Coconut Oil And Honey Can Be The Face Of Change Of The Periodontal Dressings When Used As An Additive Ingredient: A Pilot Study.

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Abstract: Damaged structure and tissues are healed by restoring the lost parts by a specialized and dynamic process known as wound healing. This biological process can be broadly divided into separate phases: inflammatory, proliferative & remodeling. Within these phases, a complex and harmonized series of events take place. Wound healing results in the restoration of normal structure and formation of the injured tissues. However the use of these herbal products/practices should be ensured based on literature evidence. Scientific data and validations of such traditional approaches could justify the use of such products in dentistry, as the present study has justified the use of mixing coconut oil and propolis gel in the coe-pak.

INTRODUCTION

Damaged structure and tissues are healed by restoring the lost parts by a specialized and dynamic process known as wound healing. This biological process can be broadly divided into separate phases: inflammatory, proliferative & remodeling. Within these phases, a complex and harmonized series of events take place. Wound healing results in the restoration of normal structure and formation of the injured tissues.¹

Louis Pasteur stated: The germ is nothing. It is the terrain in which it is found that is everything. Factors that influence wound healing must be addressed in a holistic fashion, looking, as Pasteur suggested, at the terrain in which the wound is found. One may thus infer that the environment in which a wound heals plays an important role. A surgical dressing allows for uninterrupted healing to occur and also contributes to the protection of the surgical area and prevention of wound damage and infection. The first surgical dressing was patented by E.P. Lesher in 1953.²

Zentler in 1918 first reported the use of a periodontal dressing in the form of iodoform gauze. This marked the beginning of a trend toward using periodontal dressings after surgery. A.W. Ward invented Wondrpk. Surgical dressing plays an important role in periodontal surgical procedures. They serve as a bandage over the surgical site with the objective of holding the flap in place, protecting newly formed tissue; minimizing postoperative pain, infection, hemorrhage; protecting the surgical site from trauma during and finally, supporting mobile teeth during healing process.³

As we enter the future there has been a constant effort to find new treatment approaches and an inclination towards an alternative treatment option comprising of herbal remedies to treat systemic conditions has been globally accepted. Amongst them coconut and honey have been used as traditional medicine for many illness.

The present study evaluated the effectiveness of adding coconut oil and propolis in periodontal dressings given in whom healing occurred by secondary intention.

MATERIALS AND METHOD

A total of 60 patients aged between 20 and 40 years with melanin pigmented gingival who were willing to undergo depigmentation with good oral hygiene were recruited from the department of periodontics and oral implantology, KD Dental College and Hospital, Mathura, India.

PROCEDURE

Ultrasonic scaling was done in single sitting. After 1 week of Phase I therapy, depigmentation was done surgically under local anaesthesia with surgical blade no. 15. Periodontal dressing was then placed which was different for all the groups. Clinical parameters taken were: Loe and Silness gingival index, Papillary bleeding index & Visual analogue scale. Readings were recorded at
baseline, after phase I therapy and after one week of depigmentation procedure.

**STUDY GROUPS**

GROUP I: In 20 patients coe-pak periodontal dressings was given.

GROUP II: In 20 patients coe-pak periodontal dressing mixed with coconut oil was given.

GROUP III: In 20 patients coe-pak periodontal dressing mixed with propolis gel was given.

Coconut oil and propolis gel were taken in quantity equal to the length of the base and catalyst of coe-pak.

Inclusion criteria for the patients to participate in this study:

- Age between 20 and 40 years
- Patients with melanin pigmented gingival
- Patients with hemoglobin >10 gm % and normal bleeding time & clotting time.
- Patients willing for depigmentation of gingival by surgical method.

Exclusion criteria:

- Patients with systemic disease
- Previous history of antibiotics (6 months)
- Smokers
- Pregnant and lactating women

**RESULTS:**

A total of 60 adultpatients with melanin pigmented gingival were selected on the basis of inclusion and exclusion criteria. After the statistical analysis using paired t test and independent sample t test, there was a significant reduction in the gingival bleeding scores and papillary bleeding scores in all the three groups. Greater reduction in gingival bleeding index was seen in patients in whom coe-pak periodontal dressings mixed with coconut-oil was given as shown in Table 1.

Table 2 shows greater reduction in papillary bleeding scores in patients whom coe-pak mixed with propolis gel was given although significant reduction was present in patients of all the 3 groups.

Table 3 shows greater reduction in papillary bleeding scores in patients who were given coe-pak mixed with coconut oil as periodontal dressing.

Table 4 shows greater mean difference in gingival bleeding scores of group I and group II; group I and group III but no significant difference in group II and III that indicates when coe-pak is mixed with coconut oil or propolis the reduction in scores is more than coe-pak used alone. Coe-pak mixed with propolis.

Table 5 shows greater mean difference in papillary bleeding scores of group I and group II; group I and group III but no significant difference in group II and III that indicates when coe-pak is mixed with coconut oil or propolis the reduction in scores is more than coe-pak used alone. Coe-pak mixed with coconut oil is further better in reducing gingival bleeding scores than coe-pak mixed with propolis.

Table 6 shows greater mean difference in pain perception of group I and group II; group I and group III but no significant difference in group II and group III that indicates when coe-pak is mixed with coconut oil or propolis the reduction in scores is more than coe-pak used alone. Coe-pak mixed with coconut oil is further better in reducing gingival bleeding scores than coe-pak mixed with propolis.

Table 7 shows preferred periodontal dressing among patients was coe-pak mixed with coconut oil.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>GINGIVAL BLEEDING SCORE</th>
<th>1 WK</th>
<th>Baseline</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td>1.51±0.40</td>
<td>1.29±0.38</td>
<td>0.22±0.02</td>
<td>11.831</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>1.48±0.34</td>
<td>0.58±0.43</td>
<td>0.90±0.09</td>
<td>10.343</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>1.51±0.46</td>
<td>0.63±0.49</td>
<td>0.88±0.03</td>
<td>11.186</td>
<td>0.000 S</td>
</tr>
</tbody>
</table>

Table 1: Mean comparison between Baseline and 1 Week Gingival Bleeding Score of Group I, II and III.
Table 2: Mean comparison between Baseline and 1 Week PAPILLARY BLEEDING SCORE of Group I, II and III.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>MEAN±SD</th>
<th>MEAN±SD</th>
<th>MEAN±SD</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>1 WK</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP I</td>
<td>2.30±0.57</td>
<td>1.85±0.59</td>
<td>0.45±0.02</td>
<td>3.943</td>
<td>0.001 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>2.05±0.76</td>
<td>0.50±0.51</td>
<td>1.55±0.25</td>
<td>13.581</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>1.80±0.77</td>
<td>0.30±0.47</td>
<td>1.50±0.30</td>
<td>13.077</td>
<td>0.000 S</td>
</tr>
</tbody>
</table>

Statistical Analysis: Paired t test. Statistically significant if P<0.05

Table 3: Mean comparison between Baseline and 1 Week VISUAL ANALOG SCALE of Group I, II and III.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>MEAN±SD</th>
<th>MEAN±SD</th>
<th>MEAN±SD</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>1 WK</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP I</td>
<td>5.25±0.97</td>
<td>3.75±0.91</td>
<td>1.50±0.06</td>
<td>13.077</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>5.95±1.10</td>
<td>2.50±0.69</td>
<td>3.45±0.41</td>
<td>20.324</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>5.60±0.75</td>
<td>3.30±0.98</td>
<td>2.30±0.23</td>
<td>15.657</td>
<td>0.000 S</td>
</tr>
</tbody>
</table>

Statistical Analysis: Paired t test. Statistically significant if P<0.05

Table 4: Mean difference comparison between groups of GBI score.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>MEAN±SD</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td>0.22±0.02</td>
<td>7.721</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>0.90±0.09</td>
<td>8.236</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>0.88±0.03</td>
<td>0.212</td>
<td>0.833 NS</td>
</tr>
</tbody>
</table>

Statistical Analysis: Independent sample t test. Statistically significant if P<0.05

Table 5: Mean difference comparison between groups of PAPILLARY BLEEDING SCORE.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>MEAN±SD</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td>0.45±0.25</td>
<td>6.815</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>1.55±0.25</td>
<td>6.489</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>1.50±0.30</td>
<td>0.309</td>
<td>0.759 NS</td>
</tr>
</tbody>
</table>

Statistical Analysis: Independent sample t test. Statistically significant if P<0.05
Table 6: Mean difference comparison between groups of VISUAL ANALOG SCALE.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>Difference of Mean±SD</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP I</td>
<td>1.50±0.06</td>
<td>9.518</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP II</td>
<td>3.45±0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP I</td>
<td>1.50±0.06</td>
<td>4.292</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>2.30±0.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP II</td>
<td>3.45±0.41</td>
<td>5.123</td>
<td>0.000 S</td>
</tr>
<tr>
<td>GROUP III</td>
<td>2.30±0.23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Statistical Analysis: Independent sample t test. Statistically significant if P<0.05

TABLE 7: SUBJECTIVE ASSESSMENT

<table>
<thead>
<tr>
<th>SUBJECT'S ASSESSMENT</th>
<th>GROUP I</th>
<th>GROUP II</th>
<th>GROUP III</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNPLEASANT TASTE/SMELL</td>
<td>12/20</td>
<td>5/20</td>
<td>10/20</td>
</tr>
<tr>
<td>PREFERRED DRESSING</td>
<td>8/20</td>
<td>16/20</td>
<td>11/20</td>
</tr>
</tbody>
</table>
MEAN COMPARISON BETWEEN BASELINE AND 1 WEEK SCORE OF PAPILLARY BLEEDING

GROUP I
0.50
2.30
1.85
GROUP II
0.50
2.05
GROUP III
0.30
1.80

GROUPS

MEAN COMPARISON BETWEEN BASELINE AND 1 WEEK SCORE OF VISUAL ANALOG SCALE

GROUP I
5.25
3.75
GROUP II
5.95
2.50
GROUP III
5.60
3.30

GROUPS

GRAPH 2

GRAPH 3
MEAN DIFFERENCE SCORE COMPARISON OF DIFFERENT GROUPS IN GINGIVAL BLEEDING SCORE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

MEAN DIFFERENCE

MEAN DIFFERENCE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

GRAPH 4

MEAN DIFFERENCE SCORE COMPARISON OF DIFFERENT GROUPS IN PAPILLARY BLEEDING SCORE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

MEAN DIFFERENCE

MEAN DIFFERENCE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

GRAPH 5

MEAN DIFFERENCE SCORE COMPARISON OF DIFFERENT GROUPS IN VISUAL ANALOG SCALE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

MEAN DIFFERENCE

MEAN DIFFERENCE

GROUP I

GROUP II

GROUP III

GROUP II

GROUP III

GRAPH 6


DISCUSSION

Previously, periodontal dressings used to be applied to cause gingival shrinkage in cases where surgery was medically or psychologically inadvisable. Also Orban (1943) described a technique of chem-surgery by using paraformaldehyde in a dressing. Thus, the therapeutic effects of substances used in the composition of dressings after periodontal surgery has been the aim of numerous investigations. These materials are classified into 2 categories:

1. Agents with effects on oral bacteria
2. Agents with effects on periodontal tissues

In this regard, several agents have been added to the composition of periodontal dressings such as: tetracycline, zinc bacitracin, non-eugenol phenol derivatives, chlorothymol, oil of bergamot and chlorhexidine. Steroids and dilantin were added to facilitate and accelerate tissue healing. It is important to note that chemical inactivation of the materials added may occur during the process.4

The present study showed the effect of coconut oil and honey in form of propolis gel when added to coe-pak placed in depigmentation procedure where healing occurs by secondary intention.

An important part of the Coconut (Cocos Nucifera) Tree is the Coconut Fruit which is considered as a functional food. It consists of 3 three layers: exocarp (outer layer), the mesocarp (fleshy, middle layer), and the endocarp (hard, woody layer that surrounds the seeds). The exocarp and mesocarp make up the husk of the coconut, which was utilized as an indigenous toothbrush. The babassu (Orbignya phalerata) is a native tree of the Aracaceae (Palmae) family from northern Brazil. The mesocarp of babassu variant of coconut has been widely used as a treatment of pain, fever, ulcerations, tumors, wounds and inflammation.5

Coconut oil is used to practice Oil Pulling or Oil Pulling. Coconut oil rinsing creates a negative pressure in the oral cavity which aids in collecting food particles, bacteria or any other microorganisms that may be present on the tooth and gingival surfaces.

Propolis is called as Bee Glue. Pro means ‘before’ and polis means a ‘town’. It also means defender. Propolis is derived from salivary secretion of the honey bees (Apis millifera) used to constrict the entrance or opening of Bee’s cities (Bee Hives) - a measure undertaken by the bees.6

Propolis has antiseptic, antibacterial, antimeyeotic, astringent, spasmolytic, anti-inflammatory, anesthetic, antioxidant, antifungal, antiulcer, anticancer and immunomodulatory effects.

Propolis is available as raw propolis, liquid extract, additives and tables, injection and NBF gel. The propolis gel used in this study was in form of NanoBioFusion gel which was developed in Seoul and comprises of nano emulsions of the vitamins and other antioxidants.6

CONCLUSION

Countries with an ancestral background of traditional medicine should support and integrate herbal remedies as an adjunct along with current health care systems. However the use of these herbal products/practices should be ensured based on literature evidence. Scientific data and validations of such traditional approaches could justify the use of such products in dentistry, as the present study has justified the use of mixing coconut oil and propolis gel in the coe-pak.

REFERENCES


