

Indigenous Remedies for Oral Health In The Current Covid-19 Pandemic

¹Vishal Karmani, Intern, MGM Dental College and Hospital, Navi Mumbai

²Afreen Merchant, Intern, MGM Dental College and Hospital, Navi Mumbai

³Aishwarya Dhumale, Intern, MGM Dental College and Hospital, Navi Mumbai

⁴Dr. Jayeeta Verma, Lecturer, MGM Dental College and Hospital, Navi Mumbai

Corresponding Author: Vishal Karmani, Intern, MGM Dental College and Hospital, Navi Mumbai

Citation of this Article: Vishal Karmani, Afreen Merchant, Aishwarya Dhumale, Dr. Jayeeta Verma, “Indigenous Remedies for Oral Health In The Current Covid-19 Pandemic”, IJDSIR- January - 2021, Vol. – 4, Issue - 1, P. No. 28 – 33.

Copyright: © 2021, Vishal Karmani, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

India is well known for its ayurvedic knowledge all over the world. Ayurveda has vast applications in treatment of ailments through use of different parts of plants. Even though dentistry is not a specialized branch of Ayurveda, it is included in its Shalakya Tantra (system of surgery).

Acharya Charak and Acharya Sushrute have explained the techniques of treatment for bad breath, caries, bleeding gums, etc. in Charak Samhita and Sushrute Samhita. Conditions such as plaque and infections like caries were managed in ancient India even in the absence of qualified dental practitioners.

Chewing sticks described in ancient Ayurveda texts have medicinal and anti-cariogenic properties. Ayurveda has also shown that its oil pulling practice can cure about 30 systemic diseases like gingivitis, halitosis, etc.

Amla is also a general builder of oral health. Liquorice root (Yashtimadhu) (*Glycyrrhiza glabra*) promotes anti-cariogenic action and has an antibacterial effect.

Cardamom and fennel seeds can also be used to prevent halitosis temporarily. Clove is used as a pain reliever in toothache as local anesthetic and as an analgesic. Newer commercially available dental products also use clove oil in reduction dental pain. Scientific validations of the Ayurveda dental health practices could justify their incorporation into modern dental care. Ancient techniques may be used as a first line of treatment at home which definitely help in prevention and cure of dental problems!

Keywords: Ayurveda, Covid-19, Oral health, home remedies, liquorice, chewing sticks, amla, tissue regeneration, dental pain.

Introduction

Since ancient times, various parts of plants have been used for their medicinal properties in either crude or purified form. It is said that Ayurveda has its roots in India and is believed to have originated from the “Atharvaveda”. India is at the forefront today in treating patients using the Ayurvedic or Homeopathic treatment approaches. People

prefer to choose household treatment options to get relief from the symptoms of pain at home before consulting a doctor. It is observed that most people chose home remedies as they are naturally available and considered safe for use. The World Health Organization estimates that about 80% of the populations living in the developing countries rely almost exclusively on traditional medicine for their primary health care needs¹. The importance of this knowledge is considered important as it is passed down from generation to generations making it important part of lifestyle². Oral health is as important as systemic health owing to the fact that oral microbial flora also leads to systemic diseases and life-threatening conditions, and thus various forms of plant parts are used in treating the oral diseases which include microbial infections, viral and fungal infections.

Re-Emerging Trend Of Home Remedies

It has been proven that dental procedures have potential to create aerosols and splatters. These aerosols and splatters create a major risk of transmission of virus for everyone in the dental clinic. COVID-19 is transmitted via droplets from an infected person which happens when person is either speaking, sneezing, coughing, etc. And hence, dental procedures were regulated and modified to prevent further spread of COVID-19. The scare related to dentistry added with spread of this unknown virus has also forced people to adopt indigenous remedies and look for alternative options which are readily available. Due to associated side effects with conventional oral hygiene products and treatment modalities offered, people are increasingly attracted towards complementary and traditional practices.

Few of the plant products with their beneficial properties have been stated in this review article.

Arrest Microbial Growth

Dental caries or preferably “tooth decay” is one of the most common oral disease³. According to world health organization (WHO) the prevalence of dental caries is about 60-80% in children and 100% in adults⁴. *Streptococcus mutans*, *lactobacilli*, *Actinomyces* spp. and some other anaerobic bacteria are categorized as the primary cariogenic agents in the development of dental caries⁵. The oral cavity is a pool of various microorganisms, most of which accumulate on dental surfaces to form dental plaque.

Overload of microbial flora causes gingivitis, periodontitis and halitosis. In Indian rural areas, the chewing sticks have been in use for centuries as tooth cleaning devices because they are readily available, affordable, and efficacious⁶. Apart from possessing anti-microbial activity they also possess medicinal properties such as healing, analgesia, hemostasis and astringence⁶. The most commonly available chewing stick in India are miswak, neem, babool, *Achyranthes aspera* (commonly known as Devil’s horsewhip), *Pongamia glabra* (commonly known as karanja).

Liquorice also known as yashtimadhu, sweetwood or mulhatti is one such herbal remedy which has shown to decrease the bacterial overload, it is a sweet, moist, soothing herb that belongs to the glycyrrhiza species native to Mediterranean countries and Asia⁷. The term Glycyrrhiza comes from the ancient Greek words; glycos meaning sweet and rhiza meaning root⁸. It possesses antiviral, glucocorticoid, anti-inflammatory, antioxidant, anti-ulcerative, anti-carcinogenic properties^{9,10}. Ayurveda recommends chewing on liquorice herbal sticks, twelve angulas (9 inches) long and thickness of one's little finger to reduce dental caries and plaque⁷.

Block Halitosis

Bad breath also known as Halitosis; is an unpleasant or offensive odor emanating from the oral cavity. It has prevalence of about 26 to 52 % among all the oral diseases¹¹. Halitosis can be related to digestive issues, gingival diseases, acid system of body, low immunity or most commonly to poor oral hygiene.

There are various agents used as remedies for the prevention and treatment of halitosis. Spices such as Clove (*syzygium aromaticum*) consists of essential oil, eugenol and eugenol acetate and Beta- Carophylene. Clove has a safety record and documented as breath freshener¹². Cinnamon on the other hand has Cinnamaldehyde which has anti- bacterial and anti-fungal properties which helps in decreasing the chances of caries and halitosis¹³.

Various herbs such as Tulsi (*osmium sanctum*) contains carvocal, essential oleic acid, eugenol, ursolic acid, methyl eugenol, methyl chavicol, linolol and cineol^{12,13}. It acts as long-time breath freshener and prevents halitosis. Mint on the other hand has oils which are routinely used in our toothpastes as freshening agent and prevents bad breath¹³. Green tea extract from *Cimella sinensis* is being used world-wide for weight loss but it also helps in prevention of halitosis¹³.

Other agents such as Propolis that is a complete mixture made of plant derived and compounds released from bee, has been used as mouth freshener¹².

Various modern modalities to treat halitosis include, mechanical reduction using tools of cleaning, chemical reduction using various mouth rinses, Photodynamic therapy causing oxygen release reducing the load of microbes, Laser therapy in case of fetid tonsillitis, masking the odour and use of probiotics¹⁴.

Coriander has also got antiseptic properties due to a component called Citranellol, it helps in healing and prevention of bad breath.

Create Healthy Tissue (Tissue Regeneration)

Amla is fruit which is known to have regenerative benefits and hence is included in Rasayana Shastra (Regeneration) in Ayurveda. Amla is reported to possess radiomodulatory, chemomodulatory, chemopreventive effects, free radical scavenging, antioxidant, anti-inflammatory, antimutagenic and immunomodulatory activities, properties that are efficacious in the treatment and prevention of cancer¹⁵. Amla when ingested systemically provides healing benefits which are visible in gums. Although the effect won't be visible in few months but are known to have better long-term benefits¹⁶.

Dental Pain

The most common symptom of dental disease is pain. Pain is caused by various stimuli like bacterial infection, toxins released from bacteria, wear of enamel and dentin or receding gums. Pain is managed in clinic by different ways such as effective communication between the dentist and the patient, drugs and treatment of the offending tooth. Drugs act by reducing inflammation yet are ineffective in providing relief in the presence of infection. Eugenol being the most active component in clove oil provides anti-inflammatory, antinociceptive and anti-pyretic effects¹⁷. Apart from these it is also known to have anti-oxidants and anti-viral effect¹⁸. Eugenol is considered safe as dietary a food additive is classified by the FDA to be a substance that is regarded as safe for ingestion¹⁹.

The clove oil is commonly perceived as protected substance when devoured in amounts lower than 1500 mg/kg²⁰. Then again, the World Health Organization (WHO) set up that the satisfactory amount of clove every day is of 2.5 mg/kg of weight in people.²⁰

Oil Pulling As A Boon To Oral Health

Oil pulling, in CAM (Complementary and Alternative Medicine), is a procedure that involves swishing of edible oils in the oral cavity for 20 minutes until it turns thin and watery and the oil emulsifies after which it can be spit out^{21,22}. Oil pulling is a traditional Indian folk remedy used since many years for strengthening teeth, gums, and the jaw and to prevent decay, halitosis, bleeding gums, dryness of the throat, and cracked lips²³. It is believed to cure several systemic diseases when practiced regularly and correctly such as headaches, migraine, and chronic diseases such as asthma and diabetes mellitus.

Ayurveda advises oil gargling to purify the entire system; as it holds that each section of the tongue is connected to different organ such as to the kidneys, lungs, liver, heart, small intestines, stomach, colon, and spine, similarly to reflexology and traditional Chinese medicine¹⁶. Oil pulling could act as an adjunct to maintain good oral hygiene and health along with the routine tooth brushing and flossing with promising positive results. Oil pulling is both preventive and curative¹⁶. Organic oils such as cold pressed sunflower oil, sesame oil, and coconut oil are of benefit, though refined oil also works in “pulling” the bacteria, viruses and protozoa from the oral cavity. Traditionally sesame oil has been preferred oil for practicing oil pulling. Oil pulling using olive oil, milk, extracts of gooseberry and mangoes is also documented. Sesame oil and sunflower oil have been found to reduce plaque induced gingivitis.

The mechanism of action is rather simple when it comes to oil pulling. Oil pulling generates antioxidants that damage the cell wall of microorganisms and kill them. These oils will attract the lipid layer of bacterial cell membranes, and cause it to stick or get attracted, and pulled to the oil. As the oil gets emulsified and surface area of the oil gets increased. Emulsification of oil begins

upon 5 min of oil pulling. This oil will coat the teeth and gingiva and inhibits bacterial co-aggregation and plaque formation²³. The pulled oil needs to be spit in the bin as it may clog drains. The oil should not be swallowed as it is rich in microorganisms and toxins. Oil may be unintentionally aspirated during oil pulling. If the aspirated oil is microorganism rich, then it may result in manifestation of lipid pneumonia²⁴. However small amount of swallowing of pulled oil is natural and will be eliminated through faeces.

Various attributes of oil pulling includes its cost effectiveness, natural origin, fewer or no side effects, no unpleasant after taste or alteration of taste sensation. However, one hinderance is it is time consuming and the time taken by people may be subjective which might affect the results.

Evidence shows that oil pulling is effective against plaque induced gingivitis and effective in maintaining oral hygiene and gingival health, and protects against Sulphur producing bacteria hence has an anti-halitosis effect^{21,23,25}. However, it should be kept in mind that it takes around 2 weeks of regular correctly done oil pulling to start showing effects and further may take up to 45 days or more to show systemic effects²². It should be kept in mind that oil pulling does not reverse the existing dental caries and hence regular visits to dentists are still required.

Oil pulling is a good and a natural adjunct therapy to maintain oral hygiene however the limited evidence to date from clinical trials suggests that oil pulling may have beneficial effects on oral hygiene as seen for the short period of time investigated. There is a need of further research. Given that this is a potentially cost-effective intervention, this practice might be of particular benefit. Future clinical trials should be more rigorous and better reported.

Conclusion

Due to increase in number of cases of COVID-19, the lockdown which extended world wide lead to difficulty in utilization of dental services. Perhaps, individuals suffering from pain and other oral disorders shifted their attention towards easily available modalities to get symptomatic relief. Suffering from pain causes an increase in mental and physical stress which impairs thinking and action-taking capacity of an individual. Hence, to decrease the number of problems suffered by an individual, an alternative approach at home is utmost necessary. Dental treatment still endures the most important treatment modality, while the above-mentioned modalities can be used to prolong the urgency for treatment and thus enhance the health status.

References

1. Prakash S, Shelke AU. Role of Triphala in dentistry. *J Indian Soc Periodontol.* 2014;18(2):132-135. doi:10.4103/0972-124X.131299
2. Sewani-rusike CR, Mammen M, Bag P. MEDICINAL PLANTS USED AS HOME REMEDIES : A FAMILY SURVEY BY FIRST YEAR MEDICAL STUDENTS Sewani-Rusike and Mammen Afr J Tradit Complement Altern Med . (2014) 11 (5) : 67-72. 2014;11:67-72.
3. Heng C. Tooth Decay Is the Most Prevalent Disease. *Fed Pract.* 2016;33(10):31-33. <http://www.ncbi.nlm.nih.gov/pubmed/30766141> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC6373711>.
4. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bull World Health Organ.* 2005;83(9):661-669. doi:S0042-96862005000900011
5. Thomas A, Thakur SR, Shetty SB. Anti-microbial efficacy of green tea and chlorhexidine mouth rinses against Streptococcus mutans, Lactobacilli spp. and Candida albicans in children with severe early childhood caries: A randomized clinical study. *J Indian Soc Pedod Prev Dent.* 2016;34(1):65-70. doi:10.4103/0970-4388.175518
6. Rao DS, Penmatsa T, Kumar AK, Narendra Reddy M, Gautam NS, Gautam NR. Antibacterial activity of aqueous extracts of Indian chewing sticks on dental plaque: An in vitro study. *J Pharm Bioallied Sci.* 2014;6(SUPPL. 1):140-146. doi:10.4103/0975-7406.137426
7. Sidhu P, Shankargouda S, Rath A, Hesarghatta Ramamurthy P, Fernandes B, Kumar Singh A. Therapeutic benefits of liquorice in dentistry. *J Ayurveda Integr Med.* 2020;11(1):82-88. doi:10.1016/j.jaim.2017.12.004
8. Messier C, Epifano F, Genovese S, Grenier D. Licorice and its potential beneficial effects in common oro-dental diseases. *Oral Dis.* 2012;18(1):32-39. doi:10.1111/j.1601-0825.2011.01842.x
9. Bodet C, La VD, Gafner S, Bergeron C, Grenier D. A licorice extract reduces lipopolysaccharide-induced proinflammatory cytokine secretion by macrophages and whole blood. *J Periodontol.* 2008;79(9):1752-1761. doi:10.1902/jop.2008.080052
10. Tanaka A, Horiuchi M, Umamo K, Shibamoto T. Antioxidant and anti-inflammatory activities of water distillate and its dichloromethane extract from licorice root (*Glycyrrhiza uralensis*) and chemical composition of dichloromethane extract. *J Sci Food Agric.* 2008;88(7):1158-1165. doi:10.1002/jsfa.3191

11. Singh PS, Kumar PP, Srinivasulu D. Traditional Medicinal Plants Used in Anti-Halitosis. *Nat Oral Care Dent Ther.* 2020;407-414. doi:10.1002/9781119618973.ch26
12. Buggapati L. Herbs in Dentistry. 2016;5(6):7-12.
13. Sunyana Bhagat. Herbs for Oro-Dental Health: Nature's Own Remedy. *Int Healthc Res J.* 2019;3(6):191-194. doi:10.26440/ihrj/0306.09161
14. S A, R S, Devi S, Palathingal P, Varghese M, Musthafa N. Recent Advances in Management of Halitosis. *J Korean Med Assoc.* 2019;5(5):33-37.
15. Baliga MS, Dsouza JJ. Amla (*Emblica officinalis* Gaertn), a wonder berry in the treatment and prevention of cancer. *Eur J Cancer Prev.* 2011;20(3):225-239. doi:10.1097/CEJ.0b013e32834473f4
16. Singh A, Purohit B. Tooth brushing, oil pulling and tissue regeneration: A review of holistic approaches to oral health. *J Ayurveda Integr Med.* 2011;2(2):64-68. doi:10.4103/0975-9476.82525
17. Taher YA, Samud AM, El-Taher FE, et al. Experimental evaluation of anti-inflammatory, antinociceptive and antipyretic activities of clove oil in mice. *Libyan J Med.* 2015;10:1-7. doi:10.3402/ljm.v10.28685
18. Badam RK, Triekan Sownetha, D. B. Gandhi Babu, Shefali Waghay, Lavanya Reddy, Komali Garlapati SC. Virtual Atopsy: Touch free. *J Forensic Dent Sci.* 2017;9(1):125-129. doi:10.4103/jfo.jfds
19. Gülçin İ, Elmastaş M, Aboul-Enein HY. Antioxidant activity of clove oil – A powerful antioxidant source. *Arab J Chem.* 2012;5(4):489-499. doi:https://doi.org/10.1016/j.arabjc.2010.09.016
20. Cortés-Rojas DF, de Souza CRF, Oliveira WP. Clove (*Syzygium aromaticum*): A precious spice. *Asian Pac J Trop Biomed.* 2014;4(2):90-96. doi:10.1016/S2221-1691(14)60215-X
21. Asokan S. Oil pulling therapy. *Indian J Dent Res.* 2008;19(2):169. doi:10.4103/0970-9290.40476
22. Shanbhag VKL. Oil pulling for maintaining oral hygiene – A review. *J Tradit Complement Med.* 2017;7(1):106-109. doi:10.1016/j.jtcme.2016.05.004
23. Asokan S, Rathinasamy TK, Inbamani N, et al. Mechanism of oil-pulling therapy -In vitro study. *Indian J Dent Res.* 2011;22(1):34-37. doi:10.4103/0970-9290.79971
24. Gbinigie O, Onakpoya I, Spencer E, McCall MacBain M, Heneghan C. Effect of oil pulling in promoting oro dental hygiene: A systematic review of randomized clinical trials. *Complement Ther Med.* 2016;26:47-54. doi:10.1016/j.ctim.2016.02.011
25. Asokan 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. doi:10.4103/0970-9290.49067