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Review Article

AYURVEDIC DANTA DHAVANA - A NEED OF TIME: A REVIEW

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ABSTRACT

Dhantadhavana is an important procedure for maintaining the oral hygiene. In Ayurveda there is detail explanation about Dantadhavana methods, procedure, action of drugs, benefits etc. due to civilization Ayurveda twigs and tooth powders got replaced by contemporary plastic made toothbrushes and chemical based toothpastes. Toothbrushes are made of plastic; hence it is an alarming sign for soil and air pollution. Contemporary science recommends usage of chemical-based toothpaste with added sweet flavouring agents. Action of toothpaste maybe bactericidal but data from W.H.O over Oro-dental disorders per year gives an idea that action of bactericidal is not up to mark. In Ayurveda rasa Siddhant-katu (pungent taste), tikta (bitter taste), Kashaya (astringent taste) is given much importance for Dantadhavana due to antibacterial, antiseptic action. Current world is shifting towards ayurvedic principles of daily regimens to maintain and promote the health. This paper will discuss over problems due to usage of contemporary toothbrushes and chemical based paste and ayurvedic view of Dantadhavana and solution by Ayurveda to come over the Oro-dental problems.

KEYWORDS: Dantadhavana, toothbrush, toothpaste, rasa, Oro-dental, twigs

INTRODUCTION

Ayurveda had mentioned various procedures for maintaining oral hygiene. Dantadhavana is an important procedure one among them. Various plants have been mentioned in classical texts for dantapavana. Acharyas mainly focused on the peculiar plants and rasa for the dantapavana. Dantadhavana is explained under the umbrella of dinacharaya by most of the acharyas. Due to civilization Dantakashta were replaced by many alternative materials. In 1223, Japanese Zen master Dogen Kigen mentioned in his Shobogenzo that he saw monks in China clean their teeth with brushes made of horsetail hairs attached to an oxbone handle. Then later a rag with soot and salt on the teeth was found to be more helpful in toothbrushing. In the starting of 17th century softer bristle toothbrushes made from horsehair came in practice. In middle of 18th century toothbrush design changed by new design that looks like a bone handle with holes bored into it for the Siberian boar hair bristles¹. During 19th century Natural animal bristles were also replaced by synthetic fibers². In 1978 Dr. George C. Collis invented the Collis Curve toothbrush which was said to be the first toothbrush that was having curved bristles³. So according to time toothbrushes got modification. nowadays Toothbrushes are made of chief plastics, which is an alarming sound for the soil pollution. Study says Over 1 billion toothbrushes are disposed of into landfills annually in the United States alone⁴. The American Dental Association recommends that toothbrush should be replaced every 3-4 months or sooner if the bristles become frayed. according to Ayurveda dantakashta should be used freshly, it is necessary to avoid micro-organisms growths and oral infections due to long usage of same toothbrush. In between 18th to 19th century in the manufacturing of toothpastes soap was used as an emulsification factor, now a days emulsifying agents such as Sodium Lauryl Sulphate and Sodium

Ricinolate etc are used⁵. these all chemicals and materials are very much harmful for health. In current days many ayurvedic dravyas like lavana, nimba, tulasi, sunthi, putika, lavanga etc extracts are used by all the pharmaceutical companies in the preparation of toothpaste⁶. So all these things proves that Ayurveda practice for dantadhavana was more appropriate and good for health. So, in the current pandemic whole world is moving towards Ayurvedic principles to maintain the oral health. so detail analytical knowledge of dantadhavana told in classical texts is need of hour. So, it is very much essential to relook in dantadhavana told in the Samhitas.

TOOTHBRUSHING- AS PER CONTEMPORARY VIEW

Tooth brushing is the most commonly recommended and performed oral hygiene behaviour. It is considered a primary mechanical means of removing substantial amounts of plaque in order to prevent oral disease, including gingivitis and dental caries⁷. there are many types of toothbrushes are discovered as per requirements like – electric toothbrush, interdental toothbrush, end-tuft toothbrush, chewable toothbrush, musical toothbrush. There are many methods of toothbrushing like Horizontal toothbrushing, Vertical toothbrushing, Circular technique, The Bass technique, The roll technique⁸. Currently materials those are used in manufacturing of tooth brushes are polypropylene, polyethylene and Nylon. Polypropylene and polyethylene are usually used in making handles. Nylon, specifically nylon 6, is the main material of bristles. Toothbrushing is the most widespread mechanical means of personal plaque control in the world, and is said to be an important factor in the prevention of periodontal disorder⁹.

TOOTH POWDER

Tooth powder is thought to have originated many thousands of years ago. Ancient days there was the practice of using myrrh, burnt eggshells, crushed animal bone ash, and oyster shells to create powders and those were able to remove mouth odour, clean and polish teeth. In 19th century Homemade and manufactured tooth powders that contained salt, chalk, or baking soda was came in practice.

TOOTHPASTE

A toothpaste is defined as a semi-solid material for removing naturally occurring deposits from teeth and is supposed to be used simultaneous with a toothbrush. Toothpaste is composed of Calcium carbonate (CaCO₃), Calcium phosphate, dibasic; Calcium phosphate, dibasic, dihydrate (CaHPO₄, CaHPO₄·2H₂O), Silica, silica hydrate (SiO₂, SiO₂·nH₂O), Sodium alginate, Carrageenan, Carbomers, Xanthan gum, Sodium lauryl sulphate (SLS), Flavouring agents, Foaming agents, Humectants, Fluoride, Xylitol, Calcium / Phosphate, Sodium bicarbonate, Triclosan, Metal-ions, Chlorhexidine, Anti-calculus agents, Pyrophosphate, Potassium salts, Amino glucosidase and glucose oxidase, Abrasives etc.¹⁰

Name of Textbook	Length (in angula)
1. Sushruta Samhita	12
2. Astanga hrudya	12
3. Astanga sangraha	12
4. Charaka Samhita	Didn't mentioned

Name of Textbook	Madhura	Amla	Lavana	Katu	Tikta	Kashaya
1. Sushruta Samhita	+	-	-	+	+	+
2. Astanga hrudya	-	-	-	+	+	+
3. Astanga sangraha	-	-	-	+	+	+
4. Charaka Samhita	-	-	-	+	+	+

Name of Rasa	Karma
1. katu	Vaktra Shodhana, sweda-Kleda-Mala Upahanti, Kandu vinasayati, Rochana, AgniDeepana Vranan Avasadayati, shleshmahara ¹⁴
2. tikta	Krimighna, Vishaghna, deepana, pachana, lekhana, kledameda-upashoshayati ¹⁵
3. Kashaya	Sangrahi, peedana, Ropana, Shoshana, Stambhana ¹⁶
4. Madhura	Balakrut, sandhana ¹⁷

Name of Textbook	Tree Name
1. Sushruta Samhita	Madhuka, karanja, nimba, khadira
2. Astanga hrudya	Arka, nyagrodha, khadira, karanja, kukubha
3. Astanga sangraha	Vata, asana, khadira, karanja, karaveera, sarja, irimeda, Apamarga, malati, kukubha
4. Charaka Samhita	Karanja, karaveera, arka, malati, kukubha

Name of Textbook	CONDITIONS
1. Sushruta Samhita	Talu roga, otha roga, jihwa roga, mukhapaka, swasha, hikka, kasa, chardi, Ardita, karnashoola, dantarogamshiroruja, ajeerna, mada peedita, murcha, shram, klant, etc ²⁰
2. Astanga hrudya	Ajeerna, kshvatu, kasa, jwara, ardita, trushna, mukhapaka, Hrudya roga, netra roga, shiro roga, karna roga ²¹
3. Astanga sangraha	Ajeerna, kshvatu, kasa, jwara, ardita, trushna, mukhapaka, Hrudya roga, netra roga, shiro roga, karna roga.
4. Charaka Samhita	Didn't mentioned.

TOOTHBRUSHING- AN AYURVEDIC VIEW

Dantadhavana is an important part of dinacharaya. Acharya sushruta kept dantadhavana at the first place among all the dinacharya procedures. As per Sushruta Samhita and astanga hrudya dantapavana (teeth cleaning twig of the tree) length should be of twelve angula long and of the size of the little finger in thickness, straight, not having nodes, not wounded (cut, split, worm eaten etc), not having many knots, which is fresh.¹¹ length of dantapavana by different text is mentioned in Table 1. As per acharya charaka the twigs should be chewed to convert it into toothbrush shape. Dantadhavana should be done two times in a day after meals¹².

Dantadhavana procedure is explained in astanga sangraha. acharya vagbhata told first lower teeth should be clean then upper teeth. While cleaning extra care should be taken so that dantapavana should not cause any harms to the gums¹³. Acharyas told dantapavana should be rich in katu, tikta, Kashaya rasas. Comparison of rasa of dantapavana by different text is mentioned in table 2. Specific karma of rasa in the context of dantadhavana is mentioned in table 3.

In Samhitas many trees are mentioned for the dantadhavana purpose. Acharya vagbhata mentioned a list of plants in astanga sangraha such as shleshmataka, arishta, vibhitaki, dhava, bilva, nirgundi, sheegru, tilvaka, tinduka, shami, peelu, pippali, ingudi, guggulu, paribhadra, amlika, mochaki, shalmali etc and Madhura, amla, lavana rasa rich trees whose dantapavana should be

avoided¹⁸. Trees told by various texts for dantapavana is mentioned in table 4.

There are certain conditions in which dantadhavana is contraindicated. Different contraindication conditions for dantapavana by various texts is mentioned in table 5. acharya vagbhata and sushruta indirectly said that in those condition dantadhavana with dantakastha is contraindicated, but we can do dantadhavana with the help of powders like tejovati, saindhava mixed katu taila, kustha, trivargatrayas (triphala, trikatu, trijataka)¹⁹.

Acharya vrudha vagbhata told after dantadhavana jihwa nirlekhana should be done. By doing regular practice of Dantadhavana will prevent for coming disease of jihwa,danta, mukharogas. Regular Dantadhavana develops taste for food, cleanness of mouth and feeling of lightness. It also alleviates foul smell, tastelessness etc.

DRAWBACK OVER CONTEMPORARY TOOTHBRUSHING MATERIALS AND USAGE OF TOOTHPOWDERS AND TOOTHPASTE AND NEED OF AYURVEDIC METHODS TO MAINTAIN AND PROMOTE THE ORAL HEALTH

Both toothpaste and tooth powder have benefits for tooth health. Both may also contain ingredients that may be of concern for people when it comes to overall health. These include:

- **Triclosan.** Triclosan is an antibacterial ingredient. It was removed from most toothpaste formulations due to evidence for generating antibiotic resistance, as well as major impact over thyroid hormone function
- **Sodium lauryl sulfate (SLS).** SLS irritating to the skin and gums²².
- **Fluoride.** Improper proportion of fluoride in toothpastes and powder can leads to many conditions like discoloration or white spots on teeth (dental fluorosis) and skeletal fluorosis, a bone disease²³

PLASTIC TOOTHBRUSHES- A MAJOR CONCERN TO HEALTH & ENVIRONMENT

Over 3.5 million plastic toothbrushes are sold around the world every year. Majority of toothbrushes are made with nylon bristles and a plastic handle, both of which could take over 400 years to decompose. It is a major concern for soil. when the toothbrushes do start to biodegrade, they leave behind pieces of microplastic, which is very much dangerous for the soil. Microplastic can leach into the soil, which can travel into the food we eat.: during the heavy rain, the small pieces of plastic are picked up and washed away to the sea or natural water sources. so now adays it is an invitation for many conditions like -Cancer, weakened immune system, Congenital disabilities, Reproductive problems etc²⁴.

ADVANTAGE OF TREE MADE TOOTHBRUSH OVER PLASTIC TOOTHBRUSH

- Ayurvedic toothbrushes are fully biodegradable, so these are beneficial as per environment point of view.
- Tree made toothbrushes can help in significantly reducing the carbon footprint when compared to plastic²⁵.
- Microplastics are known to be extremely damaging to humans and the natural environment. So, switching to an ayurvedic toothbrush is very much necessary.
- Ayurvedic toothbrushes have natural antibacterial and wound healing properties.
- Ayurvedic toothbrushes are rich in katu (pungent taste), tikta (bitter taste), Kashaya (astringent taste) rasas that is results in

mukha sodhana, krimighna (anti-microbial), vishghna (Anti-toxic), kushtagna (anti-dermatosis) properties.

DISCUSSION

In order for toothpaste to be effective, it must be used regularly. Research has indicated that a sweet taste encourages the regular toothpaste. Specific flavours and artificial sweetener, usually saccharin is used in toothpaste²⁶. But according to Ayurveda Madhura rasa (sweet taste) is not indicated for dantadhavana as one of the karmas of madhura rasa (sweet taste) is mukhalepa (coated throat), hence kapha nirharana (expulsion of vitiated kapha dosha) can't be achieved with Madhura rasa (sweet taste). Maybe this is also a reason for increases of Oro dental disease now adays. As per W.H.O, Oro dental diseases affect nearly 3.5 billion people. almost 10% of the global population affected by Oro dental diseases. 530 million children suffer from dental caries of primary teeth²⁷, Oral cancer is one of the three most common cancers in some countries of Asia and the Pacific. All these data give a light that Madhura rasa (sweet taste) in toothpaste is not capable to do it kapha nirharana (expulsion of vitiated kapha dosha) action properly. So, there is need to follow rasa principles told by acharyas. katu(pungent taste) tikta(bitter taste),Kashaya(astringent taste) rasa's are having karmas related to mouth are like Vaktra Shodhana(cleanses the oral cavity), Rochana(increases appetite), Krimighna (anti-microbial), Vishaghna (anti-toxic),etc are helpful for kapha nirharana (expulsion of vitiated kapha dosha) action.so rasa Siddhant is very much relevant to prevent Oro dental diseases. This concept should prompt us to revisit current practice and bring into practice paste and powders having katu (pungent taste), tikta (bitter taste) and Kashaya (astringent taste) rasas.

Coming to toothbrush v/s twigs, due to difficulty in availability of twigs, storage and operational method of use. So, there is a need of modification as per time. acharyas also talked about usage of dantadhavana powders. We can easily convert the twigs into powders as per feasibility by keeping mind about rasa principle and pharmacological actions of tree.in the current situation there is need to shift from Madhura rasa (sweet taste) to katu (pungent taste), tikta (bitter taste), Kashaya (astringent taste) rasas. those who wish to use twigs they can use twigs, if there is any operational difficulty in twigs then one can use powder or paste made of same trees.

CONCLUSION

As dantadhavana is an important part of daily regimens. So Ayurvedic principles should be kept in mind while doing the Dantadhavana. chemicals and plastics are used in contemporary science for brushing are very much harmful for the human beings and the mother earth. So, switching to ayurvedic methods of dantadhavana is need of hour in the context of maintaining the individual health and earth health also.

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