



REVIEW

Ayurveda In Dentistry

Prathima G.S¹, Kavitha.M²

Abstract: Dental Caries is multifactorial in nature and preventive strategies are a must and are being followed since decades. A tooth (which is primarily mineral in content) is in a constant state of Demineralisation and remineralisation with the surrounding saliva. Pediatric dentistry faces challenges in preventive strategies of oral and dental health in children and adolescents. The search for alternative products such as use of phytochemicals isolated from plants are considered to be good alternatives, hence an introduction of Ayurvedic Medicine in this context holds a lot of temptations and over rulings. Ayurveda an ancient science based on herbal therapies believes that dental problems can be treated by balancing the three *doshas* of a human body - The *Vatta*, *Pita* and *Kapha*, just like any other diseased condition. Thus this article aims to review the prospects and perspectives of use of Ayurveda in Dentistry as a whole and its affinity in Pediatric Dentistry.

Keywords: *Ayurveda, Ayurvedic Dentistry, Ayurvedic medicine, Herbs, herbal Medicine, Oral health*

Introduction:

“Ayurveda” means living in tune with nature. Ayurveda is a holistic system of medicine which has emerged in India centuries ago, now practiced in other parts of the world as Alternative Medicine.

⁽¹⁾ This is an ancient system of medicine and has a rich repository of resources even for Dentistry.
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Dentistry in Ayurveda though not a branch is included in the *Shalakyana Tantra* called *Dantha Swasthya* (in Sanskrit) is ground breaking and differs with each persons health and climatic changes resulting from celestial influences. The body structure is categorized based on hegemony of any of three physical humors (*dosha*). Imbalance in any one of these *doshas* governs health care in Ayurveda and dental health. Various herbal plants in Ayurveda can be used as an adjunct for oral health care. There are numerous Indian medicinal plants that are used in articulating beneficial measures and Ayurvedic material has been proved to be safe and effective through ages.

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Dental fraternity has witnessed the footprint of these herbal products in the form of tooth pastes, gum paints, mouthwashes, root canal irrigants etc. Herbs exhibit unique therapeutic properties like anti-bacterial, anti-inflammatory, astringents, anesthetic,

anti-cariogenic effect, as storage media for avulsed tooth, mouth rinses, and root canal irrigants and as tooth whitener. ⁽⁴⁾

The present scientific evidence based review of literature focuses on the possible role of Ayurveda in the management of various dental health conditions. The commonly used herbs in Dentistry *Amala*, *Launga oil*, *Nimbu/lemon* solution, *Triphala*, *Haritaki*, (tea tree oil), *Aloe Vera*, *Azadirachta Indica* (Neem), *Piper Betel*, *Osmium sanctum* (Basil, Tulsi), *Curcuma longa* (haldi-turmeric powder) posses antibacterial and antiplaque properties. ⁽⁵⁾ As “substitutes” to the other conventionally available oral product prescribed by the dentist, most of the individuals use naturally available herbal mouth rinses which are plant-based ingredients that emphasize holistic health and wellness. Regular use of an efficient anti-plaque compound, such as in toothpaste, can be very beneficial in plaque control. Herbal extracts have received special attention because of being non-chemical and non-synthetic, and they have been used in traditional medicine

In *Shalakyana-Tantra*, varieties of oral diseases arise in different anatomic sites such as the lips, alveolar margin, the teeth, tongue, on the palate, in the oropharynx and in generalized form.

Ayurveda includes therapies for treatment of these Orofacial Diseases such as oral cleansing, extractions, excisions, flap surgeries etc. Ayurveda also recommends daily use of therapeutic procedures as preventive measures such as *Dant dhavani*, *Jivha lekhana*, *Gandoosha* or oil pulling and tissue regeneration therapies. Some of the scientifically proven salubrious effects of these procedures are exemplified below. ⁽¹⁻³⁾

Tooth brushing (*Dant dhavani*)

Ayurveda asserts on the use of herbal brushes twice daily to prevent diseases. The procedure consists of use of twig/stick at one end, chew on it and eat it slowly. *Azadirachata Indica* is the most famous herbal chewing sticks. The twigs and oil of *Azadirachata Indica* contain substances that has broad spectrum antimicrobial activity and when incorporated in toothpaste reduces gingival irritation.

Herbal based tooth paste made up of *Chamomile*, *Echinacea*, *Sage*, *Myrrh*, *Rhatany* and *Peppermint oil* has been found to be as effective as conventional toothpastes. These brushes are nine inches in length, made up of either “*kashaya*”, “*katu*” or “*tikta*”, Fresh stems of liquorices (*Glycyrrhiza glabra*) are recommended for receding and atrophic gums, and for pale hypertrophic gums the Arjuna tree, fever nut and milkweed plant. Masticating these sticks causes attrition and leveling of biting surfaces, enhances salivary secretion and help in plaque control while some stems have an anti-bacterial action. ⁽³⁾ Kadam et al in their study proved that the chewing sticks have medicinal and anti-cariogenic properties. ⁽²⁻³⁾

In 2014 Ranjit et al studied the Antimicrobial activity of leaf and bark extract of *Azadirachta indica* (Neem), showed more zones of inhibition against *Vibrio cholerae* and *Bacillus subtilis*, while *E. Coli* and *S. Typhi* are less susceptible to Neem extract ⁽⁷⁾

In 2011 Anirban Chatterjee et al evaluated the anti gingivitis and anti plaque effect of an *Azadirachta Indica* (neem) mouthrinse on plaque induced gingivitis and showed that *Azadirachata Indica* mouthrinse is as effective in reducing periodontal indices as

Chlorhexidine. ⁽⁸⁾

Almas et al in 2004 concluded in their study that *Strep. Mutans* were more susceptible to *Miswak* antimicrobial activity than *Lactobacilli*. ⁽⁸⁾ Sharma A et al found that Neem sticks were commonly used by children in Kangra District of Himachal Pradesh. ⁽⁹⁾

Sumanth et al (1992) evaluated the efficacy of mango leaf as an oral hygiene aid and concluded that *Mongiferin* had significant antibacterial property against certain strains of Pneumococcal, Streptococcal, and *Lactobacillus Acidophilus* ⁽¹⁰⁾

Jivha lekhana :

The early Ayurvedic text, says that cleaning the tongue, dethrones offensive smell, distastefulness and by cleaning out the white coat on the tongue, teeth and mouth brings relish immediately. People who clean their tongue on a daily basis can validate the invigorating effects of this practice. In fact, by removing the coating and stimulating the tongue, helps balance the heavy and dulling qualities of *Kaphadosha* in your physiology which, if left untreated, can lead to Halitosis. This novel method is a direct way of removing *Ama*, an imbalance in the gastrointestinal system.

Scraping of tongue removes bad odour (halitosis) by stimulating the reflex points, improves the sense of taste, activates the secretion of digestive enzymes and eliminates bacterial growths. Clinical evidence also shows that the use of tongue scrapers on a regular basis has a significant role in eliminating anaerobic bacteria and reduces halitosis. ⁽⁹⁾ The *Charaka Samhita* states that “tongue scrapers should be made of metal, should be blunt and rounded, so as to prevent injury to the tongue”. Stainless steel scrapers, which are now extensively available and resist corrosion, are effective as well.

ORAL CLEANSING:

Kavala and *Gandoosha* are two traditional methods of oral cleansing, a specialized therapy to treat as well as to preclude oral diseases. The difference lies in the dosage and technique of use of drug. In *Gandoosha* the medicated fluid is held mouthful for

a period of time and then spat out whereas in *Kavala graham* its only three fourth full, the fluid is swished and then spat out.⁽⁸⁾

In 2014 G Subramanian et al studied the antimicrobial activity of methanol leaf extracts of Tulsi, against three human pathogens *Escherichia coli*, *Staphylococcus Aureus* and *Candida albicans* and showed significant zones of inhibition against bacteria and fungi, This proved the effectiveness of organic extracts of plants.⁽¹¹⁾

S Tandon et al studied the Effect of *Triphala* mouthwash on the caries status and concluded that the cost of *Triphala* mouthwash is cost effective when compared to commercially available Chlorhexidine mouthwash, has no side effects and can be used for a long period of time.⁽¹²⁾

Oil pulling is an ancient ayurveda procedure that involves swishing oil in the mouth for oral and systemic health benefits. This therapy is practiced extensively as a traditional folk remedy using edible oils like “sunflower or sesame oil for strengthening teeth, gums, jaws and cracked lips.”⁽¹³⁾ Oil pulling therapy is clinically and radiographically very effective against gingivitis.⁽³⁾

Sawsan et al studied the Antibacterial Activities of fresh minced garlic and fresh lemon solution, which showed the inhibition of all bacterias. Further investigations are needed to evaluate their biological behaviors on periapical tissues.⁽¹⁴⁾

The mechanism of the action of oil pulling therapy is not clear. Its been claimed that swishing stimulation of the enzymes takes place due to swishing which draws the toxins out of the blood because the oral mucosa does not act as a semi permeable membrane to allow toxins to pass through.⁽¹³⁾ The oil and fluid used in oral cleaning procedures protects the oral cavity from infection and inflammation by its antioxidant property. These mechanisms play a role in the reduction of plaque scores and microbial load in the oral cavity. The bacterial adhesion and plaque co-aggregation is reduced due to the viscosity and bacterial adhesion.⁽¹⁵⁻¹⁶⁾

Faizal C et al studied the effectiveness of coconut oil in plaque related gingivitis saw a significant reduction in the plaque formation and gingivitis from day 7 and continued to decrease during the period of study.⁽¹⁷⁾

In 2011 Asokan et al. have shown that the oil-pulling therapy with sesame oil has been equally effective in reduction of *Streptococcus mutans* count, plaque index, modified gingival index scores and plaque-induced gingivitis as compared to Chlorhexidine mouthwash.⁽¹³⁾

Tissue regeneration therapies :

In ayurveda, the well known herb, *Amla* is a general builder of oral health. *Amla* works well as a mouth rinse. One to two grams per day can be taken orally in capsules for the long-term benefit to the teeth and gums, enhancing healing and development of connective tissue. Regular use of *Bilberry* and *Hawthorn Berry* fruits stabilize collagen and enhance the gum tissue. Herbs such as *Yellow Dock root*, *Alfalfa leaf*, *Cinnamon bark* and *Turmeric root* are taken internally to facilitate the proper growth of skeleton and the joints.

In 2012 Boonyagul et al showed that *Acemannan* accelerates bone formation, Induces Bone Marrow Stromal Cells proliferation, differentiation, and mineralization⁽¹⁸⁾

Conclusion:

Oral health is one of the most common health issues in developing countries. An alternative therapy, herbal medicine is getting popularized throughout the world.

The Science of ayurveda should be integrated with modern dentistry and Dentist's can be encouraged to use natural herbal remedies in various dental treatments for both children and adults. Further research needs to be focused on the affinity of its use in pediatric dentistry because of its side effects and taste. Pediatric Dentists should be knowledgeable about these traditional and emerging, preventive and therapeutic products because a large number of patients may prefer to use so. The use of these products must be made by patients and/or their dental health providers, based on their oral health

needs, especially for use in children for their safety.

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Address of Correspondence

Dr. Prathima G.S.
Prof. & Head
Department of Pedodontics
Indira Gandhi Institute of Dental Sciences
E-mail: gsprathima@gmail.com
Contact Number: 9448405074

Authors:

¹ Professor & Head
Department of Pedodontics
Indira Gandhi Institute of Dental Sciences
Puducherry.
² Post Graduate Student
Department of Pedodontics
Indira Gandhi Institute of Dental Sciences
Puducherry.

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