



Comparison Of Cellulose-Based Periodontal Pack- Reso-Pac Versus Coe-Pak- A Clinical Study

Dr Maya S Indurkar, Dr Vaibhavi Deepak Karekar

¹Dean and Professor, ²Postgraduate Student

Department of Periodontology, Government Dental College & Hospital, Chh. Sambhajinagar

***Corresponding Author:**

Dr Vaibhavi Deepak Karekar

Department No. 154, 1st floor, Government Dental College & Hospital, Chh. Sambhajinagar-431001, Maharashtra, India

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Abstract

Introduction- Periodontal dressing is a commonly used dressing placed following various periodontal surgical procedures such as gingivectomy, flap procedure, crown lengthening & mucogingival procedure. Reso-Pac is the commercially available cellulose based dressing material. It is hydrophilic in nature and has been claimed to have adhesive properties to the oral tissues.

Aim – To compare the amount of wound healing by cellulose based periodontal pack (Reso-Pac) and non-eugenol pack (Coe-Pak) after surgical crown lengthening procedure.

Material And Methods - 20 patients requiring crown lengthening procedure with ostectomy were selected. After completion of phase I therapy, blood investigations were done and patients were randomly divided into Group I (test- Reso-Pac) and Group II (control- Coe- Pak). Post- surgical instructions and necessary antibiotics and analgesics were given. Early wound healing index, and plaque index were recorded at baseline and 7th day.

Result- The mean plaque index scores in Group I and II were 2.97 ± 0.38 and 3.33 ± 0.63 respectively at day 7 postoperatively, which was statistically significant. The wound healing scores in Group I and II were 1.5 ± 0.70 and 1.9 ± 0.73 respectively at day 7 postoperatively.

Conclusion - Reso-Pac can be effectively used as a periodontal dressing which has clinical advantages like better handling properties, ease of application & better adaptability as compared to Coe-Pak.

Keywords: NIL

Introduction

Periodontal dressings are used following any periodontal surgery to protect the site from the mechanical trauma & to stabilize the healing process & to reduce the discomfort of the patient. They are used to protect the surgical site from salivary contamination, food accumulation & also reduce pain & hemorrhage post-surgery.[1]

Ward in 1923, introduced a zinc oxide eugenol based periodontal dressing-Wondrapak, but has various side-effects of eugenol, hence recent periodontal dressings are formulated without it.[2] Coe-pak is

very widely used periodontal dressing which offers as a standard to compare other periodontal dressing. Although it widely used, Coe-pak has disadvantages like poor esthetics, ill-defined setting time & poor flow while manipulation.[3]

A recently developed cellulose-based periodontal dressing- Reso-Pac has hydrophilic properties and adhesive properties to oral tissues. Reso-pac contains myrrh which has disinfective, adhesive and hemostatic properties. This dressing material results in fibrin formation on the wound. It has a pleasant

taste and elastic properties which relieve the wound from too much tension which might be seen when Coe-pak is used. It is a self-dissolving wound protection paste that acts as protection barrier, astringent & disinfectant. It does not require mixing or preparation before use and remains in place for more than 30 h. It gradually dissolves in the saliva and does not need removal. No allergic reactions have been reported until now.[4]

This study aims to compare the wound healing by zinc oxide non-eugenol based (Coe-pak) and cellulose based (Reso-Pac) periodontal dressing after crown lengthening procedure with ostectomy. Hence, the results of this study are expected to help dentists to determine which periodontal dressing material to use after periodontal surgical procedures.

Material & Methods-

This is single-blinded randomized clinical control trial. The research was conducted in Department of Periodontology, Government Dental College & Hospital, Chhatrapati Sambhajnagar.

20 patients were selected for the study who were indicated for crown lengthening procedure with ostectomy. They were divided randomly into 2 groups- Group I (Coe-Pak- (GC America, Illinois, USA)) was used & in Group II (Reso-Pac; (Hager & Werken GmbH & Co. KG, Germany)) was used as periodontal dressing after the surgery.

Inclusion Criteria-

1. Patients indicated with ≥ 1 teeth for crown lengthening procedure with ostectomy.
2. Age group- 25-60 years
3. Patient ready to give informed consent Exclusion criteria-
4. Any active systemic disease
5. Immunocompromised patients or on steroid medication
6. Patients having habit of any tobacco or alcohol consumption
7. Pregnancy & lactating women

Clinical Parameters-

1. Plaque Index (Turesky-Gilmore-Glickman modification of Quigley Hein Index, 1970)
2. Early wound healing index (Wachtel et al 2002)[5]

The early wound healing index consists of 5 degrees as follows;

1. Complete flap closure- no fibrin line in the interproximal area
2. Complete flap closure- fine fibrin line in the interproximal area
3. Complete flap closure- fibrin clot in the interproximal area
4. Incomplete flap closure- partial necrosis of the interproximal tissue
5. Incomplete flap closure- complete necrosis of the interproximal tissue

Clinical Procedure-

Complete medical & dental case history was recorded for each patient. After completion of phase I therapy, blood investigations- Red blood cell count, Bleeding time (BT), Clotting time (CT) and Hemoglobin % (Hb%) were done. On the day of surgery (baseline), before starting with surgical procedure, plaque index (PI) using Loe and Silness Index (1967) was recorded. Patients were divided into two groups- Group I (test- Reso-Pac) & Group II (control- Coe-Pak) by coin flip method. To obtain surgical anesthesia, 2% lignocaine in the required amount was used along with 1:2,00,000 adrenaline. Crown lengthening procedure was done with internal bevel incision, followed by crevicular incision & then interdental incision. Full-thickness mucoperiosteal flap was reflected & ostectomy was done to maintain the biologic width. The surgical site was thoroughly irrigated with saline and sutured with 4-0 silk suture. Periodontal dressing was applied according to the test and control groups. Post operative instructions were given and antibiotics and analgesics were prescribed. Patient were advised to use 0.12 % chlorhexidine mouthwash twice daily for 7 days after surgery. Plaque index was recorded at baseline before surgery and on 7th day postoperatively. Early wound healing index was recorded on day 7th postoperatively.

Group I- Reso-pac placed over surgical site



Group I- 7 days post-operative



Group II- Coe-pak placed over surgical site



Group II- 7 days post-operative



Statistical analysis-

Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois, USA, IBM, version 17.0 for windows). All quantitative variable were estimated using measures of central location (mean) and measures of dispersion (standard deviation). For time-related comparisons, Paired t-test and Mann–Whitney tests were applied. All statistical tests were two sided and performed at a significance level of $\alpha = 0.05$ and confidence interval was kept at 95%.

Results-

The mean age of patients was 42.35 years. All 20 patients showed uneventful wound healing after crown lengthening procedure. In Group I and Group II, the mean increase in plaque index scores were 2.92 ± 0.38 and 3.33 ± 0.63 respectively, from baseline to day 7 which was statistically significant ($P < 0.001$) (Table 1). The early wound healing scores in Group I and Group II showed mean values of 1.5 ± 0.70 and 1.9 ± 0.73 respectively, were not statistically significant.

Table 1: Comparison between Group I and Group II for mean plaque index and early wound healing index scores. ($p < 0.005^*$ = statistically significant)

INDEX SCORES		GROUP I (MEAN ± SD)	GROUP II (MEAN ± SD)	P VALUE
PLAQUE INDEX	BASELINE	2.18 ± 0.50	2.83 ± 0.75	0.036
	AFTER 7 DAYS	2.92 ± 0.38	3.33 ± 0.63	0.0021*
EARLY WOUND HEALING INDEX	AFTER 7 DAYS	1.5 ± 0.70	1.9 ± 0.73	0.231

Discussion-

Following a periodontal surgery, one of the most encountered adverse outcomes is wound dehiscence and infection which can lead to morbidity and poor healing outcomes. Hence, a periodontal dressing protects the wound site and allows uninterrupted healing to occur. The concept of pack or not to pack is controversial. Some authors such as Wikesjo et al, Sigusch et al supports the use of periodontal dressings, whereas others such as Loe and Silness, Stahl et al do not favour the use of periodontal dressing after periodontal surgeries.[6]

The search for the best periodontal dressing has been going on, and many different studies have been designed and performed to compare various periodontal materials.[7-9]

Reso-pac has been preferred because of its plasticity and being ready for use without the need for mixing. Reso-pac can even be more effective by decreasing plaque and granulation tissue formation postoperatively.

In the present study, plaque accumulation on Coe-pak sites was more than Reso-pac sites which was statistically significant ($p < 0.005$). This may be due to self-dissolving property of Reso-pac which starts

after 30 hours. This clinical finding was similar to previous studies.[8,10,11] However, in a study by Ghanbari et al there was no statistically significant difference in plaque index with and without pack sites.[7] In Reso-pac group after it is dissolved less plaque is accumulated and hence more accessibility of chlorhexidine to the surgical sites is available. This may decrease malodour and accelerate wound healing. This was in accordance with the results of the present study which showed better early wound healing scores in group I.

In a similar study by Gholami et al[12] reported that Reso-pac sites showed less granulation tissue and better and faster healing. The present study also showed similar results with better early wound healing scores in Reso-pac group, however, they were not statistically significant. Reso-pac is more biocompatible than Coe-pak as it has fewer cytotoxic effects compared to Coe-pak[4,12]. Also in Petelin’s study,[13] showed that Reso-pac had only small inhibitory effects on fibroblast cell proliferation and found to be the most suitable dressing in comparison to Peri-pac, Barricaid and Fittydent.

Conclusion-

Within the limitations of the present study, Reso-pac is more effective than Coe-pak and has clinical advantages like better handling properties, ease of application & better adaptability than Coe-pak. However, further clinical trials with large sample size can be done to evaluate healing with this cellulose-based periodontal dressing.

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