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AYURVEDIC APPROACHES TO FUNDAMENTAL ORAL HEALTH CARE

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ABSTRACT

Oral health is an important part of a person's overall well-being and quality of life. Oral health includes a person's ability to confidently speak, smile, smell, taste, swallow and even convey different emotions through facial expressions. Altered oral health can cause pain, suffering, and decreased productivity and affects the self-esteem of a person. Improving oral health and hygiene benefits the entire system, i.e., the tissues of the mouth itself, the digestive system, and the deeper tissues that correlate with our oral health. Oral diseases are one of the leading causes of disability in India and affect all age groups irrespective of socio-economic factors. Ayurveda explains several practices or procedures of Dinacharya (daily regimen) like Dantadhavana, Jihvanirlekhana, Kavala, Gandusha, Pratisarana and Tambula Sevana which are fruitful in maintaining oral health/hygiene and preventing oral disorders. In addition to the procedures, Ayurveda describes various herbs with pharmacological effects, such as antimicrobial, anti-inflammatory, analgesic, anti-ulcer, etc., which are useful for maintaining oral health. These strategies and the use of such potential herbs can be practiced along with daily brushing and flossing to promote optimal oral health and hygiene.

KEYWORDS: *Ayurveda, Dinacharya, Oral hygiene, Hygiene.*

INTRODUCTION

Principles of *Ayurveda* aims at improving the health of the healthy and preventing the occurrence of diseases. *Shalakya-Tantra* which is among the eight branches of *Ashtang Ayurveda* deals with the diseases occurring above the clavicle i.e., with diseases and treatment of the Head, eyes, ear, nose, and oral cavity[1]. According to WHO, Oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay, and tooth loss, and other diseases and disorders that affect the oral cavity[2]. According to the Surgeon General's Report on Oral Health, oral health is a mirror that reflects our overall health and well-being[3]. The three *doshas* are present within the mouth in different locations and facilitate diverse functions. *Vata dosha* is present within the pores of teeth and facilitates in biting, chewing, and swallowing of food. *Pitta dosha* is present within the blood vessels which nourishes and protect the gums tissue. One of the *Kapha* sub-*doshas* called *Bodhaka Kapha* functions to moistens the mucous membrane of the mouth. The physical form of *Bodhaka Kapha* is saliva. *Bodhaka kapha* helps to prevent cavities by washing away bits of food and reduces the effect of acidic foods on teeth enamel. Oral diseases continue to be a major health problem worldwide. Oral health relates to the quality of life and general well-being of a person. There is a well-established link between oral diseases and the activities of microbial species that form a part of the microbiota of the oral cavity[4]. There is a global need for alternative prevention and treatment options that are safe, effective, and economical for the people. Despite this, numerous chemical agents which are commercially available can alter oral microbiota and have undesirable side effects such as vomiting, diarrhoea, tooth staining, etc. In the context of medications, prolonged or extensive use of certain medications such as oral contraceptive pills, Antiseizure medications, Antihypertensives, Antihistamines, Analgesics Diuretics, several antibiotics, Antacids, Antifungal agents containing sugar, etc., and regular use of toothpaste containing Sodium lauryl sulphate, may cause tooth discoloration, canker sores, and certain other oral health problems. Daily rules of conduct have been explained in *Ayurveda* texts under the headings *Dinacharya* and *Swasthavritta*. *Acharya Charak* has mentioned

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Dantapavana, Mukhaprakshalana etc. under the *Dinacharya prakaran* and has mentioned that oral health is an integral part of the daily regime or routine[5].

Numerous therapeutic procedures for maintaining oral health and basic oral hygiene include *Danta Dhavana* (Brushing), *Jihvanirlekhana* (Tongue Scrapping), *Sneha Gandusha* (Oil pulling), *Shiro & Mukha Abhyanga* (Head and Face Massage), *Nasya* (Application of oil in Nostrils), *Dhumapana* (Herbal smoke inhalation), *Mukhwas* (Mouth Freshener), *Kavala* (Gargle) in the mouth. The oral cavity plays a crucial role in daily activities and there are various diseases related to the oral cavity that are mentioned in *Ayurveda* described as sixty-five varieties of oral disorders that can arise in seven anatomical locations in and around the mouth[6]. Hence, this enlightens us about the importance of basic oral health and proper care of the oral cavity for the prevention of oral disorders.

AYURVEDA FOR THE BASIC ORAL HEALTH

Ayurveda is a science that gives prior importance to the preventive aspect and to the maintenance of health for healthy individuals. The understanding of maintaining oral health is better understood under the following headings.

A) *Dinacharya* (Daily Regime)

1) *Brahma Muhurta Uttishthe* and *Malatyag*

Last *yama* of night is said to be the *Brahma muhurta*. It starts approximately 96 minutes before sunrise and lasts for 48 minutes and ends 48 minutes before sunrise. In this time, *Vata dosha* is naturally dominant in the body and is the time to defecate if one feels the urge. *Mala visarjana* (Defecation) is an *Adharniya vega* of the body and it is under the control of *Apana vayu*. If a person wakes up in *Brahma muhurta*, it is considered as the best time for expelling *mala. Acharya Vagbhata* has mentioned that the suppression of the natural urge of defecation can cause *Mukha Vittapravarti* (Bad breath from the mouth)[7].

2) *Mukha Swasthya Rakshanartha Dantashodhana* (Brushing of Teeth)

Toothbrushing is an integral part of the daily regime and is useful in maintaining oral health. *Ayurveda* insists on the use of herbal brushes (*Dantonna*) which is a cost-effective, suitable, and furthermore beneficial way of cleaning the teeth. *Dantapavana* (Tooth brushing) daily helps in preventing halitosis (bad breath), clarity of the oral cavity, removal of the debris of food from the teeth, tongue, and mouth, and facilitates in salivary secretion and relishing your food. Most of the toothpaste present in the market contains calcium carbonate, sodium lauryl sulphate, sodium silicate etc. which has certain side effects on the oral cavity.

Dantashodhana in *Ayurveda*

- Material to be used:

Herbal twigs of different *rasa* are to be used depending on the *dosha, prakriti* of the person and on the seasonal availability of the twig. Certain twigs are mentioned which are best to use according to the *Rasa* of the herb.

Table 1 showing best twig to be used according to different *Rasa*[8]

RASA	BEST TWIG
MADHUR	MADHUK
KATU	KARANJA
TIKTA	NIMBA
KASHAYA	KHADIR

Chewing these stems is believed to facilitate salivary secretion and the anti-bacterial properties of these herbs is substantial in preventing plaque.

- Physical properties of the Twig

Acharyas have mentioned the qualities of prime herbal twigs that should be used for *Dantashodhana*. The twig to be used for brushing the teeth should be 12 *Angula* in length, the thickness of a little finger of the hand, straight, without knots and one end of the twig should be chewed which is used in brushing so that gums are prevented from any injury.

- Frequency

Twice a day, after waking up in the morning and before going to bed.

- Method

Dantshodhaka churna (Herbal powder) is taken in the twig and brushing is done in a circular manner and up-down motion by inserting the brush in the oral cavity preventing injury to the gums and then rinsing mouth with water.

3) *Dantashodhaka Churna Pratisarana* (Massaging of the gums and teeth)

In *Yog Ratnakar* text, use of *Churna, Kalka* or *Avelaha* is mentioned for the massage of teeth and gums. *Acharya Sushruta* has also described the use of *Dantashodhaka churna* which includes *Madhu, Trikatu, Dalchini, Tejapatra, Ela, Saindhav* mixed in sesame oil for the massaging of the teeth and gums. The herbal mixture is taken on the index finger and gums, teeth are gently massaged in

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a side-to-side motion and then the mouth is rinsed with water. Massaging of the teeth and gums facilitates improving blood circulation to the gums and is crucial in strengthening the gums[9].

4) *Jihvanirlekhana* (Tongue Scrapping)

Improper eating, poor digestion, or imbalance in the GIT system leads to the accumulation of toxic residue in the tongue. Proper removal of this toxic coating and stimulation of the tongue helps in stimulating taste perception and improves salivation which is helpful in digestion. Many phytonutrients that food contains are first interpreted by the receptors on the tongue. Hence, the presence of a coating on the tongue can interfere with this communication between the food and the body[10]. Proper digestion is essential to the body or if not can affect organs such as the liver, kidney, etc. The tongue should be scraped from back to front and the scraper should be made of materials like gold, silver, copper, tin, brass, etc. *Acharya Sushruta* has mentioned that the scraper should be 10 *Angula* in length and should be blunt and curved to prevent injury to the tongue and easy to use respectively.

5) *Sneha Gandusha* (Oil Pulling)

Gandusha is a procedure in which the oral cavity is filled completely with liquid medicine and is held for a specific period until there is lacrimation and nasal discharge[11]. *Sneha Gandusha* (Oil Pulling) is beneficial in preventing tooth decay, preventing bad odour, bleeding gums, cracked lips, and dryness of the throat, and facilitates in strengthening gums, teeth, and jaw[12]. *Ayurveda* describes that brushing is contraindicated in conditions like *Mukhapaka* (Mouth ulcers), *Shirashoola* (Headache), *Karnshoola* (Pain in ear), *Kasa* (Cough), *Shwasa* (Asthma), *Vaman* (Vomiting), *Hikka* (Hiccups) etc. Hence, Oil pulling is a better alternative in these conditions for cleaning the oral cavity. *Vagbhata* has mentioned that daily oil pulling with sesame oil is the best for the health. Oral mucosa has the capacity to absorb lipid-soluble substances as the buccal mucosa is lipophilic in nature. The viscosity of medicated oil inhibits bacterial adhesion in the oral cavity.

6) *Mukha Abhyanga* (Face Massage)

Massaging the face after oil pulling or preferably before bedtime should be done. After washing the face with water and drying it with a towel oil should be applied on the face using your fingertips and massage of the scalp, forehead, nose, cheeks, ears, and neck should be done gently[13]. This process helps in enhancing the functioning of the sense organs and enhances the blood circulation to the oral cavity.

7) *Tambula Sevana* (Application of Mouth Freshener)

The use of *Tambula* is beneficial in the prevention of bad breath, cleansing of the oral cavity, aids in digestion, stimulates the salivary flow in the mouth which neutralizes the acids and washes away the bacteria, and provides protection against dental erosion. Certain materials such as *Jayphala, Katuka, Lavanga, Kankola, Ela* and *Tambula patra* should be installed in the oral cavity[14]. The essential oils present in the *Tambula* leaves possess anti-bacterial, anti-fungal, antiseptic, antioxidant properties and contains substantial number of vitamins and minerals. Betel leaf chewing minimizes the pathogenic microbial organisms in the sub-gingival flora.

8) *Kavala* (Gargle)

Gargling after every meal is an integral part of the daily regime and it facilitates the removal of food debris from the oral cavity. After every meal, the oral cavity should be filled with half of its capacity with lukewarm water which should be briskly moved inside the mouth and then spitted out[15].

9) *Pratimarsha Nasya* (Application of the oil in nostrils)

The nose is considered as the way of entry to the head and medicines installed through the nasal route is useful in *Urdhwajatrugata Vikaras*[16]. Among various types of *Nasya*, *Pratimarsha Nasya* is incorporated into the daily regime for the prevention of disease and to promote oral health. Other types of *Nasya* are disease specific. 2 drops of sesame oil or *ghee* is to be administered into the nostrils preferably after tongue scraping or before bedtime with the help of little finger or dropper. *Nasya* helps in preventing supraclavicular disorders and is useful in the strengthening of the jaw and teeth[17].

10) *Dhoompana* (Inhalation of herbal smoke)

Part of the vitiated *kapha* situated in the head is effectively eliminated by *dhoompan*. Generally, there are 5 types of *dhoompan* which have been mentioned – *Prayogik, Snehik, Vairechanik, Vamaniya* and *Kasaghna*[18]. *Prayogik* is used for *Dinacharya* (Daily regime). It is to be used twice a day after application of oil in the nostrils. The herbal wick is lit, and the fire is put off. Smoke emitted is inhaled through one nostril at a time, closing the other and it is done alternatively. Every time the inhaled smoke is to be expelled through the mouth. *Dhoompana* provides firmness to the teeth, a pleasant smell, and clarity of the mouth. It also prevents loss of taste and exudations of mouth making it an effective method in the maintenance of basic oral health[19].

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B) ***Adharniya Vega Dharan*** **(Suppression of the natural urges)**

Acharya Vagbhata has described 13 types of *Adharniya vega* (Natural urges) which should not be suppressed and if does may lead to various disorders. In the context of oral health, it is described that suppression of the urge to defecate or urinate (*Purisha* and *Mutra Vega dharan*) may lead to Halitosis (bad breath from the mouth)[20]. Hence along with the procedures, *Ayurveda* also enlightens us about the knowledge of not suppressing the natural urges which may lead to a disturbance in basic oral health.

C) **Aspect of natural herbs for maintenance of oral health**

There are numerous natural herbs that can be used in maintaining oral health as well as in the prevention of oral disorders.

- *Amra patra* (Mango leaves) contains a significant amount of ascorbic acid, and phenolic acid and possess anti-bacterial property against the microflora in the oral cavity. It can be used as an effective adjuvant in maintaining oral hygiene[21].
- *Neem* leaves have numerous properties such as antibacterial, antifungal, and antioxidant properties[22] and contain therapeutic antiplaque agents. Oral rinse with a decoction of neem leaves is beneficial for oral health as well as in the management of periodontitis[23].
- *Amla* with its astringent and antioxidant properties helps in combating the inflammation of the oral cavity[24].
- Clove has a broad role in the oral aspect. Clove has antiseptic properties and is beneficial in sore gums and if applied to a cavity in a decayed tooth helps in relieving pain[25]. Like that, the use of peppermint oil also helps in combating the toothache and inflammation of the gums.
- Oral rinse with *Tulsi* decoction effectively reduces salivary streptococcal mutant counts[26].
- *Ghritakumari*/Aloe vera contains a polysaccharide of Acemannan (ACE) that has an effective role in dentin formation[27].
- Lemon solution is a natural source of citric acid. Its antibacterial effect is recommended as a root canal medication[28].
- *Triphala* can be used as a gargling agent in dental disorders as per *Acharya Sushruta*. 0.6% *Triphala* mouthwash has been shown to have significant anti-caries activity[29]. *Triphala* also has Antioxidant and Anti-microbial activity. The strong antioxidant activity of *Triphala* may be attributed to *Terminalia belerica* followed by *Phyllanthus emblica* and *Terminalia chebula*. Along with that, *Terminalia chebula* is valuable in the prevention and treatment of several diseases of the mouth such as dental caries, spongy and bleeding gums, gingivitis, and stomatitis. The extract of it could successfully prevent plaque formation on the surface of the tooth, as it inhibits sucrose-induced adherence and glucan-induced aggregation, the 2 processes that foster the colonization of organisms on the surface of the tooth. The extract of *T.chebula* also inhibit the growth and accumulation of *S. mutans* on the surface of the tooth. This would prevent the accumulation of acids on the surface of the tooth, and thus the further demineralization and breakdown of the tooth enamel[30].

CONCLUSION

Oral diseases are one of the most important problems related to public health and are on an accelerating pace in developing countries which indicates us about the importance of basic oral health. According to the Surgeon General's Report on Oral Health, oral health is a mirror that reflects our overall health and well-being. The aim of *Ayurveda* includes preventive healthcare which explains the importance of hygiene while emphasizing upon maintenance and promotion of positive health in peoples. Procedures mentioned in the daily regime as per *Ayurveda* like *Dantshodhana, Jihvanirlekhana, Sneha gandhusha, Tambula sevana* etc. and the herbal drugs which are mentioned for these regimes both are cost effective and can be performed without any trouble. Hence, these regimes should be adapted in the daily routine of an individual for the promotion of oral health and prevention of oral disorders. Along with that, some potent herbs mentioned can be used as an adjunct for the maintenance of oral health. To conclude this conceptual study, prior importance to oral health should be given in developing countries and the traditional knowledge of *Ayurveda* should be incorporated, encouraged, and could be integrated with modern dentistry in oral health maintenance and various oral health treatments.

REFERENCES

1. *Shastri Ambikadutta, Sushruta Samhita with Ayurveda Tattva Sandipika Part 1, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2018, Sutrasthana, p.10.*
2. *https://main.mohfw.gov.in/sites/default/files/Operational%20Guidelines%20National%20Oral%20Health%20Programme%20%28NOHP%29.pdf*
3. *https://www.cdc.gov/oralhealth/publications/federal-agency-reports/sgr2000_05.htm*
4. *Jenkinson HF, Lamont RJ. Oral microbial communities in sickness and in health. Trends Microbial 2005; 13:589-95.*
5. *Sastri Kasinath, The Caraka Samhita of Agnivesa with Hindi commentary Vidyotini, Part 1, Varanasi, Chaukhambha Bharati Academy, Reprint 2016, Sutrasthana, p.113.*
6. *Shastri Ambikadutta, Sushruta Samhita with Ayurveda Tattva Sandipika Part 1, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2018, Nidanasthana, p.381.*
7. *Gupta Atrideva, Astangahrdayam of Vagbhata with Hindi commentary Vidyotini, Varanasi, Chaukhambha Prakashan, Reprint 2019, Sutrasthana, p.43.*
8. *Shastri Ambikadutta, Sushruta Samhita with Ayurveda Tattva Sandipika Part 1, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2018, Chikitsa sthana, p.132.*

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EPRA International Journal of Research and Development (IJRD)
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9. *Rao SP (2005) Ashtanga Sangraha of Vagbhata English Commentary, Volume 1, First Edition, Chowkhamba Krishnadas Academy, Varanasi, UP, India, Sutrasthana, p. 25.*
10. *Gunjan Garg; ayurvedic approach in oral health & hygiene: a review; International journal of Ayurveda and pharma research, May 2016; 4(5). ISSN 2322-0902, ISSN 2322-0910.*
11. *Sastri Kasinath, The Caraka Samhita of Agnivesa with Hindi commentary Vidyotini, Part 1, Varanasi, Chaukhambha Bharati Academy, Reprint 2016, Sutrasthana, p.127.*
12. *Sharma Ramavtar et.al; A review on holistic health approaches of Ayurveda w.s.r. to Dinacharya. (Daily regimen.); World journal of pharmaceutical research, 7: 3. ISSN 2277-7105.*
13. *Sastri Kasinath, The Caraka Samhita of Agnivesa with Hindi commentary Vidyotini, Part 1, Varanasi, Chaukhambha Bharati Academy, Reprint 2016, Sutrasthana, p.127.*
14. *Sastri Kasinath, The Caraka Samhita of Agnivesa with Hindi commentary Vidyotini, Part 1, Varanasi, Chaukhambha Bharati Academy, Reprint 2016, Sutrasthana, p.126.*
15. *Rao SP (2005) Ashtanga Sangraha of Vagbhata English commentary, Volume 1, First Edition, Chowkhamba Krishnadas Academy, Varanasi, UP, India, Sutrasthana, p. 408.*
16. *Gupta Atrideva, Astangahrdayam of Vagbhata with Hindi commentary Vidyotini, Varanasi, Chaukhambha Prakashan, Reprint 2019, Sutrasthana, p.172.*
17. *Rao SP (2005) Ashtanga Sangraha of Vagbhata English Commentary, Volume 1, First Edition, Chowkhamba Krishnadas Academy, Varanasi, UP, India, Sutrasthana,, p. 399.*
18. *Sastri Kasinath, The Caraka Samhita of Agnivesa with Hindi commentary Vidyotini, Part 1, Varanasi, Chaukhambha Bharati Academy, Reprint 2016, Sutrasthana, p.117.*
19. *Rao SP (2005) Ashtanga Sangraha of Vagbhata English Commentary, Volume 1, First Edition, Chowkhamba Krishnadas Academy, Varanasi, UP, India, Sutrasthana, p. 401.*
20. *Gupta Atrideva, Astangahrdayam of Vagbhata with Hindi commentary Vidyotini, Varanasi, Chaukhambha Prakashan, Reprint 2019, Sutrasthana, p.43.*
21. *Bandyopadhyay U, Biswas K, Chatterjee R, Bandyopadhyay D, Chattopadhyay I, Ganguly CK, et al. Gastroprotective effect of Neem (Azadirachta indica) bark extract: Possible involvement of H(+)-K(+)-ATPase inhibition and scavenging of hydroxyl radical. Life Sci. 2002; 71:2845–65.*
22. *Wolinsky LE, Mania S, Nachnani S, Ling S. The inhibiting effect of aqueous Azadirachta indica (Neem) extract upon bacterial properties influencing in vitro plaque formation. J Dent Res.1996; 75:816–22.*
23. *Tandon S, Gupta K, Rao S, Malagi KJ. Effect of Triphala mouthwash on the caries status. Int J Ayurveda Res. 2010; 1:93–9.*
24. *Nadkarni KM, Nadkarni AK. Vegetable kingdom. In: Nadkarni K, editor. Indian Materia Medica with Ayurvedic, Unani-Tibbia, Siddha, Allopathic, Homeopathic, Naturopathic, and home remedies. 3rd ed. Vol. 1. Bombay, India: Popular Prakashan Private Ltd; 1999. p. 46.*
25. *Jittapiromsak N, Sahawat D, Banlunara W, Sangvanich P, Thunyakitpisal P. Acemannan, an extracted product from Aloe vera, stimulates dental pulp cell proliferation, differentiation, mineralization, and dentin formation. Tissue Eng Part A. 2010; 16:1997–2006.*
26. *Amruthesh S. Dentistry and Ayurveda IV: Classification and management of common oral diseases. Indian J Dent Res. 2008; 19:52-61.*
27. *Abuzied ST, Eissa SA. Comparative study on antibacterial activities of two natural plants versus three different intra-canal medicaments.*
28. *Bairy I, Reeja S, Siddharth, Rao PS, Bhat M, Shivananda PG. Evaluation of antibacterial activity of Mangifera indica on anaerobic dental microflora based on in vivo studies. Indian J Pathol Microbiol.2002;45:307–10.*
29. *Kawamori T, Lubet R, Steele VE, Kelloff GJ, Kaskey RB, Rao CV, et al. Chemo preventive effect of curcumin, a naturally occurring anti-inflammatory agent, during the promotion/progression stages of colon cancer. Cancer Res. 1999; 59:597–601.*
30. *Prakash Shobha (2014). Shelke U. Anup: Role of Triphala in Dentistry. Journal of Indian Society of Periodontology, 18(2): 132-135.*