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A Holistic Review Of *Kavala* & *Gandusha* And It's Potential Therapeutic Benefits

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ABSTRACT:

Ayurveda an ancient holistic science serves the concept of *Kavala* and *Gandusha* which are both used not only for enhancing oral hygiene but also they prevent and treat many other oral diseases. The technique of *Kavala/ Gandusha* is mentioned in all the three major ancient book of *Ayurveda*. Ideal daily routine (*dinacharya*) practices includes *kaval vidhi* and *gandusha vidhi* (medicated gargling) and *dantadhavan* (cleaning the tooth). Both practices helps for stronger teeth and gums. *Kavala* and *Gandusha* are the simplest procedures that produces greatest results. Here I described various medicinal substances and their proper use and their mode of action according to *ayurved* and modern pharmaceuticals. All different types of *kaval* and *gandusha* and desirable effects, inadequate effects, excessive effects and contraindications are also described.

Keywords- *Kavala, Gandusha*, Types, Procedure, Dravyas and Action.

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INTRODUCTION

In Ayurvedic therapeutics, drug therapy is given prime importance. There is a very well-developed sub-discipline entirely devoted to drug formulations known as "*Rasashastra* and *Bhaishajya Kalpana*". *Bhaishajya Kalpana* consists of two words -*Bhaishajya* stands for 'medicine' and *Kalpana* means 'formulations'. Hence this branch, which deals with the various, forms of medicine, such as paste, syrup, juice, tablet, powder, *kavala*, *Gandusha*, mouthwash etc. *Ayurveda* medical science deals with two main therapies, namely curative and preventive. *Swasthavritta* includes topics such as *Dinacharya* (daily regimen) for explaining the daily lifestyle of a person in order to maintain healthy, happy and prosperous life. After getting up in the morning, one should follow oral hygiene parallel with body or personal hygiene, to

maintain good and proper health. Oral/dental diseases are emerging as considerable public health problems in India and our great *Aacharyas* have given guidance on *Dinacharya Upakrama*. In the Modern era, fast moving hectic lifestyle is creating many health problems. Due to improper eating habits like junk food, fast food, ice-creams, sweets, chocolates and addictions of tobacco, gutakha, smoking and alcohol consumption; oral unhygienic problems are arising progressively. So, we need to educate people on oral hygiene awareness, to prevent them from acquiring different types of diseases of oral cavity which can occur at various stages of life. *Ayurveda* recommends some daily use therapeutic procedures for the prevention of and maintenance of oral health. These include: *Pratisarana* (Gentle massage over

tissue), *Dantd havana* (Brushing), *Jivha Lekhana* (Tongue scrapping), *Kavala & Gandusha* (gargling or oil pulling).

In *Ayurved* therapeutics, *Kavala* and *Gandusha* are *upkalpana* of *kwathakalpana*. In the modern pharmaceuticals, Mouthwash is use as *Kavala & Gandusha kalpana*. Mouthwash has been accepted as the simplest and easiest mode of oral hygiene.

HISTORICAL ASPECT⁽¹⁾

- In *Ayurveda*, the *Sushruta Samhita* and the *Charaka Samhita* are its earliest authoritative texts which describe mouth rinsing as a form of *Kavala & Gandusha*.
- The use of mouthwash to control oral bacteria goes back almost 5000 years when the Chinese recommended the use of a child's urine for the control of gingivitis.⁽²⁾
- Later, Hippocrates recommended a mixture of salt, alum, and vinegar for mechanical cleansing of mouth.
- The Jewish Talmud, dating back about 1,800 years, suggests a cure for gum ailments containing "dough water" and "olive oil".
- Before Europeans came to the Americas, Native North American and Mesoamerican cultures used mouthwashes, often made from plants such as *Coptistrifolia*.
- Peoples of the Americas used salt water mouthwashes for sore throats and other mouthwashes for problems such as teething and mouth ulcers.
- Anton van Leeuwenhoek, discovered living (mobile) organisms is deposits on the teeth (*dentalplaque*). He experimented with samples by adding vinegar or brandy and found that this resulted in the immediate immobilization or killing of the organisms suspended in water. Next, he tried rinsing the mouth of himself and somebody else with a mouthwash containing vinegar or brandy and found that living organisms remained in the dental plaque. He concluded—correctly—that the mouthwash either did not reach, or was not present long enough, to kill the plaque organisms.
- In 1892, German Richard Seifert invented mouthwash product Odol, which was produced by company founder Karl August Lingner (1861–1916) in Dresden.

- That remained the state of affairs until the late 1960's when Harald Loe (at the time a professor at the Royal Dental College in Aarhus, Denmark) demonstrated that a chlorhexidine compound could prevent the build-up of dental plaque.

Since then commercial interest in mouthwashes has been intense and several

newer products claim effectiveness in reducing the build-up in dental plaque and the associated severity of gingivitis, in addition to fighting bad breath (Halitosis). Many of these solutions aim to control the Volatile Sulphur Compound (VSC)-creating anaerobic bacteria that live in the mouth and excrete substances that lead to bad breath and unpleasant mouth taste.

TABLE NO. 1: DIFFERENCE BETWEEN GANDUSHA AND KAVALA ^(3,4,5,7)

S.N.		<i>GANDUSHA</i>	<i>KAVALA</i>
1.	Definition	the process of “holding any medicated liquid (ausadha drava) in the mouth to its full capacity for a specific time without allowing any movement inside the mouth”.	the process of “holding any medicated liquid/ Kalka dravya in the mouth to its facilitate capacity for a specific time with allowing movement inside the mouth”.
2.	<i>Dravya</i>	<i>Dravdravya</i> (liquid)	<i>Kalka</i> (paste)
3.	Movement of mouth	<i>Asanchari</i>	<i>Sanchari / Chalanasheela</i>
4.	Quantity of <i>dravya</i>	1 <i>Kola</i> (6gm) and one half, one third or one fourth of capacity of oral cavity	1 <i>Karsha</i> (12gm)

KAVALA /GANDUSHA ^(3,4,5,7)

Depending upon the vitiation of dosha (*doshagnatā*) and the therapeutic effect(*kārmukatā*), the classical text books of *Ayurveda* have mentioned four types of *Gandūsha* and *Kavala* as mentioned in below.

TABLE NO 2: TYPES OF KAVALA/GANDUSHA

S.N.	Name of Kavala/Gandusha	Doshagnata	DravyaGuna	Dravya
1.	<i>Snehana (Oleating)</i>	<i>Vatadosha</i>	<i>Madhur, amla, lavana, Snigdha and ushnadravya</i>	<i>Mansarasa, tilakalka, milk, water</i>
2.	<i>Prasadana/ Shaman/ Stambhan/ Nirvapana (Palliating)</i>	<i>Pita dosha</i>	<i>Tikta, kashaya, madhur and sheetaldravya</i>	<i>Patol, arista, jambu, amra, maltipatra, utpala, madhukakwath, shitodak, iksurasa, milk, honey and ghritha etc.</i>
3.	<i>Shodhana (Purificatory)</i>	<i>Kaphadosha</i>	<i>Katu, amla, lavana, ushnadravya and shirovirechandravys</i>	<i>Sukta, Madhya, kanji, mutra and other kalkas etc.</i>
4.	<i>Ropana (healing)</i>	<i>Vranaghna</i>	<i>Kashaya, tikta, madhur, katu and ushnadravya</i>	<i>Honey, milk, ghritha and daruharidra, guduchi, triphala, draksha, chamelipatra, yavasakwath</i>

PROCEDURE OF GANDUSHA AND KAVALA^(3,5)-

The individual or patient should be made to sit in a place devoid of heavy breeze, but having sunlight; attentive towards treatment, should be given fomentation and mild massage over his throat, cheeks and forehead; should be asked to hold the liquid or paste in his mouth, raising his face a little up; he should not drink the liquid in the mouth. Filling the mouth with half, one third and one fourth of its capacity is the best, medium and least proportion respectively for liquids and for paste it will be one *kola*. In *kavala*, the Paste is made to move inside towards the two cheeks and throat. As the *Kalka* is put into mouth, it encourages salivation. This saliva will be helpful in moving the *kalka* in all parts of oral cavity. Again, the individual or patient should be given fomentation, and massage; excited by these, the *kapha* moves into the mouth (from upper parts). The liquid should be retained in the mouth till the cheeks show signs of *kapha* accumulation, exudation appears in the nostril and eyes or till the disappearance of the *kapha* by the action of the drugs. In this way three, five or seven gargles should be held till the signs described under 'properly done inhalation therapy' appear.

Symptoms indicative of proper effects:^(5,7)**(*Shuddha Kavala/Gandūsha Lakshana*):**

A proper *Gandūsha* therapy brings about following symptoms if performed systematically and correctly.

1. *Vyadherapachayah*- Alleviation of illness or disease
2. *Tushti* - Freshness of the mouth or feeling of contentment
3. *Vaishdyam* - Cleansing of oral cavity
4. *Vaktralaghavam*- Feeling of lightness in the mouth
5. *Indriyaprasada*- Clarity or normal functioning of the sense organs

Symptoms indicative of inadequate effects:^(5,7)**(*Heena Yoga Kavala /GandūshaLakshana*)**

1. *Jadyah*- Feeling of heaviness in mouth
2. *Kaphotklesha* -Excessive Salivation
3. *Rasagyan*- Inability of the tongue to perceive taste properly
4. *Aruchi*- Tastelessness in the mouth

Symptoms indicative of Excessive effects:^(5,7)

(Ati Yoga Kavala/Gandūsha Lakshana)

1. *Mukhapaka* - Ulceration in the mouth
2. *Shosha*- Dryness of the buccal cavity
3. *Trushna* - Feeling thirsty
4. *Klama*- Sense of Exhaustion.

- Easy to use.
- Not irritant to mouth and mucous membrane.
- Non-toxic.
- No time consuming.
- Higher efficacy.

Contraindication:

Visha, Murchita, Madarta, Shoshita, Rakta-Pitta Rogi, Kshina, Rukshapersons are Anarhafor Kavala.

GANDUSHA & KAVALA IN SAMHITAS^(3,4,5,6,7)

Kavaladravyas in charaksamhita - mutra, ghrīt, tail, honey and milk.

Kavaladravyas in sushrutsamhita – sneha(ghrit & tail), milk, honey, mansarasa, mutra, amla (kanji), kashaya and luke warm water.

GOOD CHARACTERISTICS OF KAVALA & GANDUSHA KALPANA-

- Good and quick action as an antiseptic.
- Not much expensive.

TABLE NO.3: GANDUSHA & KAVALA USES

S. N.	NAME OF FORMULATION	SAMHITA NAME	INGREDIENTS	USES
1.	<i>Snehik Gandusha</i>	<i>Sharangdhar</i>	<i>Tilkalka, milk, ghrīt, tail(oil)</i>	<i>Vatadosha</i>
2.	<i>Dahanashak Gandusha</i>	<i>Shusruth and Sharangdhar</i>	<i>Til, neelkamal, ghrīt, milk, sugar and honey</i>	<i>Hanu(throat) and vakra (mouth) dahanashak</i>
3.	<i>Madhu Gandusha</i>	<i>Ashtangsangraha, Ashtanghrīdhya and Sharangdhar</i>	<i>Madhu (honey)</i>	<i>Mukhavranasandhan, vaisadya and dahatrisnaprasamana</i>

4.	<i>Ghrit / milk Gandusha</i>	<i>Ashtangsangraha, Ashtanghridhya and Sharangdhar</i>	<i>Ghrit or milk</i>	<i>Mukhavisha, daha, kshar and agnidagda</i>
5.	<i>Tail saindhavGandusha</i>	<i>Sharangdhar</i>	<i>Til tail and saindhavlavana</i>	<i>Dantachal</i>
6.	<i>KanjikGandusha</i>	<i>Ashtangsangraha, Ashtanghridhya and Sharangdhar</i>	<i>Kanji</i>	<i>Mukhasosha, mukhaverasya and mala daurgandhyanashak</i>
7.	<i>KaphanashakGand usha</i>	<i>Sharangdhar</i>	<i>Saindhavlavana, pipalli, marich, sunthi, raji, aadrak</i>	<i>Kaphajmukharognasha k</i>
8.	<i>TriphalamadhuGa ndusha</i>	<i>Sharangdhar</i>	<i>Haritki, vibhitak, amlaki and madhu</i>	<i>Kaphaj and raktapitajmukharognas hak</i>
9.	<i>DarvyadiGandush a</i>	<i>Sharangdhar</i>	<i>Daruharidra, guduchi, triphala, draksha, chamelipatra, yavasakwath 1part and honey 1/6 part</i>	<i>Tridoshajmukhapak (ulcers of mouth)</i>
10.	<i>Aruchinashakkaval a</i>	<i>Sharangdhar</i>	<i>Matulungakesar, saindhavlavana and marich</i>	<i>Jadya, aruchinashak and kaphavatajmukhroga</i>
11.	<i>TilkalkodakGandu sha</i>	<i>Ashtangsangraha and Ashtanghridhya</i>	<i>Sukhoshna or sheet tilkalkodak</i>	<i>Dantharsh, danchal and vatajmukharoga</i>

12	<i>NityaGandusha</i>	<i>Ashtangsangraha and Ashtanghridhya</i>	<i>Til tail or mansarasa</i>	<i>Daily regimen (dincharyaupkrama)</i>
13	<i>KsharambuGandusha</i>	<i>Ashtangsangraha and Ashtanghridhya</i>	<i>Kshar and water</i>	<i>Kaphabhedan in mouth</i>
14	<i>SukhosnodakGandusha</i>	<i>Ashtangsangraha and Ashtanghridhya</i>	<i>Lukewarm water</i>	<i>Mukhalaghuta</i>
15	<i>Trikatukadikavala</i>	<i>Susruth</i>	<i>Pipalli, marich, sunthi, vacha, sarsap, haritki – kalka + tail, sukta, sura, gomutra, kshar, honey (only one liquid) + saindhavlavana</i>	<i>Kaphajmukharognasha k</i>
16	<i>Mukhdhavan kavala</i>	<i>Charak</i>	<i>Triphala (haritki, vibhitak, amalaki), patha, munakka, jatipatra + kashaya and tiktadravyas + honey</i>	<i>Mukhadhavan (mouthwash)</i>
17	<i>Vatajaruchinashak kavala</i>	<i>Charak</i>	<i>Kuth, sovarchallavana, ajaji, sharkara, marich, vidalavana+ tail and madhu</i>	<i>Vatajaruchinashak</i>
18	<i>Pittajaruchinashak kavala</i>	<i>Charak</i>	<i>Amalaki, ela, padmak, usher, pipalli, utphal,</i>	<i>Pittajaruchinashak</i>

			<i>chandan + tail and madhu</i>	
19	<i>Kaphajaruchinash akkavala</i>	<i>Charak</i>	<i>Lodhra, tejovati, haritki, pipalli, marich, sunthi, yavakkshar + tail and madhu</i>	<i>Kaphajaruchinashak</i>
20	<i>Sarvadoshajaruchi nashakkavala</i>	<i>Charak</i>	<i>Aadrak, dadimswaras, ajaji, sharkara + tail and madhu</i>	<i>Sarvadoshajaruchinashak</i>

DISCUSSION -

The *Kavala* and *Gandusha* are different type of drug formulation in which the route of drug administration is oral cavity but active ingredients and chemical constituents of the drugs are absorbed through the buccal mucosa and reach into blood stream. The general mode of action can be understood as local and systemic actions.⁽⁸⁾

1. Local Action—*Kavala* and *Gandusha* have many actions locally they are as follows:

Exerts increased mechanical pressure -

The action of *Kavala* and *Gandusha* exerts increased mechanical pressure inside the oral cavity. Therefore, this increased pressure stimulates hemo receptor and mechanoreceptors that are present in the mouth. 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 glossopharyngeal (IX) nerve trigger dramatically increased output of saliva. The metabolic waste (toxins), food debris and depositions as well as superficial infective micro-organisms present in the oral cavity gets dislodged and mixed with retained medicated liquid and removed from the oralcavity.

Stimulates salivary gland: *Kavala* and *Gandusha* stimulates the salivary glands to secrete more saliva. Saliva contains a variety of host defense factors. The IgA, IgM antibodies and lysozyme (a bactericidal enzyme that inhibits bacterial growth in the mouth) present in the saliva provide protection against micro-organisms by acting as local antibiotic. Saliva also contains coagulation factors (factors VIII,

IX & X) which protect wounds from bacterial invasion.

Maintains oral pH: Healthy mouth is a non-acidic or neutral. Unhealthy mouth is acidic and increases the risk of oral diseases.

Gandūsha is an immediate solution for mouth acidity and change the oral pH quickly into a safe zone. The active ingredients and chemical constituents of the medicated liquid of *Gandūsha* regulate and balance the pH of the oral cavity and help to reduce bacterial growth in the mouth.

2. Systemic action – Increases the vascular permeability

Mucosal layer inferior to the tongue (sublingual) is thin and vascular enough to

permit the rapid absorption of the lipid soluble drugs into systemic circulation. Some of the drugs irritates the oral mucosa (by their chemical nature) and increases vascular permeability. Thus, an active principle of *dravya* gets absorbed in systemic circulation. Most of the *dravas* (*kwatha*) given for *Kavala* are warm (*sukhoshna*) so raised temperature causes the increased vascular permeability thereby enhancing systemic absorption of drugs.

Some of the drugs are describe in table with their chemically active ingredient. These drugs action are quietly similar with modern essential oil and chlorhexidine based mouth washes.⁽⁹⁾

TABLE NO.4: CHEMICAL CONSTITUENTS OF VARIOUS DRUGS

S.N.	Drugs	Chemical constituents
1.	<i>Haritki</i>	Tannins, anthraquinones and polyphenolic compounds.
2.	<i>Amalaki</i>	Ascorbic acid and gallotannins.
3.	<i>Vibhitak</i>	Gallic acid, tannic acid and glycosides.
4.	<i>Pipalli</i>	Essential Oil and Alkaloids
5.	<i>Marich</i>	Alkaloids (Piperine, Chavicine, Piperidine, Piperetine) and Essential Oil.
6.	<i>Sunthi</i>	Essential oil, pungent constituents (gingerol and shogaol), resinous matter and starch.
7.	<i>Jatipatra</i>	Resin, Salicylic Acid, Alkaloid (Jasminine) and Essential Oil.
8.	<i>Draksha</i>	Malic, Tartaric & Oxalic Acids, Carbohydrates and Tannins.
9.	<i>Haridra</i>	Essential oil and a colouring matter (curcumin).

The chemically active agents used to eliminate oral microorganisms in a variety of ways: ⁽¹⁰⁾

- By producing cell death
- By inhibiting microbial reproduction
- By inhibiting cellular metabolism

Most agents are bactericidal, although some are bacteriostatic. The effectiveness of these agents varies widely and is dependent upon product formulation, concentration of the active agent, dose, substantivity, compliance and interactions with other chemicals present in the oral cavity at the time of use. Different antimicrobial mouth rinses have demonstrated efficacy against bacteria, fungi, viruses, and spores.

Exposure to active ingredient causes rupturing of the bacterial cell membrane, which allows for leakage of the cytoplasmic contents, resulting in cell death. Chemicals (active constituent) binds to salivary mucins, reducing pellicle formation and inhibiting colonization of plaque bacteria. It also binds to bacteria, which inhibits their adsorption onto the teeth.

Chlorhexidine gluconate (CHG) has been shown to penetrate the dental plaque biofilm, which enables CHG to access and kill pathogens embedded within the biofilm. CHG binds tightly to tooth structure, dental plaque, and oral soft tissues. It is released

slowly into the mouth, which allows antimicrobial effects to be sustained for up to 12 hours, thus its high degree of substantivity.

Essential oils (EO) mouth rinse is a bactericidal combination of phenolic essential oils, including eucalyptol, menthol, methyl salicylate, and thymol. Phenolic compounds exert their antimicrobial effects by the following mechanisms:

- Cause protein denaturation
- Alter the cell membrane, resulting in leakage of the intracellular contents and eventual cell death
- Alter bacterial enzyme activity
- Exhibit anti-inflammatory properties by inhibiting prostaglandin synthetase, an enzyme involved in the formation of prostaglandins, which are primary inflammatory mediators. Note that the anti-inflammatory effect of phenolic compounds occurs at concentrations lower than those needed for antibacterial activity
- Cause perforation of the cell membrane and rapid efflux of intracellular contents (especially thymol)
- Alter neutrophil function by suppressing the formation of and scavenging existing free radicals generated in neutrophils and by

altering neutrophil chemotaxis (especially thymol)

A 30-second exposure time to EO produces morphologic cell surface alterations in a variety of oral pathogens that suggest the loss of cell membrane integrity. Cell surface changes may also alter bacterial coaggregation and recolonization that could potentially affect the growth and metabolism of these organisms. Microscopic evidence of cell surface roughening was obtained for the following microorganisms:

- C albicans
- F nucleatum
- A viscosus
- S sanguis

Honey is valuable in keeping the mouth healthy. Honey contains 181 known substances and nutrients such as amino acids, natural carbohydrates and enzymes, trace minerals (calcium, phosphorus and fluoride). Honey as a complementary and alternative medicines (termed as “Apitherapy”) has been used for centuries to cure oral diseases. Honey, as a non-

chemical mouthwash, is also used to preserve cellarepithelium tissue in stomatitis conditions, to prevent intracellular rupture and wound infection. It is also used to reduce the growth of bacteria through its antimicrobial activity.

CONCLUSION

In the present era, oral hygiene is matter of concern. Poor oral hygiene can lead to problems with diabetes, heart disease and other health issues. To prevent these health issues, practicing good oral hygiene is very important. *Kavala & Gandusha* possesses fourfold benefits like health promotive, preventive, curative and restorative. The act of *gandusha and kavala* gives proper exercise to the muscles of cheeks, tongue, lips and soft palate there by increasing the motor functions of these muscles.

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