

Case Series

Figaro crowns- brings a smile or a frown?

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ABSTRACT

Initially, the treatment option for grossly decayed teeth was extraction, but due to advancements in paediatric dentistry, it has now shifted to restoration. Earlier, only full-coverage stainless steel crowns were in use, but they have a disadvantage for aesthetic restorations. Following this many crowns have been introduced into paediatric dentistry to preserve the tooth for function and aesthetics. Investigators have argued that certain restorations are superior to others, yet the hunt for the ideal aesthetic restoration goes on. This case series aims to check the efficacy, aesthetics and ease of placement of the newly introduced Figaro crowns. This case series reports 4 cases in which Figaro Crowns were used for aesthetic full coronal restorations in children aged between 3- 6 years. Figaro crowns are time efficient, advantageous in uncooperative placement and can be done with minimal tooth structure reduction. Figaro crowns appear to be the alternative to zirconia crowns and strip crowns as they have superior aesthetics and minimal reduction of tooth structure, making them more time-saving compared to zirconia crowns.

Keywords: Figaro crowns, Aesthetic crowns, Strip crowns, Zirconia crowns, Case series

INTRODUCTION

Facial aesthetics is majorly dependent on dental aesthetics. Patients commonly visit dental clinics in India primarily for complaints of dental pain followed by aesthetics.

In recent times aesthetics in children has gained a lot of attention. This is due to the effects on children from interaction with peers and the effect on psychosocial development.¹ A study suggested that alterations in tooth morphology like abnormalities in shape, size, colour and structure of the anterior teeth, affect the psychosocial development of children.² Time and again the problems that are observed with children are nursing bottle caries, malformed or altered and discoloured teeth, hypoplastic defects, tooth fractures and bruxism. Owing to increasing awareness of aesthetics, new demands for solutions to these dental problems are also escalating. Another study expressed that one of the most challenging tasks for a paediatric dentist is the restoration of anterior teeth.³ This

is due to several reasons; for example; the proximity of pulp to the tooth surface, the small size of the teeth, barely any surface area for bonding and relatively thin enamel, besides the cost of treatment, child behaviour and management issues. Restoration of destroyed crowns by caries is of paramount value to preserve the integrity of primary dentition until its timely exfoliation and eruption of permanent teeth. Studies inferred that not only aesthetics but early loss of primary teeth or alterations in tooth morphology may also precipitate parafunctional habits like tongue thrusting, speech problems, psychological problems, reduced masticatory efficacy, and loss of vertical dimension.⁴

Recently a new crown has been introduced into paediatric dentistry as an aesthetic restorative crown, Figaro crown. These are white-performed primary tooth crowns and were introduced in 2018 by Figaro Crowns™. Figaro crowns are full coronal restorations for primary teeth and are made of the highest quality, time-tested, and safest products used in

dentistry. The crown is formed by cosmetic composite resin material which utilizes either fibreglass or quartz filaments embedded in it. They are made of the same fibreglass material that is already in use as dental posts in endodontic and restorative dentistry procedures for years. (FiberKleer® posts from Pentron Clinical of Orange, Calif.). They are also said to be all white and bisphenol-A (BPA) - free, manufactured in the U.S.A., Figaro Crowns claim to possess all ISO Certifications required by Canada Health and the FDA. These crowns are said to be biocompatible, strong, safe, cost-effective, metal-free, and autoclavable.¹ Presently Figaro crowns appear to be the alternative to zirconia crowns and strip crowns as they have superior aesthetics and minimal reduction of tooth structure, making them more time-saving as compared to zirconia crowns.⁷

CASE SERIES

We present here a series of cases where Figaro crowns were used. The patients included in this case series are children that have reported to the department of pedodontics and preventive dentistry of M. R. Ambedkar Dental College and Hospital, Bangalore. Patients were finalized after a thorough case history, radiographic investigations and clinical examination. All the cases were conducted after getting parental consent.

Case 1

A 3-year-old girl was reported to the department with pain in the upper anterior teeth. On examination, it was observed that the patient had grossly decayed teeth concerning 51, 52, 61, and 62. The treatment plan was made for oral rehabilitation starting with pulpectomy treatment with the upper anterior, followed by aesthetic crown restorations. Single sitting pulpectomy was done with the respective teeth and after one-week crowns were placed. As the child was very uncooperative, we chose Figaro crowns for all 4 pulpectomized upper anterior teeth as Figaro crowns are less time-consuming as shown in Figure 1.

Case 2

A boy aged 5 years reported to the department with an abscess at 61. It was observed pulpectomy was required for 61 and 51. A single-visit pulpectomy was done for both teeth. Followed by the placement of the strip crown at 51 and the Figaro crown placed with 61. The case is supported by Figure 2.

Case 3

A four-year-old female patient visited the department with pain in the upper anterior region of the mouth. The teeth were grossly decayed and after radiographic examination, it was concluded that all her upper incisors were to undergo pulpectomy treatment followed by aesthetic

crown restoration. One week after the completion of the pulpectomy aesthetic restorations were done. 61 was restored with a Figaro crown and 51, 52, and 62 with strip crowns. Figure 3 demonstrates the case in detail.



Figure 1: (a) Pre-operative, (b) after combination of 61 and 62, and (c) post-operative.

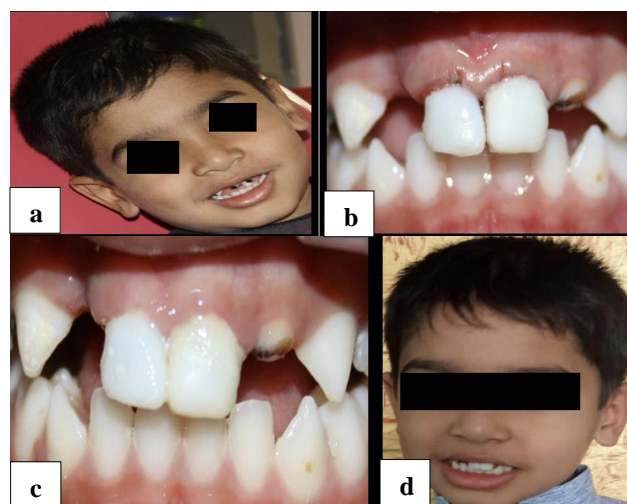


Figure 2: (a) Pre-operative, (b) immediately after cementation, (c) 1-week follow-up, and (d) post-operative.

Case 4

A boy aged 4 years visited the department with a complaint about aesthetics. According to the history given by the parents, the child had undergone pulpectomy treatment and aesthetic restoration with strip crowns for 51, 52, 61, and 62 in a private clinic but the crowns of 52, 61, and 62 debonded within a month. So, they came for aesthetic restorations to our department. As they were not satisfied with the strip crowns, they requested an alternative to it. We suggested Figaro crown restoration with 52, 61, and 62, and following their consent, aesthetic restoration was carried out. Figure 4 backs up our decision regarding the treatment plan.



Figure 3: (a) Pre-operative, (b) post-operative radiograph, (c) immediately after cementation, and (d) 2-weeks follow-up.



Figure 4: (a) Pre-operative and (b) post-operative.

DISCUSSION

Primary teeth aesthetic restoration has always been a challenging task for paediatric dentists worldwide. Over the years researchers have been trying to come up with alternatives for an aesthetic crown which not only provides good aesthetics but can also provide function too. The journey of aesthetic crowns started with stainless steel crowns with facings, polycarbonate crowns, pre-veneered stainless-steel crowns, strip crowns, zirconia crowns and the latest addition is Figaro crowns.

The apparent advantage of this crown is its excellent aesthetics, relative flexibility and adjustability. Stainless steel crowns are the cheapest but have zero roles in the part of aesthetics, which is why it has been discontinued as an aesthetic restoration. Another very well-accepted crown in the market today is the zirconia crown but even these crowns have some disadvantages such as higher cost, relatively more reduction of tooth structure, can't be achieved in a single visit, and therefore being more time-consuming. Zirconia crowns are not flexible leading to reduced retention, adaptability and strength. These

disadvantages demanded newer crowns which may be answered by Figaro crowns.

Figaro crowns defeated two of the major problems with the currently used crowns, that is aesthetics compared to stainless steel and cost-effectiveness compared to zirconia. Figaro crowns are made of fibreglass or quartz filaments/fibres submerged into an outer cosmetic composite resin material. Due to the composite, the outer surface of the crowns shows an excellent aesthetic appearance and the fibreglass that is being used inside the crown is similar to the posts used for endodontic procedures. The crown contains resin, fillers and 25-85% fibres. Biocompatibility of these crowns has been backed up by the fact that this is the same resin composite used for pacemakers, and ocular and cochlear implants.⁸

A case report done in 2019, concluded that Figaro crowns provided the best aesthetics and superior strength to other crowns available in the market today but this was not what was observed in our cases. We acknowledge the facts of this study, that Figaro crowns are economical and more time-saving, require lesser tooth reduction and the fact that occlusion could be checked before cementation, which made it easier for us to deliver the aesthetic restorations, especially in uncooperative children. Still, a major drawback in comparison to strip crowns remains that no changes can be done to the crown itself; in addition, the aesthetics are not the best as there is no shade guide to choose from.⁹ Another study, concluded that Figaro crowns can soon substitute stainless steel crowns as the degree of marginal leakage is similar for both crowns.¹⁰ Figaro crowns might be a good alternative to stainless steel crowns in the face of aesthetics, but a second study concluded that Figaro crowns proclaimed to display higher deformity in surface anatomy after cyclic loading and very low fracture point, making them less durable and with a shorter life span.¹¹ A study deduced that resin ceramic CAD/CAM crowns exhibited better overall, marginal, and internal adaptation compared to prefabricated fibreglass primary crowns for all primary teeth.¹⁰ A different case report inferred that Figaro crowns are tissue friendly, with marginal adaptability and easy to place in paediatric patients.¹¹

CONCLUSION

A great weight is on the pedodontist's shoulders for short-duration restorations particularly if the patient or parents are uncooperative, making repeated restorations very difficult.¹⁰ Figaro crowns still need to be put under the microscope both clinically and by lab test research to decide whether these new crowns need any enhancements or qualifications to add more toughness and longevity to these crowns. Long clinical trials need to be conducted to determine the success rate of these new crowns.

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