

Distribution and interrelationships between structural elements of dentine have great influence on the form and quality of the hybrid layer. Heterogeneous structure of dentine determines further specific properties of the dentine: permeability, humidity, physical properties (hardness, strength, elasticity). This dentine structure and dentine physiology variety determines adhesion to dentine as a complex interaction between biologic material (dentine) and adhesion system.

Most teeth that require adhesive restorative treatment are carious or have had a previous caries lesion. A number of tissue changes in the dentin and pulp take place as a result of caries (formation of tertiary dentine, sclerosis of the dentinal tubules, cellular changes in the pulp). Apart from caries-affected dentine, sclerosis takes place in the exposed, abraded, cervical dentine. Both types of dentine sclerosis prevent resin tag formation. Bond strength values are reduced in comparison to bond strength on the normal, physiologic dentine surface. Adhesive system selection is a very important factor for hybridization and bond durability. Each adhesive system contains further components: acid, primer and adhesive resin. Multi-bottled adhesive system were used until 1994. These system required application in multiple steps.

After chemical treatment, hybridized dentin is formed in the subsurface. There is greatest change in the volume ratio between minerals, water and resin. The rate of collagen fibrils remains the same. New chemical and physical properties of dentin and resin are developed due to the formation of the hybrid layer.

Broj dentinskih tubula kao funkcija dubine kaviteta

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Svrha ovog istraživanja je utvrditi postoji li razlika između broja i promjera otvora eksponiranih dentinskih tubula te udjela površine otvora eksponiranih dentinskih tubula od ukupne površine poprečnog presjeka humanoga koronarnog dentina s obzirom na udaljenost prema caklinsko-dentinskom spojištu i pulpi.

Scanning elektronsko-mikroskopska usporedbena raččamba provedena je na 60 uzoraka humanoga koronarnog dentina razdijeljenih u tri skupine prema udaljenosti između pulpe i caklinsko-dentinskog spojišta. promatran je dentin na tri razine u području središnje fisure:

1. poprečni rez koronarnoga dentina, 1 mm ispod caklinsko-dentinskoga spojišta
2. poprečni rez koronarnoga dentina na polovini razmaka između caklinsko-dentinskoga spojišta i pulpne komore
3. poprečni rez koronarnoga dentina 1 mm iznad krova pulpne komore

Izbrojeni su vidljivi dentinski tubulusi unutar kvadrata površine 50 μm x 50 μm . Dobiveni broj podijeljen je s 2500 da bi se dobio $\text{N}/\mu\text{m}^2$ i pomnožen s 1.000.000 da bi se dobio N/mm^2 .

Prosječan broj otvora eksponiranih dentinskih tubula na prvoj razini je 96000/ mm^2 , na drugoj razini 27100/ mm^2 , te na trećoj 58.300/ mm^2 . Jednosmjernom raččambom varijance dobiven je omjer MStretman/MS pogreška 305,22, koji je veći od F 0,99 (2,57) 4,98.

Rezultati upućuju da postoji statistički znatna razlika broja i promjera otvora eksponiranih dentinskih tubula i veličine površine koju zauzimaju sve tri promatrane skupine uzoraka.

Number of the Dentinal Tubules as a Function of Cavity Dept

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The aim of this study was to determine if there is any difference between the number of exposed dentinal tubules on the cross section of the coronal dentine.

By scanning electron microscopy comparative observation was carried out on 60 specimens of human coronal dentine, divided into 3 groups, in relation to the distance from the enamel-dentine junction and the pulp. Coronal dentine in the region of the central fissure was observed on three levels: