Er:YAG laser etching of hypoplastic enamel

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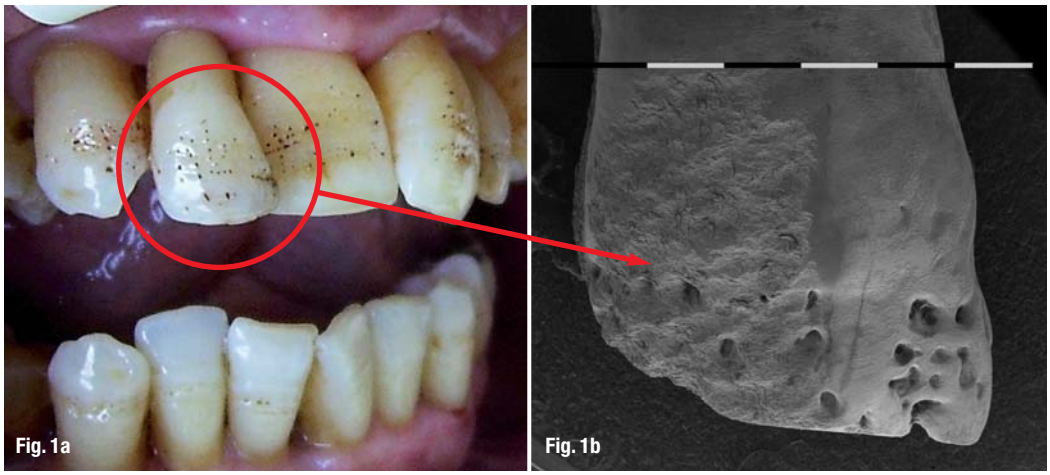

Fig. 1_Dentition represents a pitted hypoplastic variant of EH **(a)**. The extracted tooth is treated with 37% phosphoric acid for 600 sec. (right side) and irradiated by Er:YAG radiation (LiteTouch 200 mJ/355 Hz, left side) and then examined under SEM **(b)**.

_Introduction

Enamel hypoplasia is the most common abnormality of development and mineralisation of human teeth. The lesion is characterised by a quantitative defect in enamel tissue resulting from an undetermined metabolic injury to the formative cells—the ameloblasts.[1] Clinically, enamel hypoplasia is seen as a roughened surface with discreet pitting or circumferential band-like irregularities which posteruptively acquire a yellow brown stain.[1] Enamel hypoplasia is endemic in many countries of the world and is commonly reported in association with disease of childhood. The hypoplastic enamel has differences in structure and composition that may affect it's etching patterns.[2] Enamel etch by the acid can be additionally complicated by variability of penetration depth, and strong washing and drying affecting the bond strength.[3] Er:YAG lasers are discussed as an alternative of acid etching, but there are no scientific evidences to support this hypothesis.

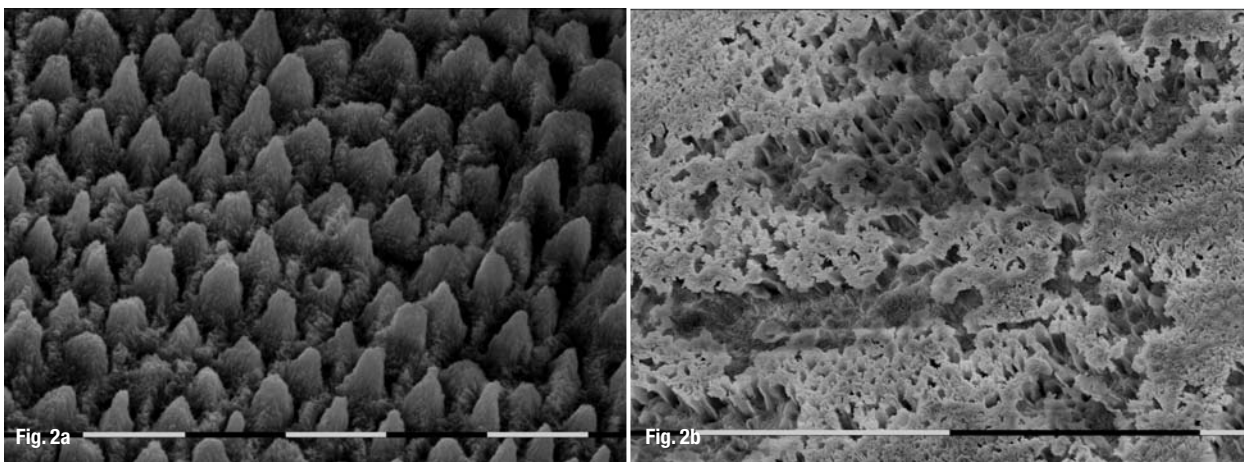

Fig. 2_Type 2 etching pattern in normal enamel: prism peripheries are preferentially removed **(a)**. Acid etching of hypoplastic enamel showed a patchy loss of surface tooth structure without evidence of etching patterns **(b)**.