Today most patients come to the dentist in order to improve the aesthetic appearance of teeth and smile. Typically, to achieve improved smile aesthetics dentist can use whitening, direct or indirect restoration of teeth. But there are situations such as intensive discoloration of tooth tissue due to previous trauma or endodontic treatment, in which is difficult to achieve good results. Usually the decision is intracoronal whitening with hydrogen peroxide in a concentration of approximately 30–35% or sodium perborate. These procedures can give a good immediate result, but the long-term success rate is considerably lower, as some color regression may occur after the initial bleaching effect. [1]

One way to solve the problem of intensive discoloration of tooth tissue is a direct composite restoration of teeth, using composite masking shades for covering a discolored tissue of tooth [2]. This article describes in detail the solution that will help the dentist to have best result with even significant discoloration of the teeth.

Img. 1 - A 31 years old male patient appeared in dental office with problem of discoloration two anterior teeth. According to his words, about 11 years ago he got injured in accident and teeth 11 and 12 were endodontically treated and restored. After 5 years, teeth 11 and 12 became darkly stained. For this reason the patient is shy and really dislikes his smile.
A comprehensive examination of the teeth found darkly stained teeth: the central and lateral maxillary incisors with old and worn direct restorations. One of the best solutions to this problem is direct composite restoration. However, discoloration not only involves the crown of the tooth, but also its root; avoiding a dark outline of the gums around the tooth is not possible and the patient has been informed about it. But the dark outline of the gums will not affect the aesthetics of the smile, because, in this case, it’s almost invisible while the patient smiles. The restorations basic shade was defined as A2, by the shade of the left lateral and central incisors. The color shade of 12 and 11 teeth was defined as A6.
Img. 4 - The Rx showed satisfactory quality of endodontic treatment and absence of periodontal changes.

Img. 5 - Step one of the treatment of this patient was the creation of a silicone index using Express STD (3M ESPE) to restore the future shape of the teeth. For the final mock-up we discussed the shape of future restorations with the patient. Because of vestibular position of tooth 22, before starting the treatment the food stuck between the 21 and 22, so the patient insisted on a straighter and more compact proximal contact between 12 and 11. That is why the shape of tooth 12 will different from 22 tooth after restoration.
Step two of the treatment was preparation. Before the preparation the retraction cord (Ultrapak 00, Ultradent) was placed in the sulcus of right lateral and central incisors. During preparation we removed old restorations, carious tissue and reduced 0.7 mm tooth tissue on cervical surface, unfortunately, optimal aesthetics do not allow more conservative tooth preparation in situations where the teeth are darkly stained. [3]
Natural color reproduction on a dark tooth is not an easy task, because the darkened dentin may be visible through the composite layer and do the restoration of gray. Therefore, will be used not only standard set of shades Filtek Z350 XT for the restoration, but also camouflage opaque shade OA2 Filtek Z550. We started restoring from the central incisor.
Img. 8 - After rubber dam isolation, a teflon tape was used to isolate adjacent tooth 1.1. [4]
Acid etching, water rinsing and drying; then Single Bond Universal adhesive was applied on the dental surfaces and, after solvent evaporation, it was light cured for 20 seconds on labial and palatal...
The restoration of the palatal surface: two layers of opaquer were applied under silicone guide control with polymerization of each in 30 seconds. It helped to made tooth brighter and natural. The incisal part of the palatal surface was restored with a thin layer of translucent enamel composite (A2E Filtek Z350 XT) with using a silicone index.
Img. 12 - View of the palatal surface after composite polymerization.
Img. 13 - The proximal surfaces was restored with enamel composite (A2E Filtek Z350 XT) with using contouring metallic matrix.
Img. 14 - A 0.5 mm layer of a white opaquer resin composite (OA2 Filtek Z550) used to mask the dark color of the dentin.
Img. 15 - The artificial dentin (A3D Filtek Z350 XT) placed on the tooth surface and sculpted in the shape of mamelons.
Img. 16 - The final step of the restoration was application of an enamel composite (A2E Filtek Z350 XT) between mamelons and on labial surface of tooth.

Img. 17 - View of restorations immediately after removing the rubber dam and first polishing.
The finishing and polishing of the restoration was carried out after 3 days, using fine burs and ultrathin polishing discs and Sof-Lex™ Spiral Polishing Wheels. After finishing we gave the recommendation to correct vestibulo-position of tooth 2.1 for the patient.

Palatal view after polishing.
Even in the case of intensive discoloration of anterior teeth due to previous root canal treatment, the correct use of a combination of traditional composite materials and masking shades for the restoration, allows to achieve excellent aesthetic result for the patient’s smile.

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