“Effect of herbal and non-herbal toothpaste on surface roughness of direct tooto-colored restorations”

Ronnakorn Singkhong, Chaitat Barameeauychai, Thanapat Jantranutr, Yavitha Surachettapong, Suwat Ponsanga
Advisor : Dr.Viracha Vachiramon, DDS., MS Prof. La-ongthong Vajrabhaya. DDS,Grad.Diplomat in clinical science

Introduction

Toothbrushing with dentifrices has been used as the primary method for cleaning teeth, controlling plaque and stain accumulation on a tooth or restorative surface. Increasing abrasiveness of dentifrices may impact on restorative material longevity due to their change in surface roughness which may trigger the susceptibility of plaque accumulation leading to periodontal disease, secondary caries or aesthetic quality of a restoration.

Herbal toothpastes have gained popularity due to the increased tendency to use organic products rather than those from synthetic materials. These herbal products claim to protect tooth structure and gingival tissue, however, there is a few studies on the effect of an herbal toothpaste on surface roughness of direct restorations available noted that these product caused more roughness than those of non-herbal toothpaste.

Therefore, the purpose of this study was to investigate the effect of herbal and non-herbal toothpaste on the surface roughness of three different direct tooth-colored restorative materials.

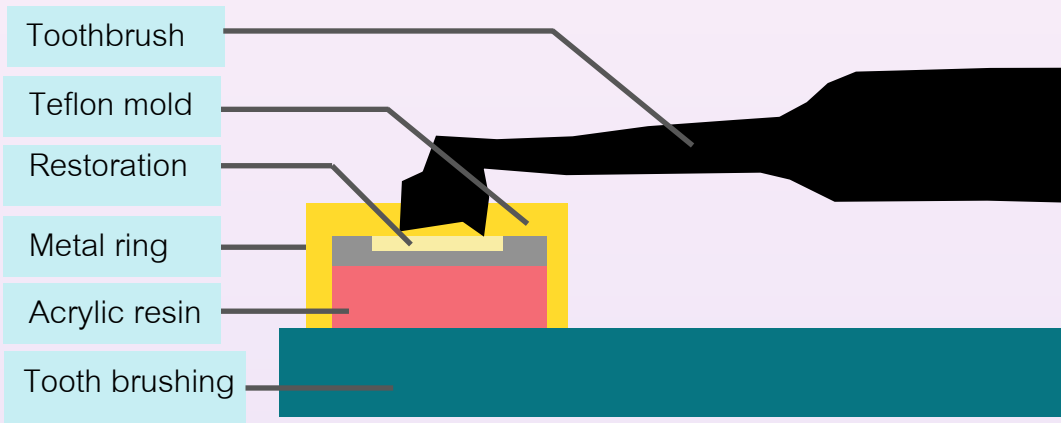
Objective

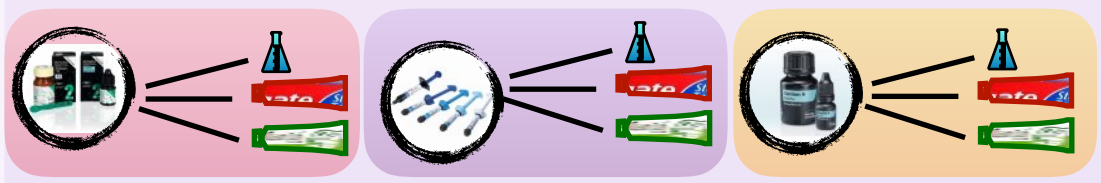
To evaluate the surface roughness of three direct tooth-colored restorative materials after brushing with herbal and non-herbal toothpaste.

Statistical analysis

A parametric, 2-way ANOVA and Tukey’s post hoc test were used to analyzed the data to determine significantly difference among the toothpastes and restorative materials, and determine significant differences with the significant level at $p \leq 0.05$. The data were analyzed by SPSS version 25.

Materials and Methods





Ninety specimens(30 specimen/group; resin composite, resin-modified glass ionomer cement, alkasite) were secured with acrylic resin in teflon molds 13 mm diameter with 10 mm height. Restorative materials were and stored in artificial saliva at 37°C for 24 hours. Each material groups were distributed into 3 subgroups according to brushing treatments: Colgate® great flavor formula, Twin lotus®, distilled water. Z350(3M ESPE),Fuji II LC(GC America), Cention N (Ivoclar Vivadent). Each specimen was brushed with an automated soft bristle toothbrush (Braun Oral-B Vitality™ Precision Clean D12.013, Braun GmbH Co, Kronberg, Germany) to the equivalent of 6 month. Surface roughness of each specimen were analyzed before and after tooth brushing by using profilometer (Talysurf series 2, Taylor Hobson Limited, Leicester, England) and evaluated under a scanning electron microscope (SEM).

Results

From this study, brushing with herbal toothpaste produce a rougher surface on resin modified glass ionomer cement. Brushing with non-herbal toothpaste can increase surface roughness of alkasite and resin modified glass ionomer cement. SEM revealed surface roughness corresponded to the results from the surface roughness restoration.