

A Clinical Investigation to Test the Efficacy of Oil Pulling in Reducing Dentin Hypersensitivity, as Compared to a Desensitizing Tooth Paste

Ruhani Cheema¹,
Ritu Sharma²,
Ekta Choudhary³,
Shweta Sharma⁴

¹MDS 1st Year Post Graduate Student in the Department of Conservative Dentistry and Endodontics, School of Dental Sciences, Sharda University, Greater Noida, India, ²Professor and Head of the Department & MDS in the Department of Conservative Dentistry and Endodontics, School of Dental Sciences, Sharda University, Greater Noida, India, ³Professor & MDS Department of Conservative Dentistry and Endodontics, School of Dental Sciences, Sharda University, Greater Noida, India, ⁴Senior Lecturer & MDS Department of Conservative Dentistry and Endodontics, School of Dental Sciences, Sharda University, Greater Noida, India

Corresponding Author: Dr. Ruhani Cheema, School of Dental Sciences, Sharda University, Greater Noida. E-mail: rjkc_18@yahoo.com, Phone: 9582272789

Abstract

Introduction: Oil pulling has been used extensively as traditional Indian folk remedy to prevent sensitivity, tooth decay, oral malodor, bleeding gums, dryness of throat and cracked lips. A clinical investigation of the effectiveness of oil pulling in reducing dentinal hypersensitivity has not been reported so far.

Aim and Objectives: The aim of this pilot investigation was to evaluate the efficacy of oil therapy in reduction of dentin hypersensitivity, as compared to desensitizing dentifrices.

Materials and Methods: A total of 30 subjects (17 males and 13 females; aged 18-40 years) attending the dental school OPD, with dentinal hypersensitivity were randomly selected, using a random number table. They were divided into three groups: Group-1 - Cold-pressed sunflower oil, Group-2 - Desensitizing paste and Group-3 - Placebo. Sensitivity scores for controlled air stimulus and tactile method at baseline and 8 weeks post-experiment were recorded.

Results: All groups showed reduction in sensitivity scores at baseline and 8th week. The cold pressed sunflower oil was found to be significantly better compared to other groups at the end of 8th week.

Conclusions: Oil pulling was significantly more effective in reducing dentinal hypersensitivity as compared to a desensitizing dentifrice.

Keywords: Dentin sensitivity, Hypersensitivity, Oil pulling

INTRODUCTION

Ayurveda is one of the most ancient and holistic medical systems of the world. Its roots are in *Atharvaveda*, the oldest recorded compendium of wisdom on the Earth (6000 B.C.). *Charka samhita* and *Susruta samhita* (1500-1000 B.C.) of Ayurveda provides comprehensive preventive, promotive and curative aspects of health. Traditional medicine is sum total of knowledge, skill and practices based on theories, beliefs and experiences indigenous to different cultures that are used to maintain health. It is practiced in other parts of world as complementary and alternative medicine.¹

Ayurveda and Oral Health

Even though dentistry was not a specialized branch of Ayurveda, it was included in the *Shalakyta tantra* (system of surgery). Dental health (*dantha swasthya*) is held to be very individualistic. Ideal treatment according to Ayurveda, is one which cures the disease without causing any side effects. There are approximately 1,250 Indian medicinal plants that are used in formulating beneficial measures.

Oil Pulling

Oil pulling has been used extensively as a traditional Indian folk remedy for many years. It is mentioned in Ayurvedic text where it is called *Kavala graha* and *Gandusha* the only difference

between them being the dosage and procedure. In *Gandusha*, the oral cavity is filled completely with medicated liquid or oil, until there is lacrimation and nasal discharge. While, in *Kavala graba* the mouth is three-fourth filled with medicated fluid and which is swished in the mouth for specific time.

Oil pulling is claimed to cure 30 systemic diseases ranging from migraine to diabetes to asthma. This therapy is preventative as well as curative. It provides strength in jaws and voice, development of the face and maximum taste of food. One does not suffer from dryness of throat, lip cracking and teeth become firmly rooted.¹⁻³

However, there is no reported clinical investigation on efficacy of oil therapy in reducing hypersensitivity.

AIM & OBJECTIVES

The aim of this pilot investigation was to evaluate the efficacy of oil therapy in reducing dentin hypersensitivity, as compared to a desensitizing agent.

MATERIAL AND METHOD

After ethical approval, subjects from the dental school OPD, with dentinal hypersensitivity were randomly selected, using a random number table. A total of 30 patients were included in the study and were divided into three groups, each containing 10 patients: Group 1 - Cold-pressed sunflower oil, Group 2 - Desensitizing paste and Group 3 - Placebo. Sensitivity scores for controlled air stimulus and tactile method at baseline and at 8th week post-experiment were recorded.

Inclusion Criteria

1. Subjects in the age group of 18-40 years
2. Patients with two or more sensitive teeth.
3. In good general health

Exclusion Criteria

1. History of antibiotic use in the past 3-4 weeks.
2. Fractured restoration
3. Gingival inflammation
4. Allergy to drugs
5. Pregnant or lactating females⁴

Diagnostic Tools

1. Dental explorer
2. Air jet⁴⁻⁶

Sensitivity Assessment

A Visual Analogue Scale is a line of 10 cm in length, the extremes of line representing the limits of pain a patient

might experience from an external stimulus (0 = no pain; 10 = severe pain)(Figure 1). Patients were asked to place a mark on the line which indicates the intensity of their current level of sensitivity or discomfort following application of test stimuli.⁷

Scoring of tooth sensitivity was done by first using tactile method in which the dentin surface was scratched with a sharp probe. Ten minutes after the tactile stimulation the subject's response to cold air sensitivity was assessed using a dental air syringe which was applied 1 cm away from and perpendicular to the tooth surface. The adjacent teeth were isolated during testing using cotton rolls.⁸

The subjects were divided into three groups - Group 1 was given 600 ml of cold pressed sunflower oil. They took a tablespoon (10 ml) of sunflower oil on empty stomach. It then had to be sipped, sucked and swished for 20-25 minutes till oil lost its viscosity and turned milky white in colour and then was spit out, and the mouth was rinsed with water. The oil should not be swallowed as it contains bacteria and toxins. In group 2 subjects rubbed the prescribed desensitizing dentrifice over the tooth surface and left it undisturbed for 120 seconds after which theybrushed their teeth. In group 3 patients rinsed their mouth with saline.

STATISTICAL ANALYSIS

Mean VAS scores and mean+SD were calculated from raw VAS scores from all the subjects. Mean VAS scores were compared among groups at different time points (baseline and 8 weeks) using paired t-test. P < 0.05 was taken significant when detected. Data was statistically analysed using a software programme (SPSS statistical package Version 7.0, SPSS, Chicago, IL, USA).

RESULTS

Mean VAS scores for air stimulus and tactile for all three groups at baseline and 8th week are shown in Table I, II and III. Table I shows highly significant results in dentin hypersensitivity reduction for both air and tactile stimulation. In table II tactile stimulus gave

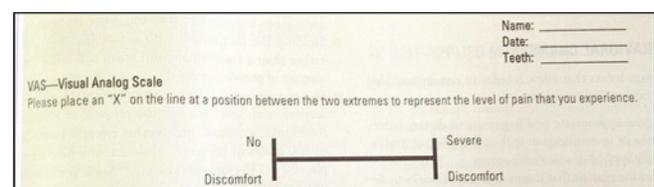


Figure 1: Visual Analogue Scale

highly significant results at 8th week as compared to air stimulus. Table III shows insignificant results to air and tactile stimulus.

DISCUSSION

The increase of longevity of dentition through periodontal therapy and plaque control procedures may increase the incidence of Dentin hypersensitivity - An enigma being frequently encountered yet poorly understood.⁹ The complex, subjective nature of pain, makes its assessment challenging. Despite of a century old research, the clinical management of dentin hypersensitivity is highly empirical.^{11,12}

The mechanism by which oil pulling therapy causes plaque reduction can be emulsification and saponification.¹³ Recent research has found that the bacterial adhesion evolves on the basis of proteinaceous layer, acquired pellicle being the first step of bioadhesion on solid surfaces exposed to the oral fluids. The initial formation process is determined by ionic interactions between

enamel surface and certain salivary protein like statherin, histatin and proline-rich proteins and thermodynamically driven forces such as a vander Waals forces and hydrophobic interactions. Lipophilic components of edible oils modulate this process of bioadhesion to the oral hard tissues as well as composition and ultrastructure of the initial oral biofilm or pellicle. A lipid- enriched pellicle might be more resistant in case of acid exposure and could therefore reduce the erosive mineral loss. Thereby reducing dentin hypersensitivity. Furthermore, anti-inflammatory effects on soft tissues was seen too.¹⁵ Sunflower oil has the following advantages over the standard over- the-counter toothpastes as it is readily available in the household. It has no staining no lingering after taste no allergic reactions. It is 5-6 times more cost-effective.^{13,16}

A few studies have been conducted regarding the role of oil pulling therapy in oral health maintenance. A study conducted shown that the antibacterial activity of sesame oil. Sesamin and sesamol isolated from sesame oil did not have any antibacterial effect against oral microorganisms like *Streptococcus mutans*, *S. mitis* and

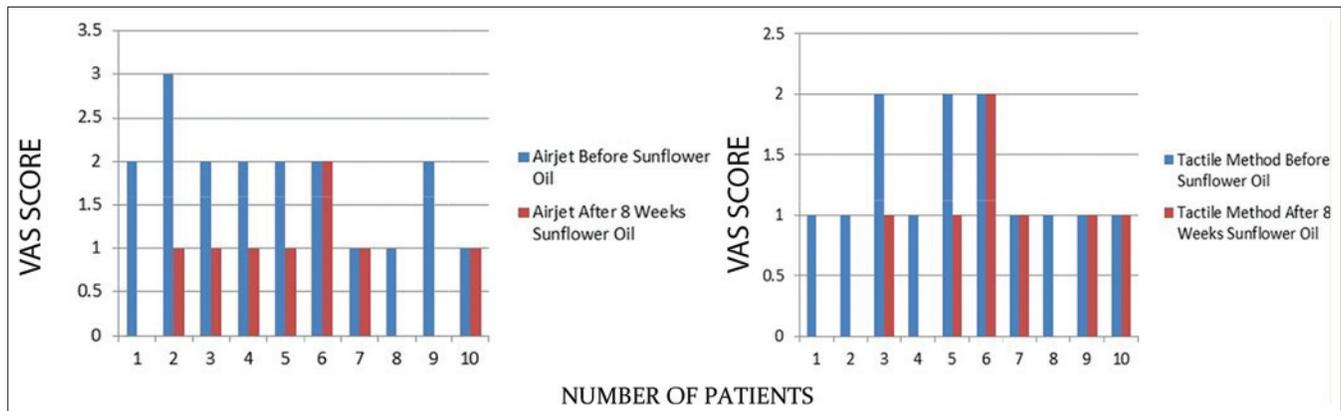


Table I-Sensitivity scores to air and tactile stimulus for group 1 (cold pressed sunflower oil) at baseline and after 8 weeks

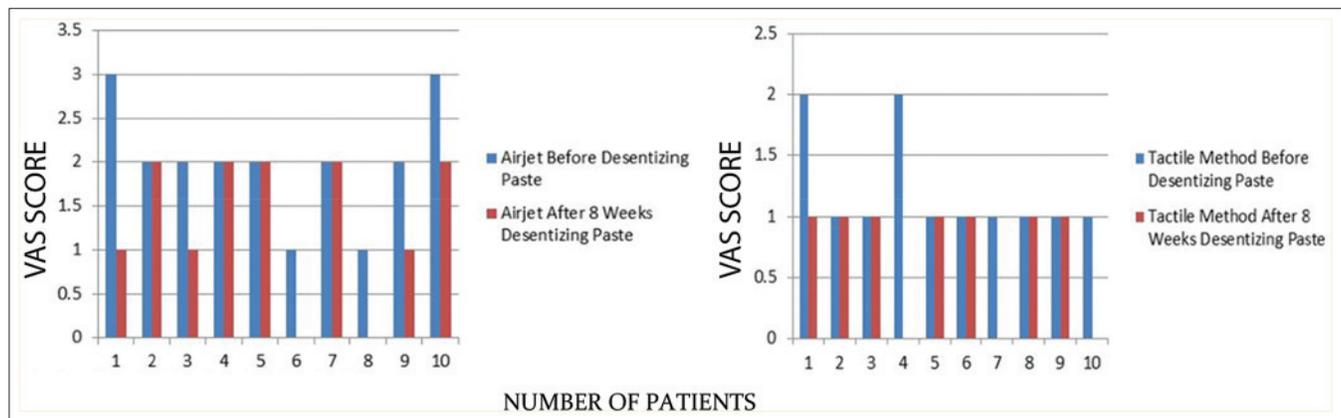


Table II-Sensitivity scores to air and tactile stimulus for group 2 (desensitizing paste) at baseline and after 8 weeks

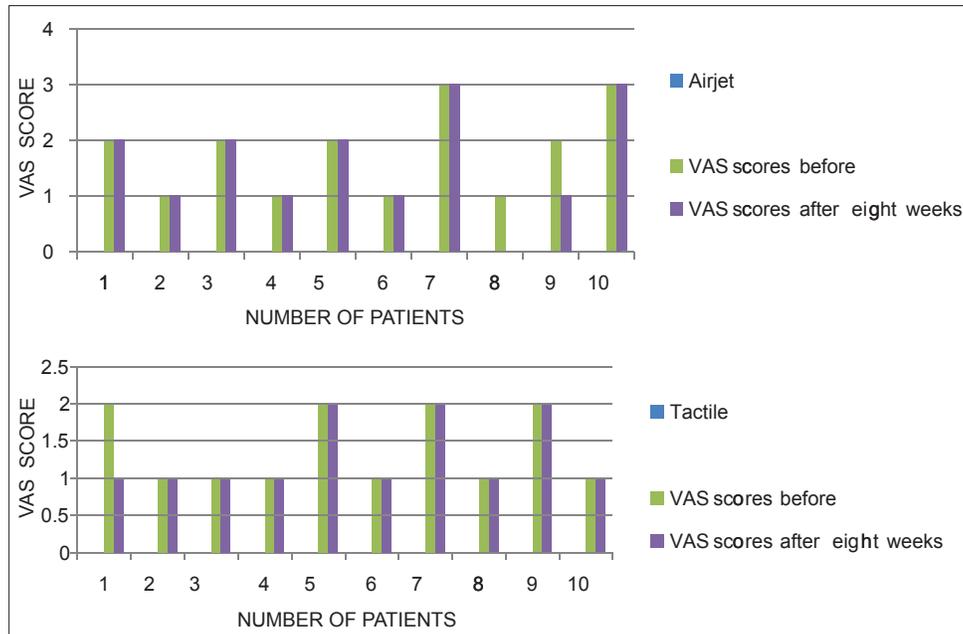


Table III-Sensitivity scores to air and tactile stimulus for group 3 (placebo) at baseline and after 8 weeks

S. viridans. Emulsification of sesame oil occurs during oil-pulling therapy.¹⁷

A study conducted for evaluation of the effect of oil pulling with sesame oil on the count of *Streptococcus mutans* in plaque and saliva showed a reduction in the *S. mutans* count in both the samples.¹⁸

The limitations of the present study include a small sample size and usage of convenient assessment tools. Within these limitations, we observed encouraging results for oil pulling based desensitising.

CONCLUSION

Reduction in VAS scores was seen in both cold pressed sunflower oil and desensitizing dentrifice groups. However, statistically significant reduction in the mean VAS score was observed in oil pulling group.

The myth that the effect of oil-pulling therapy on oral health is just a placebo effect may not be believed any more. Extensive studies with larger samples, varying time periods, and long follow-up times need to be carried out to establish the efficacy of oil pulling therapy in reduction of dentin hypersensitivity.

ACKNOWLEDGEMENTS

The authors express their gratitude to Mr. Haroon Ali for statistical analysis of data.

REFERENCES

- Singh A, Purohit B. Toothbrushing, Oil pulling and Tissue regeneration: A review of holistic approaches to oral health. *J Ayurveda Integr Med.* 2011;2(2):64-68
- Amurthesh S. Dentistry and Ayurveda –IV. *Indian J Dental Res* 2008;19:52-61.
- Ashokan S, Emmadi P, Chamundeswari R. Effect of oil pulling on plaque induced gingivitis: A randomized, controlled, triple-blind study. *Indian J Dent Res.* 2009;20(1):47-51
- Consensus –Based Recommendations for the diagnosis and management of dentin hypersensitivity. *J Can Dent Association.* 2003;69 (4):221-6
- Gernhardt CR. How valid and applicable are current diagnostic criteria and assessment methods for dentin hypersensitivity? An overview. *Clin Oral Invest.* 2013;17(1):31-40.
- Gillam DG, Orchardson R. Advances in treatment of root dentin sensitivity: Mechanism and treatment principles. *Endodontic Topic.* 2006;13:13-33.
- Gillam DG, Newman HN. Assessment of pain in cervical dental sensitivity studies-A review. *J Clin Periodontol.* 1993;20:383-394.
- Gillam DG, Coventry JF, Manny R H, Newman H N, Bulman JS. Comparison of Two desensitizing agents for the treatment of cervical dentine sensitivity. *Endo Dent Traumatol.* 1997;13:36-39.
- Dababneh RH, Khour AT, Addy M. Dentin Hypersensitivity: An Enigma? A review of terminology, mechanisms, etiology and management. *Br Dent J.* 1999;187:606-611
- Pradeep AR, Agarwal E, Naik SB et al. Comparison of efficacy of three commercially available dentrifices on dental hypersensitivity: A randomized clinical trial. *Australian Dental Journal.* 2012;57:429-434
- Addy M. Toothbrushing, toothwear and dentin hypersensitivity – are they associated? *Int Dent J.* 2005;1:261-267
- Gillam DG. Current diagnosis of Dentin Hypersensitivity in the dental office: An overview *Clin Oral Invest.* 2013;17(1):21-S29.
- Hebbar A, Keluskar V, Shetti A. Oil pulling–Unravelling the path to mystic cure. *J Int Oral Health.* 2010;2(4):11-15.
- Ashokan S. Oil Pulling therapy. *Indian J. Dent Res* 2008;19(2):169
- Kensche A, Reich M, Kummer K et al. Lipids in preventive dentistry. *Clinical Oral Investigations.* 2013;17(3):669-685.
- Ongole R. Complementary and alternative medical practices for dentistry. A library dissertation MAHE University, 2012.
- Asokan S, Rathinasamy TK, Inbamani N, Menon T, Kumar RS, Emmadi P, Raghuraman R. Mechanism of oil-pulling therapy – *In vitro* study. *Indian J of Dent Research.* 2011;22(1):34-37.

18. Asokan S, Rathan JA, Muthu MS. Effect of oil pulling on Streptococcus mutans count in plaque and saliva using Dentocult SM Strip mutans test: a randomized, controlled, triple-blind study. *J Indian Soc Pedod Prev Dent.* 2008;26(1):12-17.

How to cite this article: Ruhani Cheema, Ritu Sharma, Ekta Choudhary, Shweta Sharma. "A Clinical Investigation to Test the Efficacy of Oil Pulling, in Reducing Dentin Hypersensitivity, as Compared to a Desensitizing Tooth Paste". *International Journal of Scientific Study.* 2014;1(6):22-26.

Source of Support: Nil, **Conflict of Interest:** None declared.