

Rehabilitation of Badly Broken Anterior Teeth in Early Childhood Caries Byluxatemp: Case Report

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Abstract: *This article presents a case report on the esthetic rehabilitation of maxillary primary anterior teeth in a 4-year-old patient with Early Childhood Caries (ECC). ECC poses challenges to pediatric dentists, particularly when dealing with severely mutilated primary anterior teeth. The article discusses the use of bis-acryl composite-based temporization material, Luxa Crowns, for chair-side custom fabrication of full-coronal restorations in primary anterior teeth. The advantages of Luxa Crowns, including good esthetics, high fracture toughness, and reduced polymerization shrinkage, make it a promising alternative for restoring primary anterior teeth. The article emphasizes the importance of preserving primary teeth and highlights the potential of Luxa Crowns as a cost-effective solution for esthetic rehabilitation in pediatric dentistry.*

Keywords: Early Childhood Caries, Esthetic Rehabilitation, Luxa Crowns, Pediatric Dentistry, Primary Anterior Teeth

1. Introduction

Oral health is an important component of general health in the normal development of a child and has a potential to contribute to the well-being of both the child and the family. Despite the fact that the oral health of preschool children has improved considerably in most industrialized countries over the past decade, dental caries remains an important childhood disease affecting a considerable proportion of young children.¹

Aesthetic requirement of severely mutilated primary anterior teeth in the case of early childhood caries has been challenge to pediatric dentist. Among restorative treatment options, prefabricated crown and biological and resin composite restoration either by means of direct or indirect technique are mentioned in the literature.²With the innovations in the field of esthetic dentistry, newer dental materials and techniques are emerging into clinical practice.

In addition to management problems, there are a number of procedural problems that need to be addressed while restoring primary incisors. Their crowns are short and narrow, while the pulp chamber is large with respect to the size of the crown. In pulpectomised primary anterior teeth where the entire crown is destroyed by the carious process, only a small amount of the tooth structure is available for bonding.³

In recent times, bis-acryl composite-based temporization material has become the material of choice for temporization purposes owing to its improved mechanical properties.⁴Bis-acryl composite resins contain divinyl methacrylate monomers and filler particle loading. As result, polymerization shrinkage and exothermic release are potentially reduced, and colour stability is improved.⁵

It is available in different shades, and thus helps to achieve customized aesthetics suiting the patient's needs. Though it

is often used for temporization of permanent teeth, but it can also be considered as a treatment option for restoring grossly decayed or traumatized deciduous teeth. The unique Luxa Crowns are simple, quick and cost-effective for the fabrication of long-lasting crowns. They offer an excellent and reliable alternative to lab processed crowns. The material has brilliant flexural strength, exceptional fracture toughness ensuring stable and long-term provisionals.⁶

This article reports a case of an esthetic rehabilitation of maxillary primary anterior teeth of a 4-year-old patient with ECC treated at the department of pediatric and preventive dentistry in KVG dental college and hospital, sullia.

2. Case Report

A 4 year old male patient reported to the department of pediatric and preventive dentistry with a chief complaint of decayed upper front teeth.

On examination, 51, 52, 61, 62 were found to be carious. Radiographic examination showed pulpal involvement with respect to 52, 61, 62 and periapically resorption with respect to 51. Extraction was done with respect to 51. Initially, caries was excavated followed by pulpectomy and composite core build-up. Tooth preparation in which Crown cutting was done, tooth structure was removed uniformly from all sides. Impression was made. Wax pattern was made on the dental cast along with a ligature wire attached from 62 to 52. Then Shade selection was done. Using luxatemp star, crown was fabricated on the cast. Next step crown cementation where the finished crown was cemented over the prepared crown using resin modified glass ionomer Relyxlutting 2 cement. Occlusion was checked and adjusted accordingly. Satisfactory result were obtained with good esthetics.



Figure: Preoperative picture



Figure: IOPAR irt 51 52 61 62

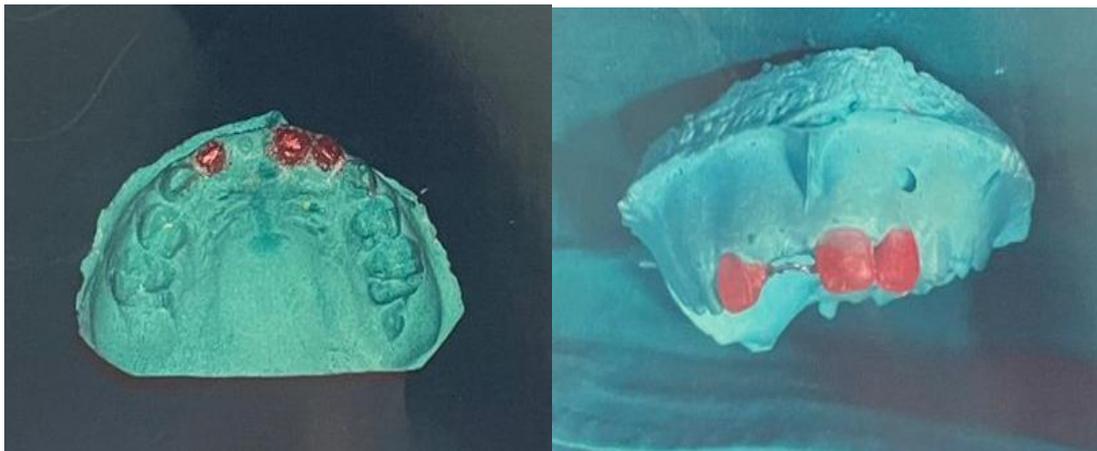


Figure: Wax pattern made with ligature wire attached



Figure: LUXATEMP crown fabricated



Figure: Post operative picture

3. Discussion

In the past, the only treatment option for severely decayed teeth was to extract them and replace them with a prosthesis

till the permanent successors erupted. However, with the numerous techniques and materials available now, we are duty-bound to encourage the parents to succumb to extraction only as a last resort while making every effort to salvage these teeth till their natural exfoliation time. The importance of preserving the primary teeth, the role of primary teeth in preventing future malocclusions, and the consequences of premature loss of primary teeth, if explained to the parents well, will lead to more number of primary teeth being restored rather than being extracted.³

Dental crowns can either be bonded to tooth structure or cemented to prepared teeth using a luting agent. Both these methods have their own advantages and limitations. Bonded strip crowns have been the material of choice for restoring primary teeth, mainly because of their good esthetics and easy repair. However these crowns may get discoloured, fracture or dislodge over a period of time due to lack of appropriate bonding and less surface area of prepared tooth.⁶

In dentistry, there are several crown types that are more aesthetically pleasing and long-lasting than bonded crowns. These days, two of the most common types of aesthetic crowns used in paediatric dentistry are zirconia and pre-veneered stainless steel crowns. Despite their benefits, these materials are difficult to deal with because to their restricted shade variety, difficulties in changing the crown's design, and increased cost.

This bis acrylate-based temporization material (Luxa Crowns) has good dimensional stability, flexural strength and better colour matching thus making it a suitable choice for esthetic restoration of primary carious teeth. The margins and the final restoration ensured better adaptation and exhibited good and acceptable immediate esthetics.⁴

The rationale behind using temporization material for crown fabrication in primary teeth is that primary teeth need to be retained only for a limited period of time, so that a material, durable enough for "this period" may prove to be a suitable alternative.

All these properties make it a suitable choice for esthetic restoration of primary carious teeth. Custom fabrication further ensured good adaptation at the margins, and the final restorations exhibited good immediate esthetics.

Conclusively, chair-side custom fabrication of fullcoronal restoration in primary anterior teeth using a temporization material might be a cost-effective alternative.

Clinical Significance

- Pediatric dentists have to frequently use full-coronal restorations for esthetic rehabilitation of primary anterior teeth using either of the available options, e.g., strip crown technique, zirconia crowns, preveneered SS crowns, etc.
- Custom-fabricated crowns using temporization material seem to be an esthetic and cost-effective alternative for restoring primary anterior teeth.

4. Conclusion

Luxa crowns can be a good clinical alternative to restore primary teeth, because of its good esthetics, high fracture toughness and less polymerization shrinkage. However, long-term clinical studies should be carried out to advocate it to be a material of choice for restoring primary anterior teeth.

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