Retrospective Study Comparing Restorative Materials for Primary Anterior Strip Crowns

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Background

- Resin composite strip crowns are an esthetic, yet technique-sensitive restoration and may be difficult to place in an uncooperative patient.
- Different restorative materials offer different properties, some making them more moisture resistant, and thus less technique sensitive but may sacrifice durability.
- If such materials can be effectively used for strip crowns, they may be the material of choice for their therapeutic effects and resistance to moisture
- While there are several studies of strip crowns, very few examine the longevity of different materials

Objective

- To compare the relative success rates of different restorative materials used for strip crowns in primary anterior teeth: Resin composite (TPH, Filtek and Gaenial); Glass ionomer (Fuji IX); Resin-modified glass ionomer (Fuji II LC) and glass hybrid (Equia Forte).

Methods and Materials

- A retrospective electronic chart review was completed on patients ages 15 months to 7 years of age who presented to a tertiary medical center.
- Five Hundred thirty teeth that and had strip crown restorations placed between 2011-2022 due to carious lesion with no clinical or radiographic pulpal involvement
- Corresponding patient charts were reviewed to determine if these restorations failed or lasted until exfoliation

Results

Table 1. Characteristics of restorations (n = 530).

Characteristic	Strip Crown (n = 530)
Tooth, n (%)	
C (upper right canine)	21 (4.0%)
D (upper right lateral incisor)	89 (17%)
E (upper right central incisor)	150 (28%)
F (upper left central incisor)	147 (28%)
G (upper left lateral incisor)	103 (19%)
H (upper left canine)	20 (3.8%)
Material, n (%)	
Glass Ionomer (Equia Forte, Fuji IX)	24 (4.5%)
Hybrid resin (Gaenial)	53 (10%)
Resin-composite (TPH, Filtek, Gradia)	337 (64%)
Resin-modified GI (Fuji II LC)	116 (22%)
Location, n (%)	
Clinic	224 (42%)
OR	306 (58%)

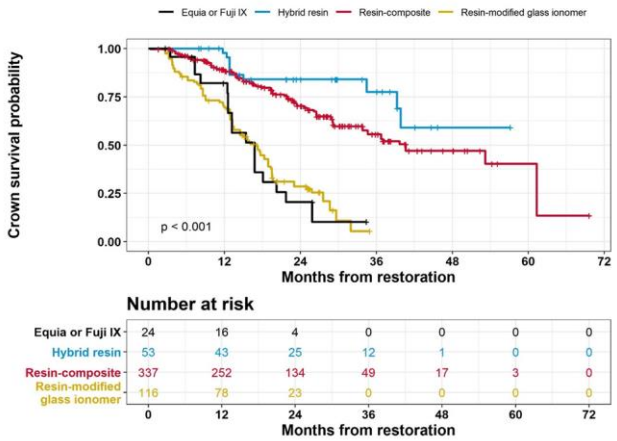

Figure 1. Kaplan-Meier estimates of survival for the various material types used in strip crown restorations; "+" denote censoring events

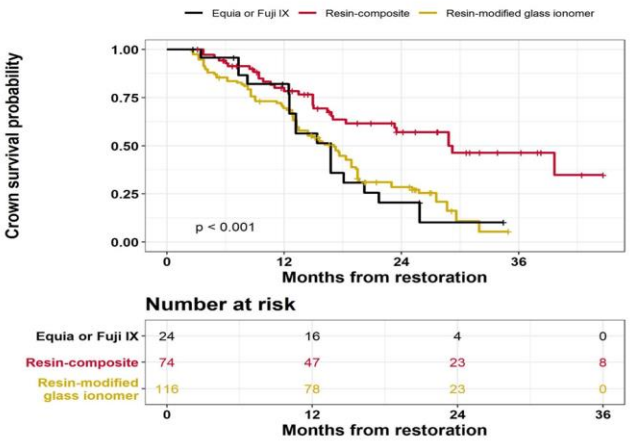

Figure 2. Kaplan-Meier estimates of survival for the material types used in the clinic setting for strip crown restorations; "+" denote censoring events.

Conclusions

- Resin based restorative materials have better longevity than those containing glass ionomer for strip crown restorations.
- This difference also existed when examining only those restorations placed in a clinic setting, though the survival curves were closer together

Limitations

- Data were not collected by calibrated examiners, which likely resulted in discrepancies of what was considered clinically acceptable.
- Because this study was retrospective, follow-up intervals were sometimes irregular, making it hard to estimate exact time of failure or exfoliation
- Greater amount of data were available for certain restorative materials compared to others, making the data for smaller sample size materials more susceptible to outliers

Future Recommendations

- Employ a prospective design with a larger sample size and to provide detailed reporting of follow up intervals.
- Investigating factors such as behavior during placement and at home oral hygiene practices would also be worthwhile.

References

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