

ORIGINAL ARTICLE

EFFICACY OF HERBAL TOOTH PASTE IN CONTROLLING DENTAL PLAQUE, GINGIVAL BLEEDING AND PERIODONTAL DISEASE: A CLINICAL STUDY

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ABSTRACT:

Background: Dental plaque is a soft, non-mineralised, microbial biofilm that consists of complex communities of bacterial species that reside on tooth surfaces or soft tissues. It accumulates on and adheres to teeth, dental restorations and artificial appliances in the mouth. The present study was conducted to assess the efficacy of Herbal tooth paste in controlling dental plaque, gingival bleeding and periodontal diseases. **Materials & Methods:** This study was conducted in the department of periodontics in 2014. It comprised of 120 patients having periodontal diseases. Plaque index was scored on all four surfaces (buccal, lingual, mesial, and distal) of six representative teeth (16, 12, 24, 44, 32, 36). The mean index was calculated by dividing the sum of number from scale by the total number of sites scored within the mouth. Bleeding index was measured by guiding probe through the gingival sulcus in the first and third quadrants from the buccal aspect and in the second and fourth quadrant from the oral aspect. Gingival index was scored on the buccal marginal gingiva of the Ramfjord teeth. By summing the individual GBI scores and dividing that sum by the number of sites graded for each subject. All the indices will be evaluated using a visual analogue score of 0-3. The score for the assessment will be nil - 0, mild - 1, moderate - 2, and severe - 3. Results thus obtained were tabulated and subjected to statistical analysis using chi square test. P value <0.05 was considered significant. **Results:** Out of 120 patients, 50 were males and 70 were females. The difference was non significant (P<0.05). The plaque index was 1.60, 1.52, 1.02 and 0.62 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significant reduction in plaque index from baseline to 2 weeks, 4 weeks and 6 weeks (P <0.05). The gingival index was 2.52, 1.42, 0.86 and 0.52 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significant reduction in gingival index from baseline to 2 weeks, 4 weeks and 6 weeks (p <0.05). The bleeding index was 2.14, 2.0, 1.46 and 0.84 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significant reduction in gingival index from baseline to 2 weeks, 4 weeks and 6 weeks (p <0.05). **Conclusion:** Herbal tooth paste found effective in treating gingivitis and periodontitis. There was no side effect reported with the formulation. Hence it can be used as an adjunct in periodontal therapy.

Key words: bleeding, Herbal tooth paste, periodontal diseases.

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INTRODUCTION

Dental plaque is a soft, non-mineralised, microbial biofilm that consists of complex communities of bacterial species that reside on tooth surfaces or soft tissues. It accumulates on and adheres to teeth, dental restorations and artificial appliances in the mouth. It is composed of bacteria, salivary glycoproteins arranged in matrix of extracellular material.¹ Dental plaque appears as yellowish or grey deposits which can be only removed mechanically. Its removal is necessary in controlling disease activity. Regular removal of the plaque is, therefore, essential and has been the cornerstone of disease prevention. It can be subgingival or supragingival depending upon their location.²

If there is complete removal of plaque, then only caries can be prevented. For removal of plaque, approaches such as mechanical removal of plaque, local or systemical use of

antimicrobial drugs, alteration in plaque biochemistry, prevention of bacterial attachment to the tooth surface; and alteration of plaque ecology is important. The removal of plaque from interdental surfaces remains an important life-long objective for dental patients. A common problem with all interdental cleaning aids is patient dexterity and motivation.³

Various antiplaque agents such as tooth paste, tooth powder are of paramount importance in preventing accumulation of plaque and hence dental caries. In market various dentrifices are available. All provides significant results. It should have anti-inflammatory, antioxidant, and antiplaque activity. A good quality tooth paste should be able to remove dental plaque effectively.⁴ Hence the present study was conducted to assess the efficacy of Herbal tooth paste in controlling dental plaque, gingival bleeding and periodontal diseases.

MATERIALS & METHODS

This study was conducted in the Department of Periodontics in 2014. It comprised of 120 patients having periodontal diseases. Patients were informed regarding the study and written consent was taken. Patient information such as name, age, sex, etc was recorded. Patients <18 years, pre-genetic disorder, endocrinal disorders, pregnant and lactating women were excluded from the study. Patients were evaluated at the interval of 2 weeks for a period of 6 weeks.

Plaque index was scored on all four surfaces (buccal, lingual, mesial, and distal) of six representative teeth (16, 12, 24, 44, 32, 36). The mean index was calculated by dividing the sum of number from scale by the total number of sites scored within the mouth.

Bleeding index was measured by guiding probe through the gingival sulcus in the first and third quadrants from the buccal aspect and in the second and fourth quadrant from the oral aspect.

Gingival index was scored on the buccal marginal gingiva of the Ramfjord teeth. By summing the individual GBI scores and dividing that sum by the number of sites graded for each subject. All the indices will be evaluated using a visual analogue score of 0-3. The score for the assessment will be nil - 0, mild - 1, moderate - 2, and severe - 3.

Results thus obtained were tabulated and subjected to statistical analysis using chi square test. P value <0.05 was considered significant.

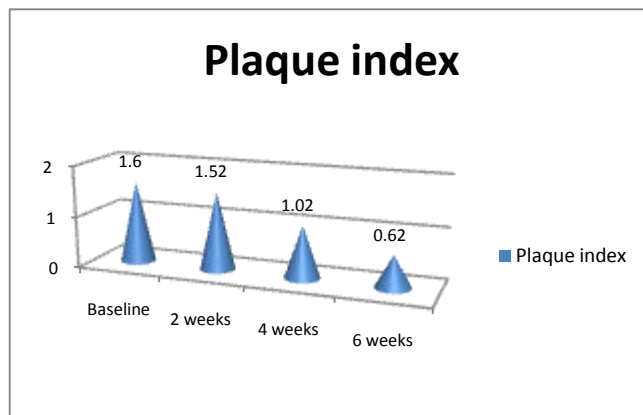
RESULTS

Table I shows that out of 120 patients, 50 were males and 70 were females. The difference was non significant (P<0.05). Graph I shows that the plaque index was 1.6, 1.52, 1.02 and 0.62 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significantly reduction in plaque index from baseline to 2 weeks, 4 weeks and 6 weeks (P <0.05). Graph II shows that the gingival index was 2.52, 1.42, 0.86 and 0.52 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significant reduction in gingival index from baseline to 2 weeks, 4 weeks and 6 weeks (p <0.05). Graph III shows that the bleeding index was 2.14, 2.0, 1.46 and 0.84 at baseline, 2 weeks, 4 weeks and 6 weeks respectively. There was significant reduction in gingival index from baseline to 2 weeks, 4 weeks and 6 weeks (p <0.05).

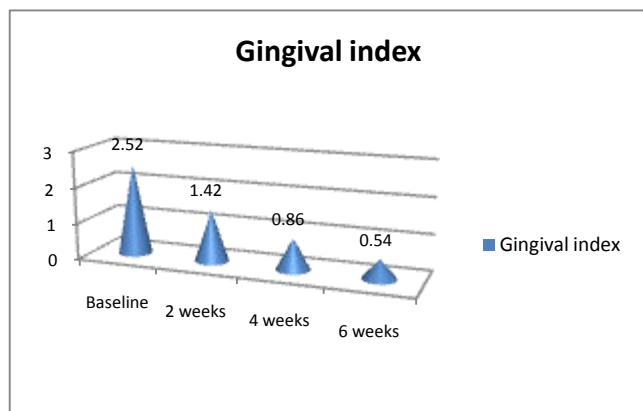
Table I Distribution of Patients

Total - 120		
Male	Female	P value
50	70	0.1

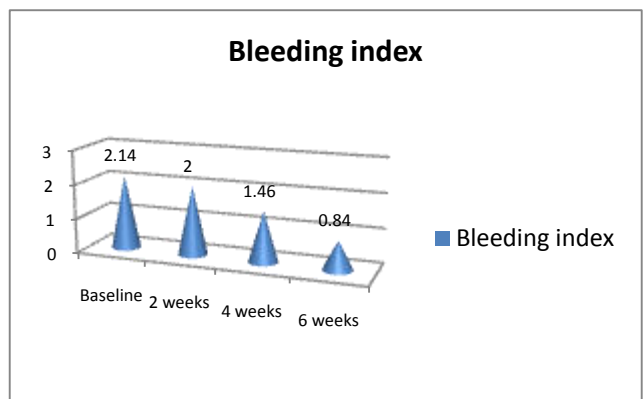
Graph I Plaque Index



Graph II Gingival index



Graph III Bleeding index



DISCUSSION

The herbal tooth paste contains Punica granatum, Zanthoxylum alatum, Acacia arabica, Triphala, Vitex negundo, Salvadora persica, Mimusops elengi, Trachyspermum ammi, Azadirachta indica. which has shown anti-gingivitis activity.

Topical application of Pomegranate (*Punica granatum*) is effective in controlling oral inflammation, as well as bacterial and fungal counts in periodontal disease. It has antioxidant, anti-inflammatory, antimicrobial and antifungal activities. *Acacia arabica* stem bark is considered as an astringent and has got antimicrobial activity.⁵

We evaluated the efficacy of herbal tooth paste in controlling plaque index. We found that there was significantly reduction in plaque index from baseline to 2 weeks, 4 weeks and 6 weeks. Our results are in agreement with Moran J et al.⁶ Similar results were seen in the study of Carnelio S et al.⁷

We also evaluated gingival index in present study and found that there was significant reduction in gingival index from baseline to 2 weeks, 4 weeks and 6 weeks. Lakshmi SS⁸ has found same results in her study. The bleeding index score was also showed significant reduction recorded at baseline, 2 weeks, 4 weeks and 6 weeks. Our results are in agreement with Jurenka JS et al.⁹

CONCLUSION

Herbal tooth paste found effective in treating gingivitis and periodontitis. There was no side effect reported with the formulation. Hence it can be used as an adjunct in periodontal therapy.

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