Conservative Dentistry :

Presentations:

Cuspal Deflection in Premolar Teeth Restored with Bulk-Fill Resin-Based Composite Materials

Marwa Elsharkasi (BDS, MSD),Jeffrey Platt (DDS, MS)

Norman Blaine Cook (DDS, MSD)

Indiana University School of Dentistry

Indianapolis, Indiana,USA

Background: Polymerization shrinkage of conventional resin-based composites (RBCs) can cause cuspal deflection and be associated with enamel cracking, cusp or tooth fracture and changes in occlusion. Bulk-fill resin-based composite materials are recent additions to the market. These recently developed materials produce less polymerization shrinkage when compared to traditional composite materials. Insufficient data are available in the literature regarding the cuspal deflection associated with bulk-fill resin composite materials

Objectives: To investigate the effect of bulk-fill resin based composite materials on cuspal deflection in large slot mesio-occlusal-distal cavities (MOD) in premolar teeth.

Methodology:Thirty-two sound maxillary premolar teeth with large slot MOD cavities were distributed to four groups (n=8). Three groups were restored with bulk-fill resin composite materials (TetricEvoCeram, x-trafil, and Sonic Fill, respectively) in a single increment. The conventional composite group, Filtek Z100, was used to restore the cavities in 2mm increments. Cusp deflection was recorded post irradiation using a Nikon measurescope UM-2 (Nikon, Tokyo, Japan), by measuring the changes in the bucco-palatal width of the premolar teeth at 5 minutes, 24 hours, and 48 hoursafter completion of the restoration. The cuspal deflection was obtained by recording the difference between the baseline measurements and the other measurements for each tooth.

Results: Cuspal deflection was significantly higher in Conventional Composite than in TetricEvoCeram Bulk Fill ($p=0.0031$), x-traFil Bulk ($p=0.0029$), and SonicFill Bulk ($p=0.0002$). There was no significant difference in cuspal deflection for TetricEvoCeram Bulk, X-traFil Bulk, and SonicFill Bulk Composites.

Conclusions: All the investigated bulk-fill resin composites exhibited cuspal deflection lower than conventional resin composite. One of the aims of research and studies on the resin composite materials is improving their clinical longevity, and simplifying their use. For that purpose bulk-fill materials are considered promising materials and further clinical studies should be conducted.

POSTERS:

Modern facility of Occlusal Diagnosis and Adjustment (T-Scan III)

Omran omar turbi BDS, M:PH, PHD

Lecturer: Prostodontic department

Dental practitioners continue to date to advocate the use of articulating paper (primarily) as the means to evaluate occlusal contacts prior to making occlusal adjustment. The T-Scan III computerized occlusal analysis system over comes the known limitations of articulating paper, the T-Scan III can help ensure that high quality and complete occlusal end results and predictably obtained from clinical occlusal treatment.

Mechanism of T-Scan III: During maxilla-mandibular functional movements the T-Scan III determines the contact time-sequencing and the relative occlusal force between numerous occlusal contacts and displays them all for dynamic analysis.

T-Scan III enables the clinician to better indentify many interfering contacts that are not readily identified by articulation paper and provide patients with predictable high quality occlusal treatment and result which we not previously possible.