

Aesthetic rehabilitation of posterior teeth with direct composite restorations (a case report)

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Abstract:

Aesthetic composite restoration is the most common method for dental hard tissue defects reconstruction. Despite the active development and use of ceramic restorations for dental rehabilitation, the introduction of new nanotechnological filling materials has opened up fundamentally new possibilities in restorative dentistry. This article represents a clinical case of direct composite restoration in teeth 25, 26 and 27 using new nanoceramic materials.

Keywords: aesthetic dentistry, direct composite restoration, contact point reconstruction.

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INTRODUCTION

According to statements of the World Health Organization (WHO), dental caries is a common dental pathology that leads to the defect formation in hard tissues and is accompanied by morphological and aesthetic-functional disorders in the dentition. The introduction in the dentist's arsenal new hybrid composite materials contributes to the transition from traditional treatment methods to a minimally invasive concept [1, 2]. Direct composite restoration is one of the most minimally invasive methods of dental hard tissue restoration.

CLINICAL CASE

Patient M., 30 years old, came to the clinic with complaints of pain when taking cold drinks and food stuck in teeth 25, 26 and 27. During the examination, it was defined that there is caries on the occlusal and approximal surfaces in tooth 27.

The old incompetent filling and defect of the palatal wall were observed in tooth 26 (Fig. 1). The contact intraoral radiograph of tooth 25 showed a carious lesion in distal approximal surface. It was decided to make direct restorations in teeth 25, 26 and 27 with nanoceramic composite material Ceram.X SphereTEC One (Dentsply Sirona).

The treatment was carried out under local infiltration anesthesia Sol. Ultracaini 4% – 1.7 ml. Teeth 25, 26 and 27 were isolated with a rubber dam system. The root canals of tooth 26 were preliminarily treated and obturated with GuttaCore system and AH-Plus sealer. The removal of the old filling and infected dentine in teeth 25, 26 and 27 was performed with selective excavation method (Fig. 2). In teeth 25, 26 and 27, cavities Class II were formed. Next, sandblasting of the cavities was carried out with Rondoflex and aluminum oxide powder 27 microns. The hard tissues



Fig. 1. Pre-operative picture of teeth 25, 26, and 27.



Fig. 2. Isolation of the operative area using the rubber dam. Previous composite restoration in tooth 26 and infected hard tissues in teeth 25, 26 and 27 have been removed.



Fig. 3. The restoration of the alatal wall of tooth 26.



Fig. 4. Placement of the matrix system Palodent V3.



Fig. 5. The proximal walls reconstruction in teeth 25, 26, 27.



Fig. 6. Restoration of the occlusal surfaces in teeth 25, 26 and 27.



Fig. 7. Finishing and polishing of restorations.



Fig. 8. Post-operative picture showing the direct aesthetic restorations in teeth 25, 26 and 27.

were etched with 37% phosphoric acid gel. The dentin was etched for 15 seconds, the enamel was etched for 30 seconds. Adhesive protocol was performed with Prime & Bond One ETCH and RINSE universal adhesive system (Dentsply Sirona). To restore the palatal wall of tooth 26, we used Ceram.X SphereTEC One shade A3 (Fig. 3) To restore the approximal walls of teeth 25, 26 and 27 and to create contact points, matrix system Palodent V3 (Dentsply Sirona) and composite material Ceram.X were used (Fig. 4, 5). The dentine was restored with flowable composite SDR (Dentsply Sirona). The reconstruction of the occlusal surfaces in teeth 25, 26 and 27 was made in layering technique with Ceram.X SphereTEC One shade A3, Edthet-X WO and composite paints (Fig. 6). Enhance polishing cup with Prisma Gloss extra fine paste were used to remove the oxygen-inhibited layer from the surface of the restorations (Fig. 7). The final stage of aesthetic rehabilitation of teeth 25, 26, 27 was finishing and polishing

of the restorations with Enhance and Enhance PoGo. Polishing of the proximal walls in teeth 25, 26 and 27 was made with low-abrasion discs and thin strips. The final look of the aesthetic restorations in teeth 25, 26 and 27 is shown in Figure 8.

CONCLUSION

Aesthetic rehabilitation of carious teeth with modern composite materials in the direct restoration technique can be performed in the concept of minimally invasive dentistry. The reconstruction of contact points and correct occlusal integration of direct restorations are integral parts of normal function of the dentition. Nanoceramic composite materials demonstrate positive strength characteristics and high aesthetics, which makes it possible to create restorations that are identical to natural teeth. The use of the Palodent V3 matrix system allows to restore the contact points quickly and efficiently.

REFERENCES:

1. Mitronin A.V., Chunikhin A.A., Abaev Z.M., Basova A.A., Grishin S.Yu., Primerova A.S., Savina N.P. The use of a silorane-based composite material in the restorative therapy of chewing teeth. *Cathedra – Cathedra. Dental education.* 2014;49:32-36.

2. Belenova I.A., Mitronin A.V., Kudryavtsev O.A., Rebriev E.Yu., Zhakot I.V. New options for improving dental fillings. *Cathedra – department. Dental education.* 2016;55:58-61.

3. Nikolaev A.I., Gilmiyarov E.M., Mitronin A.V., Sadovsky V.V. Evaluation criteria for composite dental restorations. *Monograph. MEDpress-inform.* 2015.

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