Removing White Spots Effectively Using Resin Infiltration

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A 30 year-old male patient presented to the UAB faculty practice with a chief complaint of white discolorations on his anterior teeth that had been present since his childhood. Intra-oral examination of the lesions indicated that they did not have a well-demarcated border which suggests that they were located behind a layer of enamel and not just on the surface of the enamel. A high intensity light was placed on the lingual surface of the teeth and light was able to partially pass through the lesion, which indicated that the lesions were at a maximum of a few hundred microns into the enamel. Due to the difficulty of treating discolorations that are below the surface of the enamel, the patient was warned that operative treatment with a direct composite restoration may be necessary to completely mask the discoloration. The patient understood but preferred to try a more conservative treatment option first.

The decision between microabrasion and resin infiltration was made taking into consideration that microabrasion removes 25-200 microns of surface enamel per 5 to 10 applications and resin infiltration has been shown to infiltrate up to 670 microns into enamel. Since these lesions demonstrated signs of being below a layer of enamel, the decision was made to use resin infiltration. Resin infiltration is a preferable treatment option for thicker lesions or lesions that are not on the surface of the enamel.

A non-latex rubber dam was placed. Floss ties were used to retract the rubber dam from the cervical area of the tooth. Due to some slight tearing during the application of the rubber dam, a liquid dam was placed in several papilla areas to better protect the soft tissue.

Teeth #6-11 were etched with Icon Etch for an initial period of 2 minutes. Following removal of the etch, the teeth were observed for removal of the discoloration. At this point, there was not a significant improvement in the homogeneity of the enamel. The Icon Dry was placed on the tooth

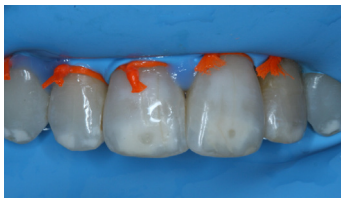


Figure 1: Pre-op

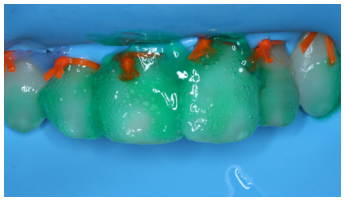


Figure 2: Etching #1

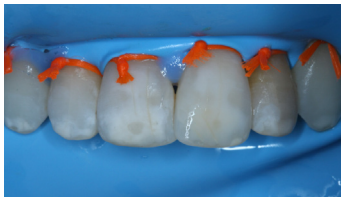


Figure 3: After etching #1

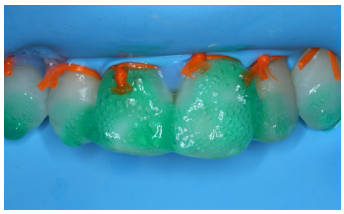


Figure 4: Etching #2

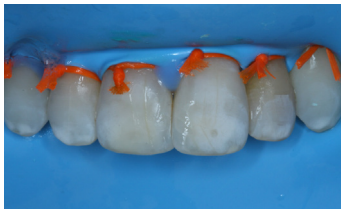


Figure 5: After etching #2



Figure 6: Immediate post-op

as a method to predict the expected color change that would occur during infiltration. Although a slight improvement was noted, it had not yet reached a desired outcome. A second round of acid application (2 minutes) was repeated and the outcome following Icon Dry was still not acceptable. After a third round of acid application and Icon Dry, the tooth achieved an acceptable color change with the Icon Dry. The tooth was then completely dried.

The Icon Infiltrant was applied to the tooth generously with agitation. After 3 minutes the resin was air dispersed and light cured. A second round of resin application was performed for 1 minute and air dispersed. A final cure of 40 seconds per tooth was performed.

The rubber dam was removed and any residual resin was removed with a scaler. The patient was asked to run his tongue over the teeth to ensure all surfaces were free of resin. The patient was very satisfied with the esthetic outcome.

References

1. Pini NI, Sundfeld-Neto D, Aguiar FH, Sundfeld RH, Martins LR, Lovadino JR, Lima DA. Enamel microabrasion: An overview of clinical and scientific considerations. World J Clin Cases. 2015 Jan 16;3(1):34-41. doi: 10.12998/wjcc.v3.i1.34. PMID: 25610848; PMCID: PMC4295217.
2. Crombie F, Manton D, Palamara J, Reynolds E. Resin infiltration of developmentally hypomineralised enamel. Int J Paediatr Dent. 2014 Jan;24(1):51-5. doi: 10.1111/ipd.12025. Epub 2013 Feb 15. PMID: 23410530.