

Ultrastructural study of the acid conditioned sclerotic dentin of non-carious cervical lesions

Jeong-Kil Park*, Bock Hur

Department of Conservative Dentistry, College of Dentistry, Busan National University, Busan, Korea

I. Objectives

The purpose of this study was to investigate the ultrastructure of sclerotic dentin of non-carious cervical lesions after acid etching.

II. Materials and methods

Teeth with non-carious cervical lesions were collected and dentinal surfaces were acid etched with 35% phosphoric acid.

The micromorphological features of peritubular dentin and intra-tubular calcific structure were observed with scanning electron microscope.

III. Results

Various features of sclerotic changes could be observed.

1. Tube-like calcific structures with varying thickness were observed in the dentinal tubules(Fig 1). Tube-like and rod-like calcific structures could be observed in the same specimen(Fig. 2).
2. Narrowing or complete obstruction of dentinal tubules by thickening of peritubular dentin was observed(Fig. 3).
3. Dentinal tubule obstruction with calcific structure and thickening of peritubular dentin occurred simultaneously in the same specimen(Fig. 4).
4. Packing of plate-like crystals to make tube-like calcific structures in the dentinal tubules were observed(Fig. 5).

IV. Conclusions

Narrowing or complete obstruction of dentinal tubules with thickening of peritubular dentin were observed. Partial or complete obstruction of dentinal tubules with tube-like or rod-like calcific structures were observed. Packing of plate-like crystals to make tube-like calcific structures in the dentinal tubules were observed.