



Research Article

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Clinical effectiveness of Sphatikadi Prathisarana in the management of Sheetada (Gingivitis)

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ABSTRACT

Oral diseases continue to be a major health problem in world-wide. In Ayurveda *Sheetada*, is one of *Dantamulagatha* (periodontal) disorder under the classification of *Mukha roga* (Oral diseases) as *Susrutha Samhitha*. *Sheetada* occurs due to vitiation of *Kapha* and *Raktha dosa* and can be correlated with marginal gingivitis on the basis of similarities of symptoms, involvement of anatomical structure, etiology and prognosis. Prevalence of *Sheetada* is higher among the elders though begins in early childhood. This study was focused to evaluate the effectiveness of *Sphatikadi prathisarana* (massage or rub on the gums with mechanical pressure exerted in a specific direction with herbal powder) included in the text of *Rajaushadhasaraya* for the management of *Sheetada*. Thirty patients were selected with individual written consent from the *Shalakyia* OPD, Gampaha Wickramarachchi Ayurveda Teaching Hospital, Sri Lanka by using specific proforma. Two groups were randomly selected with irrespective of their sex, religion, habitat etc. Group A was treated with *Sphatikadi prathisarana* and Group B was treated with *Triphala Prathisarana* as local application on gums. *Rakthasrawa* (bleeding gums), *Krishnatha* (discoloration), *Shotha* (oedema), *Mukha daurgandhya* (halitosis), *Mrudutha* (spongygums), *Prakledatha* (moistness) were considered as subjective criteria and as objective criteria improvement of Gingival Index (GI-S) and Gingival bleeding index (GBI-S) were studied before and after treatment. Statistically, *Rakthasrawa*, *Krishnatha*, *Shotha*, *Mukha Daurgandhya*, *Mrudutha* were significantly reduced in group A as compare to Group B. As Objective Parameters Gingival Index (GI-S) and Gingival Bleeding Index (GBI-S) were statistically significant in both groups. Follow up study further confirmed that the recurrence rate in Group A was significantly lower than Group B.

Keywords: *Sphatikadi Parthisarana*, *Sheetada*, Marginal Gingivitis.

INTRODUCTION

In Ayurveda medial science *Susrutha Samhitha* is an authentic text. It has been described *Sheetada* is one of *Danthamoolagatha roga*^[1] (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 dosha* which contributed to *Sheetada* that manifested with *Akasmath Rakthasrawa* (Bleeding gum), *Krishnata* (discoloration of gums), *Prakledata* (moistness), *Mrudutha* (sponginess), *Shotha*(gingival swelling), *Mukha Daurgandhya* (halitosis) as initial clinical features.^[2] *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. Hence prevention and control of gingivitis at the earliest is essential to achieve better prognosis.

In *Ayurveda* classics, *Susrutha Samhitha* mentioned several treatment modalities for the management of *Sheetada*. *Prathisarana* (rubbing), *Visravana* (bloodletting), *Pralepa* (paste), *Nasya* (insufflations) and *Kavala* (gargling) have been prescribed by ancient Ayurveda scholars. It is recommended that *gandusha* (holding liquid in the mouth full of capacity without movement) followed by bloodletting in the

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management of *Sheetada*. Among these, *Prathisarana* has been selected to this study as a local application which is therapeutically provide *Shodhana* (cleansing), *Ropana*(growing) actions. *Spatikadi prathisarana* an *Ayurveda* formulation is *Kapha-Pitta Shamaka* (pacifying *Pitta* and *Rakta*) and has *Shothahara* (anti-inflammatory), *Krimighna* (anti-microbial) and *Rasayana* (rejuvenation) properties are likely to be effective for the management of *Sheetada*. In *Prathisarana*, fine powder of herbal formula mixed with luke warm water was taken on a fingertip and then massaged on the gums with mechanical pressure exerted in a specific direction. This process removes the food debris and plaque moreover increase blood circulation, enhance gingival defense mechanism, giving strength to gingival fibers which are the main healing factors of the disease and it works as the reflection of the body health by acting as the gateway of alimentary canal. Which are aimed at breaking the pathogenesis of the disease and improving the health of the gingiva and maintain a healthy periodontium. It pacifies the *Rakta dosha* which the prime vitiating factor in *Sheetada* resulting by *Dosha Shamana*. In present era, sudden increase in the use of herbal extracts or plant products as an alternative approach to modern day medicines therefore, this research was designed to introduce scientifically proven *prathisarana* formula for the management of *Sheetada*.

MATERIALS AND METHODS

Drug preparation:

Spatikadi prathisan^[3] mentioned in *Rajaushadhasaraya* was prepared as *Pathisarana* powder with ingredients of purified *Shuddha Sphatika* (Alum Sulphate)rock, *Haritaki* (*Terminalia chebula*) fruit, fried *Kalipakku* (*Areca catechu*) fruit and *Bakula* (*Mimusops elengi*) bark 250g of each, *Lavanga* (*Syzygium aromaticum*) fruit and *Karpura* (*Cinnamomum camphora*) rock 50g of each collected raw materials were identified and authenticated by the Dept. of Dravyaguna, Gampaha Wickramarachchi Ayurveda Institute, University of Kelaniya, Sri Lanka. *Prathisarana* was prepared according to *choorna paribhasha* of *Sharangadara Samhitha*^[4]

kalipakku were fired in a pan until golden colour. After, all the ingredients were ground and fine powders were prepared by sieving through musline cloth and *Prathisarana* was prepared according to *choorna paribhasha* of *Sharangadara Samhitha*. Finally, prepared *Prathisarana* was packed in an air tight container.

Patient's selection: Patients attending the Out Patient Department at Gampaha Wickramarachchi Ayurveda Teaching Hospital, Yakkala Sri Lanka and National Ayurveda Teaching Hospital in Colombo Sri Lanka with the signs and symptoms of *Sheetada* were registered irrespective of their sex, religion, occupation, habitat and education etc. Patients' information was collected by using specially prepared proforma.

Individual informed written consent was taken from all the registered patients.

Sampling technique: Total 30 registered patients were divided into two groups (15patients in each group) using the random sampling technique by lottery method to maintain the uniformity in both groups.

Grouping and Posology:

- Group – A *Prathisarana* with *Spatikadi choorna* 1g mixed with Bee honey 2times a day massage on gums for one month
- Group – B *Prathisarana* with *Triphala choorna* 1g mixed with Bee honey 2times a day massage on gums for one month

Follow – up: Two (02) months after the completion of course of treatment

Inclusion criteria:

Patient presenting with the clinical features of *Sheetada* described as per the *Ayurveda* and modern science of 16-60 years' age were included.

Exclusion criteria:

- Patients having any systemic diseases, i.e. diabetes mellitus, hypertension, hematological disorders.
- Patients below 16 years and above 60 years.
- Pregnant and lactating woman.
- Patients using any other systemic drugs which may alter the results of the study.

Assessment Criteria:

Subjective parameters – Six subjective parameters as per *Ayurveda* features have been evaluated before and after the treatment by using 0-3 scoring system.

Objective parameters - Gingival Index (GI-S)^[5] By-Leo H & Silness J

Gingival Bleeding Index (GBI-S)^[6]- by Carter H.G. & Barnes G.P.

Instructions to the Patient

All the patients were advised to follow the instructions during therapy and in follow-up period.

- Oral hygienic practices and their importance in the reversal of the disease were explained.
- Proper brushing by using medium bristle brush 2times a day morning and evening after meals by using "Bass" method was advised and demonstrated.
- Instructions regarding *Ahara* (food) and *Vihara* (regimen) were given, i.e. fibrous, non-sticky, less sweeten etc. and proper mastication by using both sides of the jaws.
- Proper mouth rinses after each meal/food item.

Method of *Prathisarana*:

- All the patients were advised to do *Prathisarana* twice a day morning and evening after proper cleaning of mouth.

- *Choorna* 1g quantity mixed with very little amount of Bee honey make it in paste form taken on tip of the index finger and applied all over the gingiva smoothly with gentle pressure for 3-5min in clockwise, round direction. Finally, with slight pressure massage towards the gingival margin should be done and drug should remain on gingiva for 20-30min.
- After that proper rinsing was advised with Luke warm water.

Data Analysis:

Data was recorded in pre, post treatment and follow up period. Data analysis was carried out by using SPSS statistics 16 package. Distribution was generated and data were tabulated frequently. Paired sample T - test was used to compare the values between two groups.

OBSERVATIONS AND RESULTS

General observations

In the present study majority of the patients i.e. 33.33% were from the age group of 16-26years, 66.66% were females. maximum i.e. 46.66% patients were reported with less than one-year chronicity. majority of patients are using toothbrush as a cleansing device but 56.66% patients were cleaning their teeth once a day. In this study, maximum patients were having *vata-pitta Deha prakriti*. Majority of patients were presented with *madya abyavarana, jarana Shakti* and *madya koshta* but maximum patients i.e.43.33% were reported with *manda agni* followed by *ama formation*.

Comparative effect of therapy on Subjective criteria

While considering the P value of Group A and Group B on *Rakta srava*, both groups showed significant relief i.e. $P < 0.05$. Further analysis proved that, *Danta mansa mruduta, Mukha daurgandyata* and *Danta mansa sotha* significant($P < 0.05$) results were obtained in Group A than Group B.

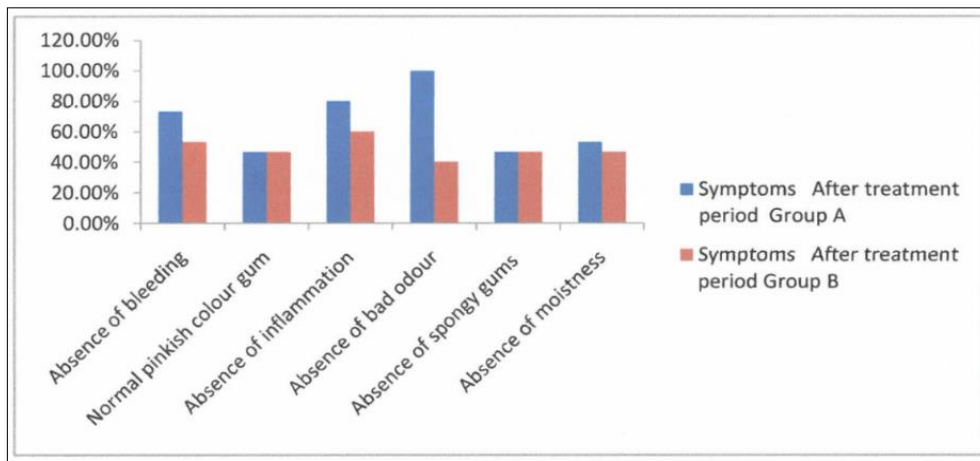


Figure 1: Comparative effect of therapy on Subjective criteria- Group A & B Comparative effect of therapy on Objective criteria

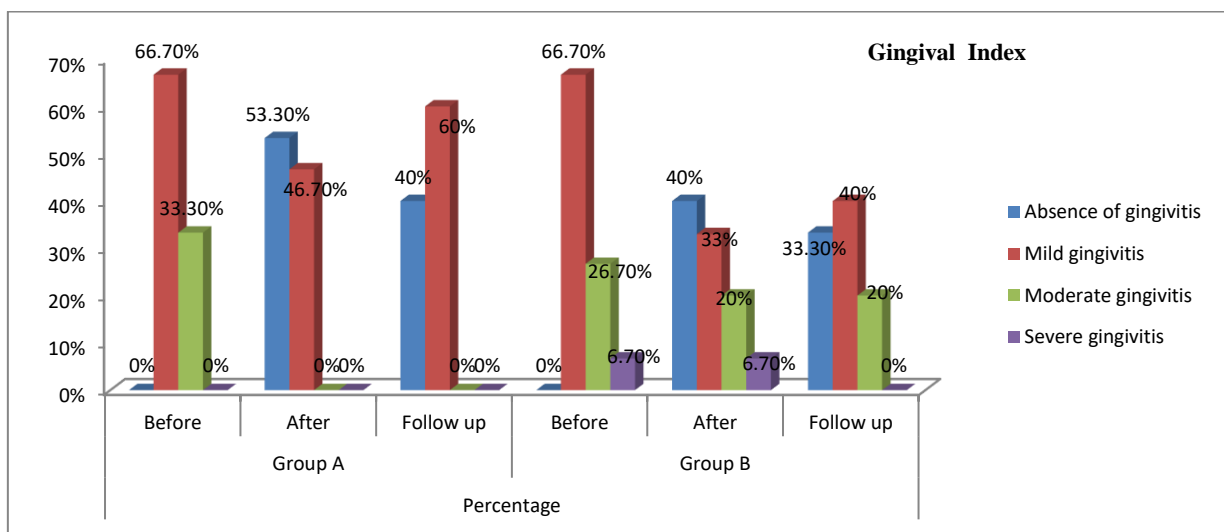


Figure 2: Comparative effect of therapy on Gingival Index

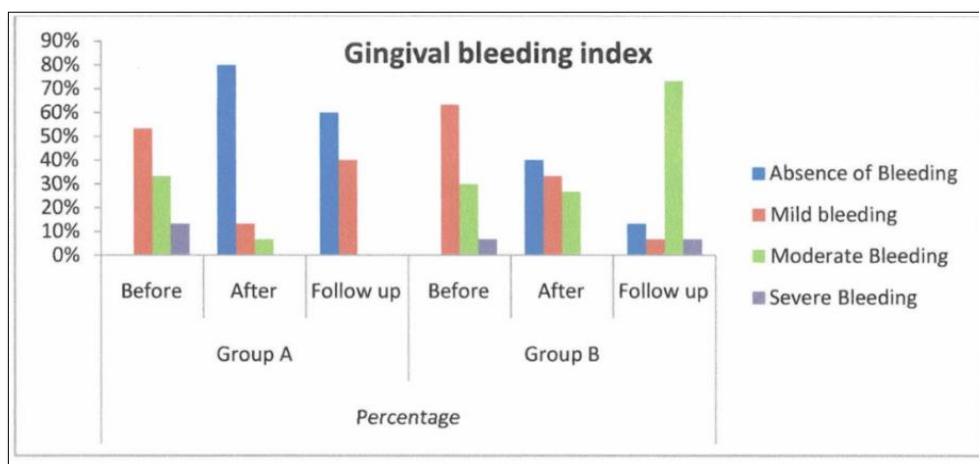


Figure 3: Comparative effect of therapy on Gingival Bleeding Index

| Index | Stage | Mean rank | | P value | |
|-------------------------|--------|-----------|---------|---------|---------|
| | | Group A | Group B | Group A | Group B |
| Gingival index | Before | 1.33 | 1.60 | 0.000 | 0.004 |
| | After | 0.47 | 0.27 | | |
| Gingival bleeding index | Before | 1.60 | 1.33 | 0.000 | 0.000 |
| | After | 0.27 | 0.47 | | |

Figure 4: Variation of objective criteria during the period of four weeks-according to Mean of paired sample of T-test and P value

In group A - Gingival index was continuous decrement in between before treatment (1.33) to after the treatment period (0.47). It reveals that their difference in mean rank value from above two stages which was significant at 95% confidence interval ($P < 0.05$). Gingival bleeding index was continuous decrement in between before treatment (1.60) to after treatment period (0.27). It reveals that their difference in mean rank value from above two stages which was significant at 95% confidence interval ($P < 0.05$).

In group B - Gingival index was continuous decrement in between before treatment (1.60) to after treatment period (0.27). It reveals that their difference in mean rank value from above two stages which was significant at 95% confidence interval ($P < 0.05$). Gingival bleeding index was continuous decrement in between before treatment (1.33) to after treatment period (0.47). It reveals that their difference in mean rank value from above two stages which was significant at 95% confidence interval ($P < 0.05$). While considering the Gingival index and Gingival bleeding index, *Spatikadi Pratisarana* and *Triphala choorna pratisarana* are equally effective in the management of disease *Sheetada*.

DISCUSSION

Gingivitis can occur at any age group. The epidemiological study showed that the prevalence rate is high among children and adolescences. [7] In this study, majority of patients (33.33%) were

reported in the age group of 16-26 years that is the early stage of adolescence which is predominant with *pitta* more favorable to produce disease *Sheetada*. According to pharmacological actions of single ingredients *Terminalia chebula* has wide range of therapeutic actions such as anti-ulcer genic, anti-oxidant, anti-inflammatory, hemostatic and wound healing and anti caries effect. It further states that the paste with water is found to be anti-inflammatory analgesic and having wound curing and healing capacity and also its' powder is a good astringent and dentifrice in loose gums, bleeding and ulceration in gums[8]. *Spatikadi pratisarana* contains *Mimusops elengi* (*Bakula*), *Cinnamomum camphora* (*Wandukapuru*) which have anti-inflammatory action may help to reduce gingival inflammation further it contains Alum sulphate (*Spatika*) which has anti hemorrhagic, ulcer healing action leads to reduce bleeding too. Most of the ingredients in this formulation i.e. *Terminalia chebula* (*Haritaki*), *Areca catech* (*Kalli Pakku*), *Mimusops elengi* (*Bakula*), *Syzigium aromaticum* (*Lavanga*) which are known antioxidants has free radical scavenging activity reduces the faster progression of gingivitis to periodontitis if not severely progressive stage ends up with loss of teeth [9]. Present research findings further proved by previous research works. It was found that *Mimusoaps elengi* (*Bakula*) as a single drug was used as a decoction as *Gandusha* for *Sheetada*. It was proved that *Bakula* is a beneficial herb in the treatment in *Sheetada*[10]. According to Ayurveda pharmacodynamic properties of *Spatikadi pratisarana*, most of the

ingredients have *Madhura* and *Kashaya* rasa, *lagu* guna, *katu vipaka* and *sheeta veerya* with *Kapha Pitta shamaka* in action.

While considering the probable mode of action of *Pratisarana*, it has *Vrana shodana* (debridement) and *Ropana* (Healing) actions. Mechanical pressure is exerted on gingiva in the direction of sulcus which removes debris, plaque, necrotic tissue remnants, inflamed granulation tissue and bacterial colonies too. Thus it removes the main causative factors of the disease (bacterial plaque)^[11]. Further it reveals that *Pratisarana* has a Pseudo-inflammatory reaction^[12]. *Pratisarana* which act as constant irritation to the gingival tissues there by it produces pseudo inflammatory reaction on tissue and intern it causes altered permeability of the blood capillaries. Due to this altered permeability of the vessels there will be a favorable atmosphere to the active principle of the drugs to gain access in to the local vasculature, thus producing the desirable effect. Rate of gingival fluid production is increased by gingival massage which is produced by *Pratisarana*. This gingival crevicular fluid inhibits bacterial diffusion into the tissue as it has phagocytic leukocytes, specific anti-bodies & enzymes of several specificities. *Pratisarana* also promotes salivation which brings faster cure^[13]. There is an added benefit of honey which possess cleansing, debriding, anti-inflammatory and anti-bacterial properties. It also acts as a very good healing agent^[14].

CONCLUSION

Spatikadi Pratisarana and *Triphala choorna pratisarana* found to be effective in treating the features such as *Akasmath Raktasrawa*, *Dantamansa shotha*, *Mukha Dauragandya*. *Spatikadi Pratisarana* showed comparatively significant results in the features such as *Akasmath Raktasrawa*, *Krishnata*, *Mukha dauragandya*, *Dantamansa shotha*, *Dantha Mansa mruduta*. Both the formulas were appropriate to cure the disease *Sheetada*. Evidence drawn from clinical study and follow-up period, it has been confirmed that *Spatikadi Pratisarana* is more effective than *Triphala pratisarana* in the management of *Sheetada*.

Conflict of Interest

None declared.

REFERENCES

1. Sushruta, Sushruta Samhita, with the Nibandhasangraha commentary of Sri dalhanacharya, edited by Yadavji Trikamji Acharya, chaukhambha Orientalia, Varanasi, 4th edition, (2008), Nidana sthan 16/13.
2. Ibid, Sushruta, Sushruta Samhita, nidana sthan 16/14-15.
3. Atreya, Rajaushadasaraya, page 62.
4. Sharangadhara, Sharangadhara Samhita, edited by K.R. Srikantha Murthy, Chaukhambha Orientalia, Varanasi, 7th edition, (2007), chapter 16.
5. Soben Peter, Essentials of Preventive and Community Dentistry, Arya (Medi) Publishing House, New Delhi, 3rd edition, (2006), Chapter 4, Page 148-149
6. Ibid, Soben Peter, Essentials of Preventive and Community Dentistry, Chapter 4, Page 152-153.
7. Oh TJ, Eber R, Wang HL. Periodontal diseases in the child and adolescent. Journal of clinical periodontology. 2002;29(5):400-10.
8. Upadhyay A, Agrahari P, Singh DK. A review on the pharmacological aspects of Terminalia chebula. Int J Pharmacol. 2014;10(6):289-98.

9. Könönen E, Gursoy M, Gursoy UK. Periodontitis: A multifaceted disease of tooth-supporting tissues. Journal of clinical medicine. 2019;8(8):1135.
10. Nayak SK, Panda M. PA01. 02. A Clinical Study of Sheetada vis-à-vis gingivitis and its management with bakula kashaya. Ancient Science of Life. 2012;32(Suppl 1):S51.
11. Murakami S, Mealey BL, Mariotti A, Chapple IL. Dental plaque-induced gingival conditions. Journal of clinical periodontology. 2018;45:S17-27.
12. Peiris KP, Rajagopala M, Patel N. A comparative study of Dashana Samskara Choorna Pratisarana and Dashana Samskara paste application in the management of Sheetada (Gingivitis). Ayu. 2013;34(1):63.
13. Choudhury B, Vaghela DB. Effect of Gandusha and Pratisarana in the management of Shitada (Gingivitis). European Journal of Biomedical and Pharmaceutical sciences. 2018;5(6):839-42.
14. Ahmed S, Sulaiman SA, Baig AA, Ibrahim M, Liaqat S, Fatima S *et al.* Honey as a potential natural antioxidant medicine: an insight into its molecular mechanisms of action. Oxidative medicine and cellular longevity. 2018;2018.

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