



ORIGINAL RESEARCH PAPER

Dental Science

BARRICAID VERSUS COE-PAK FOLLOWING PERIODONTAL FLAP SURGERY

KEY WORDS: Barricaid, coe-pak , Periodontal flap surgery

Dr. Maya indurkar

Dr. Renu verma* *Corresponding Author

Dr. Arati Maurya

ABSTRACT

Aim: To compare Barricaid with most widely used non-eugenol coe-pak pack in the perspective of healing, acceptance and esthetics following periodontal flap surgery.

Materials and Methods: 20 patients suffering from chronic periodontitis, requiring periodontal flap surgery, were selected and divided randomly into Group I (control- coe pak dressing) and Group II (test- Barricaid dressing). Pain and discomfort scores were recorded on day 1, 2, and 3 while plaque scores, gingival index, were recorded on day 7. Patient's subjective evaluation and preference for the dressing material were recorded.

Result: Group II showed better results than Group I when plaque scores, gingival index scores, and pain and discomfort scores were compared though the differences were not statistically significant. Subjects found no unpleasant taste/smell and perceived the light-cured dressing to be better. A significantly higher number of patients preferred light-cured resin as a post-surgical dressing over Coe-pak.

INTRODUCTION

Periodontal surgical procedures are routinely carried out for the management of diseased periodontal tissues. Several factors contribute to uneventful and healthy post-operative healing.⁽¹⁾ Wound healing following periodontal flap surgery is influenced by the factors like bacterial contamination, innate wound-healing potential, local site characteristics, surgical procedure/technique and systemic and environmental factors (e.g. diabetes & smoking). The following complications may arise during the first postoperative week like pain, swelling, inflammation & bleeding. Some form of protection should be applied over the surgically traumatized tissue so that it is shielded from further insult.⁽²⁾ Such protection is offered by periodontal pack which minimizes the likelihood of postoperative infection and hemorrhage, facilitates healing by preventing surface trauma during mastication, and protects the patient from pain induced by contact of the wound with food or with the tongue during mastication.⁽³⁾

Dr. A.W Ward introduced the Periodontal dressings in 1923, who suggested the use of periodontal dressing following periodontal surgery.⁽⁴⁾ Earlier periodontal dressings were based on zinc oxide eugenol system. Because of the various side-effects of eugenol like soft tissue necrosis and bone resorption when in proximity to bone; latest periodontal dressings are usually formulated without it.⁽⁵⁾

"Coe-pak", one of the most widely used dressings and as such offers a standard to which another dressings can be compared. It is a noneugenol, chemically cured material supplied in a 2-paste (base and catalyst) system. Although apparently widely accepted, Coe-pak has a number of disadvantages, for example poor appearance, ill-defined setting time and poor flow properties during manipulation (**Watts & Combe 1982**).⁽⁶⁾

"**Barricaid**" (Dentsply International Inc. Milford, DE 19963-0359, U.S.A. is a visible light-cured periodontal dressing material is newly introduced which is based on a polyether urethane dimethacrylate resin. It has got superior physical properties like easy to handle, it need not be mixed and directly applied to the tissues, have better interdental retention, better surface smoothness and mechanical stability. Moreover, it's translucent pink color makes it esthetically pleasing.⁽⁷⁾

MATERIAL & METHOD

The study was designed and conducted in the department of periodontics, GDCH, Aurangabad. The study was approved by the Institutional ethical committee.

Inclusion criteria

- Twenty patients in the age group of 25-65 years with generalized chronic periodontitis who will require periodontal flap surgery will be selected.
- Showing acceptable oral hygiene during phase I therapy
- presenting almost similar periodontal involvement bilaterally as determined by clinical and radiographic assessment, and requiring periodontal flap surgery on both sides of the arch

Exclusion criteria

- Patient with any known Systemic diseases.
- Pregnant or lactating Females.
- Tobacco chewing in any forms, smokers and/or alcoholics

Clinical parameters:

- plaque index (**Turesky-Gilmore-Glickman modification of Quigley Hein Index, 1970**)
- Modified gingival index (**Lobene, Weather, Ford, Ross, Lamm, 1986**)⁽⁸⁾

Study design

Operating sites in each selected patient were randomly divided into two groups. In Group I, Coe-pak was used as a periodontal dressing, and in Group II, Barricaid was used post-operatively.

At day 0 (baseline), both groups were subjected to the recording of plaque index (**Turesky-Gilmore-Glickman modification of Quigley Hein Index, 1970**) and Modified gingival index (**Lobene, Weather, Ford, Ross, Lamm, 1986**)⁽⁷⁾.

Surgical procedure-

After giving crevicular incision, a full thickness mucoperiosteal flap was reflected both facially and lingually/palatally. Thorough debridement and root planing of the exposed root surface was done and the flap was placed in its original position and sutured. The surgical site was dried using gauze and Coe-pak was then applied [Figure 1]. Similar surgical procedure was adopted on the contralateral side and photocured dressing (Barricaid) was applied thereafter in Group II [Figure 2].



Figure 1 coe-pak dressing



Figure 2- Barricaid Dressing

Application of Barricaid

1. The Barricaid was applied at the junction of the cervical one-third of the teeth and the margin of the surgical site on the labial/buccal aspect.
2. Each tooth of each site was cured with visible light-curing unit for 10 seconds until the entire dressing was cured.
3. Same procedure was repeated for the lingual/ palatal side.
4. Occlusal clearance over the dressing coverage was checked prior to dismissing the patient.
5. The periodontal dressings were removed on the seventh day. Then, the subjects were examined and plaque index and modified gingival index were scored. Patients were also given a post-operative assessment questionnaire [Table 1], in which they were asked about taste, appearance, and retention of both the dressings and following the second procedure, they were requested to state their preference, if any, for a particular dressing.

RESULTS

All the data obtained was put to statistical analysis. In the present study, 'T'-Test was utilized for the assessment of significance. On intragroup comparison, the mean increase in modified gingival index was found to be statistically non-significant, but slightly lower for Group II ($P = 0.119$) [Table 2]. In Group I and Group II, the mean increase in plaque scores were 4.031 ± 0.53 and 3.66 ± 0.53 , respectively, from baseline to day 7, which was statistically significant ($P < 0.0001$). On comparing, though the mean increase in plaque scores in Group II from baseline to day 7 was found to be slightly less in comparison with Group I, but this difference was statistically non-significant ($P = 0.044$) [Table 2]. 3 out of 20 subjects complained of dressing being loose in Group I and none in Group II. 10 out of 20 subjects complained of an unpleasant appearance in Group I and none in Group II. 5 out of 20 complained of unpleasant taste and smell when Coe-pak was used. Also, a higher number of subjects (16/20) preferred Barricaid as a dressing [Table 1].

Table 1: Table depicting assessment of the dressings by the subjects in group I and group II

Subjects' assessment	Group I	Group II
Dressings loose	3/20	0/20
Unpleasant appearance	10/20	0/20
Unpleasant taste/smell	5/20	0/20
Preferred dressing	4/20	16/20

Table 2: Comparison between group I and group II for increase in mean plaque index and modified gingival index scores

Parameter	Group	Mean±SD	P Value
Plaque Index	I	4.04±.56	0.044
	II	3.68±.54	
Modified Gingival Index	I	3.70±.53	0.119
	II	3.43±.53	

DISCUSSION

It is especially important that the wound be sheltered during early recolonization and the period of epithelization, essentially offering protection against topical irritants such as rough or granular substances, acidic or highly seasoned food and toothbrush abrasion. The dressing can also act as a restraining wall, limiting the likelihood for over granulation of the wound by containing the reparative process. Therefore if exposure is restricted, there is usually a minimum of topical irritation with a limitation of bleeding and postoperative pain and improved healing.

Application of dressing materials in periodontics has remained questionable. Authors such as *Wikesjo et al.*, *Sigusch et al* supports the use of dressing materials whereas others such as *Loe and Silness*, *Stahl et al.* do not favour the use of periodontal dressing material.⁽¹⁰⁾

'Barricaid' said to have the advantage of possessing a translucent pink color, which is aesthetically pleasing and a rate of curing, which is easily controlled by illumination with visible light. Ready to use and easy handling, requires no mixing of the ingredients, which makes this material unique. It adheres to the oral tissues, remains on the surface, ensuring complete protection of the area.⁽⁷⁾ The healing process is accelerated because it is not impeded by the movement of the tongue and food residues. Furthermore, histologic studies have shown that extracts and solid specimens of polymerized Barricaid are exceedingly biocompatible in general as stated by *Alpar et al. (1999)*⁽¹¹⁾ and *Gilbert et al. (1994)*⁽¹²⁾. *Smeekens JP et al.*⁽¹³⁾ studied the histological evaluation of tissue response 7 days after surgery using dressing materials like Barricaid, Ward's wonder pak and corboxyl methyl cellulose and control. No significant differences between the 2 different dressings were observed. The control areas showed an overall lesser degree of inflammation. After 14 days, no difference between test and control were noted. *Madan et al.*⁽⁷⁾ showed that, from baseline to day 7, the mean increase in plaque scores was more in coe-pak group and the mean increase in gingival scores was more in Barricaid group. In our study, the results showed a higher increase in plaque scores as well gingival scores in coe-pak as compared to Barricaid from baseline to 7th post-operative day. *Allen DR et al.*⁽¹³⁾ in 1983, studied the clinical effects of a periodontal dressing after Modified Widman flap surgery. The patients were studied for 2 months after surgery (at 2 weeks, 1 month, and 2 months) with respect to gingival crevicular fluid, gingival inflammation, attachment level and pocket depth. The patients were also given a questionnaire. Results showed no significant differences between the dressed and undressed sites. However, in our study results indicated a higher trend for swelling of gingiva by patients in Coe-pak group compared to Barricaid group during the 7-day postoperative period. This difference could be attributed due to the higher amount of plaque accumulation and hence high inflammation seen underneath Coe-Pak as compared to Barricaid.

Mild post-procedural oozing of blood was found to be more in patients with the Coe-Pak as compared to the Barricaid due its better adaptability. 3 out of 20 subjects complained of dressing being loose in Group I and none in Group II. 10 out of 20 subjects complained of an unpleasant appearance in Group I and none in Group II. 5 out of 20 complained of unpleasant taste and smell when Coe-pak was used. Also, a

higher number of subjects (16/20) preferred Barricaid as a dressing.

CONCLUSION

Barricaid can be preferred over coe-pak for the application in clinical practice based on its clinical advantages like ease of application, better handling properties, better adaptability and patient preference for translucent pink color.

REFERENCES

1. Heitz F, Heitz-Mayfield L, Lang N. Effects of post-surgical cleansing protocols on early plaque control in periodontal and/or periimplant wound healing. *Journal of clinical periodontology*. 2004;31(11):1012-8.
2. von Fraunhofer J, Argyropoulos D. Properties of periodontal dressings. *Dental Materials*. 1990;6(1):51-5.
3. Sachs HA, Fanroush A, Checchi L, et al: Current status of periodontal dressings. *J Periodontol* 55:689, 1984.
4. Greensmith AL, Wade AB. Dressing after reverse bevel flap procedures. *Journal of clinical periodontology*. 1974;1(2):97-106.
5. Rubinoff CH, Greener EH, Robinson PJ. Physical properties of periodontal dressing materials. *Journal of oral rehabilitation*. 1986;13(6):575-86.
6. Cheshire PD, Griffiths GS, Griffiths BM, Newman HN. Evaluation of the healing response following placement of Coe-pak and an experimental pack after periodontal flap surgery. *Journal of clinical periodontology*. 1996;23(3 Pt 1):188-93.
7. Madan E, Bharti V, Chaubey KK, Arora VKR, Thakur RK, Nirwal A. Light-cured resin "Barricaid" – An aesthetic and biocompatible dressing: A step ahead. *Journal of Indian Society of Periodontology*. 2013;17(6):753-6.
8. Lobene RR, Weatherford T, Ross NM, Lamm RA, Menaker L. A modified gingival index for use in clinical trials. *Clinical preventive dentistry*. 1986;8(1):3-6.
9. Kathariya R, Jain H, Jadhav T. To pack or not to pack: the current status of periodontal dressings. *Journal of applied biomaterials & functional materials*. 2015;13(2):e73-86.
10. Alpar B, Gunay H, Geurtsen W, Leyhausen G. Cytocompatibility of periodontal dressing materials in fibroblast and primary human osteoblast-like cultures. *Clinical oral investigations*. 1999;3(1):41-8.
11. Gilbert AD, Lloyd CH, Scrimgeour SN. The effect of a light-cured periodontal dressing material on HeLa cells and fibroblasts in vitro. *Journal of periodontology*. 1994;65(4):324-9.
12. Savitha A, Christopher S, Bose S. Reso Pac TM-A Novel Periodontal Dressing in Comparison with Coe-Pak: A Clinical Study.
13. Allen DR, Caffesse RG. Comparison of results following modified Widman flap surgery with and without surgical dressing. *Journal of periodontology*. 1983;54(8):470-5.