Abstract

Abfractives lesions or abfractions are non-cavity lesions of dental structures in which a biomechanical factor has been identified as being the most probable cause for it occurring. Even though such lesion can be presented in any tooth, it occurs more frequently in people aged over 35. This article presents some results obtained by the Universidad Nacional de Colombia’s multidisciplinary research group for studying “dental material’s structure and properties”. The introduction describes such lesion’s characteristics and possible causes. The results of various modelling exercises using finite elements (in two and three dimensions) are presented regarding a first premolar tooth subjected to normal mastication load and also to abnormal loads produced by occlusion problems. The most important findings (accompanied by clinical observations) were that: areas of high concentration of forces were identified where lesions were frequently presented, associated with loads whose line of action did not pass through the central part of the section of tooth at cervical level; a direct relationship between facets of wear being orientated with the direction of forces produced by a high concentration of force; and the presence of high compression forces in the cervical region.

Keywords

abfraction, finite element, dental structure, modelling.