

Evaluation of Sesame Oil as Oral Antimicrobial Adjunct in Management of Gingivitis: A Pilot Study

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Citation of this Article: Capt. Norbu, Resident, Lt. Col Nitin Gupta, Lt. Col B Harshavardhana, "Evaluation of Sesame Oil as Oral Antimicrobial Adjunct in Management of Gingivitis: A Pilot Study" IJDCR – January – 2026, Vol. – 8, Issue - 1, Page No. 10-15.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

ABSTRACT

The management of Gingivitis is principally Scaling and Root Planning (SRP) along with the use of an oral antimicrobial adjunct. Chlorhexidine is the most scientifically preferred oral antimicrobial adjunct. However, due to certain limitations, other newer antimicrobial adjuncts are being researched as a substitute for chlorhexidine. One such antimicrobial adjunct presently being studied is the sesame oil. Thus, the aim of the study was to evaluate and compare the effectiveness of sesame oil when used as an oral antimicrobial adjunct to SRP in management of gingivitis.

METHODS

This pilot study was conducted on randomly selected 10 patients exhibiting gingivitis. The parameters recorded were Bleeding Index, Gingival Index and Plaque Index. They were recorded at baseline, immediate post SRP, post 15 days after SRP and post 15 days after using sesame oil. A questionnaire was also provided to the patients for their personal evaluation. The recorded parameters were then statistically compared.

RESULTS

Sesame oil when used after SRP significantly reduced both plaque and gingival scores when compared to just SRP alone.

CONCLUSION

Sesame oil has a potential to be considered as an alternative oral antimicrobial adjunct in the management of gingivitis.

KEYWORDS

Antimicrobial adjunct, Sesame oil, immediate post SRP,

INTRODUCTION

Gingivitis is one of the most common oral disease that occurs due to the colonization of plaque on the tooth surface. Mechanical plaque removal is the most widely accepted method of management of gingivitis. However chemical adjuvants, mainly mouthwashes are also being used along with brushing to further reduce plaque formation and accumulation [1]. Among them, chlorhexidine gluconate is considered to be the most preferred mouthwash. However, many studies have reported various side effects of chlorhexidine use like discoloration of teeth and tongue, taste disturbances, oral mucosal erosions with long-term usage [2]. Hence, search is on for the newer chemical adjuvants as a replacement for chlorhexidine.

Oil pulling is an age-old tradition of plaque control which is still practiced in different parts of India. Oil pulling also known as Kavala Gandoosha/Kavala Graha has claimed to be able to manage gingivitis [3]. Oil pulling has been hypothesized to create a mechanical shear force that potentially dislodges the debris and microflora because of its emulsification property. Another hypothesis states that, its use causes reduction in the adhesion of plaque further aided by

the saponification effect [3,4].

However, very limited literature or scientific evidences are available to establish oil pulling therapy as an alternative replacement for the use of chlorhexidine mouthwash. Therefore, the present pilot study was planned to evaluate the effectiveness of sesame oil mouth wash when used as an adjunct to scaling for effective plaque control. The effectiveness of plaque control was to be evaluated by recording gingival bleeding, gingival and plaque indices. Even the patient's acceptance of the mouthwash was to be evaluated by a questionnaire provided to them.

MATERIALS & METHODS

A total of ten patients aged between 18 years to 60 years who presented to the Department of Periodontology with the features of gingivitis, having probing depth of less than 2 mm with no clinical attachment loss (CAL) and having gingival and plaque scores of more than 1 were included in the study.

Patients with periodontitis, pregnant women, patients undergoing orthodontic treatment or using an oral prosthesis, patients already using mouth wash & medically compromised patients were excluded from the study. Informed consent was obtained from all the five patients before the initiation of the study.

The clinical parameters recorded were Gingival bleeding index (GBI) of Mombelli [5], Gingival Index (GI) of Silness and Loe [6] and Plaque Index (PI) of Loe and Silness [7]. They were recorded at baseline, 15 days post scaling and 15 days post sesame oil therapy. Patients were also provided a questionnaire after the usage of the mouthwashes to evaluate the freshness, taste, ease of usage, any burning sensation and the overall feeling of the mouth wash according to them.

At the baseline, case history recording and indices for all the patients were recorded after staining the teeth with plaque disclosing agent (Fig 1). This was followed by full mouth ultrasonic scaling. Modified Bass technique of brushing was demonstrated to all the patients and they were instructed to brush twice daily using this technique. No mouthwash was provided to these patients. After 15 days, the indices were re-recorded (Fig 2). This was followed by

ultrasonic scaling in patients having an evidence of plaque accumulation. The patients were then provided with sesame oil to be used as a mouth wash with the instruction to swish 10 ml twice daily using for 30 seconds (Fig 5a). After 15 days, patients were recalled and a questionnaire was given to them & the indices were re-recorded (Fig 3). All the results were then tabulated and analyzed.



Fig 1: Baseline recording of indices



Fig 2: 15 days post scaling



Fig 3: 15 days post Sesame oil therapy



Fig 5a: Sesame oil mouth wash

RESULTS

At the baseline the mean GBI, GI and PI were 1.56, 2.12 and 2.06 respectively (Fig 6). Post 15 days scaling, the scores were reduced to 1.1, 1.22 and 0.7 respectively (Fig 6). The mean GBI, GI and PI after 15 days sesame oil therapy were 1, 1.21 and 0.72. On evaluating the result

of the questionnaire, it was found that the mean scores for sesame oil with respect to freshness were 5.2, for taste it 2.8 and finally 3.2 with regards to overall feeling (Table 1). The patients did not experience any burning sensation on using sesame oil.

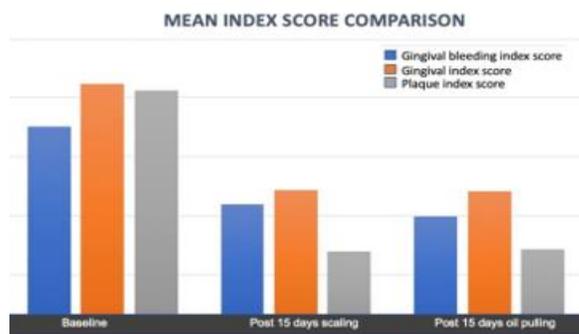


Fig 1: Mean index score comparison

Questions	Mean of oil pulling
Freshness	5.2
Taste	2.8
Ease of usage	3.6
Burning sensation	0.0
Overall feeling	3.2

Table 1: Mean questionnaire score

DISCUSSION

Chemical means of plaque control principally involves the use of mouth rinses as an adjuvant to scaling, in order to reduce the incidence of plaque-related diseases by decreasing the plaque accumulation [8]. Chlorhexidine containing mouthwashes have been widely used for the management of gingivitis but has certain limitations such as unpleasant taste and undesirable side effects such as tooth staining [2].

Oil pulling is an age-old tradition that has great benefits for oral and systemic health. The benefits of ayurvedic medicine are gaining popularity, as the products used are natural and safe, also contributing towards prevention and cure of various diseases [9]. It has no side effects and is considered to be a better alternative to chemical mouth rinses. It is scientifically proven that oil pulling reduces plaque score and gingival score in gingivitis patients, also converting caries susceptibility from marked to slight or moderate susceptibility [10]. Our pilot study was conducted to evaluate the effectiveness of sesame oil mouthwash and to investigate whether oil pulling therapy could be a replacement for chlorhexidine use.

Various oils that have been used as mouthwashes in previous studies like coconut oil, groundnut oil, sunflower oil etc. for the management of gingivitis [11,12]. Even though studies are available evaluating the efficacy oil pulling therapy, our study is the first of its kind wherein oil pulling therapy use was evaluated in the same patient [13]. In our study, after 15 days of scaling, even though plaque accumulation had drastically reduced in all the patients, it was not completely eliminated suggesting that scaling is still

the effective means of plaque control. This warranted a further scaling followed by addition of sesame oil along with brushing. In our study, sesame oil mouthwash showed a further reduction in plaque and gingival index scores when compared to the initial recordings. This was similar to result obtained in the study by Nitin Dani [14].

However, slight plaque accumulation was still visible even after using the mouthwash which could be attributed to the brushing efficiency of the patients. Regarding the acceptance level of the mouthwash by the patients, it was found that oil pulling was not comfortable to use in terms of freshness, taste, ease of usage and the overall feeling.

CONCLUSION

As per the results of this pilot study it can be considered that oil pulling may be used as an adjuvant to tooth brushing. Sesame oil pulling therapy was effective in reducing gingival and plaque index but the acceptance level by the patient was not high. However further studies with larger sample size along with proper randomization is required to validate our findings.

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