

# A Study on Effect of *Triphala Gandusha* with *Madhu* in *Mukha Swasthya* (Oral Hygiene)

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## ABSTRACT

Oral health is an integral part of general health. The most human basic needs, including the ability to eat and drink, swallow, maintain proper nutrition, smile and communication are dependent on oral health. WHO defines Oral health as a “state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity”.

In spite of vast development of modern medical science satisfactory prevention of oral diseases is not achieved, rather the chemical compounds have exposed patients to its ill effects, there is need to find out effective remedy of any disease by harmless herbal drugs. In Ayurveda many drugs are mentioned for Gandusha among these Triphala with Madhu have got wide spectrum of activity and widely used in day today dental practice. Triphala has been described as best Rasayana, Kapha Pittaghna, Ropana, Kleda Prashamana, Vruna Shodhana and Madhu is well known for its Kaphagna, Lekhana, Sandhana, Ropana, Prasadana, Sukshma marganusari effect. Ingredients of this formulation are easily available, cost effective and acceptable.

**Keywords:** Gandush, Triphala, Madhu, Mukha Swasthya, Oral hygiene, Oral health.

## INTRODUCTION

Oral health is an integral part of general health<sup>1</sup>. The most human basic needs, including the ability to eat and drink, swallow, maintain proper nutrition, smile and communication are dependent on oral health<sup>2</sup>. WHO defines Oral health as a “state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity”<sup>3</sup>.

Oral diseases have been a persistent public health problem; in spite of great advances

made in the field of oral health in the last century with almost every individual experiencing poor oral health at least once in their lifetime<sup>4</sup>. An unhealthy diet, habits like tobacco use, alcohol use, poor oral hygiene and social determinants have increased incidence of diseases pertaining to oral cavity which results often painful conditions, dysfunction, discomfort and poor nutritional status. Globally 3.9 billion people suffers with oral conditions; the global burden of which increased 20.8% from 1990-2010<sup>5</sup>.

The maintenance of oral cleanliness for the preservation of proper oral health, where by

microbial plaque is removed and prevented from accumulating on teeth and gingivae<sup>6</sup>.

The primary way of prevention of oral disease is plaque control and prevention of plaque accumulation on tooth and gingival surface. Current oral hygiene measures include mechanical aids (toothbrushes, floss, inter-dental cleansers, and chewing gums) and chemotherapeutic agents (mouth rinses, dentifrices and chewing gums). In fact mechanical removal of plaque biofilm remains most widely accepted mechanism for plaque control, the etiology of oral diseases justifies a supportive use of antimicrobial agents.

Ayurveda recognizes Mukha (Oral cavity) as one of the nine orifices of physical body and also stressed that these openings are full of impurities with their secretions throughout day and night, hence Ayurveda suggests cleaning these orifices frequently and regularly. Oral cavity being the chief entrance of Mahasrotas, it always should be kept clean and healthy. Overall the process of digestion begins in the mouth; In order to achieve the physiological state of Mukha all the Acharya of Ayurveda described various Mukha Swasthya (Oral hygiene) procedures like Dantadhavana, Jihwanirlekhana, Kavala, Gandusha and Pratisarana.

Gandusha and Kavala are two primary oral cleansing techniques; specialized therapy to treat as well as to prevent oral diseases. Daily practice of Gandusha helps in removing conditions like Arochaka, Asya Vairasya, Dantamala, Mukha Dourgandhya, Shophya, Jadya, Praseka, gives strength to the Dantamoola and Danta<sup>7</sup>. In classics it is mentioned that avoiding of Dantadhavana and Gandusha etc. are the major cause for Mukha Roga<sup>8</sup>. It is observed that despite of practicing Dantadhavana the incidence of Mukha Roga has not reduced considerably indirectly it infers the importance of Gandusha as it has health promotive, disease preventive, curative and restorative aspects.

In spite of vast development of modern medical science satisfactory prevention of oral diseases is not achieved, rather the

chemical compounds has exposed patients to its ill effects<sup>9</sup>, there is need to find out effective remedy of any disease by harmless herbal drugs. In Ayurveda many drugs are mentioned for Gandusha among these Triphala with Madhu have got wide spectrum of activity and widely used in day today dental practice. Triphala has been described as best Rasayana, Kapha Pittaghna, Ropana, Kleda Prashamana, Vruna Shodhana<sup>10</sup> and Madhu is well known for its Kaphagna, Lekhana, Sandhana, Ropana, Prasadana, Sukshma marganusari effect<sup>11</sup>. Ingredients of this formulation are easily available, cost effective and acceptable hence taken for the study.

Hence the clinical Study has been undertaken entitle "*A study on effect of Triphala Gandusha with Madhu in Mukha Swasthya (Oral Hygiene)*".

It is sincerely hope that the present study will be a positive step in promoting Mukha Swasthya (Oral hygiene) and prevention of common Mukhagata Roga which affect a large segment of population.

#### **OBJECTIVES OF THE STUDY**

1. To evaluate the role of Gandusha with Triphala Kwatha and Madhu in the promotion of oral hygiene.
2. To evaluate the role of Gandusha with Triphala Kwatha and Madhu in prevention of Mukhagata Roga.

#### **Source of Data:**

30 patients diagnosed as Poor Oral Health fulfilling the Diagnostic/ Inclusion and Exclusion Criteria were selected from the O.P.D and I.P.D of S.D.M Ayurveda Hospital, Kuthpady, Udipi and was recruited for the study after getting a written consent from every subject.

#### **Methods of Collection of Data:**

A special proforma was prepared incorporating all the clinical findings and assessment criteria of Poor Oral Health. Complete clinical data was collected from all the selected patients as per this proforma

before the intervention and every 15 days follow up until the completion of the study. Results obtained were statistically analyzed by adapting the paired t test.

#### Diagnostic Criteria:

1. Presence of signs and symptoms of Poor oral hygiene that include Mukha Dourgandhya, Asya Vairasya, Vaktra Alaghavata (Loss of freshness of mouth), Mukha Avaishadyata (Coating), Danta mala (Debris), Danta sharkara (Plaque).
2. Poor oral health based on Oral Health Assessment Tool (OHAT) guidelines (2007 Halton Region's Health department modified with permission Chalmers 2004)

#### Inclusion Criteria:

1. Subjects willing to do Gandusha procedure.
2. Subjects with signs and symptoms of poor oral health based on OHAT guidelines.
3. Subjects with signs and symptoms like Mukha Dourgandhya, Asya Vairasya, Vaktra Alaghavata (Loss of freshness of mouth), Mukha Avaishadyata (Coating), Dantamala (Debris), Dantasharkara (Plaque).
4. Subject's age group between 16 to 50 years of both sexes were included.

#### Exclusion Criteria:

1. Subjects not willing to do Gandusha procedure.
2. Subjects with other systemic diseases.

3. Subjects suffering with chronic oral diseases like destructive periodontal diseases, accidental dental injury, premalignant conditions and conditions where specific intervention is needed.
4. Subjects with Dental brace and having less than 20 teethes.
5. Subjects age group below 16 and above 50 years.

**Study Design:** Single group clinical study with pre and post-test design.

**Intervention:** Gandusha with Triphala Kwatha along with Madhu with a dose of 40ml. 3 times twice a day, morning after brushing and night.

**Follow up:** 30 days intervention and the patients were asked to report for the follow up once in 15 days for month. During follow up patients were advised for strict oral care.

**Study period:** 60 Days

#### Assessment Criteria:

**Subjective Parameters:** like Mukha Dourgandhya, Asya Vairasya, Vaktra Alaghavata (Loss of freshness of mouth), Mukha Avaishadyata (Coating) by adapting Visual Analogue Scale.

#### Objective Parameters:

1. Dantamala (Debris) by Debris score.
2. Dantasharkara (Plaque) by Plaque score.
3. Ph of saliva by pH indicator "Wide Range" Indikrom papers (pH 2.0-10.5).
4. Oral Hygiene by Oral hygiene index-S(OHI-Simplified) by Greene and Vermillion, 1964

**Investigations:** Routine Blood: TC, DC, ESR, Hb%, RBS if needed to rule out any secondary diseases.



**MATERIALS USED**



**GANDUSHADRAVA**

#### GANDUSHA PROCEDURE



## RESULTS

### Effect on Mukha Dourgandhya

	MeanScore	% Relief	S. D	S.E.M	T	P	Interpretation
BT	5.53	-	-	-	-	-	-
AT (30Days)	4.00	27.66	1.13	0.20	7.38	0.000	HS
F.U 1 (45Days)	4.03	27.12	1.10	0.20	7.42	0.000	HS
F.U 2 (60Days)	3.70	33.09	1.34	0.24	7.48	0.000	HS

### Effect On Asya Vairasya

	MeanScore	% Relief	S. D	S.E.M	t	P	Interpretation
BT	4.46	-	-	-	-	-	-
AT (30 Days)	3.40	23.76	1.01	0.18	5.75	0.000	HS
F.U 1 (45 Days)	3.16	29.14	1.29	0.23	5.51	0.000	HS
F.U 2 (60 Days)	2.96	33.63	1.33	0.24	6.16	0.000	HS

### Effect On Vaktra Alaghavata

	MeanScore	% Relief	S. D	S.E.M	t	P	Interpretation
BT	5.76	-	-	-	-	-	-
AT (30 Days)	4.30	25.34	1.04	0.19	7.71	0.000	HS
F.U 1 (45 Days)	4.06	29.51	1.17	0.21	7.89	0.000	HS
F.U 2 (60 Days)	4.00	30.55	1.13	0.20	8.52	0.000	HS

### Effect On Mukha Avaishadyata

	Mean Score	% Relief	S. D	S.E.M	t	P	Interpretation
BT	5.03	-	-	-	-	-	-
AT (30 Days)	3.90	22.46	0.81	0.14	7.57	0.000	HS
F.U 1 (45 Days)	3.80	24.45	1.00	0.18	6.71	0.000	HS
F.U 2 (60 Days)	3.83	23.85	0.92	0.16	7.10	0.000	HS

### Effect On Dantamala

	Mean Score	% Relief	S. D	S.E.M	t	P	Interpretation
BT	2.76	-	-	-	-	-	-
AT (30 Days)	1.50	45.65	0.63	0.11	10.84	0.000	HS
F.U 1 (45 Days)	1.53	44.56	0.62	0.11	10.79	0.000	HS
F.U 2 (60 Days)	1.76	36.23	0.52	0.09	10.42	0.000	HS

### Effect On Dantasharkara

	Mean Score	% Relief	S. D	S.E.M	t	P	Interpretation
BT	2.30	-	-	-	-	-	-
AT (30 Days)	1.30	43.47	0.37	0.06	14.74	0.000	HS
F.U 1 (45 Days)	1.50	34.78	0.48	0.08	9.04	0.000	HS
F.U 2 (60 Days)	1.60	30.43	0.46	0.08	8.22	0.000	HS

### Effect On Ph Of Saliva

	Mean Score	% Relief	S. D	S.E.M	T	P	Interpretation
BT	2.23	-	-	-	-	-	-
AT (30 Days)	1.23	44.84	0.58	0.10	9.32	0.000	HS
F.U 1 (45 Days)	1.26	43.04	0.61	0.11	8.61	0.000	HS
F.U 2 (60 Days)	1.26	43.04	0.61	0.11	8.61	0.000	HS

### Probable mode of Action

Gandusha is a procedure of holding the prescribed liquid media in the Mukha until the onset of srava from Mukha, Nasa and Netra. The srava indicates Dosha vilayana which is the form of Shodhana. The Gandusha done regularly helps to expel the Dosha from Urdhvajatrugata bhaga w.s.r to Mukha. At the same time with the variance in the combination of drugs it can act as Balya and Shamaka. In the study particular: the Triphala and Madhu have been considered which indigenously has the properties of Kapha and Krimihara. With the attributes as Lekhana, Yogavahi, Shodhana, Ropana, Sukshma, Kledahara, Kanthya, Prasadana, Rasayana, Tridoshamaka (Kaphapradhana) and many others properties which acts as at the different levels and in turn helps in prevention of Mukhagata roga at all levels. Katu, Tikta and Kashaya rasa are highlighted in Dantadhavana; Gandusha and Kavala procedure as the daily regimens to prevent Mukharoga and promote the Mukha Swasthya. The combination of Triphala and Madhu will synergistically have Kashaya Pradhana Yoga (Lavana varjita Pancha rasa acting as a catalyst in the background). Though Madhu is Madhurarasa on an outset it is Kaphahara, Sukshma, Yogavahi and Lekhana which ascertains the prevention of Mukhagata Roga at all levels.

The action of Gandusha (holding mouthful of liquid) exerts increased mechanical

pressure inside the oral cavity. So this increased pressure stimulates pressoreceptor (stretch reflex) that are present in the mouth. Once the pressoreceptor is stimulated they send signals to salivary nuclei in the brain stem (pons and medulla). As a result Para sympathetic nervous system activity increases and motor fibers in facial (VII) and glosso-pharyngeal (IX) nerve trigger dramatically increased output of saliva. Chemical constituent present in the drug also stimulate chemoreceptors present in the mouth, which in turn increases salivary secretions. An enzyme called lysosome Present in saliva is bacteriostatic in action. It will not allow for the growth of pathogenic microorganisms in the oral cavity. Antibody IgA present in saliva also provide protection against microorganisms. Thus Gandusha increases local defence mechanism.

The combination of Triphala is rich in phytochemicals especially tannins (Vitamin C, carotene, nicotinic acid, riboflavin, anthraquinones, polyphenolic compounds, anthraquinones and polyphenolic compounds) which are known to exhibit antioxidant, anti-fungal and anti-viral properties. It has also shown anti-mutagenic/ anti-carcinogenic activity, antioxidant activity, adaptogenic and anti-anaphylactic activities, immune modulatory activity, cytoprotective and radio protective activity. All these properties are apparently essential for prevention of Mukha Roga and

maintenance of Mukha Swasthya (Oral Hygiene).

## CONCLUSION

- Daily practice of Gandusha helps in alleviating the conditions like Arochaka, Mukha Dourgandhya, Asya Vairsaya, Danta mala, Vaktra Alaghavata, Shopha, Jadya and gives strength to Danta and Dantamoola.
- The efficacy of Triphala with Madhu Gandusha in Poor oral hygiene is proved beyond doubt in subjective parameters like Mukha Dourgandhya, Asya Vairasya, Vaktra Alaghavata, Mukha Avaishadya and Subjective parameters like Danta mala, Danta sharkara, pH of saliva and Oral Hygiene index-S and paired 't' test affirms the statistical significance( $P<0.000$ )
- Triphala with Madhu Gandusha is effective in promoting oral health by reducing the signs and symptoms of poor oral health as assessed by OHAT guidelines shows statistical significance by paired t test( $P<0.000$ ).
- Triphala with Madhu Gandusha shows significant reduction in symptoms like Mukha Dourgandya, Asya Vairsaya during follow up.
- There was marked significant increase found in parameters like Danta mala, Danta sharakara, Oral hygiene index-s and oral cleanliness during follow up.
- There is no possibility of ill effects during the course of administration of Triphala with Madhu Gandusha.
- Practicing of Triphala with Madhu Gandusha as a routine oral hygiene measure should be popularized among population for leading a better oral health and productive life.

### Declaration by Authors

**Ethical Approval:** Approved

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**Conflict of Interest:** The authors declare no conflict of interest.

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