 is put on the cervical part of the same index to get the mock-up to be an exact replica of the shades of the final restorations.

Fig. 17 – Mock-up is now printed onto the anteriors both on the upper and the lower arch, with no adhesive being used. Details of the mock-up on teeth 1.2, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2.
Fig. 18  Img. 18 – Occlusal check of the mock-up.

Fig. 19  Img. 19 – Impression was taken with the mock-up.
Fig. 20 – Mock-up is then removed and, after correction of the small irregularities on the incisal enamel on 1.2, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2 and of the small proximal undercuts of 1.2 and 2.2, with a thin, medium grained, diamond bur, but without preparing the tooth, precision polyether impressions are taken of these teeth.

Fig. 21 – Surface details, before impression.

Fig. 22 – Precision polyether impressions are taken to get refractory working cast mounted onto the articulator, crossed with the former casts, on which the additive feldspathic ceramic veneers of 1.2, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2 will be stratified and fired. Details of the polyether impressions.
Fig. 23 – Details of veneer stratification on refractory model and silicone guides obtained from impression of the functionalized mock-up to reproduce the occlusal situation and the guides created.

Fig. 24 – Details of the restorations after lab processing, refining and polishing.
Fig. 25 – Detail of thickness and high translucency level of feldspathic veneers.
Fig. 26 – Thickness reminds of that of a contact lens.
Fig. 27 – Anterior upper (img. 27) and lower (img. 28) sextants view during veneer fitting on 1.2, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2. Restorations are first fitted one by one to check marginal adaptation, precision and passivity. They are then fitted all together to check proximal contacts. The extreme translucency of this material is especially visible on the incisal margin of tooth 2.1 and compels usage of an opaque bonding cement to correctly hide the transition areas between natural enamel and ceramic.
Fig. 29 – Rubber dam isolation. Frontal view.
Conclusions

At the end of treatment and at following photographic one-year check-up restorations show a good integration both with soft and hard tissues.
On the esthetic side the patient has benefited from restoring of shapes and shades which was performed, as the patient herself asked, with the best materials and techniques for a satisfying result both in the short and in the long term. Her expectancies were therefore fulfilled.
On the functional side the orthodontist’s request of anterior protrusion guidance improvement was granted. Overbite was increased by lengthening of incisal margins of teeth 3.1, 3.2, 4.1, 4.2 which, after orthodontic treatment had no contact with the upper antagonists nor in maximum intercuspation neither during protrusion.
The use of feldspathic ceramic veneers — stratified and fired on a refractory material — enabled us to work, in this specific case, with a completely additive procedure, thanks to the possibility, offered by this material, to be used with much smaller thicknesses than lithium disilicate, in a totally conservative manner and in full respect of hard and soft tissues, together with maximum exploitation of micro-mechanical adhesive potential of the enamel, on which adhesion of the restorations lays 100%.
Six months regular check-ups of this work, together with the periodontal support treatment, in addition to post-orthodontic stabilization with removable retainers after having changed the teeth shapes will guarantee the long-term success that the
patient expected and the clinician aimed to.

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