Minimally invasive treatments restore form, function and aesthetics with minimal removal of sound tooth structure. Understandably, the restorations age with the patient. Eventually, teeth that have been restored will break down and patients will need to have those restorations replaced.

Fortunately, restorative materials and procedures evolve constantly. If an initial restoration was created using minimally invasive procedures, there should be more tooth structure to work with when a second restoration is needed. The following case report demonstrates such a conservative approach.

Following enamel preserving preparation using a tapered, round-ended fine diamond bur and sand-blasting, a celluloid strip was placed subgingivally and fixed using flowable composite. This helped to create the desired emergence profile and contact points. Next, a retraction cord was inserted into the labial part of the gingival sulcus (Fig 5).

After isolation of the operative field, the preparation was etched with 37 per cent phosphoric acid for 30 seconds, then thoroughly rinsed and dried. A fifth-generation bonding agent was then applied and light cured. A one- or two-step composite was used to build the restoration. A commercial measuring instrument was used to determine the thickness of the composite layer. The exposures were then polished with fine and medium finishing burs.

Case report

After orthodontic treatment, a 19-year-old female patient was dissatisfied with the unpleasant, disproportional appearance of her conoid maxillary lateral incisors. A direct composite technique was selected for smile enhancement at the initial appointment (Figs 1–4).
Dentine in a darker shade was placed onto the cervical third. Prior to light curing, the white strip was painted horizontally along the incisal edge of the enamel shelf using a white tint and smooth brush (Fig 9). Finally, an enamel resin layer was placed, contoured, smoothed with a brush and light cured (Fig 10).

The appropriate dentine-shade resin was then applied in order to create a lingual shelf (Fig 7). The next step entailed creating palatal and two lateral enamel walls that were completed using increments of enamel-shade resin. Creating a lingual shelf in this manner left room for the subsequent dentine layering (Fig 7).

Prior to light curing, the white strip was painted horizontally along the incisal edge of the enamel shelf using a white tint and smooth brush (Fig 9). Finally, an enamel resin layer was placed, contoured, smoothed with a brush and light cured (Fig 10).

After completion of composite applications and polymerisation, fine flame-tipped finishing diamond burs and Sof-Lex discs (3M ESPE) were used for gross contouring and creating texture. The final polish was achieved using rubber finishers, a brush, a felt wheel and a paste kit (Fig 11).

The same procedures were followed during reconstruction of the left lateral incisor (Figs 12&13). Figures 14 to 16 show the situation 30 days post-operatively. The lateral incisors show favourable integration of form and colour as achieved through the direct composite resin restoration procedure. Adequate contours and proportions create a smile with harmonious symmetry and a natural appearance.

Some cases present with conoid lateral incisors displaying a lack of gingival harmony, as were the cases with those patients (Figs 17&20). This usually manifests as the translocation of the gingival contour coronal to the zenith of the canine and the central incisor. Such a clinical situation requires gingival re-contouring before direct restoration.

In presented cases, the re-contouring procedure was carried out using a Soft Tissue Trimmer bur (Edenta). Modifications were limited by the patient’s biologic width. As observed at four-week follow-up visits, there was a very good gingival response to the polished restorations (Figs 19&21).

Conclusion

Conoid lateral incisors are not uncommon. They may be found unilaterally or bilaterally. Their poor appearance can spoil an otherwise attractive smile. The case presented describes a minimally invasive way of addressing this problem using direct composite bonding.

The step-by-step images illustrate how dentists can solve this cosmetic issue without using aggressive techniques and with the advantage of being in full control of shade matching and characterisation.

About the author

Dr Monika Marcinik graduated from the Medical University of Białystok in Poland in 1992, and runs a private practice with her husband. She has been publishing articles on direct composite restorations since 2007. She is a member of the European Society of Cosmetic Dentistry. Contact her at dentystamarciniak@dentonet.pl

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