

Medical > In Vivo > Oral investigations

12

Non-invasive in vivo visualization of enamel defects by reflectance confocal microscopy (RCM).

Contaldo M1, Di Stasio D, Santoro R, Laino L, Perillo L, Petruzzi M, Lauritano D, Serpico R, Lucchese A.; Odontology. 2014 Apr 10.

ABSTRACT

The enamel defects (EDs) may present with a variety of clinical manifestations with increasing severity from the sole appearance of pale discoloration to remarkable structural alterations. EDs are responsible for higher caries receptivity. In vivo reflectance confocal microscopy (RCM) allows to image in vivo at microscopic resolution of the dental surface, thus avoiding the tooth extraction and the sample preparation because of its ability to optically scan living tissues along their depth. Aim of this study is the in vivo assessment at microscopic resolution of dental surfaces affected by EDs without resorting to invasive methods such as teeth extractions, to define histological findings occurring in chromatic and/or structural EDs. For the purpose, 15 children, referring at the Dental Clinic of the Second University of Naples, affected by several degrees of EDs, were enrolled and underwent in vivo RCM imaging to microscopically define the ED confocal features using a commercially available hand-held reflectance confocal microscope with neither injuries nor discomfort. Totally, 29 teeth were imaged. Results demonstrated images good in quality and the capability to detect EDs such as unevenness, grooves, and lack of mineralization according to their clinical degree of disarray. The present in vivo microscopic study on EDs allowed to highlight structural changes in dental enamel at microscopic resolution in real-time and in a non-invasive way, with no need for extraction or processing the samples. Further experiments could define the responsiveness to remineralizing procedures as therapeutic treatments.