



Esthetic rehabilitation of maxillary and mandibular anterior teeth

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Abstract

Dental esthetics, also known as cosmetic dentistry, focuses on improving the appearance of teeth, gums, and overall smile. It combines artistry and dental science to enhance a patient's smile and thereby boost their self-confidence. Class III dental caries occur between the front teeth, making them visible when smiling or speaking, which can affect dental esthetics. Composite resins have become a cornerstone in contemporary dentistry due to their versatility, aesthetic appeal, minimally invasive and functional benefits. This case report illustrates the successful esthetic management of class III caries by using direct composite restoration in maxillary and mandibular anterior teeth.

Keywords: Class III dental caries, Direct composite restoration, Esthetics rehabilitation, Maxillary anteriors, Mandibular anteriors.

Introduction

The **psychosocial well-being** of an individual refers to the interrelationship between psychological and social factors that influence a person's mental, emotional, and social health and also dependent mainly on dento-facial appearance. There are various causes for discoloration of teeth which requires different treatment options based on the etiology [1,2] A beautiful smile plays a significant role in an individual's self-confidence, and dental restorations are key in enhancing that smile by improving both the aesthetics, mental health and functionality of teeth [1].

Compared to other tooth-coloured restorations, composite resins are widely recognized as excellent esthetic, minimal tooth preparation, adequate strength, longevity, economical tooth-coloured restorative materials in modern dentistry. Their ability to closely mimic the natural appearance of teeth, combined with their functional benefits, makes them the preferred choice for a variety of dental restorations, especially where aesthetics is a primary concern. A direct composite restoration involves applying composite resin directly to the tooth in a single appointment with minimal tooth preparation [2,3].

Case report

A 24-year-old male patient reported to the clinic with a chief complaint of decayed upper and lower front teeth region in the past two years with esthetic concern (Figure 1). History revealed that no pain and swelling in the affected region with no systemic illness. On clinical and radiographic examination, it was diagnosed as class III dental caries involving enamel and dentin i.r.t tooth 11,12,21,22,31,32,41,42,43. Patient was explained about conventional and contemporary treatment protocols. Patient agreed for direct composite restoration in single visit. Shade matching was done by vita classical shade guide template. A3 shade was selected (Filtek Z350, 3M ESPE). Isolation was done by using rubber dam

sheet. Cavity preparation was done by using round bur through and through as carious lesion was extended both the facial surface and palatal surface.

Bevelling of 45° to the enamel surface was done. Acid etching was done for 20 seconds by using 37% phosphoric acid. Tooth was washed, dried and reisolated to apply bonding agent. White frosty appearance of tooth was noticed. 3M single bond universal bonding agent was applied according to manufacturer's instructions. Tooth was restored using composite material (Filtek Z350, 3M ESPE) in increments from the palatal surface to labial surface. Labial surface was built up, and cured with the help of an LED light cure for 30 seconds. Finishing and polishing was done using yellow banded polishing bur (Figure 2).

Figure 1: Pre-operative photograph



Figure 2: Post-operative photograph



Discussion

Composite resins in contemporary restorative dentistry offer a blend of aesthetics, strength, and versatility, making them the material of choice for many restorative and cosmetic procedures. They represent a significant shift toward more conservative, minimally invasive treatments that prioritize both function and appearance. Advances in material science continue to expand their applications, making them an essential tool in modern dental practice [3].

Class III restorations are widely considered as the most resilient resin bonded restorations. This is credited to several factors like i) They can be restored in low stress-bearing areas ii) They provide a promising C-factor iii) Cavity preparation margins will be surrounded in the enamel. Incremental layering techniques using composite resins are widely used in day today practice [4].

One report gave a success rate of 90% with a mean follow up period of 30 months for direct resin composites placed at maxillary anterior teeth [2]. Direct composite restorations are popular due to their ability to blend with natural tooth color, their minimally invasive application, single-visit application, conservative, easily repairable and their durability

when properly cared for. Nano fill-based composites will provide the most esthetically pleasing restorations in the anterior teeth than microhybrid composites. It is also showed higher performance in bond strength [5]. Therefore, from the present case report it is evident that an awareness and knowledge about esthetic restoration using various restorative materials like composite is highly required among all dental practitioners [3]. From these awareness surveys, an evidence-based data is obtained to educate dental clinicians to gain further knowledge in order to provide ultimate health care. Literature also reveals such important surveys conducted among Indian dental practitioners [6-9].

Conclusion

Achieving esthetic look in class III dental caries is highly challenging for all clinicians and requires skill and art in mastering restorative dentistry.

References

1. Nagaveni NB, Umashankara KV, Radhika NB, Satisha TS. Management of tooth discoloration in non-vital endodontically treated tooth – a report of 6-year follow-up. 2011; 3(2): e180-3.
2. Okada M, Maeno M, Nara Y. Bonding states of in vitro class 2 resin composite restoration applied by various incremental techniques. *Materials (Basel)* 2021; 14(20): 6037.
3. Vishwanath S, Kadandale S, Kumarappan SK, Ramachandran A, Unnikrishnan M, Nagesh HM. Finishing and polishing of composite restoration: assessment of knowledge, attitude and practice among various dental professionals in India. *Cureus* 2022; 14(1): e20887.
4. Von Gehren MO, Ruttermann S, Romanos GE, Herrmann E, Gerhardt-Szep S. A 23-year observational follow-up clinical evaluation of direct posterior composite restorations. *Dent J (Basel)* 2023; 11(3): 69.
5. Yu OY, Zaeneldin AM, Hamda-Hamama HH, Mei ML, Patel N, Chu CH. Conservative composite resin restoration for proximal caries – two case reports. *Clin Cosmet Investig Dent* 2020; 12: 415-422.
6. Nagaveni NB, Radhika NB, Umashankar KV. Knowledge, attitude and practices of parents regarding primary teeth care of their children in Davangere city, India. *Pesquisa Brasileira em Odontopediatria e Clinica Integrada* 2011; 11(2): 129-132.
7. Nagaveni NB. Knowledge, attitude and perception among dental graduate practitioners about presurgical naso-alveolar molding therapy in cleft lip/palate infants: a questionnaire-based survey. *J Updates Pediatric Dent* 2023; 2(1): 3-11.
8. Shashikiran ND, Reddy VVS, Nagaveni NB. Knowledge and attitude of 2000 parents (urban and rural – 1000 each) with regard to avulsed permanent incisors and their emergency management, in and around Davangere. *J Indian Soc Pedod Preven Dent* 2006; 24(3): 116-121.

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