

## Primary tooth restoration with colored compomer: case report

### *Restauração de dente decíduo com compômero colorido: relato de caso*

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#### ABSTRACT

In pediatric dentistry, restorative treatment requires a material with good mechanical properties, ease of handling, and usability. For the restoration of deciduous teeth, colored compomers are an alternative material for motivating children in dental treatment and, consequently, behavior management. This study aimed to provide information about colored compomers by presenting a case of restoration in a deciduous molar with a five-year follow-up. Additionally, the study highlights the child's motivation toward dental treatment and oral care, thus offering an alternative to other restorative materials for clinicians to consider. The treatment plan for tooth 75 was selective removal of decayed tissue and restoration with compomer blue-colored Twinkly Star. The restoration was performed without anesthesia under relative isolation following the clinical protocol recommended by the manufacturer. As a result, it was observed that the restoration in colored Twinkly Star compomer remained aesthetically and functionally satisfactory after five years. In addition, it was favorable for the child's collaboration in dental treatment. It is concluded that colored Twinkly Star compomer can be a viable alternative for restoring deciduous teeth, contributing to children's dental treatment and oral care motivation.

**Indexing terms:** Compomers. Deciduous tooth. Pediatric dentistry.

#### RESUMO

*Em Odontopediatria, o tratamento restaurador exige um material que tenha boas propriedades mecânicas, facilidade de manipulação e de uso. Para a restauração de dentes decíduos, os compômeros coloridos são uma alternativa de material para a motivação de crianças no tratamento odontológico e conseqüentemente manejo de comportamento. Sabendo da necessidade de conhecer melhor os compômeros coloridos, o objetivo deste estudo foi relatar um caso de restauração com compômero colorido em molar decíduo com acompanhamento de cinco anos, bem como a motivação da criança perante o tratamento odontológico e cuidados bucais a fim de*

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apresentar ao clínico uma alternativa a outros materiais restauradores. O plano de tratamento para este dente 75 foi remoção seletiva de tecido cariado e restauração com compômero colorido twinky star na cor azul. A restauração foi feita sem anestesia sob isolamento relativo seguindo o protocolo clínico preconizado pelo fabricante. Como resultado observou-se que a restauração em compômero Twinky Star colorido manteve-se satisfatória tanto estética quanto funcionalmente após cinco anos. Além disso, mostrou-se favorável para a colaboração da criança no tratamento odontológico. Conclui-se que o uso do compômero Twinky Star colorido pode ser uma alternativa viável para restauração de dente decíduo, contribuindo para a motivação de crianças no tratamento odontológico e cuidados bucais.

**Termos de indexação:** Dente decíduo. Compômeros. Odontopediatria.

## INTRODUCTION

Managing a child with fear and anxiety in dental care is the main barrier to motivation and successful performance of a child procedure. Therefore, pediatric dentistry seeks a restorative material that is simple to use, with good adhesive properties and clinical longevity [1].

Compomers are a modified class of composite materials, combining the aesthetics and strength of composite resins with fluoride release and excellent adhesion to dental tissues of glass ionomer cement [2,3]. Fluid composites have excellent properties, such as simple handling and insertion. Due to their low viscosity, they can reduce the amount of time spent working in the clinic. This makes them particularly useful in pediatric dentistry [2,4,5]. Compomers release fluoride by a mechanism similar to conventional and resin-modified glass ionomer (GIC) cements. Due to the small amount of glass ionomer present in the compomers, the amount of fluoride released, and its duration are lower than those of GICs. However, it has excellent aesthetics, like resins, and greater wear resistance than GICs [6]. An advantage of compomers is their ease of manipulation. Its consistency makes it easy to apply and contour without sticking. Therefore, less time is required for finishing and final polishing. These characteristics are especially beneficial in the treatment of children [7].

Compomers (MagicFil) appeared and were introduced in the market [8] for the restoration of deciduous teeth. Unlike conventional compomers, they have small glitter particles to produce shades of color without interfering with the final composition, similar to conventional compomers [8-10]. Consequently, it can motivate children who receive dental treatment, contributing to the management process by promoting greater acceptance, reducing anxiety, and favoring oral hygiene [10-12].

There are few clinical studies on colored compomer available in the literature. In three studies, 36 to 98 children were evaluated, and the success of restorations up to 12 months was observed [1,7,14,15]. Taking this information into account, and knowing the need to better understand compomers colored to present the clinician with an alternative to other restorative materials, this study aimed to report a case of restoration with colored compomer in a deciduous molar with a five-year follow-up, in addition to the child's motivation towards dental treatment and oral care.

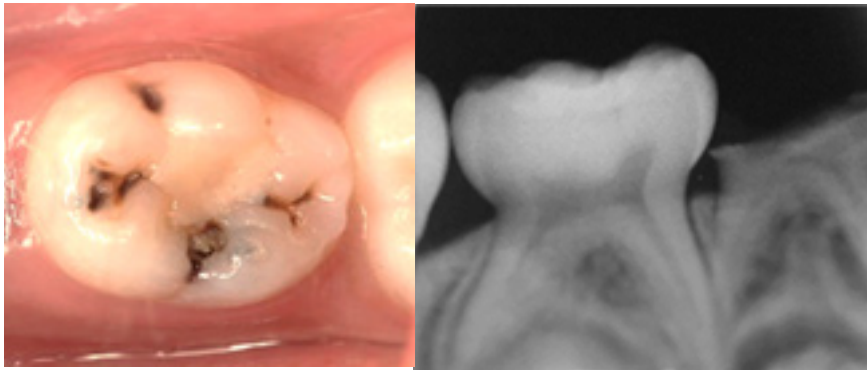
## CASE REPORT

A seven year old male patient was referred to the Faculdade São Leopoldo Mandic Campinas pediatric dentistry clinic – SLM, SP, Brazil. In the first consultation during the anamnesis, the Guardian reported that the child was unmotivated for oral care and diet and did not present systemic alterations. On extraoral examination, no alterations were found. During the intraoral clinical examination, based on the visual-tactile examination of the lower left second molar, an active dentin lesion was diagnosed at ICDAS occlusal score 5 (figure 1A). The initial periapical radiograph was requested to confirm our clinical analysis of the absence of pulpal involvement in tooth 75 (figure 1B). There were no reports of complaints of pain or discomfort.

The treatment plan for this tooth (75) was to complete a selective removal of decayed tissue (figure 2A) manually with a curette and restoration with compomer colored Twinky Star in blue. The restoration was performed without

anesthesia under relative isolation (figure 2B), with the collaboration of the patient motivated by the color of the material, following the clinical protocol recommended by the manufacturer (VOCO):

- 1- Apply 37% phosphoric acid (FGM) and adhesive (Adper Single Bond 2 – 3M)
- 2- Apply the compomer (Twinky Star Resin - Voco) in increments up to 2mm
- 3- Light cure each increment 40 sec (450 mw/cm<sup>2</sup>)



**Figure 1.** A) Initial clinical view of primary molar 75 and B) Initial periapical radiograph of primary molar 75.



**Figure 2.** A) Selective removal of decayed tissue B) restoration with compomer Twinky Star.

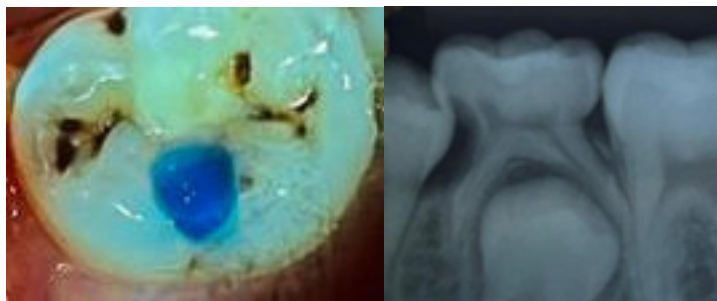
In the follow-up, the inactive darkened brownish grooves and the glass ionomer cement in the respective tooth were maintained. Diet and oral hygiene guidelines were transmitted to the guardian and patient.

After three years, in the follow-up consultation, it was possible to observe the integrity of the restoration clinically (figure 3A), the absence of pain, and more patient motivation to practice toothbrushing and diet habits.

In the follow-up after five years of the restoration (figure 3B), clinically and radiographically, it was observed that the lesion had stopped, the integrity of the restoration with greater surface shine, and the patient was even more motivated, controlling diet and hygiene. However, it is worth mentioning the ectopic eruption of tooth 3, without mobility and pathological lesion in tooth 75.

## **DISCUSSION**

Compomers are used in pediatric dentistry for several reasons, including their aesthetic qualities, minimal operative steps, monocomponent, photopolymerizable, and easy to use [13]. In addition to the simple technique, having



**Figure 3.** 5-year follow-up: A) Integrity of the restoration and greater brightness B) Stoppage of the carious lesion and absence of pulp involvement.

a non-sticky consistency and easy insertion, favors the child's care by providing a satisfactory clinical time [6]. In the same way, the compomer preferred the child's care in this case report since the child was cooperative with the treatment, motivated by the color of the colored resin.

The choice of compomer Twinky Star Flow for this clinical case was based on pre-existing studies, in which the longevity of restorations was confirmed, one of them being a compomer applied for occlusal sealing and with a clinical success rate of retention of 95.9%, thus demonstrating adequate bond strength, over 12 months [6]. Another study, with the same follow-up time, comparing occlusal-proximal restorations, of deciduous molars made with compomer, did not show a significant difference in marginal integrity, margin of discoloration, anatomical shape, secondary caries, and surface texture, between one material and another [14]., thus showing clinical longevity. In agreement with the literature, the restoration of the deciduous tooth, in this case, report proved to be satisfactory for five years.

Furthermore, the use of compomers for the restorations of deciduous teeth and of composites for the restorations of permanent teeth is suggested by a systematic review [16]. It is also known that the compomer releases more fluoride than the composite [17], a favorable characteristic for use in Pediatric Dentistry. In addition, for conventional polyacid-modified resin compounds, a small amount of glitter particles are included to produce effect shades of the desired color. Adding pigments does not interfere with the composition, similar to conventional compomers [8,10].

Compomers are considered an effective alternative to other materials for restorative therapy in primary teeth [10]. One study stated that multicolored restorative materials motivated children, increasing their willingness to cooperate by including them in the treatment process, making the visit to the dentist a stress-free and fear-free experience [15,18,19]. Another study proved that children develop a prolonged interest in the condition and care of their teeth, as observed in this clinical case. In addition, they are distinguished by their excellent biocompatibility and contribution to the prevention of secondary caries lesions with their release of fluoride. They have sufficient physical properties to remain in the mouth until the restored deciduous tooth is lost [18]. It is noteworthy that in this clinical case, the tooth restored in an ultraconservative manner [20] is in the process of exfoliation

This is the only case report in the literature with a longer follow-up time. To provide more concrete evidence of clinical longevity, it is necessary to conduct well-designed clinical and longitudinal studies using representative samples. This is a limitation of the current report.

## CONCLUSION

Restoration in Compomer Twinky Star color has remained satisfactory both aesthetically and functionally after five years. In addition, it can contribute to the child's motivation in dental treatment and oral care.

## Collaborators

CHC DIAS and K MOREIRA Project management, formal analysis, conceptualization, revision, and editing. GG OLIVEIRA and ECD ARAGÃO conceptualization, writing. JCP IMPARATO, carrying out the clinical case, project management, conceptualization, writing, reviewing, and editing.

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