

FIGARO CROWNS - A PROMISING ALTERNATIVE FOR ESTHETIC AND FUNCTIONAL REHABILITATION OF DECAYED PRIMARY INCISORS: A CASE REPORT

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ABSTRACT

The restoration of carious, fractured or discolored anterior teeth in children is a matter of extreme satisfaction to Pedodontists because this improves the dental esthetics and self confidence in a growing child to a great extent. At present there are several options available for the anterior esthetic and functional rehabilitation but the success mainly depends on several factors like the case selection, motivation of the parents and the behaviour of the child in the dental clinic. Sometimes it can be challenging for the Pedodontists to perform intricate and lengthy procedures in young uncooperative children. This case report describes the esthetic and functional rehabilitation in a 4 year old uncooperative child using the newly introduced fibreglass Figaro crowns.

KEY WORDS

Pedodontists, Esthetic rehabilitation, Figaro crowns

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INTRODUCTION

Esthetic (cosmetic) dentistry is a discipline within dentistry in which the primary focus is the modification or alteration of appearance of a patient's oral structures, in conjunction with the treatment and prevention of structural, functional, or organic oral disease. Through cosmetic dentistry, the appearance of the mouth is altered to more closely match the patient's subjective concept of what is visually pleasing.¹

Smile of a child is the greatest gift of God which can be hampered mainly due to lack of knowledge regarding oral hygiene procedures and negligence towards the maintenance of dental health. Loss of anterior teeth has various repercussions such as neuromuscular imbalance with disturbance of speech, decreased masticatory efficiency, development of parafunctional habits and psychological problems. Esthetic problems in childhood and adolescence can also have a significant effect on psychosocial development of the child leading to decreased confidence.

The original concept of Jean Piaget stated that a child's perception of self and care about their appearance develop by the age of 8 years; recent studies in the field of child psychology have challenged this concept, showing that, children as young as 3-5 years of age have a sense of consciousness of body image due to increased exposure to media.

The goal of esthetic dentistry should be "bright, beautiful, but believable"

Today there are many solutions available for aesthetic problems in Pediatric Dentistry. But the biggest dilemma is choosing the best treatment modality for a particular patient and situation which depends on various factors like the age of the patient, motivation of the parents, the child's behavior in the dental clinic and the socio-economic status of the patient. In this respect, the advent of different techniques, devices, and materials help in creating beautiful restorations which help children and adolescents to improve their self-image. However, restoring primary teeth can be a strenuous task because of the difficulty to isolate properly and the uncooperative behaviour of the child.²⁻⁴

Early restorations mostly included placement of stainless steel crowns or bands on severely decayed teeth. They were unesthetic and their use was limited to posterior teeth. Over the last two decades, a higher esthetic standard is expected by parents for restoration of their children's carious teeth also. Esthetic full coverage restorations are available for anterior and posterior primary teeth, which preserve the functions of primary teeth until their exfoliation in healthy state.^{5,6}

Figaro crowns are designed and engineered to look like a real tooth. Compared to the texture and color of a real tooth, Figaro crowns are incredibly similar by design. They have a satin finish in hand, but in the mouth, they have a gloss finish, just like a real tooth thus providing excellent esthetic outcome. Keeping the advantages of Figaro crowns in mind and the other deciding factors, it was decided to be used in this case report to restore the dental esthetics of a 4 year old child which showed good results.

CASE REPORT

A 4 year old girl child reported to the outpatient department of Pedodontics and Preventive Dentistry of Gurunanak Institute Of Dental Sciences And Research, Kolkata with the chief complain of decayed milk teeth in the upper front teeth region. The parents wanted esthetic correction along with the prevention of further aggravation of this problem. On clinical examination it was seen that the child has carious 51,52,61,62 which were sensitive to cold food and beverages without any history of pain [Figure 1]. Radiograph revealed no pulpal involvement. After discussion with her parents it was decided that the teeth should be restored using Figaro crowns.

After obtaining parental consent, diet counselling was done and oral hygiene instructions were given to the parents. Behavior modification was done and MI Varnish was applied on the first appointment. On the next appointment alginate impression of the maxilla was obtained using a sectional tray and cast was made. The mesio-distal dimensions of the anterior teeth were measured at the cervical region using a divider and scale. The dimensions were noted and matched with the dimension chart provided by the manufacturer of the

crown (M DENTAL INDIA). Accordingly the appropriate sizes of crowns for 51,52,61,62 were procured and the patient was informed [Figure 2].

The crown preparation is similar to that of stainless steel crowns. Using a diamond bur 1-2mm of the incisal edge was removed. The circumferential length of the tooth was removed by approximately 1-1.5mm and the interproximal contact was opened. A flame shaped diamond bur was used. A feather edge preparation was created at the cervical margin. The incisal edges were bevelled and using a football shaped bur the lingual surface was prepared. The crown was tried on and the patients occlusion was checked. It was ensured to cover the entire tooth structure. The teeth were cleaned well so that no saliva, debris or blood remained on the teeth prior to cementation. Then luting was done using Glass Ionomer Cement (Fuji Type I). Finally the excess cement was removed using floss and explorer. Slight adjustments and change in morphology of the crowns were done using composite finishing burs to provide accuracy [Figure 3]. Periodic follow up appointments were advised.

DISCUSSION

Today there are several options available for the esthetic rehabilitation and restoration of anterior teeth in children. Many factors are responsible for the choice to be made and the true success depends on the case selection and the restorations used.

Resin strip crowns, pre-veneered stainless steel crowns, and open-faced crowns with a window have historically been offered as alternatives for the classic anterior preformed metal crown.

Each of these restorations has advantages and disadvantages.

Resin strip crowns have been considered for a long time to be the most esthetic option, as the color and shape can be changed accordingly; however, they require proper isolation, are technique sensitive and takes a longer time. Pre-veneered stainless steel crowns do not require as much isolation as strip crowns, since they can be cemented with glass ionomer cement. However, they require a more aggressive preparation and have a resin facing that



Figure 1: Preoperative appearance of 51, 52, 61, 62



Figure 2: Figaro crowns in the following sizes - XS (5.31) for 52 and 62 SM (5.71) for 51 and 61



Figure 3: Full coronal restorations using Figaro crowns in 51, 52, 61, 62

can debond over time Open-faced crowns offer a more conservative preparation and are more moisture tolerant for cementation but require isolation for placing the resin facing.^{7,8}

EZ-Pedo (EZ-Pedo, Loomis, Calif., USA) was the first pediatric zirconia crown commercially available in the United States, originally marketed in 2008.

Advantages of the zirconia crown are the excellent esthetics, full coverage of the treated or carious tooth, no components of the crown that might debond, and a less sensitive technique for cementation compared to a resin strip crown. The disadvantages of the zirconia restoration are the inability to crimp the crown for mechanical retention, inability to change its color, the limited ability to trim the crown or alter its shape, and the need for more tooth reduction than a traditional preformed metal crown. The zirconia crowns are also more expensive.^{9,10}

- Figaro crowns have been recently added to the list of esthetic full coronal crowns that can be used in pediatric patients. These crowns utilize either fiberglass or quartz filaments/ fibers embedded with an outer cosmetic composite resin material. The resin composite is made out of medical grade composite which is also seen in pacemakers, ocular and cochlear implant devices which is very much biocompatible. The strength and biocompatibility with a degree of flexibility are much closer to tooth structure than stainless steel and zirconia crowns. The crowns replicates the true anatomy of a natural tooth. While zirconia and SSC are limited in mimicking the tooth's shape and more closely resemble hills and valleys, Figaro crown embraces the true tooth's anatomy, producing an aesthetically beautiful result with cusps and grooves. Figaro crowns can be adjusted for cosmetic, grinding and or eccentric occlusion purposes. This is a feature that no other pre-formed crown allows. They provide the unsurpassed aesthetics and beauty of an all-white crown while offering superior strength and the highest value available in the market. It saves both time and money. Also-

- It requires less tooth reduction than zirconia crown
- There is no need to wait for cement to set for delivery

Wall thickness of this crown is 0.5-1 mm which is very close to stainless steel and much thinner than other white crowns due to flex fit technology, preparation for tooth reduction is still similar to stainless steel with no subgingival preparation so the tooth preparation is less aggressive.

Keeping these points in mind Figaro crowns were chosen for this particular case considering the uncooperative behavior and age of the child to gain best results in less chair side time. Both parental and patient satisfaction were obtained after completion of the procedure.

CONCLUSION

The present era of dentistry relies extensively on esthetic principles because of increasing patient demands and the advent of newer materials. We should try to meet these demands, while simultaneously considering the patient's socioeconomic status and the other relevant factors.

It should be kept in mind that esthetics in pediatric dentistry is the basic guideline for esthetics in adults and will soon become a subject of growing interest. It is important to understand that esthetic harmony can lead to a better psychological health and higher self-assurance; it improves peer relationships and strengthens self-confidence in a growing child.²⁻⁶ There is an old Jewish saying, "He who gives a smile to a child gives a smile to the world."

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