

Demineralization Of Enamel After Radiotherapy, In Vitro And In Situ Irradiations

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Introduction

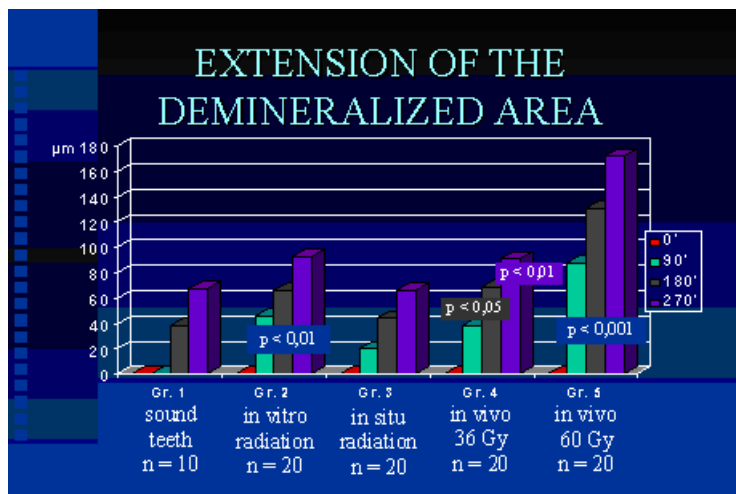
Radiogenic effects on enamel as an early stage for radiation induced caries still are discussed in controversy. Drawbacks of existing studies on direct radiogenic enamel degradation are lacking comparability of the results.

Objective

The aim of this study is to provide evidence for direct effects of radiation on enamel in contrast to the well-known damages post-radiationem induced in the oral environment.

Material and Methods

1: totally impacted, surgically extracted teeth (n = 10) 2: teeth irradiated in vitro (500 - 2500 Gy) (n = 20) 3: irradiated in situ (experimental enoral; 60 Gy) (n = 20) 4: radiotherapy (extraction after 18 days; 36 Gy) (n = 20) 5: radiotherapy (extraction after 2.5 years; 60 Gy) (n = 20) Demineralization: lactic acid gel (pH = 5.0) up to 270 min CLSM-histology: prospective after 0, 90, 180, 270 min etch Interpretation of micro-morphological and micro-morphometric criteria

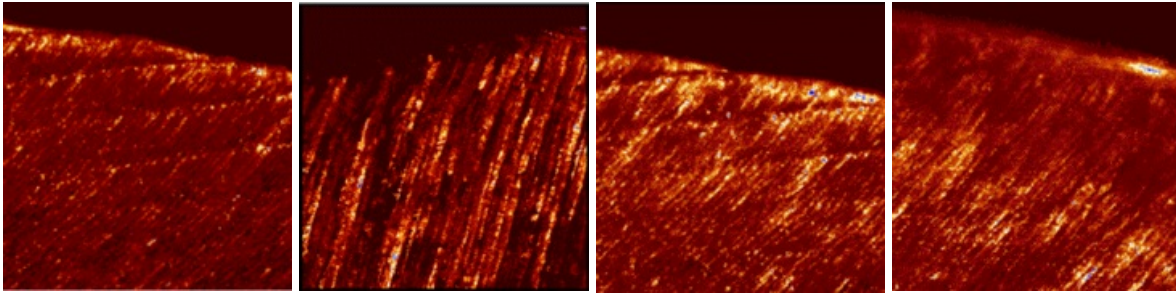


Results

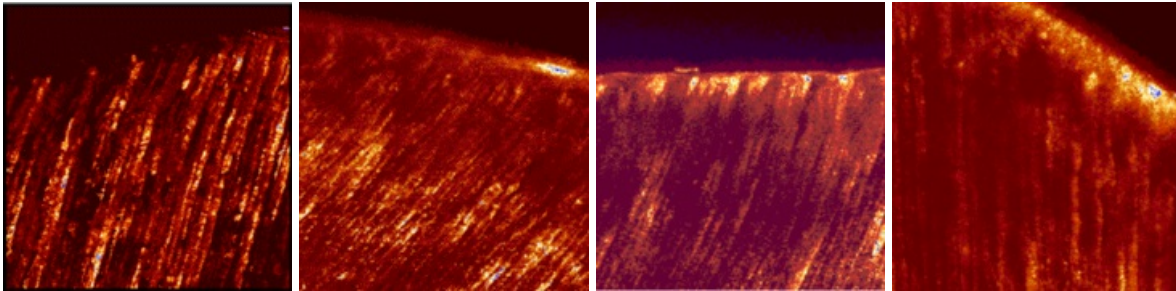
90 min lactic

180 min lactic

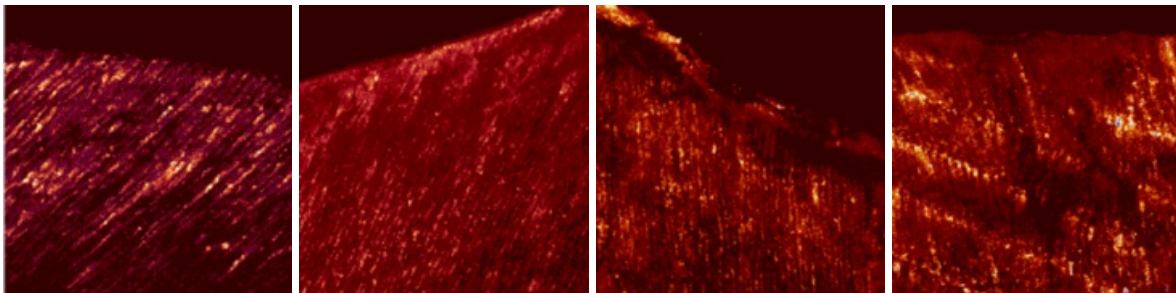
270 min lactic



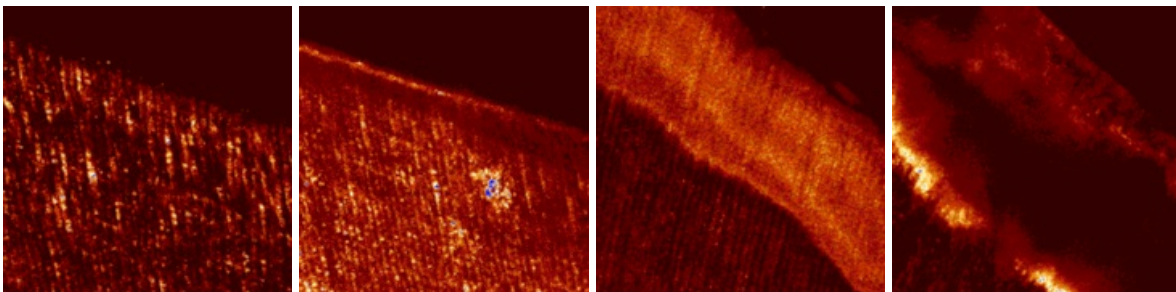
sound enamel



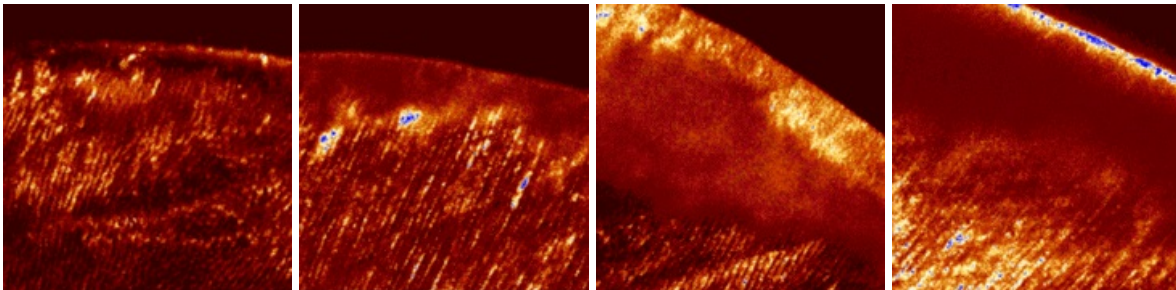
in vitro radiation



in situ radiation



radiotherapy 36 Gy



radiotherapy 60 Gy

Discussion and Conclusions

Irradiated enamel is more vulnerable to acid attack than sound enamel.

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