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Comparison of Microleakage of Class V Cavities restored with Nanofill Resin Composite, Highly Viscous Glass-Ionomer Cement and Highly Viscous Glass-Ionomer Cement/Resin Coating.

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The purpose of this in vitro study was to evaluate the microleakage rate of class V cavities restored with nanofill resin composite (Filtek™ Z350 XT), highly viscous glass-ionomer cement (Ketac Universal Aplicap) and highly viscous glass-ionomer cement/resin coating (EQUIA Forte™ Fil) at occlusal and gingival margins.

Materials and methods

Thirty sound extracted human upper premolars were prepared for class V cavities (2.6 mm. mesio-distal width, 4 mm. occluso-gingival width and 2 mm. depth) on the buccal surfaces. All the prepared teeth were randomly divided into 3 groups (n=10) and restored with 3 materials following the manufacturer's recommendations. After that, all the restored teeth were submitted to simultaneous 5,000 thermal cycles in water at 55°C and 5°C and stained with the 2% methylene blue solution for 4 hours. All the teeth were section and evaluated the microleakage rate with stereoscopic microscope. The statistically differences among 3 groups were analyzed by using Mann-Witney U test (p-value >0.05).

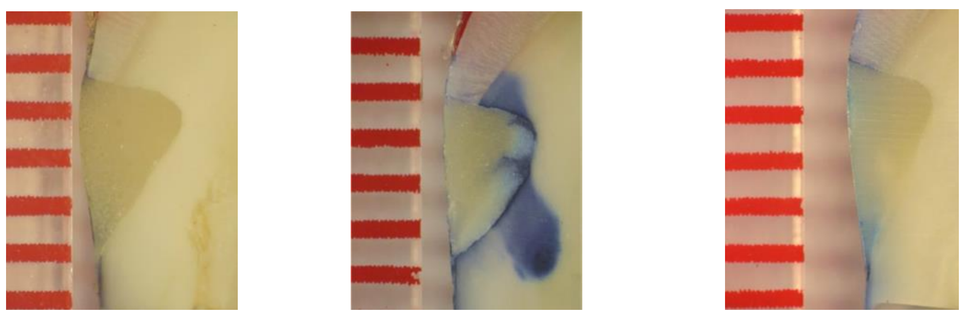
The results

At both the occlusal and gingival margins, the percentage of microleakage scores of Filtek™ Z350 XT ,EQUIA Forte™ Fil glass ionomer cement and Ketac Universal Aplicap glass ionomer cement restorations were shown at Table 1.

materials	percentage of mean microleakage score Mean±SD (95%CI)	
	Occlusal	gingival
Filtek™ Z350 XT	21.45±10.25 [a]	24.82±6.19 [a]
Ketac Universal Aplicap	100±0 [b]	100±0 [b]
EQUIA Forte™ Fil	27.48±15.49 [a]	51.63±20.21 [c]

Table 1 shows the percentage of microleakage scores of all material restorations

* The similar letters represent no statistically difference (p-value > 0.05) by Mann-Whitney U test



Filtek™ Z350 XT Ketac Universal Aplicap EQUIA Forte™ Fil

Picture 1 the sample pictures of microleakage took from stereoscopic microscope

In conclusion, The classV cavity restored with resin composite Filtek™ Z350 XT had lower percentage of mean microleakage score than EQUIA Forte™ Fil glass ionomer cement and Ketac Universal Aplicap glass ionomer cement both at occlusal and gingival margin. Ketac Universal Aplicap glass ionomer cement restoration had 100% percentage of mean microleakage score.

Discussion

Filtek™ Z350 XT exhibited the lowest microleakage score both at occlusal and gingival margins due to the use of 3 steps etch and rinse adhesive system. On the other hand, EQUIA Forte™ Fil and Ketac Universal Aplicap were used without surface treatment.

References

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