

R-34. Influence of the new Ultrasonic scaler with brightener and fluid abrasive on the root surface and comparison of it with air and conventional ultrasonic scaler.

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Purpose

The hand scaler is mainly used for subgingival scaling and root planning up to now. However, the new type of ultrasonic scaler, which generates vertical vibration by a resonating ring named VectorTM, was developed to do the root planning without big damage of root surface. The influence of VectorTM slurry on the root surface has been investigated in this research. The abrasion of root surface was compared with the air scaler and conventional ultrasonic scaler, PiezonTM Master400(EMS Switzerland) (PiezonTM).

Materials and Methods

One hundred of extracted teeth were used in this experiment. VectorTM was fixed to the teller-made apparatus, in order to make root surface parallel to the axis of the chip with intervals of 50m. Hydroxyapatite(HA) and silicon carbide(Sic) were used as slurry. The air scaler and PiezonTM were set to load 2.6g to teeth. The operating time was set to 0, 3, 5, 7, and 10 minutes. The sections of root samples were also observed by the SEM.

Results

The morphological changes of the root surface using air scaler were bigger than the other instrument. The abrasion by VectorTM using Sic was not seen till 7 minutes on the root surface using strength 10 powers. However, the abrasion of root surface using air scaler was observed after every operating times(3, 5, 7, 10 minutes). The difference of abrasion width was found as $P < 0.05$ (T-test) with the relationship between the air scaler and VectorTM for 10 minutes. The difference of abrasion depth was found as $P < 0.05$ (T-test) with the relationship between the group of the air scaler and PiezonTM, and between the air scalers and VectorTM for 10 minutes. The difference of abrasion

depth was found as $P < 0.05$ (T-test) with the relationship between the HA groups using strength 5 powers and Sic groups of VectorTM using strength 10 powers for 10 minutes.

Conclusion

It is important to make the root surface not damaged in root planning. From our results, it is suggested that VectorTM seems to be superior than air scaler and PiezonTM Master, and it is desirable to use Sic first of all and HA lastly setting strength 5 powers and within 3 minutes, when we use VectorTM.

* **key words** : Root planning, fluid polish, fluid abrasive