AN OBSERVATIONAL STUDY ON THE EFFECT OF KAVALA ON MUKHA SWASTHYA WITH SPECIAL REFERENCE TO KSHIRI VRIKSHA HIMA

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ABSTRACT
Mukha Swasthya (oral hygiene) has gained importance now a day, because Mukha is such Anga, which is exposed to many risk factors in day-to-day life. Habits like tobacco chewing, smoking etc. have increased incidences of diseases pertaining to oral cavity. Hence it has become necessary to develop an easy and economic Ayurvedic measure. Various Dravyas have been mentioned in the classics for Kavala. Among these Kshiri Vriksha Hima has been mentioned both in Dinacharya and Mukharoga Adhikara. In the present study 30 individuals were randomly selected between the age group 20-50 years from either sex. Follow ups were taken on 10th, 20th, 30th and 45th (post treatment) days and observation was noted. Kshiri Vriksha Hima having Kashaya Rasa, Shita Virya and Kapha Pittaghna properties, it removes the aggravated Kapha and Pita Guna from oral cavity. Kavala also gives strength to the gingiva, tooth and other structures in the oral cavity. 27 % individuals showed good response, 56 % shown moderate response, and 17 % shown mild response. Practicing of Kavala with Kshiri Vriksha Hima as a routine Karma should be popularized among population for leading a better Mukha Swasthya.

Keywords: Kshiri Vriksha, Panch Valkala, Kavala, Oral hygiene, Mukha Swasthya

INTRODUCTION
Mukha Swasthya (oral hygiene) has gained importance now a day, because Mukha is such Anga, which is exposed to many risk factors in day-to-day life. Habits like tobacco chewing, smoking etc. have increased incidences of diseases pertaining to oral cavity. Swasthavritta is such contribution, which aims at individual and social health. Our ancient Ayurveda Acharyas in connection with social and preventive medicine (Swasthavritta), gave special instructions to “Mukha Swasthyam” as it is the basic necessity for the overall hygiene of the human body. For prevention of disease and to maintain the health, there are some principles which are mentioned in old classical texts are ‘Dincharya Upakrama’. By following rules of Dincharya, we can take care of our Indriya i.e. sensory organs and keep them clean, so they can do their functions normally. Most of the diseases can be prevented effectively (primary or secondary) only by the maintenance of personal hygiene. Even though dentistry was not a specialized branch of Ayurveda, it was included in its system of surgery. In ancient India, problems such as deformities of the oral cavity, plaques and infections could be managed and even cured. Many remedies are prescribed in modern medicine for the treatment of problems related to oral hygiene. But these methods are quite costly and causing lots of inconvenience to the patients. Hence it became necessary to develop an easy and economic Ayurvedic medical measure. The quantity which can be rolled out in the mouth is called as Kavala. Various Dravyas have been mentioned in the classics for Kavala. Among these Kshiri Vriksha Hima (also known as Pancha Valkala) has been mentioned both in Dinacharya and Mukharoga Adhikara. Hence this study was undertaken to study the effect of Kavala of Kshiri Vriksha Hima on Mukha Swasthya.

Aim
An observational study on the effect of Kavala on Mukha Swasthya with special reference of Kshiri Vriksha Hima.

Methodology
Selection of Drug
Identification, Authentication of Kshiri Vriksha was done from Department of botany, University of Pune. Standardization of prepared Kshiri Vriksha Hima was done from Late Prin. B.V. Bhide Foundation, Pune, India.

Properties of Kshiri Vriksha
- Vata - Ficus bengalensis Linn.
- Asvatha - Ficus religiosa Linn.
- Udumber - Ficus racemosa Linn.
- Plaksha - Ficus lacor Linn.
- Parisha - Thecosia populnea (Linn) soland Rasa, Virya and Vipaka of Kshiri Vriksha1,2,4,5 [Table 1]

Guna and Karma of Kshiri Vriksha Drayvas
In General Kshiri Vriksha having Kashaya rasa (Udumbara having Madhura as Anurasa), Shita Virya do Kapha Pitta Shamana and Karma like Shothahara, Vedanasthapanaha, Vranashodhana and Vranaropaka. Kavala with these drugs act as Shamana Rupi as well as Ropana Rupi Kavala.
Preparation of Hima
10 g of Kshiri Vriksha churna was added to 80 ml of water and was kept overnight. It was filtered next morning and used for Kavala.6,7

Type of Study
A single group clinical study consisting of 30 individuals was carried out and observations were recorded before and after treatment.

Period of study: 45 days

Dose: 60 ml, Time: once in a day (after brushing)

Standard Operative Procedure for Gandusha Pradhan karma
Individual was asked to keep his face slightly lifted up and advised to hold Hima, allowing the movements of Hima inside the mouth till the secretion occur in the mouth, nose and eyes.

Pashchat karma
After spitting out the contents, mouth was cleaned with lukewarm water.

Follow up
1st follow-up - 10th day
2nd follow-up - 20th day
3rd follow-up - 30th day
4th follow-up - 45th day (post treatment)3,9

Assessment Criteria
Mukhadauryagandha
Gradation for Mukhadauryagandha [Table 2]

Dantamalinta (Plaque Index)
Gradation for Dantamalinta [Table 3]

Asyavairasya
Gradation for Asyavairasya [Table 4]

Vaktra Laghavata (Freshness of the Mouth)
Gradation for Vaktra laghavata [Table 5]

Inclusion criteria
- Individuals with Mukhadauryagandha, Dantamalinta, Asyavairasya, and Vaktra Laghavata were only included.
- Individuals between the age group of 20 to 50 years were included.
- Individuals of either sex were included.

Exclusion criteria
- Contraindications for Kavala Upakrama as per Ayurvedic classics were excluded.10
- Individuals having any systemic disorders were also excluded.
- Individuals having Stomatitis, secondary infections of oral cavity, Oral malignancies and benign tumor Syphilitic lesion T.B. Lesion and immunosuppressive diseases like AIDS etc. were excluded.

Observation
The cases were selected randomly for the study. Each and every case was observed for prevalence according to age, sex, occupation, Prakriti, Vyasana, and Mukha Swasthya Karma etc. Second part consisted of comparisons of pre treatment measurements of the outcome with that of post treatment measurements where we used inferential methods and statistics. In the descriptive part, we used frequency tables. In the inferential part, we used Paired t-test procedure at 5% level of significance and data interpreted using the value of the test statistic and the probability (p) value.

Classification of individual according to Age
Distribution according to Age [Table 7]

Classification of individual according to Sex
Distribution of individuals in relation to sex [Table 8]
The distribution according to sex indicates that male were more as compare to females.

Classification of individual according to Prakruti
Distribution according to Prakruti [Table 9]
Among this, Vata is more potent because incidence is more in Vata Pitta Prakruti (40%) followed by Vata Kapha Prakruti (33.33%).

Classification of individual according to Vyasana
Distribution of individuals based on habits. [Table 10]
Observations based on habits indicate tobacco chewing (30%), excess tea/coffee (33.33 %), smoking (10%) and no habits (26.66%) show almost equal susceptibility.

Classification of individual according to Mukha Swasthya Rakshak Upaya
Practice of Mukha Swasthya Raksha karma [Table 11] Practice of Mukha Swasthya karma indicate high incidence in category of individuals with only ‘brushing’ as Mukha Swasthya karma (50%) followed by category of ‘brushing with tongue cleaning’ (26.66%).

Duration of commencement of Srava in Asya
Duration of commencement of Srava in Asya, 80% of cases showed duration of commencement of Srava in Mukha in the range of 91-100 seconds. [Table 12]

Statistical Analysis of Reduction in Mukhadauryagandha
Statistical analysis of reduction in Mukhadauryagandha, mean BT (Before treatment) for Mukhadauryagandha was 1.633, which was reduced to 0.533. It has shown 67.36% relief. P value is greater than 0.05 so it was significant. [Table 13]

Statistical Analysis of Reduction in Asyavairasya
Statistical analysis of reduction in Asyavairasya, mean BT for Asyavairasya was 1.767, which was reduced to 0.3667. Here t-cal value is greater than t table value. It has shown 79.25% relief. P value is greater than 0.05 so it was significant. [Table 14]
Table 1: Properties of Kshiri Vriksha

<table>
<thead>
<tr>
<th>S. No</th>
<th>Dravya</th>
<th>Guna</th>
<th>Rasa</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Dosha-Ghnata</th>
<th>Karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vata</td>
<td>Guru, Ruksha</td>
<td>Kashaya</td>
<td>Shita</td>
<td>Katu</td>
<td>Kapha-Pittagha</td>
<td>Shothahara Vranaropaka</td>
</tr>
<tr>
<td>2.</td>
<td>Ashvatha</td>
<td>Guru, Ruksha</td>
<td>Kashaya</td>
<td>Shita</td>
<td>Katu</td>
<td>Kapha-Pittagha</td>
<td>Shothahara Vranaropaka</td>
</tr>
<tr>
<td>3.</td>
<td>Udumbara</td>
<td>Guru, Ruksha</td>
<td>Kashaya, Madhura</td>
<td>Shita</td>
<td>Katu</td>
<td>Kapha-Pittagha</td>
<td>Shothahara Vranaropaka</td>
</tr>
<tr>
<td>4.</td>
<td>Plaksha</td>
<td>Laghu, Ruksha</td>
<td>Kashaya</td>
<td>Shita</td>
<td>Katu</td>
<td>Kapha-Pittagha</td>
<td>Shothahara Vranaropaka</td>
</tr>
<tr>
<td>5.</td>
<td>Parisha</td>
<td>Guru, Ruksha</td>
<td>Kashaya</td>
<td>Shita</td>
<td>Katu</td>
<td>Kapha-Pittagha</td>
<td>Shothahara Vranaropaka</td>
</tr>
</tbody>
</table>

Table 2: Gradation for Mukhadauryagandha

<table>
<thead>
<tr>
<th>Gradation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No foul breath throughout day i.e.</td>
<td>0</td>
</tr>
<tr>
<td>12 h after cleansing of teeth.</td>
<td></td>
</tr>
<tr>
<td>Gets foul breath usually 6 h after</td>
<td>1</td>
</tr>
<tr>
<td>cleansing.</td>
<td></td>
</tr>
<tr>
<td>Gets foul breath usually 3 h after</td>
<td>2</td>
</tr>
<tr>
<td>cleansing.</td>
<td></td>
</tr>
<tr>
<td>Gets foul breath usually thought</td>
<td>3</td>
</tr>
<tr>
<td>the day, No diminished foul breath</td>
<td></td>
</tr>
<tr>
<td>even after cleansing.</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Gradation for Dantamalinta

<table>
<thead>
<tr>
<th>Gradation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A film of plaque adhering to the free gingival margin and adjacent area</td>
<td>0</td>
</tr>
<tr>
<td>of the tooth. The plaque may be seen in situ only after</td>
<td></td>
</tr>
<tr>
<td>application of disclosing solution or by using the probe on the tooth</td>
<td>1</td>
</tr>
<tr>
<td>surface.</td>
<td></td>
</tr>
<tr>
<td>Moderate accumulations of soft deposits within.</td>
<td>2</td>
</tr>
<tr>
<td>Abundance of soft matter within the gingival pocket and/or on the tooth</td>
<td>3</td>
</tr>
<tr>
<td>and gingival margin.</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Gradation for Asyavairasyata

<table>
<thead>
<tr>
<th>Gradation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper taste perception, enjoys taste of the food</td>
<td>0</td>
</tr>
<tr>
<td>Often complains regarding the taste of food</td>
<td>1</td>
</tr>
<tr>
<td>Shows disinterest towards food</td>
<td>2</td>
</tr>
<tr>
<td>Often skips meal</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5: Gradation for Vaktra laghavata

<table>
<thead>
<tr>
<th>Gradation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling of freshness throughout the day.</td>
<td>0</td>
</tr>
<tr>
<td>Feeling of freshness up to 6 h after cleaning</td>
<td>1</td>
</tr>
<tr>
<td>Feeling of freshness up to 3 h after cleaning</td>
<td>2</td>
</tr>
<tr>
<td>No feeling of freshness even immediately after cleaning of the teeth</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 7: Distribution according to Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>20</td>
<td>66.66</td>
</tr>
<tr>
<td>30-40</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>40-50</td>
<td>4</td>
<td>13.33</td>
</tr>
</tbody>
</table>

Table 8: Distribution of individuals in relation to sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>No of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 9: Distribution according to Prakruti

<table>
<thead>
<tr>
<th>Prakruti</th>
<th>No of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vata-Kapha</td>
<td>10</td>
<td>33.33</td>
</tr>
<tr>
<td>Pitta-Kapha</td>
<td>8</td>
<td>26.66</td>
</tr>
<tr>
<td>Vata-Pitta</td>
<td>12</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 10: Distribution of individuals based on habits

<table>
<thead>
<tr>
<th>Habit</th>
<th>No. of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco chewing</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Smoking</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Tea/coffee</td>
<td>10</td>
<td>33.33</td>
</tr>
<tr>
<td>No habits</td>
<td>08</td>
<td>26.66</td>
</tr>
</tbody>
</table>

Table 11: Practice of Mukha Swasthya Rakshak karma

<table>
<thead>
<tr>
<th>Karma</th>
<th>No. of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Brushing</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Brushing with tongue cleaning</td>
<td>8</td>
<td>26.66</td>
</tr>
<tr>
<td>Brushing + Gargling</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>Brushing + Tongue cleaning + Gargling</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 12: Duration of commencement of Srava in Asya

<table>
<thead>
<tr>
<th>Time duration</th>
<th>No of case</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-90 seconds</td>
<td>04</td>
<td>13.33</td>
</tr>
<tr>
<td>91-110 seconds</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>101-110 seconds</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>111-120 seconds</td>
<td>01</td>
<td>3.33</td>
</tr>
</tbody>
</table>

Table 13: Statistical Analysis of Reduction in Mukhadauryagandha

<table>
<thead>
<tr>
<th>B.T.</th>
<th>A.T.</th>
<th>t_cal</th>
<th>T table</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.633</td>
<td>0.533</td>
<td>9.104</td>
<td>2.0452</td>
</tr>
<tr>
<td>S.D</td>
<td>0.4901</td>
<td>0.5074</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14: Statistical Analysis of Reduction in Asyavairasya

<table>
<thead>
<tr>
<th>B.T.</th>
<th>A.T.</th>
<th>t_cal</th>
<th>T table</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.767</td>
<td>0.3667</td>
<td>12.34</td>
<td>2.0452</td>
</tr>
<tr>
<td>S.D</td>
<td>0.4302</td>
<td>0.4901</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In Vasant Ritu
All the Acharyas have mentioned Kavala
Dinacharya
4
Kavala
S
accessory measure to evacuate Prakruti
Ritucharya
various
improve the Swasthya of
promotive (by improving the oral hygiene)
Preventive (p
been explained wit
da
Kshi
diseases that may be caused
Vriksha
is used for
Kavala
one
powder of drugs to be added to the
Sushruta
RESULT AND DISCUSSION
Kavala
Sushruta explains Gandusha as Asanchari Mukha Purna
where-as Kavala is Chalana Shila.1 The quantity of
powder of drugs to be added to the liquid for Gandusha is
one Kola, and that of the paste to be put into the liquid for
Kavala is one Karsha.11
Kavala is of 4 kind’s namely12, 13
1. Snaihika
2. Shamana
3. Shodhana
4. Ropana

Kavala in Dinacharya
Hima Kalpana of Kshiri Vriksha has to be used for
washing the Mukha for Swastha person to prevent
diseases that may be caused due to Kapha.5 Hima of
Kshiri Vriksha is used for Kavalagraha to alleviate Arochaka, Asyavairasya, Malinata, Puti (Mukha
daurgandata) and Praseka.14,15 Kavala in Dinacharya has
been explained with two intentions (objectives). 1) Preventive (prevention of the diseases) 2) Health
promotive (by improving the oral hygiene).

Kavala in Niyata Vihara

Dinacharya
All the Acharyas have mentioned Kavala as one of the
Karma in Dinacharya with mainly two intentions i.e. to
improve the Swasthya of Mukha (oral hygiene) as well as
enhancing the Prakruta Karma of Mukha and to prevent
various Vyadhis occurring in Mukha.

Ritucharya
In Vasant Ritu Kavala graham is advocated to remove
Prakupita Kapha. Sometimes it can be implemented as an
accessory measure to evacuate Avashishtha Kapha after
Shodhana.6,17

Kavala in Aniyata Vihara
Kavala is indicated in Chhardi Vega Dharanajanya
Vikaras to pacify the Kapha Dosha.18

Kavala as Sneha Pravicharana
Sneha Pravicharana is indicated for those having
Swabhavika Aruchi towards Sneha, having Mridu Koshta,
addicted to alcohol. 24 types of Sneha Pravicharana have
been mentioned among which Kavala is also one.19

Age
The possible presumption for high incidence of poor oral
health in 20-23 years age group may be due to lack of
awareness and ignorance towards oral hygiene.

Sex
May be due to the habits like tobacco chewing, smoking,
alcohol, excess tea /coffee are seen more in males.

Prakruti
The possible presumption is that Vata and Kapha Dosha
are potent cause for Mukha Swasthya one over the other.
Again among this Vata is more potent because incidence
is more in Vata Pitta prakruti (40 %) compared to Vata
Kapha Prakruti (33.33 %). People who are of Vata Kapha
or Pitta Kapha Prakruti should take utmost care in order to
avoid poor oral health.

Vyasana
Distribution of patients based on habits indicates tobacco
chewing (30 %), excess tea/coffee (33.33 %), smoking (10 %) and no habits (26.66 %) show almost equal
susceptibility. The possible presumption for this is that all
the habits are considered as causes having Katu, Ushna,
Tikshna and provoke poor oral health. As per Ayurveda
all the Nidanas can be attributed to Dosha Prakopa.

Mukha Swasthya karma
Distribution based on practice of Mukha Swasthya karma
indicate high incidence in category of individuals with
only ‘brushing’ as Mukha Swasthya karma (50 %)
followed by category of ‘brushing with tongue cleaning.
So it may be inferred that only practicing brushing and
tongue cleaning are not sufficient enough to provide
protection against oral health. Daily practice of Kavala
may be good for oral health.

Mukha daurgandya
As Kshiri Vriksha having Kashaya Rasa, Ruksha Gun
and Kapha Pittagtha properties, it removes the aggravated
Kapha and Pitta Gun from oral cavity and reduces
Mukhadaurgandhya.

Table 15: Statistical Analysis of Reduction in Dantamalinta

<table>
<thead>
<tr>
<th>B.T.</th>
<th>A.T.</th>
<th>t_cdf</th>
<th>T table</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.533</td>
<td>0.2667</td>
<td>2.804</td>
<td>2.0452</td>
</tr>
<tr>
<td>S.D</td>
<td>0.7761</td>
<td>0.4498</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 16: Statistical Analysis of Reduction in Vaktra laghavata

<table>
<thead>
<tr>
<th>B.T.</th>
<th>A.T.</th>
<th>t_cdf</th>
<th>T table</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.8333</td>
<td>0.30</td>
<td>4.287</td>
<td>2.0452</td>
</tr>
<tr>
<td>S.D</td>
<td>0.9129</td>
<td>0.4661</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Asyavairasyata
Properties like Kashaya Rasa, Shita Virya and Kapha Pittaghna of Kshiri Vriksha, the coating of Kapha and aggravated Vata subsides and increases taste.

Dantamalinta
As Kshiri Vriksha Hima is having the qualities of Mala Puti Har Karma and Kapha Pittaghna, it helps in removing the Mala which is adherent to the teeth.

Vaktra laghavata
Properties like Kashaya Rasa and Ruksa Guna of Kshiri Vriksha, helps to keep Laghavata of Mukha.

Overall Results
27% individuals have shown good response, 56% shown moderate response and 17% shown mild response.

Probable Mode of Action
As Kshiri Vriksha having Kashaya Rasa, Ruksa Guna and Kapha Pittaghna properties, it removes the aggravated Kapha and Pitta Guna from oral cavity. Gargling creates pressure in the oral cavity and brings out toxins and other debris from the interdental, gingival, and gingival margins. The pressure exerted by gargling also helps in penetration of the drug into the oral mucosa (gingiva). Kavala helps in dilation of the blood vessels in the oral mucosa (gingiva) and thus helps in absorption of the active ingredients present in medicine, which in turn gives strength to the roots of the teeth.

CONCLUSION
Kavala is an important Upakrama of Dincharya mentioned in Samhitas which should be followed regularly in today’s era, in order to prevent Mukharogas and to maintain Mukha swasthya. Kavala also gives strength to the gingiva, tooth and other structures in the oral cavity. As Kshiri Vriksha Hima having Kashaya Rasa, Shita Virya and Kapha Pittaghna properties, it removes the aggravated Kapha and Pitta Guna from oral cavity. 27% individuals have shown good response, 56% shown moderate response and 17% shown mild response. Post treatment results shown reduction of Asyavairasya, Mukhadaurgandhya, Dantamalinta and Vaktra laghavata.

Practicing of Kavala with Kshiri Vriksha Hima as a routine Karma should be popularized among population for leading a better Mukha Swasthya.

REFERENCES

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