

Flowable Composite: Add-On in Orthodontics **Chandni Bharti***

Abstract

Previously scoffed by many as runny composites with limited usage, flowables have slowly but gradually found its way into many orthodontic procedures. This article comprises of the wide array of use of flowable composite in orthodontics other than bonding brackets.

Keywords: Flowable composite; Resins; Archwire; Crossbite

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Introduction

The early 1990's marked the use of composite materials in dentistry. Flowable composite are low viscosity composite resins, created by retaining the same particle size of traditional hybrid composites, but reduced filler content and increasing resin content to reduce viscosity of resin.

Discussion

Advances in the material sciences have tried to improve the quality of bonding materials, dispensing systems and modes of curing, enhancing bond strength, handling characteristics and simplifying the procedure (**Table 1**).

The use of the flowable composite is limited in orthodontics mainly used for bonding brackets and lingual retainers (**Figures 1a-f**) [1,2].

With Tongue Spikes and Cribs

Thumb sucking and tongue thrusting are the most commonly seen parafunctional habits leading to development of dental malocclusion [3]. Tongue Cribs appliances being very effective are used in breaking tongue thrust habit act as a punishment/reminder appliance causing irritation to the tongue when it comes in contact, which makes it noncompliant, especially in small children. To prevent this unnecessary trauma, the tip surface of the crib is covered with flowable composite.

Reactivation of Coil Springs

Open coil springs are used commonly to create space for a buccally or lingually/palatally blocked out tooth. However, as space opens up the open coil spring loosens most of its activation, thus requiring reactivation. Various techniques have been developed to re-activate the open coil spring like adding a small section of closed coil spring across the archwire or by crimping C-Ring over the archwire [4,5]. One of the simple and cost effective

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techniques is to add light cure flowable composite onto the base archwire after retracting the inactive coil spring to one side with a wire tucker or with the finger. This method has advantage of modifying the direction of the force application i.e., the composite is placed on one side acts as a stopper restriction movement in one direction and tooth movement occurs in another [5].

Tie Cantilever Arches

Tie cantilever arches engaged onto the teeth with ligature ties, these ties tend to become loose over time causing mucosal laceration and ulceration. To prevent this, the ligature ties are tucked in and small amount of flowable composite if placed onto it.

Crossbite Correction

Anterior crossbite where there is abnormal labiolingual relationship between upper and lower teeth can be corrected by various methods like tongue blades, reversed stainless steel crowns, fixed acrylic planes removable plate with Z spring. Flowable composite can be used for creating bonded resin – composite slopes for its correction [6-10].

As Molar Stops

When orthodontic expansion is required in the upper arch, Mulligan, Bennet and Treveisi advocates the use of expanded heavy archwire or by use of Begg's molar stops fabricated anterior to the molar tube. This can be performed chairside by use of flowable composite, by making two composite beads anterior to



(a). Securing the tandem/piggy back wire.



(d). Stabilization of wire segments for simple tooth movements



(b). Tongue spurs to prevent irritation.



(e). Asymmetric intrusion arch: correction of cant.



(c). Securing irritating wire components.



(f). Fabrication of buttons/hooks for attachments.



Figure 1 Flowable composite: Add-on in orthodontics.

Table 1 Flowable composite properties.

Desirable Properties of Flowable Composite
Flowable consistency and modeling (thixotropic)
Low shrinkage
Radiopaque
Shades corresponding to composites; color adaptive qualities
Polishability and long-lasting shine
Color stability

the molar tube as per the amount of the expansion required.

Engagement of Wire into the Bracket Slot

In case when there is no ligature tie or elastic module for engaging the wire onto the bracket slot, flowable composite can be used. Flowable composite can be used also in tandem mechanics for holding thin, flexible wire, which has to be overlaid over heavy

stabilizing wire

Opening of the Space for Maligned Teeth

Begg's multiloop wire can be used onto the lingually or palatally placed tooth by engaging the loop onto the attachment of the tooth to be moved and stabilizing the other ends with composite on the adjacent teeth.

Performing Tooth Movement

Wire bonded on the tooth with a wire or periodontal splint material can be used to perform tooth movement like extrusion, etc.

Conclusion

Flowable composite currently in orthodontics have proven to be a versatile workhorse in various procedures claiming to have multiple uses in the near future in this field.

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