

## A CRITICAL REVIEW ON *MUKHAPRAYOGARTH KALPANA* (ORAL MEDICATED PREPARATIONS) AND ITS MODERN ASPECTS

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### ABSTRACT

*Ayurveda* is an epitome of life. Among the many contributions of *Ayurveda* in drug delivery system *Mukhaprayogarth kalpana* (oral medicated preparations) plays an important role as it is simple and effective method of drug administration to oral cavity. *Mukhaprayogarth kalpana* means specific formulations used for therapy in *mukha rogas* which includes *gandoosha*, *kavala*, *pratisarana*, *manjana* and in modern pharmaceutical science *mukha prayogarth kalpana* like toothpaste, tooth powders, mouth wash etc. are used. In this article going to be discuss about *Ayurvedic mukha prayogarth kalpana* and modern pharmaceuticals related to *mukha prayogarth kalpana*.

**Key Words:** *Mukhaprayogarth kalpana*, *Kavala*, *Gandusha*, tooth paste, tooth powder

**INTRODUCTION:** The science which deals in detail about the preparation of differently medicines is called as the *Bhaishajya kalpana*. This science explains various methods of processing a drug in order to make the drug more palatable, rich with potency, pleasing with good odor, color etc. in this order *mukha prayogarth kalpana* is very useful preparation for *mukha roga*. In *mukha prayogarth kalpana* included *kavalagraha*, *gandusha*, *pratisarana* and *manjana kalpana*.

***Kavalagraha and Gandusha*** - *Kavalagraha* and *Gandusha* are used after *nasya* (nasal therapy) and *vamana chikitsa* (medical emesis) to cleanse the buccal cavity. These are also the special kind of primary treatment procedures where the medicated liquid is either held full in buccal cavity or a little quantity of liquid is moved in mouth<sup>1</sup>.

They are employed as preliminary treatments or advised along with the main treatment in many of the disease of oral

cavity or the other *urdhvajatrugata rogas* (disease above clavicle region). They are even beneficial to prevent many of the above said disease if practiced on daily by healthy person.

The above said procedures are routinely performed by us all in daily life after morning teeth wash or after eating something to clean the mouth. But when the same things is done with the medicated liquids with special norms and precautions, it turns out to be beneficial treatment<sup>2</sup>. *Gandusha* is a procedure where the specially prepared medicated liquid is taken in mouth in full quantity and held until the eyes start watering. Where in *kavala* only little quantity of medicated liquid which is possible to be moved easily in mouth is taken and it is moved thoroughly for stipulated time period.

**The liquid quantity in *kavalagraha gandusha***- Revealing about the quantity of liquid to be held in mouth *sushruta* clarifies it as below. Only that quantity of

liquid which may be easily moved in mouth should be taken in *kavala*, whereas in *gandusha* the quantity should be mouth full with no chance to move<sup>3</sup>.

#### Types of *kavalgraha* and *gandusha*<sup>4</sup>

**Table No. 1 – Types of *Kavalgraha* and *gandusha***

S.No.	<i>Sushruta</i> (su. <i>Chikitsa</i> 40/58)	<i>Vagbhata</i> ( <i>A.h. Su.</i> 22/1)
1	<i>Snehana kavalgraha</i>	<i>Snigdha gandusha</i>
2	<i>Prasadana kavalgraha</i>	<i>Shamana gandusha</i>
3	<i>Shodhana kavalgraha</i>	<i>Shodhana gandusha</i>
4	<i>Ropana kavalgraha</i>	<i>Ropana ghandusha</i>

***Snehana kavalgraha* or *snigdha gandusha*** – These are performed using *snigdha dravya* with *madhura, amla, lavana rasa*. The liquid is used in warm state. This is beneficial in conditions of *vata dosha*.

**1) *Prasadana kavalgraha* or *shamana gandusha*** – These are performed using *madhura* or *tikta, kashaya rasa dravya*. The liquid is used in cold state. This is beneficial in conditions of *pitta dosha*.

**2) *Shodhana kavalgraha* or *shodhana gandusha*** – these are performed using *teekshna, ushana, katu, amla, lavana rasa dravya* which have *ruksha* property . this is the one preferred after *nasya karma*. This is beneficial in conditions of *kapha dosha*.

**3) *Ropana kavalgraha* or *Ropana gandusha*** – These are performed using *kashaya, madhura, katu rasa, ushna virya dravya*. The liquid is used in warm state. This is beneficial in curing the selected wounds.

#### Drugs generally used in *kavalgraha* and *gadusha*<sup>5</sup>

The liquids which are generally used in all the above said types of *kavalgraha* and *gandusha* are *ghrita, gokshira, gomutra, dhanyamla, shukta* along with *kalka* of medicinal drugs. They are used in cold or warm state depending on the conditions.

*Sushruta* and *Vagbhata* both authors have categorized *kavalgraha* and *gandusha* as given below, since *prasadana* and *shamana* are same both classification are similar.

#### General method of *kavalgraha* and *gandusha*<sup>6</sup>

- 1) Appropriate medicinal liquid preparation has to be selected.
- 2) Person is asked to sit on a comfortable chair. Mild sudation and massage is done on facial parts.
- 3) Liquid is taken in mouth to the maximum capacity and kept still in *gandusha*.
- 4) Half the quantity of above dosage is taken and it is moved thoroughly in all the corners of oral cavity.
- 5) These are done until the eyes start watering or the person feels that the liquid oozes from his nose or ears or until the saliva gets fully deposited in mouth.

#### Indications of *kavalgraha* and *gandusha*

*Kavalgraha* and *gandusha* are indicated majorly in disease conditions such as *manyastambha, shirashool, karna shool, mukha roga, netraroga, tandra, aruchi* and *pinasa*. (*A.H. Su.* 22/12)

#### Examples

- 1) *Dhanyamla* or *kanji* may be used for *kavalgraha/gandusha* to fight out the problem of foul mouth and tastelessness.
- 2) *Madhu* if used for *kavalgraha/gandusha* helps in cleansing the mouth, healing of wounds in oral cavity and *trishanprashamana*.
- 3) *Taila* may be used daily for long term benefits.

4) Cow's milk or *ghee* is beneficial in stomatitis or recurring nature.

5) To expel out *kapha* from oral cavity *kavalgraha/gandusha* from any *kshara jala* may be done. *Sarjikshara, yavakshara* or *shodhita tankana* etc.

#### **Manjana and Pratisarana**

*Manjana* is cleaning of the oral cavity or teeth with fine medicinal powder of medicinal drugs or the drug in *kalka* form.

*Pratisarana* is application of medicinal powder, *kalka*, medicated oil etc to the oral cavity in case of wounds in buccal cavity and throat. It is applied with sterile cotton swab very carefully.

#### **Modern aspects<sup>7</sup>**

Oral transmucosal (sublingual, buccal) administration is more beneficial on the grounds for below given points;

1) Oral transmucosal absorption is generally rapid because of the rich vascular supply to the mucosa and the lack of a stratum corneum epidermidis.

2) The minimal barrier to drug transport results in a rapid rise in blood concentrations.

3) The oral transmucosal route has been used for many years to provide rapid blood nitrate levels for the treatment of angina pectoris.

4) The drug appears in blood within one minute and peak blood levels of most medication are achieved generally within 10 to 15 min, which is substantially faster than when the same drugs administered by the orogastric route.

5) Most pediatric patients will swallow medication administered orally, potentially leading to drug degradation in the gastrointestinal system. Oral transmucosal administration has the advantage of avoiding the entero-hepatic circulation and immedi-

ate destruction by gastric acid or partial first pass effects of hepatic metabolism.

6) For significant drug absorption to occur across the oral mucosa, the drug must have a prolonged exposure to the mucosal surface.

7) Taste is one of the major determinants of contact time with the buccal or oral mucosa.

8) Drug ionization also affects drug uptake. Because the pH of saliva is usually 6.5 to 6.9, absorption is favored for drugs with a high pH.

9) Prolonged exposure to the oral sublingual mucosal surface may be accomplished by repeated placement of small aliquots of drug directly beneath the tongue of a cooperative child or incorporation of the drug into sustained release lozenge.

10) Drug absorption is generally greater from the buccal or oral mucosa than from the tongue and gingival.

In modern aspects these *mukha prayogarthi kalpna* compare with many pharmaceutical preparation like tooth paste, tooth powders, mouth wash etc. here tooth paste and tooth powder are included in dentifrices preparation. Dentifrices are the preparation meant to be applied to the teeth with a tooth brush for the cleaning the accessible surface of the teeth. Dentifrices are used in the cleansing of tooth, polishing of the tooth, removal of stains from the teeth, reduction of mouth odours etc. The common dentifrices are available in the form of tooth powders, tooth pastes.<sup>8</sup>

First of all *kavalgraha*, we can compare with liquid mouth gargles in modern pharmaceuticals. Gargles are aqueous solutions used to prevent or treat throat infections.

**Containers** – gargles should be dispensed in transparent, fluted glass bottles closed with a plastic screw cap. Coloured bottles are required to be used if the gargles need protection from light.

**Labeling** – The containers should be labeled " for external use only" the direction for proper dilution, should be stated on the label.

### **Qualities of a good dentifrices<sup>9</sup>**

Tooth paste and tooth powder should have the following qualities;

- 1) It should be economical
- 2) It should be non toxic.
- 3) It should be suitably sweetened and flavoured.
- 4) It should give fresh sensation.
- 5) It should be efficient in removing food substance, plaque and other foreign particles.
- 6) It should clean the teeth.

In the formulation of dentifrices the following ingredients are used;-

- 1) **Abrasives** – These are also known as polishing agents and are used to remove debris and residual strains from teeth surface without damaging it. The commonly used abrasive are precipitated calcium carbonates, calcium phosphate etc.
- 2) **Binders** – Binders are used to keep solid and liquids in the united form and to maintain the consistency. The commonly used binders are gum tragacanth, sodium alginate, methyl cellulose etc.
- 3) **Detergents** – these are surface active agents which are used to enhance the action of abrasives. Detergent selected should be tasteless, non toxic and non irritant to oral mucosa.
- 4) **Flavouring agents** – The most commonly used flavouring agents are pepper-

mint oil, winter green, cinnamon oil, eucalyptus oil etc.

5) **Humectants** – These are used in tooth paste to retain moisture and will not allow the paste to become dry. glycerin, sorbitol, propylene glycol etc. humectants are commonly used.

6) **Preservatives** – Methyl paraben and propyl paraben are used for this purpose.

7) **Sweetening agents** – These are included in dentifrices to impart sweet taste to the preparation. Saccharin in the ratio of 0.005 to 0.25% is the most commonly used sweetening agents for this purpose.

### **Method of preparation<sup>10</sup>**

Tooth powders are formulate in big blending and mixing tanks. The solid ingredients are weighted and mixed thoroughly in ascending order of their weights. Flavouring agents are sprayed during the course of mixing.

The stainless steel containers are used while preparing tooth paste. A mixture of binder and humectants is dispersed in a liquid containing saccharin and preservatives. It is then permitted to swell to form a homogenous gel. The homogenous gel is then pumped into suitable mixing tank. Add slowly the abrasive agent with agitation in order to form a smooth and uniform paste. Flavouring agent and detergent is then incorporated. Tooth pastes are finally packed in collapsible tubes.

**Tooth powders** -These are oldest, cheapest and simple preparations meant for cleaning the teeth. The main ingredients in tooth powders are abrasive, surfactants, sweeteners and flavours. Tooth powders are having very fine particle size. For example :-

**Table no. 2: Ingredients of tooth powder-**

Hard soap, in fine powder	5.0 g
Precipitated calcium carbonate	93.5 g
Saccharin sodium	0.2 g
Cinnamon oil	0.2 ml
Peppermint oil	0.4 ml
Methyl salicylate	0.8 ml

**Method** : Divide precipitated calcium carbonate into two halves. Thoroughly triturate the saccharin sodium, the volatile oils and methyl salicylate with one half. Mix the hard soap in fine powder with the second half, mix the two powders thoroughly and pass through a fine sieve.

**Tooth pastes<sup>11</sup>** : These are most popular and widely used preparation for cleaning

the teeth. They are more expensive as compare to tooth powders but still they are more preferred. The main ingredients in tooth paste are abrasive, foaming agent, sweetening agents, flavours, binding agents, humectants, preservation and therapeutic agents. For examples :

**Table no. 3 – Ingredients of Tooth paste -**

Dicalcium phosphate	35.0g
Calcium carbonate	14.0g
Glycerin	20.0g
Gum tragacanth	1.2 g
Saccharin	50 mg
Sodium lauryl sulphate	10g
Water	19.8 ml
Flavour	sufficient quantity

**Mouth washes** - These are aqueous solutions with a pleasant taste and odour used to make clean and deodorize the buccal cavity. Commonly they are contain anti-bacterial agents, alcohol, glycerin, sweetening agents, flavouring agents and colouring agents. Mouthwashes are dispensed in white fluted bottles. The label should be

clearly indicate the proper directions for diluting the mouthwash before use. Also apply the secondary label “for external use only”. **Example** :- Prepare and dispense 50.0 ml of compound sodium chloride, mouth wash Bulk Pharmaceutical Chemical (BPC)<sup>10</sup>.

**Table no. 4- Ingredients of Mouth wash -**

Sodium chloride	15 g
Sodium bicarbonate	10 g
Peppermint water to produce	1000 ml

**Method:** Dissolve the weighed quantity of sodium chloride and sodium bicarbonate in 3/4<sup>th</sup> of the peppermint water. Add more of peppermint water to produce the required

volume. Transfer to a bottle, label and dispense.

**DISCUSSION:** Ayurveda is the science of life and its aims preventing and curing the diseases. Lots of contributions of

Ayurveda in drug delivery system – “Bahirparimarjana,” plays an significant role as it is simple and an effective technique of drug administration to oral cavity. *Mukhaprayogarthi kalpana* means specific preparations used for therapy in *Mukha rogas* which includes *Kavala*, *gandusha*, and *Pratisarana manjana*. *Mukha rogas* can be treated by following *dinacharya* (daily routine) and *Mukhaprayogarthi kalpana* like *Gandusha – kavala* are one among the *dinacharya* mentioned by our *Acharyas* also. The *kavala* and *gandusha chikitsa* may be advised to the patients aged above 5 years. *Gandusha dharana* meant to alleviate vitiated *dosha* may be practiced until there is mild sweating over the neck and the face. It may be repeated for 3,5 or up to 7 times depending on the severity of *dosha* vitiation<sup>11</sup>.

The *gandusha dharana* may be continued until there is mouthful collection of *kapha* or until the vitiated *dosha* subside completely or until the nose and eyes start watering. As per opinion of experts physicians in the field, the medicine used for *gandusha dharana* may be used for *pratisarana* and for *kavala dharana* also. After appropriate *gandusha dharana chikitsa*, the disease symptoms (for which the treatment is carried out) will subside, the patient remains content with a feeling of fresh breath and lightness in the mouth and the sense organs become more pleasant and sharper.

Another types of *mukhaprayogarthi kalpana* is *pratisarana*. Its having another 3 types are *kalka pratisarana*, *avaleha pratisarana*, *churna pratisarana*. These are carefully applied into the oral cavity with the index finger. In *Sharnagdhara samhita kushthadi pratisarana yoga* men-

tioned in *uttarkhanda* 10<sup>th</sup> chapters. This yoga is used daily for the purpose of *mukha pratisarana* to cure *mukhagata ratastrava* (bleeding gums), *danta peeda* (tooth ache), *shotha* and *daha*.

In pharmaceuticals Toothpaste is a main part of our daily oral hygiene routine. Along with floss and toothbrush it helps to remove food waste and plaque from teeth and gums. Toothpastes comes in a gel, paste or powder form. Mouthwash, also called oral rinse, it is a liquid formulations used to rinse teeth, gums, and mouth. It generally contains an antiseptic to kill dangerous bacteria that can live between teeth and tongue. A few people use mouthwash to fight against bad breath, while others use it to try to prevent tooth decay.

**CONCLUSION:** In today’s era, the problem related to mouth having increased a lot, for the solution of which the *mukhaprayogarthi kalpana* is proving to be very useful. Ancients *acharyas* have described *kavala*, *gandusha*, *pratisarana* etc. fantasies in this context. Therefore we should take *ayurveda* forward in this field by duly prepared these *kalpanas* as well as harmonizing modern pharmaceuticals.

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