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Ayurvedic review article on *Shitada* with special reference to Gingivitis

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ABSTRACT

Oral cavity is a unique area of the body which is also known as the window of G.I.T. because many systemic disease can be clinically correlated upto some extent. If oral hygiene is not maintained properly than its sequelae can be quite dangerous. Without treatment gingivitis can progress to periodontitis, in which the inflammation of the gums results in tissue destruction and bone resorption around the teeth which is more serious and can eventually lead to loss of teeth in 40-45% of population of India. Food and plaque can get trapped in this space and cause a gum infection or it may leads to gingivitis on chronic accumulation of food or plaque. Plaque is a thin biofilm of bacteria which is continuously formed on the surface of teeth, as plaque advances it hardens and gets converted into tartar, when plaque extends below cervical line it may leads to bacterial infections like Gingivitis. If left untreated this bacterial infection can lead to detachment of gums from tooth surface and the tooth/teeth may become loose and unstable.

Key words: *Shitada, Dantamoola, Mukha Roga, Gingivitis*

INTRODUCTION

Gingivitis is an inflammatory condition of the gingival tissue, most commonly caused by bacterial infection. Unlike periodontitis, there is no attachment loss and therefore no migration of the junctional epithelium. The condition is restricted to the soft-tissue area of the gingival epithelium and connective tissue.^[1] Among all the periodontal diseases, gingivitis is considered to be the commonest. There are various forms of gingivitis based on clinical appearance, duration of infection,

severity, and etiology. However, the chronic form of gingivitis that is caused by plaque is considered to be the most frequent variant. Clinically, the gingival tissues are characterized by swelling, redness, tenderness, a shiny surface, and bleeding upon gentle probing. Gingivitis seldom generates spontaneous bleeding and is commonly painless, therefore many patients do not recognize the disease and fail to seek attention.^[2]

In Ayurveda medial science Susruta Samhitha is an authentic text. It has been described *Shitada* is one of *Danthamoolagatha Roga*^[3] (periodontal disease) out of 15 diseases. It is the early stage of periodontal disease that may progress later on to *Danta Vesta* and *Upakusha* state if untreated. Fast food culture, unhealthy habits like smoking, betel chewing and improper oral hygienic measures leads to vitiation of *Kapha* and *Raktha Dasha* which contributed to *Shitada* that manifested with *Raktasrava* (Bleeding gum), *Krishnata* (discoloration of gums), *Prakledata* (moistness), *Mrudutha* (sponginess), *Shotha* (gingival swelling), *Mukha Daurgandhya* (halitosis) as initial

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clinical features.^[4] *Paka* (Suppuration), *Danta Mansha Shiryamanata* (gum recession) and *Chalata* (tooth mobility) may be seen in later stage. When compared with marginal gingivitis accumulation of debris, plaque, calculus at the tooth margin can be seen due to ignorance of oral care thus it progresses into periodontitis manifesting with the symptoms of firmness, altered contour of gums, mobile teeth, spacing and drifting. As per the modern dentistry causative local factors of marginal gingivitis are microorganisms, calculus, food impaction, faulty restorations, mouth breathing, tooth mal position and the systemic factors as nutritional deficiency (vitamins, minerals, protein), certain drug allergies (phenol, silver nitrate, aspirin)etc. endocrine dysfunctions, puberty, pregnancy, menstrual cycle irregularities and diabetes mellitus, hematological disorders like leukemia, thrombocytopenia, heredity, specific granulomatous infections and immunopathies (immune deficiency disorders-HIV). Scaling and polishing, root planning, gingivoplasty are the treatment options in management of marginal gingivitis.

Etiology

Gingivitis is caused by the microbial plaque deposits located in or close to the gingival sulcus. The microorganisms more strongly associated with the etiology of gingivitis include species of *Streptococcus*, *Fusobacterium*, *Actinomyces*, *Veillonella*, and *Treponema*. *Bacteroides*, *Capnocytophaga*, and *Eikenella* are also potentially linked to the etiology of the disease. There may be other local or systemic etiologic factors that intensify plaque deposition or the vulnerability of the tissue to the microbial attack.^[5]

Gingivitis is the commonest of periodontal diseases. It is more prevalent in males as compared to females since it has been found that females tend to follow better oral care regimes. It is commonly seen in children and adults. Studies have found gingivitis to be more prevalent in people with low socioeconomic status as people with high socioeconomic status tend to show a more positive attitude towards the maintenance of oral hygiene. Also, they have better access to health care options. Studies reveal that

gingivitis is more prevalent in pregnant women as compared to non-pregnant women. Moreover, more severe forms of gingivitis have been more often seen in pregnant women.^[6] The most frequently seen types of gingivitis are plaque-induced, hormonal, acute ulcerative necrotizing, drug-induced, or spontaneously presenting hyperplastic gingivitis. Categorically, the more predominant form of gingivitis is plaque-induced. In fact, this type accounts for far more cases than all other variants combined.^[7]

Classification of Gingivitis

In the latest International workshop for a classification of Periodontal Diseases and Conditions in 2017, gingival diseases have been classified as follow:

- Gingivitis - dental biofilm - induced
- Associated with dental biofilm alone
- Mediated by systemic or local risk factors
- Drug-influenced gingival enlargement
- Gingival diseases non-dental biofilm induced
- Genetic/ developmental disorders
- Specific infections
- Inflammatory and immune conditions
- Reactive processes
- Neoplasms
- Endocrine, nutritional, and metabolic diseases
- Traumatic lesions
- Gingival pigmentation^[8]

Samprapti (Pathogenesis)

Though the *Samprapti* of *Shitada* has not been explained directly in Ayurvedic classics, keeping in mind all the etiological factors explained under common etiology of *Mukharoga*. An attempt has been made here to formulate and explain the pathogenesis of *Shitada*. Even though factors responsible for vitiation of *Kapha* and *Rakta* are the main factors in the manifestation of *Shitada*, the etiological factors responsible for the vitiation of *Rasavaha* (Plasma), *Raktavaha* (Blood), *Mamsavaha* (Muscular tissues)

Srotas (channels) and *Pitta Dosha* play a definite role directly or indirectly in the pathogenesis of *Shitada*. Hence these factors should not be neglected.

Samprapti Ghataka of *Shitada*

- *Dosha - Kapha, Rakta pradhana*
- *Dushya - Rasa, Rakta, Mamsa*
- *Srotas - Rasa Vaha, Raktavaha, Mamsavaha*
- *Srotodushti - Sanga, Atipravrti*
- *Agni - Jatharagnimandhya, Dhatwagnimandhya*
- *Rogamarga - Bahya*
- *Udbhavasthana - Amashaya*
- *Adhishtana - Dantaveshta*
- *Pratyatma Lakshana - Akasmat Raktasrava*
- *Sadhyasadyata - Sadhya.*

Kapha and *Pitta* vitiation is the main culprit to initiate the pathology of *Shitada* (Gingivitis). Vitiation of these *Doshas* can take place due to the *Aharaja* (dietic) and *Viharaja* (lifestyle and environmental) factors. *Ashrayidhatu*s of *Kapha* and *Pitta* i.e., *Rasa*, *Mamsa* and *Rakta* will also get disturbed quantitatively and qualitatively due to instability of *Ashraya Doshas*. Vitiated *Rasa* and *Rakta* will cause the local manifestations like swelling (*Shopha*), black discoloration (*Krishnata*), sponginess (*Mriduta*) and moistness of gingiva (*Kledata*). Vitiated *Mamsa* and *Raktadhatu* will cause the instability of gingiva which will manifest as spontaneous bleeding (*Akasmatraktasrava*), gum recession (*Shiryamanata*) and moistness of gingiva (*Prakledata*). Everyday a clear sticky film called plaque builds upon the surface of the tooth in the non-self-cleaning area of the teeth, particularly below the cervical convexity of the crown and in the cervical area. Many varieties of oral micro-organisms grow as a bio-film or plaque. This is the first manifestation of gingival inflammation where vascular changes consisting essentially of dilatation of capillaries and increased blood flow. In most cases, a thorough professional cleaning and more attention to oral hygiene can reverse the inflammation and symptoms associated with gingivitis. Toxins and

enzymes liberated by bacteria contained in plaque food debris or calculus seen into the crevicular epithelium and underlying connective tissue and cause an irritation, breakdown of tissue constituents and inflammation.

Purvarupa of *Shitada*

No specific *Purvarupa* has been mentioned in *Shitada*. Hence, here slight appearance of manifestation can be taken as *Purvarupa* of *Shitada*, which includes excessive salivation, halitosis, altered taste sensation etc.

Rupa (Symptomatology)

The main symptoms of gingival inflammation are gingival bleeding, gingival inflammation associated with swelling, discoloration, moistness, sponginess, gingival recession and halitosis. Gingival bleeding is the main and earliest visual sign of gingivitis and it varies in severity and duration. Bleeding can be present suddenly, when probing or without any cause. It is provoked by mechanical trauma or by biting solid foods, tooth brushing, tooth picks and food impaction.

Management of *Shitada*

Gingiva is an associated tissue of muscles, hence, in diseases like *Shitada*; *Ahara*, *Vihara*, *Dantyarasayana* (Dental tonic) and *Aushada* which acts on muscular tissue are useful i.e., *Patola* (*Trichosanthus cucumerina*), *Nimba* (*Azadirachta indica*), *Triphala* (*Terminalia chebula*, *Terminalia bellerica*, *Phyllanthus emblica*), *Musta* (*Cyperus rotundus*), *Kutaja* (*Holarrhena antidysenterica*), etc. should be given orally in the form of decoction or in medicated ghee form. Apart from this *Dantya Rasayana* i.e., dental tonics which includes *Bakula* (*Mimusops elengi*) fruits, *Kakoli*, *Haritaki* (*Terminalia chebula*), Black sesame seeds (*Sesamum indicum*), *Nyagrodha* (*Ficus bengalensis*), *Arjuna* (*Terminalia arjuna*) etc. should be administered to increase the strength and stability of the tooth supporting structures as curative measure in disease condition like *Shitada*. Its management can be broadly classified into local and systemic measures.

DISCUSSION

The prime objective of treating gingivitis is to reduce inflammation. This is achieved by the use of different

instruments to remove dental plaque deposits.^[9] Gingivitis, in its initial stages, can be easily managed if the patient starts following oral hygiene protocol, which includes regular tooth brushing with an appropriate technique and interproximal hygiene, such as dental flossing, or the use of interproximal brushes. The removal of plaque and calculus is also professionally achieved by scaling and root planning according to the severity of the condition. If it is a drug-induced gingival overgrowth, the physician can change the medication to improve the outcome of treatment of the condition. If it is due to nutritional deficiency, supplements can be prescribed. Medications in the form of antiseptic mouthwash that contains chlorhexidine can also be prescribed in conjunction with the mechanical removal of plaque. It has been suggested that the use of chlorhexidine mouthwashes in addition to the usual toothbrushing and interproximal cleaning leads to a significant decrease in the build-up of dental biofilm. The concentration of the chlorhexidine rinse does not affect its effectiveness.^[10] There are studies on the effect of medicinal or herbal plants on the management of gingivitis. The mechanism of action of these plants on gingivitis is due to their anti-inflammatory property. Such medicinal plants include pomegranate, tea, and chamomile. The flavonoids and tannins present in these plants are potent anti-inflammatory and astringent phytochemicals. Therefore, they can resolve both gingival bleeding and inflammation.^[11] Some studies proved that there is a synergistic effect when the herbal plants are prescribed along with conventional mechanical procedures of plaque removal, such as scaling.

Raktamokshana

For the convenience of patient *Prachchhana Vidhi* is adopted by 26 no. needle. *Prachchhana Karma* is adopted when *Doshas* are situated in *Twaka* and *Rakta* remaining in vitiated state. *Raktamokshana* expels the impure blood and increase the fresh blood flow which regenerates the gingiva.

Pratisarana

By *Pratisarana* mechanical pressure is exerted on gums in the direction of the gingival sulcus which remove

food debris, plaque and some part of calculus too. By pressure, it clears sticky bio-film on tooth surface which is responsible for growing micro-organism. Due to gingival massage during *Pratisarana* gingival epithelial cells are stimulated which leads to regeneration of the gingiva thus helping in keratinization and this process may help in retarding the inflammation at vascular, cellular and immune level. It may increase the defense mechanism of gingiva. Drugs to be used here should be of *Katu-Kashaya Rasa*, *Laghu Ruksha Guna*, *Ushna Virya* because of which it acts as *Shodhana*, *Lekhana*, *Kleda Shoshaka*, *Raktasthambaka*, *Shothahara*.

Nasya

After the drugs of *Nasya* spreads in the *Murdha*, it scrapes out the morbid *Doshas* and expel them out through the nose. Mainly *Kapha* is involved in *Shitada* and so by *Nasya Karma* vitiation of *Kapha* may decrease and thus symptoms of *Shitada* may subside. By its *Shodhana* property it clears the micro channels (*Srotasa*) of supraclavicular part involving *Dantamoola* and by *Snehana* it nourishes the structures of supraclavicular part including *Mukha*.

Gandusha^[12-14]

Gandusha is the process of holding any medicated liquid in the mouth to its full capacity for a specific time without making any movement inside and then asked to spit it out. Holding the medicated liquid up to its full capacity exerts mechanical pressure on the gums. As a result of this pressure, impacted foods particles get removed and biofilm get mixed with reserved fluid. Also, these mechanical pressures stimulate of salivary secretion and maintain the pH level of oral cavity. The normal pH helps in healing and reduces inflammation, halitosis, moistness and sponginess of gums.

CONCLUSION

To put it briefly, based on earlier studies, local therapeutic *Yogas* such as *Pratisarana*, or *Bhadramustadi Choorna*, *Dashana Samskara Choorna*, *Lodradi Choorna*, etc., are far more beneficial than other *Yogas* for the full recovery of *Shitada* (Gingivitis). These recipes help reduce the level of aggravated

Kapha and *Pitta* in the gum tissues because of the benefits of *Katu*, *Kashaya*, *Tikta Rasa*, and *Ushna*. In addition, research has shown that all of the above *Yogas*, medications have anti-inflammatory, antibacterial, and anti-microbial qualities. *Gandusha* formulations for maintaining periodontal health, such as *Sahacharadi Taila*, *Irimedadi Taila*, *Triphala + Sphatika Jala*, and *Nagaradi Kwatha*, have already been demonstrated to be effective. Due to the fact that *Gandusha* contains components like *Mukhadargandiyahara* and *Shothahara*, it has a purifying effect. Because of the ingredients of *Gandusha* are *Mukhadargandiyahara*, *Shothahara* hence by virtue of cleansing action and anti-inflammatory property. So, it may act on microorganisms and might be helpful in alleviating the disease *Shitada* - Gingivitis. Although *Gandusha* increases the efficacy of *Pratisarana* and help to disintegrates the pathology of *Shitada*. From above descriptions and evidences, it can be concluded that “*Shitada-Gingivitis*” is main disease problem effect on oral health. But due to lack of awareness among patients it is not showing as burning problem. However, Ayurvedic management is able to provide a holistic approach to this disease in all the aspects i.e., preventive and curative.

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