

Treating the black triangle with direct composite

Srinivas R*, Tavane PN*, Rohra V**

* Dept. of Conservative & Endodontics, Rungta College of Dental Sciences & Research, Bhilai

** Consultant Endodontics, Bengaluru

ARTICLE INFO

Keywords :

Black triangle, Composite, Interdental papilla.

Corresponding Author :

Dr. Raju Srinivas
Reader,
Dept. of Conservative & Endodontics,
Rungta College of Dental Sciences and Research,
Kohka-Kurud Road, Bhilai, Chhattisgarh, India.
Email : drrajusrinivas@gmail.com

ABSTRACT

The "Black triangle" has long been considered unsightly & a sign of the aging dentition. Periodontists and general dentists explained that the resultant black triangle or more appropriate term open gingival embrasure was the desired outcome because the pocket was shallower. Until now, there were very few dedicated tools or techniques for restoratively driven papilla regeneration. The interdental papilla serves as both an aesthetic and functional asset and anatomically ideal interproximal composite shapes can serve as a predictable scaffold to regain this valuable gingival architecture.

Introduction

The "Black triangle" has long been considered unsightly & a sign of the aging dentition. In the dark ages of periodontal therapy, pocket reduction surgery was performed routinely that created black triangles. Periodontists and general dentists explained that the resultant black triangle or more appropriate term open gingival embrasure was the desired outcome because the pocket was shallower.

Black triangles are more than unaesthetic and do more damage than just prematurely age the smile; they also encourage food debris accumulation and excessive plaque.[1] In contrast to the 1980s dogma, we now understand that black triangles can adversely affect the periodontium.[2]

There are treatment options for this aesthetic and functional dilemma and this article features a case report that utilizes a new tool, the bioclear diastema closure matrix system & direct composite placement. Implications are substantial when we consider that black triangles are present in more than one third of adults.[3]

Case Report

A 40 year old female patient with chief complaint of black triangles (Figure 1). Comprehensive evaluation included tooth position, bruxism, oral hygiene habits and other possible contributory factors were addressed. Many treatment options with veneers and peri plastic surgery were considered but finally direct composite was decided to be used with "bio-clear matrix system."

After a rubber dam was placed disclosing solution was applied to aid in thorough de-plaquiring of teeth. Clinicians should not that phosphoric acid placed to etch the tooth will not remove plaque and is a leading cause of discoloration and microleakage of bonded restorations. Other than aggressive spraying of teeth with a mild abrasive (such as prophyl jet or bioclear prophyl plus), no mechanical preparation of the tooth is necessary. A new matrix design, bioclear matrix system that is specific for diastema closure, allows a smooth, cervical curvature facilitating direct composite architectures that are extremely conducive to papilla regeneration. This is due to inherent features. The first feature is the ability to go for a traditional wedge, and to use the papilla as a wedging force (use of a traditional wedge creates a flat cervical shape; flat cervical shapes lack the static pressure needed to regenerate papillae). The second feature is a completely appropriate anatomic shape with exaggerated palatal, interproximal and facial surfaces. This permits the clinician to simply remove the matrix after photopolymerization with little to no interproximal finishing.

When the finish is extremely smooth and there is a lack of a gingival ledge, tissue health can be ideal, even with a very round embrasure form. This modern view of cervical curvature is in sharp contrast to the outdated notion that prosthetic and restorative embrasures should be flat.

Total etch remains as the most robust method when bonding to large enamel areas, especially on uncut enamel. There is no need to stabilize the bioclear matrices as they are designed to be selfstabilizing.

After placing the bonding agent, an initial increment of flowable composite is carefully injected in both teeth to fill this



Figure 1. Free operative view of full mouth black triangles



Figure 2. View of initial increment of flowable composite placed

cervical area. A flowable composite (Figure 2), rather than a paste composite, is preferred for this first increment. A paste composite would be nearly impossible to place in this "claustrophobic" area without voids and without disturbing the matrices.

Paste composite is then injected into the reservoir of uncured flowable composite. This process is referred to as the "snow plow technique" and the "injection molding technique" (Figure 3).

The concept of injection molded composite dentistry can be compared to impression, in which the low viscosity light body material is syringed into sub-gingival areas, and then followed and partially displaced by a heavier, high viscosity impression material that has appropriate physical characteristics. In this technique, successively higher viscosity materials are applied in sequence, and the bonding resin and flowable composite act as wetting agents, which are subsequently displaced by the heavier paste composite material. The advantage of anatomically shaped matrices is obvious and a welcomed new tool. Once the matrix is removed, the smooth and extremely durable surface is visible. The new goal of dentistry is to do little or preferably no interproximal finishing because a "Mylar composite finish" has no oxygen inhibited layer.

Conclusion

Until now, there were very few dedicated tools or techniques for restoratively driven papilla regeneration. Previous attempts at both diastema closure and papilla regeneration using direct composites often ended with significant compromise in periodontal health. The interdental papilla serves as both an aesthetic and functional asset and anatomically ideal interproximal composite shapes can serve as a predictable scaffold to regain this valuable gingival architecture. This extremely rounded injection molded composite filling technique is new. Once again, technological advancements allow



Figure 3. View of post operative treatment

changes to perform techniques that were previously unthinkable. Slowly, the profession will change its thought patterns, retain its hands and minds, and allow this substantial clinical evolution in restorative dentistry.

References

1. Clark DJ. Restoratively driven papilla regeneration; a microscopic perspective. *Canadian Journal of rest dent* 2008;1:21-27.
2. Komura N, Kimura HM. Some factors associated with open embrasures following orthodontic treatment. *Aust Orthod J* 2003;19:19-24.
3. Kurth J, Kokich V. Open gingival embrasures after orthodontic treatment in adults : prevalence and etiology. *Am J orthod Dentofacial orthod* 2001;120:116-23.
4. Clark DJ. Correction of the black triangle : elimination of the dreaded black triangle. *Dentistry Today* 2009;3:48-51.

Source of Support: Nil. **Conflict of Interest:** None