



Review Article

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A REVIEW ON THE ROLE OF DANTADHAVANA IN THE MAINTENANCE OF ORAL AND GENERAL HEALTH

Sharma Ramavtar ^{1*}, Mapdar Amitabha ², Narayanan Rakesh ¹, Shahi V.K ³, Goel Sumeet ¹, Kale Kiran ¹

¹Research Officer (Ayu.), Central Council for Research in Ayurvedic Sciences, New Delhi, India

²Assistant Professor, Swasthavritta, Raghunath Ayurveda Medical college, Kolkata, West Bengal, India

³Additional Director, Central Council for Research in Ayurvedic Sciences, New Delhi, India

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*Corresponding author

E-mail: dr.ramavtarccras@gmail.com

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ABSTRACT

Good oral health denotes healthy teeth, healthy gum and healthy surrounding tissue. Despite the fact that a large number of people in India suffers from periodontal diseases but has been remain neglected area where more social awareness is required. After consumption of food, within 15 to 20 minutes some bacteria acts on residue food particles and produce acid which causes dental decay. In addition of this the accumulated debris, bacteria etc. causes dental plaque. Dental caries and periodontal disease are the two most common worldwide prevalent dental ailments. Further maintenance of oral health is important not only for the structures of oral cavity, it also deliver huge impact on general health. Food particles cling between infected gum and teeth helps in development of pathogenic as well as commensal organism which may causes systemic disorder like rheumatic carditis, infective endocarditis etc. Dantadhavana, jihva nirlekhana, kavala, gandusha etc. are some procedure which helps to maintain oral health. Dantadhavana using herbal twig is an ancient custom and also in practice at present days although chemically produce tooth paste also used by a large number of population. The bristle of twigs mechanically removes the food debris which are trapped between the teeth. Its extract which are comes out during the bristle preparation alters the acidic media of oral cavity towards alkaline and thus helps to neutralise the acid, produced by the bacteria and thus prevents caries formation. Further the twigs also pose antimicrobial activity and healing property thus it is also helpful for prevention as well as to cure the periodontal disease. In addition of this regular dantadhavana increase the salivation which further helpful for the maintenance of oral health.

Key words: Dantadhavana, Oral health, Herbal twig, Ayurveda.

INTRODUCTION

Digestion and absorption of food is necessary for sustention of life and the process of absorption starts in mouth through the act of chewing¹. The act of chewing and tasting of food is called 'mastication', and teeth are necessary for this activity. Food particle divided into small spice and various salivary secretions mixed with it during mastication. Beside this, it also gives emotional satisfaction of eating food. With addition of these teeth are also important for clear speech and good appearance. Good oral health denotes sound teeth, healthy gums and healthy surrounding tissue. Beside the structures of oral cavity it has great impact on general health of an individual also. Dental caries and periodontal disease are the two most common worldwide prevalent dental ailments². Regular tooth brushing or dantadhavana is necessary to remove dental plaque and food debris. Accumulation of food debris between the unhealthy gum and teeth helps in the growth of commensal as well as pathogenic organisms leading to the development of pyorrhoea alveolaris, subsequently which may cause premature fall of teeth, Infective endocarditis, Rheumatic carditis and Aspiration pneumonia³. In addition of this bad oral hygiene is main responsible factor for halitosis (bad breath) along with some other factors like sinus infection, tonsillitis and infection of throat and nose etc⁴. Food particles accumulated in the mouth after eating begins to ferment and form an acid within 15 to 20 minutes. Prolonged contact of this acid with the teeth leads to development of cavity on the enamel surface⁵.

So maintenance of proper oral hygiene is necessary not only for prevention of teeth ailments, but also to prevent some deadly

systemic consequences. Regular tooth brushing is the best way to maintain proper oral hygiene. Tooth brushing and other measures of oral health maintenance are emphasized and described in detail in various Ayurveda classics. Plentiful of research related to tooth brushing using herbal and herbo-mineral compound, various chemical compound and their impact in the maintenance of oral as well as general health also available at present day and exploration of all these are the main aim of this article.

Time and process

Teeth should be cleaned twice a day, after elimination of urine and faeces at morning and after consumption of food at evening. Principally twigs of kasaya, katu and tikta rasa dominant tree like arka (*Calotropis procera*), nyagrodha (*Ficus begalansis*), khadira (*Acacia catechu*), karanja (*Pongamia pinnata*) etc⁶. are used for this purpose although madhurarasa containing twig like madhuka (*Glycyrrhiza glabra*) also used in some particular instance⁷. The tip of the twig should be chewed to prepare soft bristle and without harming the gum teeth should be cleaned one after another starting for the lower tooth⁸ facing east or northern direction⁹. The twig which is used for dantadhavana should poses some special character like it should be straight, knotless or having one knot and free from cavity (caused by insect infection). Each time fresh twigs should be taken from a tree grown in good land. Factors like season, doshic predominance of the person, rasa and virya of twig etc. must be considered before selection of the twig. Twig of Nimba (*Azadiracta indica*) is best among tikta rasa (bitter), khadira (*Acacia catechu*) among kasaya rasa (astringent), madhuka (*Glycyrrhiza glabra*) among madhura rasa (sweet) and karanja (*Pongamia pinnata*) among

katu rasa (pungent)¹⁰. Some acarya opined that powder of trikatu [sunthi (*Zinziber officinale*), pippali (*Piper longum*) and maricha (*Piper nigrum*)], dalchini (*Cinnamomum zeylanicum*), ela (*Elettaria cardamomum*), tejapatra (*Cinnamomum tamal*), tejovati (*Zanthoxylum allatum*) mixed with honey, saindhava (rocksalt) and oil should be used along with twig¹¹. The twig should be discarded after dantadhavana only in auspicious place.

Plants not suitable for Dantadhavana

Some specific twigs are not suitable for dantadhavana. Twigs of slesmataka (*Cordia dichotoma*), arista (*Sapindus trifoliatus*), bibhitaka (*Terminalia bellirica*), dhava (*Anoecissus latifolia*), dhanvana (*Grewia tiliofolia*), bilva (*Aegle marmelos*), nirgundi (*Vitex nirgundo*), sigru (*Moringa oleifera*), tilvaka (*Symplocos racemosa*), tinduka (*Diospyros malabarica*), kovidara (*Bauhinia variegata*), sami (*Prosopis cineraria*), pilu (*Salvadora persica*), pippala (*Piper longum*), ingudi (*Balanites aegyptiaca*), gugulu (*Commiphora Mukul*), paribhadra (*Erythrina variegata*), amlika (*Tamarindus indica*), mocaka (*Moringa oleifera*), salmali (*Salmalia malabarica*) and sana (*Crotolaria Juncea*) are not suitable for dantadhavana¹².

Length of Dantakastha

The twig which is used to clean the teeth is called dantakastha and as it is said that it hallowed the teeth that's why in many text it is termed as dantapavana also. Todaranda, in his classic mentioned different length of dantakastha for people of different varna (cast); according to this 12, 10, 8 and 6 anguli (finger) dantakastha should be used by brahmana, kshatriya, vaisya and sudra respectively, but in most of the Ayurveda classics, 12 anguli (finger) length and thickness like tip of the little finger has been mentioned as the standard for dantakastha¹³.

Benefit

This removes foul smell, tastelessness, dirt from tongue and teeth, bring freshness of mouth and increase taste sensation¹⁴. In the treatment of arocaka, dantadhavana twice in a day at morning as well as in evening are advice¹⁵. Besides this dantadhavana by some specific twig bestow some specific benefits i.e. dantadhavana with the help of amra twig causes good health, sirisha twig causes good luck, increases lifespan and maintain good health¹⁶.

Contraindication

Dantadhavana is contraindicated for the person suffering from ajeerna (indigestion), vamaana (vomiting), swasa (dyspnoea), kasa (cough), jwar (fever), ardita (facial paralysis), trisna (thirst), asyapaka (ulceration of mouth), hrid roga (heart disease), netra roga (disease of eye), siro roga (disease of head), karna roga (disease of ear). Amla (sour), seetala (cold) dry and hard substances are barred for the patient suffering from dental ailments¹⁷. According to Kshemakutuhala, oral cavity should be cleaned by 12 times gargling with fresh clean water in the absence of dantakastha or situation where dantadhavana is contraindicated.

DISCUSSION

Good oral health, specifically healthy teeth and healthy gum are very much important as it is the basic of overall health development. Dantadhavana is the main procedure which helps to attain this goal along with kavala, gandusha etc. Dantadhavana using herbal twigs is an ancient custom but it is fact that it has been replaced by commercially produce chemical toothpaste at

present. Despite that 85 percent of children and 95 to 100 percent of adult in India suffers from periodontal diseases¹⁸ whereas most of the develop country made tremendous progress in oral health through preventive programme and general awareness. Among billions of bacteria which are present in oral cavity few bacteria causes teeth decay and periodontal diseases by producing acid from food debris present in mouth cavity. This acid causes teeth decay, in addition with this the accumulated debris, bacteria etc. causes dental plaque which in turn causes periodontal diseases. The subject of major concern of periodontal disease is that it evokes a generalized inflammatory response posing a higher risk of numerical systemic disorder including cardio vascular disease. A few studies have even demonstrated a correlation between the sub gingival microbiota and the pathogens detected in the vascular lesions¹⁹. So to prevent this serious consequences, control over this microorganism, control over the formation of acid and dental plaque are necessary. Good health habits like regular tooth brushing and mouth rinsing is necessary to achieve this goal.

Research has shown that dantadhavana using herbal twig alters the salivary pH and it become alkaline²⁰ which helps to neutralize the acid which is produced by pathogenic bacteria. This phenomenon helps to protect the teeth as this acid is the main responsible factor for dental decay. Further it has been also proved that high pH causes suppression of salivation which is further associated with increased risk of periodontal diseases²¹. Arvind et al. has shown in his study that herbal dentifrices effectively reduce formation of plaque and gingivitis, without any adverse effects on the oral cavity²².

Basically twigs of arka (*Calotropis procera*), khadira (*Acacia catechu*), karanja (*Pongamia pinnata*), neem (*Azadiracta indica*) etc. are used for dantadhavana and antimicrobial activity of these herbs has been established in several studies. Studies revealed that latex of arka (*Calotropis procera*) poses strong inhibitory effect on specific microorganisms²³. Further, Taxifolin, which is the main constituent of Khadira (*Acacia catechu*), possesses antifungal, antiviral, antibacterial, anti-inflammatory and anti-oxidant activity²⁴. Certain studies prove that Karanja (*Pongamia pinnata*) poses antimicrobials well as effective in prevention of dental caries²⁵. Kasaya, katu and tikta rasa are used in dantadhavana. All these three rasa pacifies kapha dosha; katu rasa purifies oral cavity, exterminates krimi and opens channels. Tikta rasa also having krimi nashaka property. Kashaya rasa poses vrana (ulcer) purification and healing property²⁶. There is sense of freshness and salivation increases after dantadhavana, as it pacifies kapha dosha and open up channels.

Chemicals like triclosan, chlorhexidine, calcium carbonate, sorbitol, sodium lauryl sulfate, hydrated silica, flavor, magnesium aluminum silicate, sodium monofluorophosphate, potassium nitrate, benzyl alcohol, sodium silicate, cellulose gum, triclosan, and sodium saccharin etc. are used in mouth rinses and dentifrices to prevent plaque and gingivitis now a days. But some of these chemical especially Sodium lauryl sulphate may have toxic effect²⁷.

Special care should be taken regarding brushing technique and regular diet. Herbal twig is chewed to prepare soft bristle and tooth is cleaned one after another starting from the lower jaw. 12 anguli (around 15 cm) long twig is used for this purpose, longer or shorter than the above mentioned length may causes extra pressure over teeth as well as gum and difficult to handle too. In addition of this the additional benefit of chewing is herbal extract comes out during this procedure and mixed with saliva and spreads throughout the oral cavity, this extract is mainly responsible for antimicrobial activity and alteration of pH. But

due to the direction of the bristle, cleaning of the molar teeth is difficult to some extent. All the inner, outer and biting surface should be brushed alike at least 5 times with enough pressure as the bristle can clean the surface between the teeth. After proper brushing, gum should be massaged by finger with the help of herbo-mineral compound. Beside this some specific fruits and vegetable should be incorporate in daily diet, especially green leafy vegetables and fruits rich in minerals and vitamin C should be taken regularly. Intake of milk, egg, tomatoes, guava, gooseberry etc. should be encouraged. Fruit like apple, carrots etc. which are called natural toothbrushes as they reduce the chance of dental caries, should also consumed daily²⁸. On the other side excessive intake of refined carbohydrates like sugar, sweets, biscuits, pastries, cakes etc. should be discourage. Mouth should be rinsed with cold water during hot seasons (grishma and sarad ritu) and with warm water during cold seasons after intake of any food and after dantadhavana also. As a whole the herbal twigs and herbo-mineral compound which are used for dantadhavana effectively maintain oral health.

CONCLUSION

Dantadhavana abide the rule of Ayurveda obviously helpful in maintaining of oral health. It prevents dental carries by maintenance of salivary pH and promotion of salivary secretion. Regular mechanical removal of food debris and control over acid formation helps to prevent dental plaque which in turn prevents periodontal diseases. Further antimicrobial and healing property also present in the herbal twigs which are used for dantadhavana. This prevents as well as pacifies periodontal disease and as the gist it can be concluded that regular dantadhavana not only helpful for oral health maintenance but it also gives protection from some systemic disorder which is the consequence of bad oral hygiene.

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