

Polycarbonate Crowns for Primary teeth Revisited – Restorative options, Technique & Case reports

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Abstract:

Esthetics by definition is the science of beauty: that particular detail of an animate or inanimate object that makes it appealing to the eye.

In the modern civilized cosmetically conscious world, well contoured & well aligned white teeth set the standard for beauty. Such teeth are not only considered attractive, but are also indicative of nutritional health, self esteem, hygienic prode & economic status.¹Numerous treatment approaches have been proposed to address the esthetics & retention of restorations in primary teeth.²

Even though researchers have claimed that certain restorations are better than the others, particularly owing to the issues mentioned above, the search for the ideal esthetic restoration for the primary teeth continues.

This paper revisits & in a way attempts to reintroduce one of the four full coverage restoration namely – *polycarbonate crown*, for use in primary anterior teeth.

Key Words: Polycarbonate Crowns, Esthetic crowns, Restorations, Caries, Temporary Crowns

Introduction:

Esthetics by definition is the science of beauty: that particular detail of an animate or inanimate object that makes it appealing to the eye.

In the modern civilized cosmetically conscious world, well contoured & well aligned white teeth set the standard for beauty. Such teeth are not only considered attractive, but are also indicative of nutritional health, self esteem, hygienic pride & economic status.¹

There is a rapid increase in the awareness among parents of children for solutions to problems related to nursing bottle caries, malformed & discolored teeth, hypoplastic defects, tooth fractures & bruxism.

The main problem facing the clinician while performing esthetic restorations in children is the small size of teeth, close proximity of the pulp to the tooth surface, relatively thin enamel & surface area for bonding & the behavior of the child. The major fallout of these problems is the development of abnormal oral habits, psychological problems, reduced masticatory efficiency & loss of vertical dimension of occlusion.

Owing to these problems it becomes all the more important to restore the destroyed crowns to preserve the integrity of the primary dentition until its exfoliation and eruption of permanent teeth.

Numerous treatment approaches have been proposed to address the esthetics & retention of restorations in primary teeth.² Over the years there have been four types of full coverage restorations available to restore primary incisors,-

- stainless steel crowns³
- open-faced stainless steel crowns⁴
- polycarbonate crowns⁵
- strip crowns⁶

The major stumbling block for these treatment options is the cost of the restoration. While all of them have their advantages but the limitations cannot be overlooked. These limitations described so far include:

- Metallic Appearance³
- Increased chair time using multiple materials⁴
- Poor retention
- Excessive wear
- Technique sensitiveness
- Importantly the Cost

Several studies have been done to determine the strengths and weakness of the available treatment options but unfortunately so far there has been a mixed response.

Even though researchers have claimed that certain restorations are better than the others, particularly owing to the issues mentioned above, the search for the ideal esthetic restoration for the primary teeth continues.

Primary Tooth Polycarbonate crowns

This paper revisits & in a way attempts to reintroduce one of the four full coverage restoration namely – *polycarbonate crown*, for use in primary anterior teeth.

Although these crowns have been available to clinicians for a few years now, owing to the initial published reports pertaining to its retention capabilities, it never got its due recognition. The other problem being the unavailability of polycarbonate crowns for the primary teeth (Anterior & Posterior).

Kudos Crowns (temporary Pediatric Crowns) is easy to use & handle along with considerably reducing the chair side working time & at the same time overcomes the difficulties reported so far pertaining to placement & retention.

This is a newer generation of pediatric Polycarbonate crowns which is more user friendly & esthetically acceptable. The material is flexible, easily adaptable & reduces the chair side placement time considerably.

Advantages:

- Esthetically Acceptable
- Less chair side Time
- Improved Retention
- Flexible
- Better Adaptability

Disadvantages:

- Breakages
- Dislodgement
- Discoloration

Technique of Placement:

1. After detailed case assessment, selection of proper size of the crown is done which fits snugly mesiodistally.
2. After a trial fit the crown is checked for its proper fit, marginal adaptability, overall coverage & mesiodistal width.
3. Necessary adjustments are made either using crown scissors or with a trimming bur or stone. Enough care must be taken to seat the crowns on to the prepared margins.

4. After the final fit is done the crown is relined using a cold cure acrylic material but placing it over the prepared tooth and removed till it starts to set. The advantage of this type of relining technique is that cold cue acrylic chemically bonds to the polycarbonate crowns. By priming the inside of the relined crown it can be bonded to the tooth using composites or GIC.
5. After the complete set of the material, the margins are trimmed and finished & the crown is cemented using a luting cement or composites.
6. The firmness of the crown allows it to serve as a provisional crown up to several months to protect the patient's teeth and gums from trauma.

Case Reports:

Case 1:

Patient (Male , 3year, 8 Months) reported with fractured 51, 52, 61, 62. teeth no. 51 & 61 were pulpally involved. Pulpectomy was carried out & restored with Kudos Crowns



Before



After

Case 2:

Patient (Male, 4 years) reported with composite restoration to teeth 51 & 61. 51 had a history of trauma & subsequent pulp therapy. Patients parents were not happy with the restoration & the polycarbonate crown restoration was placed.



Before



After

Case 3:

Patient (Female, 2 year 11 months) reported with the C/O Discolored front teeth. 51,61 were affected with decay involving enamel & dentin. The teeth were restored with polycarbonate crowns after removal of the decay.



Before



After

Case 4:

Patient (Male, 3 years 10 months) came with a complaint of decayed front teeth. The patient was very uncooperative so the treatment was planned under GA. 51,51,61,62 were prepared & Polycarbonate C&B (51,52,61,62) was cemented using flowable composites.



Before



After

Case 5:

Patient (Male, 4 year 2 months) has been visiting the clinic for the past 2 years. Initial diagnosis was ECC type 2. Multiple restorations for both anterior & posterior teeth were completed & S.S Crowns place on 54,64,74,& 84.The major concern of the parents was the longevity of the anterior restorations. As the patient was cooperative, Polycarbonate C&B (51,52,61 & 62) was placed uneventfully within 30 minutes with excellent results.



Before



After

Going by the presentation of the varied clinical cases it can be concluded that

- Polycarbonate Crowns for Primary teeth after proper case selection is a very good treatment option available to the dentist which will help in restoring esthetics & improve the self esteem of the patients & at the same time protecting the tooth.
- Improved modifiability & adaptability of Kudos crowns will make them easy to place with less chair side time & better patient acceptance.
- Compared to Conventional restorations these crowns provide a overall protection to the affected tooth & at the same time help in restoring the damaged tooth.
- Patient & Parent acceptance is greatly increased.
- Finally the Cost of treatment is considerably reduced!

Polycarbonate crowns, although have been discouraged so far due to various reasons have made a strong comeback with the introduction of Kudos Pediatric Crowns, which will motivate clinicians to restore the Beautiful smiles of the Children they see in their practices everyday.

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