



Clinical Study

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Efficacy of Gandusha on oral health: A potential natural ayurvedic remedy for gutkhā chewers

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ABSTRACT

Nowadays Gutkhā chewing has become more common and the greatest threat to global health. It increases the risk of bad oral health and if oral hygiene is neglected, it may exacerbate in various forms of oral and periodontal diseases and finally contributes many oral cancers and even systemic diseases. Currently, there are no reliable predictors of which individuals are susceptible to this progression. But oral harmony can be restored by promoting good oral hygiene which can minimize the risk of deleterious effects of Gutkhā on the oral tissues. Āyurveda describes Gandūsha therapy under the context of Dinacharya (daily regimens) for oral health care. It has curative as well as preventive properties. Hence the present project is an attempt to evaluate the efficacy of Gandūsha on oral health; a potential natural Āyurvedic remedy for Gutkha chewers. The specific target of intervention is to check through the practice of Triphalā Kwātha Gandūsha. In the present study, a total of 30 subjects of Gutkhā chewers were selected based on selection criteria. They were advised Triphalā Kwātha Gandūsha for two times in a day for 30 days. Follow up was taken on 31st day. The study revealed that statistically Triphalā Kwātha Gandūsha showed better effect and it was found to be highly significant. Finally, the finding suggests that Gandūsha (Triphalā Kwātha) is the safest, simplest and effective potential natural Āyurvedic remedy for Gutkha chewers.

Keywords: Gandūsha, Oral health care, Triphalā Kwātha, Gutkha chewers.

INTRODUCTION

Nowadays Gutkhā chewing has become more common. The rate of Gutkhā consumption in various forms has been increasing rapidly in recent years. Today it is the greatest threat to global health. According to NFHS-III, in India, 55.8% of male, 10.8% of female in the age group of 12 to-60 years are consuming tobacco. Among males, 32.7% smokers while 36.5% of tobacco chewers are reported; while among females, it is reported to be 1.4 and 8.4% respectively [1].

Gutkhā is known to have a deleterious effect on the tissues. It increases the risk of bad oral health. In such a case, if oral hygiene is neglected, it may exacerbate in various forms of oral and periodontal diseases and finally contributes many oral cancers and even systemic diseases. Currently, there are no reliable predictors of which individuals are susceptible to this progression. But oral harmony can be restored by promoting good oral hygiene which can minimize the risk of deleterious effects of Gutkhā on the oral tissues. So the prevention and control are essential in every case.

Āyurveda describes Gandūsha therapy (oral retention therapy) for under the context of Dinacharya (daily regimens) for oral health care. It is the procedure of holding any medicated oil, Ghrita (ghee) or any liquid in the mouth to its full capacity for a specific time without allowing any movement inside the mouth [2, 3]. It has curative as well as preventive properties. It exerts cleansing action and promotes the defence mechanism in the oral cavity and thus maintains and promotes oral hygiene. The pharmacodynamics properties of Triphalā Kwātha [4, 5, 6] may act on micro-organisms and might help to alleviate the oral problems of Gutkhā chewers.

Keeping in view above concepts, the present project is an attempt to evaluate the efficacy of Gandūsha on oral health; a potential natural Āyurvedic remedy for Gutkha chewers. The specific target of intervention is to check through the practice of Triphalā Kwātha Gandūsha.

AIMS AND OBJECTIVES

The present study has been aimed to highlights the Gandūsha is one of the Upakrama (remedy) for Gutkhā chewers in the maintenance of oral hygiene. The specific objective of the study was to evaluate

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the efficacy of *Gandūsha* in Gutkhā chewers in the maintenance of oral hygiene.

MATERIALS AND METHODS

Literary Sources: The literary data was collected from classical textbooks of Ayurveda and Modern science, articles from periodicals, journals and other published works and related data from the internet.

Clinical Sources: The subjects of Gutkhā chewers were selected from OPD and Camp conducted by BVVS Ayurved Medical College & Hospital, Bagalkot.

Drug Sources: The dry fruits of ingredients of *Triphalā* were purchased from the pharmacy of BVVS Ayurvedic Medical College and Hospital, Bagalkot.

Instruments: The instruments such as Dental Tray, Mouth Mirror and Explorer, William's Periodontal Probe, P^H Indicator Strips etc.were used.

METHODOLOGY

A total number of 30 subjects of Gutkhā chewers were selected and registered for the present clinical study excluding dropouts. The selection was done based on the selection criteria of the study.

(A) Selection Criteria:

1. Diagnostic Criteria:

1. Subjective Assessment Parameters:

1. Sub Mucosal Fibrosis
2. Burning Sensation
3. Inflammation of Gums
4. Sponginess of Gums
5. Gum Recession
6. Ulcers

7. Halitosis

2. Objective Assessment Parameters:

OHI Parameters [7]

1. Gingival Bleeding Index
2. Gingival Index
3. Plaque Index
4. Debris Index
5. pH of Saliva
6. OHI-S

3. Inclusion Criteria:

1. Fulfilling the subjective parameters.
2. Either sex aged between 20-50 yrs.
3. Consuming at least 5 Gutkhā packets a day.
4. The habit of Gutkhā chewing for a minimum of 3 months.
5. Patients who are willing to sign the informed consent.

4. Exclusion Criteria:

1. Underwent Periodontal therapy, Oral cancer.
2. On Antibiotics treatment.
3. Chewing tobacco pan, tobacco leaf and Smokers
4. Who were non-cooperative.

Withdrawal Criteria: Subjects who get any unwanted effect or complication during the study will be withdrawn from the study and will be treated accordingly.

(B) Research Design: The study was an open Clinical Trial. A detailed Clinical Case Proforma was prepared as per the research study. All subjects conforming to above said selection criteria was included in the study. They were assigned to a single group and received the following treatment protocol. (Table.1) Routine investigations of blood and urine were carried out to rule out any systemic diseases if any.

Table 1: Particulars of the treatment protocol

N	Particulars	Trial Group
1	Sample size	30
2	Medicine	<i>Triphalā Kwātha</i>
4	Procedure	<i>Gandūsha Karma</i>
5	Route of administration	Oral
6	Dose and Schedule	<i>Mukhapurna</i> -Twice/day Morning: After brushing, three times Night: After brushing, before going to bed, two times
7	Duration	30 days
8	Follow up & Evaluation	31 st Day
9	A clear demonstration of the <i>Gandūsha Dhāraṇa</i> procedure was done to all. Instructions regarding special care of <i>Āhāra</i> (food) and <i>Vihāra</i> (activity) were advised. Oral hygiene methods and their importance in the reversal of the disease were explained to the patients of all the groups.	

Triphalā Kwātha:

The *Triphalā Kwātha* was selected for *Gandūsha karma*. It was meant for oral hygiene supplementation therapy in the subjects of Gutkhā chewers. The ingredients of *Triphalā Kwātha* are [8]:

1. *Amalaki (Emblica officinalis)* - 1 part
2. *Bibhitaki (Terminalia bellerica)* - 1 part
3. *Haritaki (Terminalia chebula)* - 1 part
4. *Jala (Water)* - 16 parts

CRITERIA FOR ASSESSMENT OF RESULTS: The effect of treatment was assessed based on relief in the subjective parameters and objectively on the improvement in oral health index. The scoring pattern adopted for the study was prepared depending upon the severity of the subjective and objective parameters. The scoring pattern was given from 0 to 4 depending upon the severity. The assessment of the results was done based on the reduction in the severity of the sign and symptom like 1-degree reduction, 2-degree reduction, 3-degree reduction, stable and deteriorating condition.

CRITERIA FOR ASSESSMENT OF THE TOTAL THERAPY: The total effect of the therapy was assessed based on the reduction in subjective and objective parameters. The subjects were grouped into the following six categories:

1. Cured : 100% reduction
2. Marked improvement : Above 75 % reduction
3. Moderate improvement : Above 50% -75% reduction
4. Mild improvement : Above 25% - 50% reduction
5. Unchanged : 0 - 25% reduction / No reduction
6. Deteriorated : Clinically deteriorated

Data Collection & Statistical Analysis: The statistical data were collected, properly documented and statistically analyzed with the help of a statistician. The data was computed for Mean, Standard deviation, Standard error, 't' value and 'P' value was obtained by using students paired 't' test. Significance interpreted as $P > 0.05$ as Not significant, $P < 0.05$ and 0.01 as Significant and $P < 0.001$ as Highly significant.

Table 2: Effect of therapy on trial group

Chief complaints		Mean Score		Relief (%)	SD	SE	't' Value	'P' Value	Re marks
		BT	AT						
Subjective Parameters	Submucosal fibrosis	1.60	1.57	6.66	0.67	0.12	1.00	> 0.05	NS
	Inflammation of gums	2.43	1.37	60.00	0.50	0.09	23.02	< 0.001	HS
	Recession of gums	2.03	1.90	4.45	0.81	0.15	2.11	> 0.05	NS
	Sponginess of gums	2.50	1.50	56.66	0.57	0.10	14.74	< 0.001	HS
	Burning sensation of the mouth	2.53	1.03	96.55	0.57	0.10	14.35	< 0.001	HS
	Ulcers in the mouth	1.10	1.00	6.66	0.31	0.06	1.00	> 0.05	NS
	Halitosis	2.37	1.17	83.33	0.38	0.09	16.15	< 0.001	HS
Objective parameters	Gingival Bleeding Index	1.70	1.07	83.33	0.25	0.05	6.23	<0.001	HS
	Gingival Index	2.07	1.07	93.10	0.25	0.07	20.85	< 0.001	HS
	Plaque Index	1.67	1.37	31.25	0.56	0.13	3.52	< 0.05	S
	Debris Index	2.33	2.07	18.51	0.83	0.15	3.24	< 0.05	S
	pH of Saliva	2.07	1.07	93.33	0.25	0.05	20.85	< 0.001	HS
	OHI-S	2.17	0.56	74.19	0.21	0.05	7.81	< 0.001	HS

OBSERVATIONS

In this clinical trial, it was found that the maximum number of the subjects reported in the age group of 31-40 years, were of Hindus, educated up to SSLC level, belonged to Business class followed by Peon. 60% of the subjects were taking Vimala Gutkhā brand. 36.66% were taking four Gutkhā pouches per day followed 30% more than five pouches. 43.33% were taking Gutkhā since from 9-12 years followed by 23.33% since 5-8 years.

Complaint wise distribution revealed that all the subjects of Gutkhā chewers had a complaint of inflammation of gums, sponginess of gums and halitosis. Burning sensation of the mouth was present in 96.66% of subjects, gum recession in 73.33% subjects, submucosal fibrosis in 50% subjects and mouth ulcers in 10% subjects.

On oral examination, all the subjects of Gutkhā chewers had Acidic nature of pH of Saliva. Abnormal Gingival Index was present in 96.66% subjects. 90% of subjects were abnormal Debris Index, 60% were Gingival Bleeding Index and 53.33% of subjects were abnormal Plaque Index. This indicates the lack of motivation regarding oral hygiene and inaccessibility to periodontal care facilities.

RESULTS

Evaluation of the effect of treatment: Subjects of Gutkhā chewers did not show considerable relief in submucosal fibrosis, the recession of gums and ulcers in the mouth and the difference was also not significant statistically ($P > 0.05$). Relief of 96.55% was observed in the burning sensation of the mouth, 83.33% relief was in halitosis, 60% relief was in inflammation of gums, 56.66% relief was in sponginess of gums and all were statistically highly significant at the level of $P < 0.001$. Improvement of 93.33% was obtained in the pH of Saliva, 93.10% was in the Gingival Index and 83.33% was in the Gingival Bleeding Index, which was statistically highly significant at the level of $P < 0.001$. Plaque Index and Debris Index was improved up to the extent of 31.25% and 18.51% respectively, which was statistically significant at the level of $P < 0.05$. The OHI-S index was improved up to the extent of 74.19%, which was statistically highly significant, $P < 0.001$. [Tables 2].

DISCUSSION

The literature research showed that there are relatively few reports on the harmful effects of Gutkhā chewing increases the risk of bad oral health and if oral hygiene is neglected, it may exacerbate in various forms of oral and periodontal diseases and finally contributes many oral cancers and even systemic diseases [9, 10]. However, oral problems are reversible with successful treatment and good oral hygiene.

Gandūsha is beneficial in *Shodhana* (cleaning by pressure) of the oral cavity. Retention and direct absorption of the medicine in the oral cavity (gingival epithelium) reduces the infection. Thus *Gandūsha* helps to maintain and promotes oral hygiene and can prevent the problems of the oral cavity.

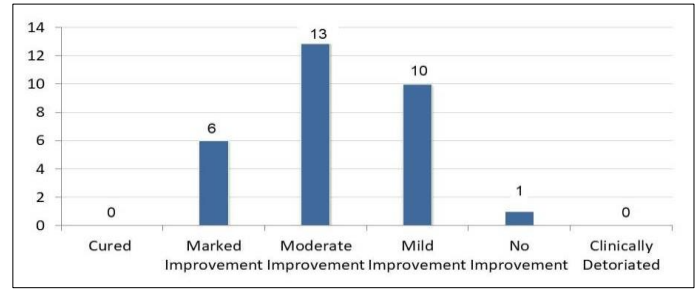
The properties of *Triphalā Kwātha* such as *Tridoshaghna* (*Kapha pittaghna*), *Srotoshodhaka*, *Shothahara*, *Vedanā Sthāpana*, *Krumighna*, *Rakta Shodhaka*, *Rakta Sthambhaka*, *Mukha Shodhaka*, *Lekhana*, *Rasāyana* and its pharmacodynamics properties like anti-inflammatory, anti-microbial, anti-ulcer, immunomodulatory and anti-oxidant might help to alleviate the oral problems of Gutkhā chewers.

Analysis of the overall effect of the treatment in the subjects of Gutkhā chewers showed good improvement. The treatment was given with thirty days of *Gandūsha* with *Triphalā Kwātha* which has shown a highly significant reduction in the oral problems in the subjects of Gutkhā chewers. None of the patients developed any complications, or any untoward symptom or any side effects during treatment in the study group and therefore the treatment modalities are safe and are of therapeutic value. The observations indicate that the subjects of Gutkhā chewers have shown improvement in all the criteria of assessment of their oral problems due to Gutkhā chewing. The therapeutic effects like inflammation of the gums, sponginess of the gums, halitosis, gingival bleeding index and gingival index are relieved and regain the oral health. The ultimate effect will be in improving oral health, particularly in gingival health.

In a clinical trial group out of 30 subjects who received *Triphalā Kwātha Gandūsha*, 20% (6) of the subjects were noted marked improvement, 43.33% (13) showed moderate improvement and 33.33% (10) showed a mild improvement and 3.33% (1) subject showed poor improvement in subjective and objective parameters. (Table 3 & Graph 1) This indicates *Triphalā Kwātha Gandūsha* is beneficial to remedy for Gutkhā chewers.

Table 3: Total Effect of therapy on trial group

SN	ASSESSMENT	Frequency	Percentage
1	Cured	NIL	-
2	Marked Improvement	6	20%
3	Moderate Improvement	13	43.33%
4	Mild Improvement	10	33.33%
5	No Improvement	1	3.33%
6	Clinically Detoriated	NIL	-
	Total	30	100%



Graph 1: Total effect of therapy

CONCLUSION

Gandūsha helps to maintain and promote oral hygiene and can prevent the problems of the oral cavity. *Gandūsha* with *Triphalā Kwātha* has shown highly significant results in the management of oral problems of Gutkhā chewers. It would help to remove the gingival pathology and manages the oral problems due to Gutkhā chewing. The repeated advocacy of *Gandūsha* therapeutic strategy will provide a better result. Hence *Gandūsha* is an effective treatment modality in a wide range of ailments of the oral cavity and may be considered as a potential natural Āyurvedic remedy for Gutkhā chewers. Further, there is a need to increase awareness about oral hygiene in society.

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