Case Report

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Aesthetic rehabilitation of a case of polydistema with direct composite restoration: case report, 2-year follow-up

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ABSTRACT

Diastema are small gaps between the teeth. Polydiastema can be caused by harmful habits, genetic or systemic disorders. Direct composite resin restorations are a minimally invasive and aesthetic treatment option that can be safely used in cases of diastema. This case report describes the treatment of an anterior polydiastema case with direct composite resin restorations. A 20-year-old woman who presented to our clinic with aesthetic complaints had no systemic disease in her medical history. After all treatment options were explained to the patient, it was decided to restore the teeth aesthetically with direct resin composite restorations. After the restoration was completed, finishing and polishing procedures were performed. After 3 months, 6 months, 1 year and 2 years, the physical properties, marginal integrity and aesthetic properties of the restorations were checked. In the control examination, it was determined that the restorations met the patient's aesthetic expectations, and the marginal integrity was preserved.

Keywords: Diastema, polydiastema, composite resin, aesthetic

INTRODUCTION

With the increasing awareness of people, aesthetics has become as important as phonation and function in dental treatment applications. While the expectation of patients in the past was the absence of pain, today this concern has been replaced by aesthetic concern.[1] Especially color, shape and position disorders related to anterior teeth cause both aesthetic problems and psychosocial problems in patients. Among these, the aesthetic problems that come to mind first are caries, diastema, discoloration, fluorosis, hypoplasia, crowding, abrasions or fractures due to prenatal and postnatal antibiotic use or diseases.[2] Diastema are small gaps between the teeth. Diastema can be caused by differences in tooth size (such as narrow or conical shaped teeth) or by the difference between the gap in the arch and tooth size. Diastema that appears more than once in the jaw is also called "polydiastema." Polydiastema can be caused by bad habits, genetics or systemic diseases. There are different treatment procedures including orthodontic, prosthetic, and operative dentistry procedures to eliminate such aesthetic problems that can be very common in society. Operative dentistry treatment option is absolutely necessary to achieve a satisfactory result. Operative dentistry is characterized by offering simple, fast, predictable and cost-effective solutions. Orthodontics requires the use of fixed appliances, which means a more complex, longer and more expensive treatment. Prosthodontic treatments are more invasive procedures.[3] In operative dentistry, the use of direct composite resin restorations is prominent. Adding direct composite resin restorative material to the proximal surfaces after acid roughening is a cheaper, practical and protective treatment alternative.

With this treatment option, which requires little or no preparation on the tooth, it is thought that the adhesion life of the finished restoration to the enamel is sufficient. Studies to improve the durability and color stability of composite resins have led to the expansion of their aesthetic and functional use.[1]

In this case report, the treatment of polydiastema in the anterior region (teeth 13, 12, 11, 21, 22, 23) using composite resins by non-invasive direct method is described.

CASE

A 20-year-old female patient presented to Dicle University, Faculty of Dentistry, Department of Restorative Dental Treatment with the presence of polydiastema in her anterior teeth and aesthetic complaints related to tooth color. In clinical and radiographic examination, the color of the teeth was determined according to the presence of diastema between the

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canine and canine teeth in the maxillary arc. It was seen that the teeth were A2 color. Treatment options and complications were explained to the patient and written informed consent was obtained. The treatment options were discussed with the patient, and it was decided to treat the diastemas with direct composite resin restoration (Figure 1-3).

The patient's teeth numbered 13, 12, 11, 21, 22, 23 were acidified with 37% orthophosphoric acid (K-Etchant Syringe, Kuraray for 30 seconds. After the acid was washed off, the teeth were dried with air spray and adhesive resin (GC Dental G-Premio Bond, Japan) was applied to the enamel surfaces and polymerized with LED light device for 20 seconds. After placing the transparent tape, the restorations were completed by using composite resin material (OA2 and A2; Estelite Sigma Quick, Tokuyoma Dental, Japan) with layering technique using hands-free technique. Each layer was polymerized with an LED light device for 20 seconds (Woodpecker Led-B Light device, Guilin Woodpecker Medical Industry, Ltd Guangxi, China). Finishing and polishing were performed using AlO3 disks (Sof-Lex; 3M Espe) and polishing rubbers in the order of coarse grain to fine grain (Figure 4-6).

The patient was informed about oral hygiene habits and follow-up appointments and discharged. The patient was evaluated aesthetically and functionally 2 years later (Figure 7).

Figure 1. Left lateral view before the procedure

Figure 2. Intraoral view before the procedure

Figure 3. Right lateral view before the procedure

Figure 4. Left lateral tooth appearance after the procedure

Figure 5. Intraoral view after the procedure

Figure 6. Right lateral tooth appearance after the procedure

Figure 7. Appearance of the patient 2 years later

DISCUSSION

Anterior tooth discoloration and the presence of diastema has become an important problem in patients, especially in young patients. Diastemas can be treated with surgical, prosthodontic, orthodontic, orthodontic or restorative procedures or a combination of them depending on the case and the cause.[4] In the treatment of diastema cases, a treatment protocol is determined by considering many criteria such as the age of the patient, the size of the diastema, time and cost. Aesthetic rehabilitation with the direct adhesive method is inexpensive and conservative. Both the physician and the patient are satisfied with this application. One of the most important advantages of this method is that the appropriate color, shape and position of the tooth can be achieved in a single session. This technique is minimally invasive or non-invasive and reversible restoration applications when necessary. It is much easier to repair small fractures or defects than other treatments. In addition, it allows for different treatments in large fractures or restoration losses.[5] In addition to these advantages, this technique also has disadvantages. These disadvantages include fragility of the materials, surface roughness, microleakage, polymerization shrinkage and low abrasion resistance.[6] However, it has also been emphasized that indirect composite resins and ceramic-based restorations whose polymerization is completed outside the mouth are less affected by oral fluids and their color stability is more successful than direct adhesive restorations.[7]

Direct adhesive restorations have shown positive results in the literature. Direct adhesive restorative materials applied to anterior teeth provide successful aesthetic results and are long-lasting and more economical materials compared to indirect restorations.[8]

In this case report, the treatment of interdental diastemas with direct composite resin restorations is described. Two years later, the restorations were evaluated aesthetically and functionally in clinical controls and no problems were observed. Composite resin restorations, which offer practical use, low cost and short processing time, can be preferred for aesthetic rehabilitation in cases of anterior polydiastema.

Wedge laterals are also a common tooth form abnormality that can negatively impact patient psychology due to the smaller shape and size that can distort the smile and disrupt harmony with other teeth.

All-ceramic crowns, laminate veneers and direct or indirect composite resins can be used in the treatment of wedge laterals. Considering good physical properties, quality aesthetics and marginal integrity, composite resins, especially hybrid composites, are reliable materials.[9]

CONCLUSION

This case report demonstrates that direct adhesive restorations of existing diastemas can be successful if properly indicated, with good patient motivation and under the right conditions.

ETHICAL DECLARATIONS

Informed Consent

The patient signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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