

Harsukh Educational Charitable Society

International Journal of Community Health and Medical Research

Journal home page: www.ijchmr.com

doi: 10.21276/ijchmr

ISSN E: 2457-0117 ISSN P: 2581-5040

Index Copernicus ICV 2018=62.61

ORIGINAL ARTICLE

To determine the retention of pit and fissure sealants with different techniques

Amit Khemka¹ Sumit Verma² Neha Agarwal³ Anil Kumar⁴ Prerana Waghmare⁵ Ramkrishna Surada⁶

¹Senior Lecturer, Department Of Conservative Dentistry And Endodontics, Buddha Dental College, Patna, Bihar ²senior Lecturer, Dept Of Oral Surgery, B.R Ambedkar Dental College Patna Bihar ³Department Of Prosthodontics, Jaipur Dental College ⁴senior Lecturer Department Of Conservative Dentistry And Endodontics, VPDC, Sangli, Maharashtra ⁵PG ,Oral Medicine And Radiology, Saraswati Dhanwantari Dental College Parbhani ⁶Senior Lecturer, Dept Of Conservative Dentistry And Endodontics, ANIDS, Vishakhapatnam

ABSTRACT:

Background: Prevention of oral diseases is preferable to treatment and is the key method of achieving cost effectiveness for oral health improvement programs. The present study was conducted to determine the retention of pit and fissure sealants with different techniques. **Materials & Methods:** The present study was conducted on 60 patients of both genders. Patients were divided into 2 groups. In group I, mandibular permanent first molar of both sides was treated by acid etching alone and in group II, mandibular permanent second molar of both sides was pretreated by with air abrasion followed by acid etching. All patients were clinically determined after 3 and 6 months of sealant placement. **Results:** Out of 60 patients, males were 32 and females were 28. Completely retained sealants after 6 months was seen in 30 patients in group I and 28 in group II, partially in 15 in group I and 16 in group II and missing in 15 in group I and 16 in group II. The difference was non- significant ($P > 0.05$). **Conclusion:** Authors found no significant difference in retention of pit and fissure sealants in either of technique.

Key words: Air abrasion, Pit and fissure sealants, Molar

Corresponding author: Dr Amit Khemka, Senior Lecturer, Department Of Conservative Dentistry And Endodontics, Buddha Dental College, Patna, Bihar

This article may be cited as: Khemka A Verma S Agarwal N Kumar A , Waghmare A , Surada R To determine the retention of pit and fissure sealants with different techniques. HECS Int J Comm Health Med Res 2019; 5(3)65-67.

INTRODUCTION

Prevention of oral diseases is preferable to treatment and is the key method of achieving cost effectiveness for oral health improvement programs. Prevention results in less pain and trauma to the patient and reduces the need for highly trained professional personnel.¹ Various preventive strategies for dental caries have been tried and are still being developed. The occlusal pits and fissures of posterior teeth are highly susceptible to caries because of the anatomy of pit and fissure surfaces, which favours stagnation of bacteria and substrates. Fissure sealing has been shown to be an evidence- based caries preventive method for protecting the occlusal surfaces against caries. Non- sealed teeth need to be restored approximately 50% more frequently compared to their sealed counterpart.² Fissure sealing has been shown to be an evidence- based caries preventive method for protecting the occlusal surfaces against caries. Non- sealed teeth need to be restored approximately 50% more frequently compared to their sealed counterpart. Sealants are effective caries preventive agents as long as they remain bonded to teeth. The different methods recommended to improve sealant retention include cleaning of the

occlusal surface prior to sealant placement with hydrogen peroxide, pumice prophylaxis, air polishing, mechanical preparation of fissures and air abrasion.³ The present study was conducted to determine the retention of pit and fissure sealants with different techniques.

MATERIALS & METHODS

The present study was conducted in the department of Endodontics. It comprised of 60 patients of both genders. The study was explained to patients and written consent was obtained. Ethical clearance was obtained before starting the study. Patients were divided into 2 groups. In group I, mandibular permanent first molar of both sides was treated by acid etching alone and in group II, mandibular permanent second molar of both sides was pretreated by with air abrasion followed by acid etching. All patients were clinically determined after 3 and 6 months of sealant placement. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table II, graph I shows that completely retained sealants was seen in 34 patients in group I and 30 in group II, partially in 14 in group I and 16 in group II and missing in 12 in group I and 14 in group II. The difference was non- significant ($P > 0.05$).

Table I Distribution of patients

Total- 60		
Gender	Males	Females
Number	32	28

Table I shows that out of 60 patients, males were 32 and females were 28.

Table II Retention of sealant after 3 months

Retention	Group I	Group II	P value
Completely	34	30	0.06
Partial	14	16	0.12
Missing	12	14	0.14

Graph I Retention of sealant after 3 months

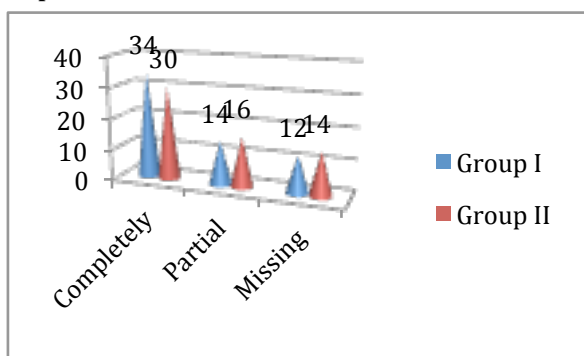
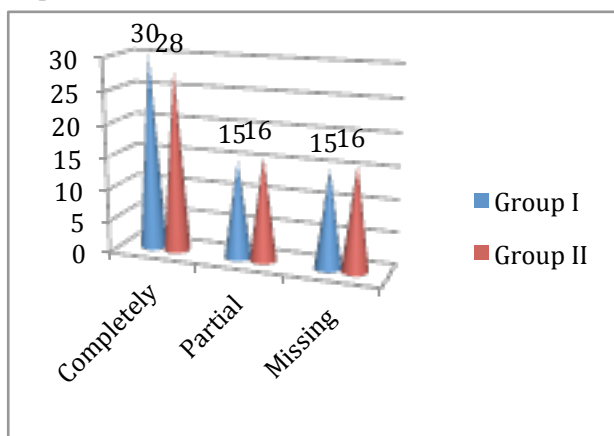


Table II Retention of sealant after 6 months

Retention	Group I	Group II	P value
Completely	30	28	0.21
Partial	15	16	0.91
Missing	15	16	0.91

Table III, graph II shows that completely retained sealants after 6 months was seen in 30 patients in group I and 28 in group II, partially in 15 in group I and 16 in group II and missing in 15 in group I and 16 in group II. The difference was non- significant ($P > 0.05$).

Graph II Retention of sealant after 6 months



DISCUSSION

Dental caries reached a climax in the 19th and 20th centuries due to the increased availability of sugar for the general population of developed countries. Only with the extensive use of fluorides in the 1970s was the rapid rise of the disease of dental hard tissue diminished.⁴ Nevertheless, dental caries is one of the most common intraoral diseases, with serious consequences for both the individual patient and for the public in terms of medical, social, and economic concerns. The individual patient suffers from pain, dysfunction of the oral system, and reduced quality of life, while the general public must bear the cost of treatment and possible lost productivity of those affected.⁵ Dental sealants are a dental treatment intended to prevent tooth decay. Teeth have recesses on their biting surfaces; the back teeth have fissures and some front teeth have cingulum pits. It is these pits and fissures which are most vulnerable to tooth decay because food and bacteria stick in them and because they are hard-to-clean areas.⁶ The present study was conducted to determine the retention of pit and fissure sealants with different techniques.

In this study, we included 60 patients in which pit and fissure sealant were used. They were divided into 2 groups. In group I, mandibular permanent first molar of both sides was treated by acid etching alone and in group II, mandibular permanent second molar of both sides was pretreated by with air abrasion followed by acid etching. Bhushan et al⁷ found that there was no significant difference in retention of sealants in Group A and Group B ($p > 0.05$) after three and six months follow up. The difference in sealant retention in primary and permanent molars was not significant ($p > 0.05$). Maxillary molars showed superior retention compared to mandibular molars, which was statistically significant at both three and six months ($p < 0.05$). Feigal et al,⁸ stated that a structured fissure sealing programme is of great benefit to oral health of subjects since those who had no sealants had significantly poorer dental health than those who had all four first permanent molars sealed. Kanellis et al⁹ compared acid etching versus air abrasion and obtained similar sealant retention rates on occlusal surfaces evaluated after six months. They suggested use of air abrasion prior to acid etching may result in increased sealant retention.

We found that completely retained sealants after 3 months was seen in 34 patients in group I and 30 in group II, partially in 14 in group I and 16 in group II and missing in 12 in group I and 14 in group II. The completely retained sealants after 6 months was

seen in 30 patients in group I and 28 in group II, partially in 15 in group I and 16 in group II and missing in 15 in group I and 16 in group II. The difference was non-significant ($P > 0.05$). Doyle et al¹⁰ found no significant difference in retention of sealants in Group A and Group B ($p > 0.05$) after three and six months follow up. The difference in sealant retention in primary and permanent molars was not significant ($p > 0.05$). Maxillary molars showed superior retention compared to mandibular molars, which was statistically significant at both three and six months ($p < 0.05$).

CONCLUSION

Authors found no significant difference in retention of pit and fissure sealants in either of technique.

REFERENCES

1. Gwinnett AJ, Buonocore MG. Adhesives and caries prevention. *Br Dent J.* 1999;119:77-80.
2. Macek MD, Beltrán-Aguilar ED, Lockwood SA, Malvitz DM. Updated comparison of the caries susceptibility of various morphological types of permanent teeth. *J Public Health Dent.* 2003; 63:174-82.
3. Waggoner WF, Siegal M. Pit and fissure sealant application: updating the technique. *J Am Dent Assoc.* 1996; 127:351-61.
4. Yazici A, Kiremitci A, Celik C, Ozgunaltay G, Dayangac B. A two-year clinical evaluation of pit and fissure sealants placed with and without air abrasion pretreatment in teenagers. *J Am Dent Assoc.* 2006; 137:1401-5.
5. Simonsen RJ. Retention and Effectiveness of Dental Sealant After 15 Years. *J Am Dent Assoc.* 1991;122:34-42.
6. Duangthip D, Lussi A. Effects of fissure cleaning methods, drying agents, and fissure morphology on microleakage and penetration ability of sealants in vitro. *Pediatr Dent.* 2003; 25:527-33.
7. Bhushan U, Goswami M. Evaluation of retention of pit and fissure sealants placed with and without air abrasion pretreatment in 6-8 year old children—An in vivo study. *Journal of clinical and experimental dentistry.* 2017 Feb;9(2):e211.
8. Feigal RJ. The use of pit and fissure sealants. *Pediatr Dent.* 2002; 24:415-22.
9. Kanellis MJ, Warren JJ, Levy SM. A comparison of sealant placement techniques and 12-month retention rates. *J Public Health Dent.* 2000;60:53-6.
10. Doyle W, Brose J. A Five-Year Study on the Longevity of Fissure Sealants. *ASDC J Dent Child.* 2008; 45:127.