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Evaluation Of The Effectiveness Of The Use Of Optical Systems In The Restoration Of Defects In The Hard Tissues Of The Tooth

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ABSTRACT

"Perfection is achieved not when there is nothing to add, but when there is nothing to remove" Antoine de Saint-Exupery Presents the results of a study of the performance of aesthetic and artistic restorations and the study of these dental restorations after a certain time with the naked eye and binoculars of two types, while the use of a SLR camera was a prerequisite. Comparative analysis has shown that the use of optical systems during dental manipulations significantly improves the diagnosis of carious and non-carious lesions, facilitates work and reduces the risk of various complications. Clinical photographs are an important component of aesthetic dentistry.

KEYWORDS

Aesthetic and artistic restoration, binoculars, SLR camera.

INTRODUCTION

Currently, there are high requirements for aesthetic dentistry. Successful restoration of teeth is impossible without a deep understanding of their structural features and the spatial relationship of enamel and dentin. To do this, it is necessary to use the most

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modern optical systems. Also, the most effective use of photography in dental practice.

Goal

The aim of our study was to identify a comparative assessment of the quality of restorations of frontal and chewing teeth performed with binoculars and with the naked eye.

MATERIAL AND METHODS

We conducted the research in the City Dental Clinic. 30 patients aged 20 to 45 years, who complained about the presence of defects in the hard tissues of the tooth as a result of trauma, caries and non-carious lesions were divided into 3 groups of 10 people. Of these, 16 are women and 14 are men. Aesthetic restoration of teeth was performed in group 1 with the naked eye, group 2 with a 3.5 X binocular extension, and group 3 with a 4.5 X aprismatic binocular. In the course of our work, we used a Nikon Mark 2 (6 D) Full Frame SLR camera, a 100 macro lens, and a wireless round flash.

RESULTS

Intraoral photos were used for diagnosis, documentation, and demonstration to the patient.

The results of the examination of 16 teeth of group 1 were justified by dental photographs with the naked eye and the following indicators were established: filling defect-19%, lack of edge fit – 23%, excess material at the filling-tooth border-12%, filling roughness-25%, absence of defects-21%. 2 months before the study, this group of patients was diagnosed with fluorosis in one patient, and caries in the other nine. Aesthetic restoration of the following groups of teeth was performed: two men have the upper right first molar, three women have the upper left second premolar, two women have the lower right first molar, two children have the upper left lateral incisor, and one man has 6 upper front teeth.

When examining the restored 18 teeth of group 2 with the help of a 3.5 X binocular, it was revealed: a filling defect - 6%, the absence of an edge fit-11%, excess material at the filling-tooth border-0%, the roughness of the filling-0%, the absence of defects - 83%.

10 weeks before the study, a diagnosis was made: one woman had a wedge-shaped defect and the other had erosion of the hard tissues of the tooth. The rest of the patients were treated for caries. All disturbing groups of teeth were treated: Upper central and lateral incisors, upper and lower molars, lower right second molars, upper right premolars.

The results of the study of restored 17 teeth of 3 groups of patients using a binocular magnifier with an extension of 4.5 X, had the following indicators: filling defect - 0%, lack of edge fit-6%, excess material at the filling-tooth border – 0%, filling roughness – 0%, no defects - 94%.

3 months before the study, this group of patients was diagnosed: one patient had an injury to the upper central incisor, the other nine had caries, two women have the lower right first molar, two children have the upper left lateral incisor, and one man has 4 upper front teeth. Lower central and lateral incisors, upper and lower molars, lower left second molars, upper right premolars.

Color photographs made it possible to compare the shades of the restorations with the adjacent teeth and the underlying structures. The photo accurately conveyed the distribution of enamel color, the intensity of color characteristics, the different severity of transparency and opacity of the cutting edge. The black-and-white photos conveyed the character of the surface and the brightness of

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the tooth well. In the photographs, we determined the position of the cutting edge of the final restorations.

CONCLUSIONS

Performing and inspecting aesthetic restorations with the naked eye does not make it possible to identify very small details and identify defects. The binocular magnifier is a more practical and versatile optical device. Comparative analysis has shown that the use of optical systems at the time of performing artistic restoration of teeth can dramatically improve the quality of dental treatment, improves the efficiency of the dentist. Improving the photographic process contributes to the development of dental practice.

Digital technologies have introduced new opportunities, they are convenient, but require some new knowledge and skills.

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