Longevity of Class II Composite Restorations in Primary First Molars

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LEARNING OBJECTIVES

To assess the survival rates of class II composite resin restorations placed in primary first molars by the Department of Pediatric Dentistry at the Dental College of Georgia at Augusta University between the years of 2009 and 2019.

To determine the final outcome of the treated tooth (exfoliation, SSC, extraction).

INTRODUCTION

The two most prevalent restorations for Class II carious lesions in primary molars are resin based composites and stainless steel crowns.

Due to the anatomy of the primary first molar, it is often thought that resin restorations are more likely to fail, leading to SSC being the more common treatment choice for these teeth.

Previous studies have explored the success and failure rates of class II resin restorations compared to those of stainless steel crowns. Limited research focusing solely on primary FIRST molars.

Failure rates begin to increase around three years post-placement. The purpose of this study is to examine the survival rates of class II composite resins placed in primary first molars by the Department of Pediatric Dentistry at DCG between the years of 2009 and 2019

HYPOTHESIS

Success rates of class II composite resin restorations in primary first molars will increase as the age at time of placement increases.

Younger age at the time of restoration replacement will result in a higher rate of retreatment than those placed in older children.

METHODS

A search query in Axium was used to search for patients receiving class II resin restorations (D2392) on primary first molars between the dates 7/1/2009 and 3/1/2019.

Inclusion criteria:

1. Patients between the age of 2 and 10 years at the time of restoration placement
2. Teeth #s B, I, L, and S
3. Restoration completed within pediatric department
4. Patient returned for post-operative examination, a minimum of 6 months after treatment

Exclusion criteria:

1. Patients receiving D2392 with no return visits for follow-up

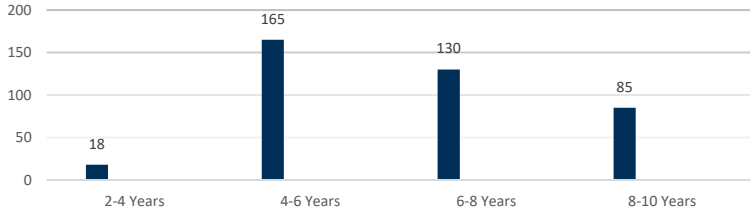
RESULTS

Query resulted in 556 primary first molars treated with a class II resin. 156 patients were excluded due to a lack of adequate follow up, resulting in 400 primary molars to assess.

39 (9.75%) teeth were retreated with a stainless steel crown after treatment with a class II composite resin.

18 (4.5%) teeth were later extracted, one which had already been retreated with a SSC.

Patients were divided into age groups based on age at time of restoration placement: 2-4yo, 4-6yo, 6-8yo, 8-10yo.



AGE DISTRIBUTION OF RESTORATIONS

Age Group	Retreatment SSC (39 Total)	Extraction (18 Total)
2-4 years	6 (15.4%)	2 (11.1%)
4-6 years	23 (60%)	8 (44.4%)
6-8 years	10 (25.6%)	5 (27.8%)
8-10 years	0 (0%)	3 (16.7%)

CONCLUSIONS

Of the 400 included restorations in this study, 57 were retreated with either a SSC or extraction, resulting in an 85.75% success rate of class II resin restorations placed in primary first molars by the pediatric department.

As the age at time of initial restoration placement increased, the failure rates of the restorations decreased, the lowest failure rate being that of the 8-10 year group.

Teeth were retreated with a SSC after an average of 1.86 years. Extractions occurred after an average of 2.81 years post-restoration.

LIMITATIONS

There was limited follow-up with many of the patients. 6 months of recall does not necessarily guarantee that the restoration was successful long term. Longer follow-up periods would help to better verify the longevity of the restorations, as well as the true outcome.

The restorations in this study were completed by many different clinicians over the years, as well as with the use of varying composite materials. It is possible that differences in technique, isolation, and materials could affect failure and success of these restorations.

REFERENCES

1. Holland, M., Carrico, C., & Williams, T. (2018). Pediatric Dentists' Treatment Planning Decisions for Class II Carious Lesions in Primary Molar. Journal of Dentistry for Children, 85(1), 16-22.
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3. Special thanks to Mr. Gabriel V. Warner, MSA for running the search query and obtaining the data for this study.