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ORIGINAL RESEARCH

Impact of Different Oil Pulling Therapy on Plaque Index in Gingivitis

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ABSTRACT

Aim: To assess the effectiveness of Oil Pulling Therapy using coconut oil (CO) and sesame oil (SO) on patients with gingivitis. **Material and Method:** Forty patients were randomly divided into two groups: Group A utilized CO and Group B utilized SO. Each group was educated on their respective oil pulling techniques and continued their standard oral hygiene routines for a period of 30 days. **Result:** After 30 days, the mean plaque index for Group A (CO) reduced from 1.5 to 0.92, while Group B (SO) saw a reduction from 1.65 to 1.06, with both results indicating no statistical significance ($p>0.05$). For the gingival index, participants using CO experienced a decline from 1.12 to 0.90, and those using SO saw a decrease from 1.1 to 0.81, also statistically insignificant ($p>0.05$). **Conclusion:** Oil Pulling Therapy with both CO and SO resulted in a reduction of plaque and gingivitis symptoms over the course of one month.

Keywords: Gingivitis, Plaque index, Oil pull

INTRODUCTION

Gingivitis, a common inflammation of the gum tissues, specifically affects the connective tissue and gingival epithelium.[1] It varies based on several factors such as cause, severity, duration, and specific clinical features. Some of the typical signs of gingivitis include a shiny appearance of gums, swelling, redness, bleeding when probed, and discomfort or pain.[2,3]Human dental plaque, when fully developed, holds over 300 distinct types of microorganisms. While several of these microorganisms have been extensively studied, others remain unexplored. Experts agree that there are at least 7 to 8 species primarily responsible for various periodontal diseases. These include Aggregatibacteractinomycetemcomitans, Porphyromonasgingivalis, Tannerella forsythia, Prevotella intermedia, Campylobacter rectus, and the Spirochetes.[4]

Chronic gingivitis, which is commonly associated with bacterial plaque, is recognized as the most prevalent form. Managing oral hygiene in affected individuals poses significant challenges. These challenges stem from factors such as increased plaque retention, the time demands of mechanical plaque removal, inadequate motivation or manual dexterity, improper brushing techniques, and insufficient use of supplementary oral hygiene aids like dental floss, mouthwashes, and tongue cleaners.[5-7]

To ensure optimal dental health, chemical plaque management methods, such as the use of mouthwashes, are often recommended. However, long-term use of these chemical agents can lead to certain adverse effects. This concern has led to a growing interest in natural or herbal alternatives.[1]

Oil Pulling Therapy, also known as oil swishing, is a centuries-old practice rooted in traditional Indian Ayurvedic medicine. It involves swishing oil in the mouth as a method to enhance oral and overall health. OPT is believed to prevent dental issues like tooth decay and bleeding gums, while also alleviating oral malodor, throat dryness, and cracked lips. Furthermore, it is said to strengthen teeth, gums, and jaws. This natural therapy offers a complementary approach to oral hygiene by potentially supporting both oral and systemic health.[8-10]

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MATERIAL AND METHOD

The study was designed to evaluate and compare the effectiveness of oil pulling therapy using coconut and sesame oil on patients suffering from gingivitis. It involved a randomized clinical trial with a cohort of forty patients who were referred to the Department of Periodontology, specifically for gingivitis treatment.

Selection and Grouping

Participants were meticulously chosen based on specific inclusion and exclusion criteria, which helped in forming two groups:

Group A: Using Coconut Oil

Group B: Using Sesame Oil

To ensure reliability, these participants were randomly distributed into each group. Ethical considerations were thoroughly adhered to, including institutional ethical approval and obtaining informed consent from all patients.

Inclusion & Exclusion Criteria

Inclusion Criteria

- Patients with mild to moderate plaque-induced gingivitis.
- Possessing at least 20 permanent natural teeth.

Exclusion Criteria

- Presence of periodontal pockets or suppuration.
- Not systemically healthy.
- Use of antibiotics within the last 3 months.
- Allergic reactions to either coconut or sesame oil.

Study Duration

The research was conducted over a span of one year, ensuring that the observations and data collected were comprehensive and reliable.

Parameters Measured

Plaque Index (PI): Measured the thickness of plaque present in the gingival area of the indexed teeth, helping assess the oral hygiene of the participant.

Gingival Index (GI): Evaluated the severity of gingivitis, based on the condition of the gingiva and the degree of inflammation present.

These indices provided a quantitative assessment of oral health, allowing the researchers to systematically compare the effects of coconut and sesame oil on improving gingivitis.

RESULT

After a period of 30 days, the study observed changes in the mean Plaque Index (PI) for the two groups involved in the oil pulling therapy trial. In Group A, which utilized Coconut Oil (CO) for the daily practice of oil pulling, the mean plaque index initially recorded at 1.5 showed a reduction to 0.92. Meanwhile, in Group B, participants who incorporated Sesame Oil (SO) into their routine observed a decrease in the plaque index from an initial average of 1.65 to a final value of 1.06. Despite these reductions, statistical analysis revealed that the differences in plaque index reduction between both groups were not significant, with p-values exceeding the threshold of 0.05 ($p>0.05$).

Similarly, the study recorded changes in the Gingival Index (GI) for participants. Those in the coconut oil group (Group A) experienced a decline in their mean gingival index from an initial 1.12 to 0.90 after the 30-day period. On the other hand, the sesame oil group (Group B) saw their mean gingival index reduce from 1.1 to 0.81. Again, these improvements in the gingival condition for both groups did not achieve statistical significance, as indicated by p-values greater than 0.05 ($p>0.05$).

These results imply that while both oils showed some degree of effectiveness in reducing plaque and gingival indices over the month-long study period, the differences between the two oiltreatments were not pronounced enough to be considered statistically significant in this sample population. Both coconut and sesame oil led to comparable outcomes in the management of gingivitis symptoms, thus suggesting that either oil could be considered for clinical use, based on individual preference or availability

Table 1: Comparison of Mean Plaque and Gingival index score

Group	Coconut oil group			Sesame oil group		
Index	**Base line**	**30 days**	**P value**	**Base line**	**30 days**	**P value**
Plaque index	1.5 ± 0.2	0.92 ± 0.3	>0.05	1.65 ± 0.15	1.06 ± 0.18	>0.05
Gingival index	1.12 ± 0.15	0.90 ± 0.15	>0.05	1.1 ± 0.05	0.81 ± 0.18	>0.05

DISCUSSION

The study aimed to assess the effectiveness of Oil Pulling Therapy using coconut oil and sesame oil on individuals with gingivitis, and while results showed a reduction in plaque and gingivitis indices over a 30-day treatment period, these results were statistically insignificant. Oil pulling, a practice rooted in ancient Ayurvedic tradition, involves swishing oil within the mouth and is believed to work by reducing harmful oral bacteria, promoting healthier gums, and minimizing plaque accumulation. Specifically, coconut oil is known to contain lauric acid, which has antimicrobial attributes, whereas sesame oil is thought to have beneficial antioxidants, both potentially enhancing oral health.[11,12] Within the study, there was a noted decline in plaque indices in both oil groups, though the reduction did not reach statistical significance. Interestingly, the sesame oil group demonstrated a greater average reduction in plaque compared to the coconut oil group, though this

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difference also lacked statistical significance. [13-15] As for gingival health, improvements across both groups were observed in gingival indices, with slightly more pronounced reductions noted in the sesame oil group, yet these also failed to meet statistical significance thresholds. The findings imply that despite some promising indications, the overall effects of both oils on oral health were limited, and the minor differences between the effects of CO and SO could arise from the distinct mechanisms by which their active ingredients interact with the oral microbiome. However, the study suggests a potential benefit to incorporating OPT into daily oral care routines, highlighting its utility as a natural supplement to standard oral hygiene practices, especially in areas with limited access to conventional dental treatment methods.

Limitation of study

The study's limitations include a small sample size of only 40 participants, which may not represent the larger population and impedes the generalization of results. Lack of a control group that maintains standard oral hygiene without oil pulling limits the capacity to distinctly attribute improvements to OPT. The short 30-day duration does not provide insights into the long-term effects and sustainability of improvements. Moreover, self-reported adherence to the oil pulling routine may introduce bias. Future research should involve larger, diverse populations over extended periods with stringent monitoring of compliance to strengthen the validity and applicability of findings.[16-18]

CONCLUSION

The study concludes that Oil Pulling Therapy, utilizing both coconut oil and sesame oil, leads to a reduction in plaque and gingivitis symptoms after one month. While the improvements observed were not statistically significant, they indicate a helpful trend towards better oral health. OPT's simplicity, affordability, and accessibility make it an appealing home remedy, particularly in resource-limited settings. Moreover, these findings support the need for more extensive research to verify these initial results and explore the full potential of incorporating oil pulling techniques into regular oral hygiene practices to complement traditional dental care.

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