

OCT aspects in dental wear

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Abstract

Non carious tooth loss, known as dental wear, represents an irreversible loss of dental hard tissues under the action of physical, chemical and mechanical factors. Among the four clinical forms of toothwear, erosion, attrition, abfraction and abrasion, there are many etiological factors that intervene, but for each one there is a predominant factor.

Optical coherence tomography (OCT) was used to study soft but also hard dental tissues, like enamel, dentine and cement. Since OCT is a non-invasive optical method characterized by a micronic resolution, it gained a growing importance in dentistry, with in vitro and also in vivo applications.

The study objective was to highlight the OCT aspects in different forms of tooth wear. OCT images in erosive tooth wear lesion pointed out the existence of chemical aggression, with strong demineralization of enamel and dentine. In attrition lesion, OCT aspects showed the effects of excessive force and friction movements specific to bruxism. For abfraction lesion, OCT images revealed the importance of the mechanic factor in producing this form of tooth wear. Abrasion damage may be considered physiological, according to patient age.

OCT imaging could be used to reveal characteristic aspects of tooth wear lesions in hard dental tissues for each clinical subforma, thus contributing to elucidate the mechanisms involved in each form.

Key words: tooth wear, erosion, attrition, abfraction, abrasion, optical coherence tomography