



A COMPARATIVE STUDY TO EVALUATE THE EFFICACY OF YASHTIMADHUKA RASAKRIYA PRATISARANA AND PANCHAVALKALA KWATHA GANDUSHA IN MUKHAPAKA

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ABSTRACT

Background and objectives: Mukhapaka is a condition characterized by Vedanayukta vrana in the Mukha Pratyangas. It can be correlated with the clinical entity "Apthous Ulcer" explained in the contemporary medical science, which is also characterized by painful superficial ulcers in the movable mucosa of the mouth with recurrent episodes. Mukhapaka is neither a serious disorder nor one that can be dismissed as cursory. It is not life-threatening, but at the same time, it can be crippling by grossly disturbing the individual's lifestyle. Considering the effectiveness, cost, easy and routine applicability, the present study was conducted to assess the efficacy of Yashtimadhuka Rasakriya Pratisarana and Panchavalkala Kwatha Gandusha in Mukhapaka. Materials and Methods: Patients presenting with the classical features of Mukhapaka and between the age group of 06 to 60 years irrespective of sex were selected and allotted in Group A and Group B with 20 patients in each. Group-A was administered with Yashtimadhuka Rasakriya for Pratisarana and Group-B with Panchavalkala Kwatha for Gandusha, twice daily for 07 days. Results: Both the groups individually showed a highly significant result in all the assessment criteria like a burning sensation, pain, difficulty in chewing, size of the ulcer, and tenderness. But when compared between the groups it has been found to have insignificant results in the assessment criteria except in difficulty in chewing which was significant in favor of Yashtimadhuka Rasakriya. Conclusion: This study proved that both Yashtimadhuka Rasakriya Pratisarana and Panchavalkala Kwatha Gandusha are statistically significant in the management of Mukhapaka.

Key Words: Mukhapaka, Aphthous stomatitis, Yashtimadhuka Rasakriya, Panchavalkala Kwatha, Pratisarana, Gandusha.

INTRODUCTION

Oral diseases qualify as major public health problems owing to their high prevalence and incidence in all regions of the world, as for all diseases, the greatest burden of oral diseases is on disadvantaged and socially marginalized populations. The severe impact in terms of pain and suffering, impairment of function, and effect on the quality of life must also be considered. Oral diseases such as dental caries, periodontal disease, tooth loss, oral mucosal lesions, oropharyngeal cancers, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)-related oral disease and oro-dental trauma are major public health problems worldwide¹.

Recurrent aphthous stomatitis (RAS) is one of the most common painful oral mucosal conditions seen among patients. Despite their high prevalence, etiopathogenesis remains unclear. These present as recurrent, multiple, small, round, or ovoid ulcers, with circumscribed margins, having yellow or gray floors, and are surrounded by erythematous haloes, present first in childhood or adolescence². About 80% of people have one episode of oral aphthous ulcers before the age of 30 years³. The burning sensation is present for about 2 to 48 hours before the appearance of the ulcer⁴. Intense pain is present at the ulcer site and as healing occurs, the pain gradually recedes. Most ulcers occur on the nonkeratinizing epithelial surface of the mouth in three forms such as minor, major and herpetiform Recurrent Aphthous Stomatitis⁵. Corticosteroids are widely used to control aphthous lesions; however, even their topical application may be associated

with some side effects⁶.

Acharya Vagbhata has explained seventy-five kinds of diseases affecting eight different sites of the oral cavity i.e. lips, the gums of the teeth, the teeth properly, the tongue, the palate, the throat, the cheek, and entire oral cavity⁷. The one that occurs in the mucus membrane of the mouth is called mukhapaka or the Sarvasara Mukharoga; which can be compared to ulcerative stomatitis or Aphthous ulcers as per the modern medicine. The fundamental goals of treatment are to shorten the duration of ulcers, provide relief from pain, and increase disease-free periods while the secondary goals would be to lessen the frequency and severity of recurrences⁸. Although numerous treatment modalities have been recommended, very few studies have aimed to find an effective treatment for RAS as a distinct clinical entity. Recently, herbal medications have been suggested for the treatment of these lesions due to having minimal or no side effects⁹. Ayurveda, the ancient and holistic health science describes Kavala, Gandusha, and Pratisarana, etc local therapies for Mukhapaka. Though various works have been carried concerning the Mukapaka, Yashtimadhuka Rasakriya Pratisarana that is being described in Ashtanga Sangraha¹⁰ and Panchavalkala Kwatha Gandusha described in Chakradatta¹¹ was not studied. Considering the effectiveness, cost, easy and routine applicability, the present study was conducted to assess the efficacy of Yashtimadhuka Rasakriya Pratisarana and Panchavalkala Kwatha Gandusha in Mukhapaka.

MATERIALS AND METHODS

Selection of patients

A total of 40 patients fulfilling the diagnostic and inclusion criteria irrespective of gender, religion, occupation, marital status, socio-economic status, educational status were selected from the Outpatient Department and Inpatient Department of Shalaky Tantra, Alva's Ayurveda Medical College, Moodubidire, D.K, Karnataka. Selected patients are randomly divided into two groups- Group A and Group B with 20 patients in each group. The study design was a Randomized Comparative clinical study of 07 days and patients were reviewed once in a week for 2 weeks.

Ethical clearance and consent

The study was approved by the Institutional Ethical Committee, Alva's Ayurveda Medical College, Moodubidire (Protocol No. ICEC/SHKT/03), and informed consent from each patient was obtained before starting the course of treatment.

Diagnostic Criteria

The diagnosis was made based on signs and symptoms explained in Ayurvedic books and modern reference sources. Ulcers in oral mucosa with following any one or more symptoms were selected for the study:

- Pain (Vedana)
- Burning sensation (Daha)
- Difficulty in chewing (Mukham vivrunoti krichrena)

Inclusion Criteria

- Patients between the age group of 06 to 60 years.
- Patients presenting with signs and symptoms of Recurrent Aphthous Stomatitis.
- Patients presenting with signs and symptoms of Mukhapaka.

Gradation Index

Table 1: Grading of subjective and objective parameters

Grade	Burning sensation	Pain	Difficulty in chewing	Size of ulcer	Tenderness
0	No complaint	No complaint	Can eat easily	No ulceration	No complaint
1	Mild- on touch with hot beverages	Mild- pain on touch	Mild- can eat solid food	<3mm	Mild- tenderness on touch
2	Moderate- felt on taking spicy, acidic and salty food	Moderate- pain without touch	Moderate- can eat liquid food only	3mm to 1cm	Moderate- tenderness without touch
3	Severe-throughout the day without any aggravating factor	Severe- pain causing difficulty in opening mouth	Severe- cannot eat liquid and solid food	>1cm	No complaint

[<: less than, >: greater than]

Table 2: Criteria for the overall assessment of treatment

Overall Assessment Criteria	
Complete Relief	Complete relief in all the parameters after treatment
Marked Relief	Complete relief in any 4 of the parameters after treatment
Moderate Relief	Complete relief in any 3 of the parameters after treatment
Mild Relief	Complete relief in any 2 of the parameters after treatment
Unchanged	Complete relief only in 1 parameter or no change at all

Statistical analysis

The obtained data from both the groups (Group A and Group B) before, during, and after the clinical study was tabulated and graded. Statistical analysis was done with details of the same by

Exclusion Criteria

- The patient contraindicated for Gandusha.
- Patients having chronic or carcinogenic ulcers in the oral cavity.
- Patients suffering from any other systemic disorders.
- The patient having anemia.
- Patients having traumatic ulcers in the oral cavity.

Intervention

The whole procedure was explained to the patient before starting the treatment.

In group A, advised the patients to do the Pratisarana with Yashtimadhuka Rasakriya using the tip of the index finger in affected areas till attaining Samyak Lakshanas.

In Group B, the freshly prepared lukewarm Kwatha added with Madhu was given and asked to hold it in the oral cavity to its full capacity with head slightly tilted upwards till the Samyak Lakshanas was observed and the patient was asked to spit out the liquid.

After the completion of the procedure, in both the groups the patient was asked to wash the mouth with Sukoshna jala and observations were made. The same procedure was followed in both groups twice daily for 7 days.

Assessment Criteria

Subjective Parameters: Burning sensation, pain, and difficulty in chewing was the subjective parameters and were assessed before and after the treatment.

Objective Parameters: Size of ulcer and tenderness were taken as objective parameters and were assessed before and after the treatment.

adopting paired 't' test to assess the changes in the values before and after treatment and adopting the unpaired 't' test to compare the two groups.

OBSERVATIONS

40 patients with features of Mukhapaka or Recurrent Aphthous Stomatitis were registered for the study. Observations revealed that among age group the incidence of Mukhapaka was more in 3rd decade (65%) followed by 4th decade (12.5%), 70% of patients were females, 95% of patients belonged to Hindu religion, 80% of patients were non-vegetarians, 57.5% of patients were students and 47.5% of patients belonged to Vata-Pittaja prakruti. While observing the Nidana it was found that 90% of patients were habituated to pickle and spicy food, 87.5% were taking Masha containing Ahara, 80% were habituated to Mamsa and Matsya Ahara, 75% were taking Dadhi and Ksheera, 72.5% were taking hot food items and so on. Regarding the number of ulcers, 75% of patients have had 2-5 ulcers in the oral cavity. 57.5% had ulcers having the size <3mm and 42.5% had ulcer size ranging from 3-10mm. 20% had ulcer only on cheeks, 15% had only on lips, 7.5% had only on the tongue or the floor of the mouth, 2.5% had only on gums, 37.5% of patients show the

involvement of any of the two sites and 10% of patients came with the involvement of more than two sites in the oral cavity. 87.5% of patients presented with ulcer having the shape round. 70% of patients had greyish-white ulcers. 45% of the patients had at least 4-5 attacks in a year and 27.5% of the patients had 6-7 attacks in a year. In this study 100% of patients had pain as one Anubandha Lakshana, 97.5% had tenderness and burning sensation and 95% had difficulty in chewing. 100% of patients were diagnosed as having Minor Aphthous Stomatitis. Out of the total, Pittaja and Raktaja type of Mukhapaka constitute 52.5% and the rest was Vataja type (47.5%).

RESULTS

p-value less than 0.05 (typically ≤ 0.05) is considered statistically significant and p-value higher than 0.05 (> 0.05) is considered not statistically significant.

Within Group Results

Effect of treatment on burning sensation

Table 3: Effect of treatment on burning sensation during, after treatment and during follow up in Group A and Group B

GROUP A	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.650	DT ₁	0.050		1.600	0.681	0.152	10.514	p<0.001
	AT ₁	0.000		1.650	0.745	0.167	9.903	p<0.001
	FU ₁	0.000		1.650	0.745	0.167	9.903	p<0.001
	FU ₂	0.000		1.650	0.745	0.167	9.903	p<0.001
GROUP B	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.550	DT ₁	0.100		1.450	0.759	0.170	8.542	p<0.001
	AT ₁	0.000		1.550	0.686	0.153	10.100	p<0.001
	FU ₁	0.000		1.550	0.686	0.153	10.100	p<0.001
	FU ₂	0.000		1.550	0.686	0.153	10.100	p<0.001

[BT: Before Treatment; AT: After Treatment; DT₁: During Treatment (4th Day); AT₁: After Treatment (7th Day); FU₁: Follow Up 1 (14th Day); FU₂: Follow Up 2 (21st Day); SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean.]

In Group A, on 07th day (AT₁), the mean difference was 1.650 with S.D as 0.745 and S.E at 0.167. The 't' value for the data was 9.903, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Yashtimadhuka Rasakriya for Pratisarana in reducing the burning sensation.

In Group B, on 07th day (AT₁), the mean difference was 1.550 with S.D as 0.686 and S.E at 0.153. The 't' value for the data was 10.000, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Panchavalkala Kwatha for Gandusha in reducing the burning sensation.

Effect of treatment on pain

Table 4: Effect of treatment on pain during, after treatment and during follow up in Group A and Group B

GROUP A	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
2.150	DT ₁	0.400		1.750	0.639	0.143	12.254	p<0.001
	AT ₁	0.000		2.150	0.587	0.131	16.376	p<0.001
	FU ₁	0.000		2.150	0.587	0.131	16.376	p<0.001
	FU ₂	0.000		2.150	0.587	0.131	16.376	p<0.001
GROUP B	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.850	DT ₁	0.700		1.150	0.988	0.221	5.205	p<0.001
	AT ₁	0.100		1.750	0.967	0.216	8.097	p<0.001
	FU ₁	0.050		1.800	0.834	0.186	9.658	p<0.001
	FU ₂	0.000		1.850	0.745	0.167	11.103	p<0.001

[BT: Before Treatment; AT: After Treatment; DT₁: During Treatment (4th Day); AT₁: After Treatment (7th Day); FU₁: Follow Up 1 (14th Day); FU₂: Follow Up 2 (21st Day); SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean.]

In Group A, on 07th day (AT₁), the mean difference was 2.150 with S.D as 0.587 and S.E at 0.131. The 't' value for the data was 16.376, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Yashtimadhuka Rasakriya for Pratisarana in reducing pain.

In Group B, on 07th day (AT₁) the mean difference was 1.750 with S.D as 0.967 and S.E at 0.216. The 't' value for the data was 8.097, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Panchavalkala Kwatha for Gandusha in reducing pain.

Effect of treatment on the difficulty in chewing

Table 5: Effect of treatment on the difficulty in chewing during, after treatment and during follow up in Group A and Group B

GROUP A	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
2.000	DT ₁	0.150		1.850	0.489	0.109	16.907	p<0.001
	AT ₁	0.000		2.000	0.459	0.103	19.494	p<0.001
	FU ₁	0.000		2.000	0.459	0.103	19.494	p<0.001
	FU ₂	0.000		2.000	0.459	0.103	19.494	p<0.001
GROUP B	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.500	DT ₁	0.200		1.300	0.193	0.109	6.752	p<0.001
	AT ₁	0.000		1.500	0.459	0.170	8.816	p<0.001
	FU ₁	0.000		1.500	0.459	0.170	8.816	p<0.001
	FU ₂	0.000		1.500	0.459	0.170	8.816	p<0.001

[BT: Before Treatment; AT: After Treatment; DT₁: During Treatment (4th Day); AT₁: After Treatment (7th Day); FU₁: Follow Up 1 (14th Day); FU₂: Follow Up 2 (21st Day); SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean.]

In Group A, on 07th day (AT₁), the mean difference was 2.000 with S.D as 0.459 and S.E at 0.103. The 't' value for the data was 19.494, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Yashtimadhuka Rasakriya for Pratisarana in reducing the difficulty in chewing.

In Group B, on 07th day (AT₁), the mean difference was 1.500 with S.D as 0.459 and S.E at 0.170. The 't' value for the data was 8.816, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Panchavalkala kwatha for Gandusha in reducing the difficulty in chewing.

Effect of treatment on the size of ulcer

Table 6: Effect of treatment on the size of ulcer during, after treatment and during follow up in Group A and Group B

GROUP A	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.550	DT ₁	0.550		1.000	0.459	0.103	9.749	p<0.001
	AT ₁	0.050		1.500	0.513	0.115	13.077	p<0.001
	FU ₁	0.000		1.550	0.605	0.135	11.461	p<0.001
	FU ₂	0.000		1.550	0.605	0.135	11.461	p<0.001
GROUP B	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.550	DT ₁	0.700		1.850	0.813	0.182	4.677	p<0.001
	AT ₁	0.050		1.500	0.688	0.154	9.747	p<0.001
	FU ₁	0.000		1.550	0.605	0.135	11.461	p<0.001
	FU ₂	0.000		1.550	0.605	0.135	11.461	p<0.001

[BT: Before Treatment; AT: After Treatment; DT₁: During Treatment (4th Day); AT₁: After Treatment (7th Day); FU₁: Follow Up 1 (14th Day); FU₂: Follow Up 2 (21st Day); SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean.]

In Group A, on the 07th day (AT₁), the mean difference was 1.500 with S.D as 0.513 and S.E at 0.115. The 't' value for the data was 13.077, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Yashtimadhuka Rasakriya for Pratisarana in reducing the size of the ulcer.

In Group B, on the 07th day (AT₁), the mean difference was 1.500 with S.D as 0.688 and S.E at 0.154. The 't' value for the data was 9.747, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Panchavalkala kwatha for Gandusha in reducing the size of the ulcer.

Effect of treatment on tenderness

Table 7: Effect of treatment on tenderness during, after treatment and during follow up in Group A and Group B

GROUP A	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
2.000	DT ₁	0.350		1.650	0.587	0.131	12.568	p<0.001
	AT ₁	0.000		2.000	0.649	0.145	13.784	p<0.001
	FU ₁	0.000		2.000	0.649	0.145	13.784	p<0.001
	FU ₂	0.000		2.000	0.649	0.145	13.784	p<0.001

GROUP B	MEAN SCORE			BT-AT (Mean difference)	SDM	SEM	't' value	p-value
	BT	AT	MEAN AT					
1.750	DT ₁	0.350		1.400	0.940	0.210	6.658	p<0.001
	AT ₁	0.050		1.700	0.854	0.193	8.794	p<0.001
	FU ₁	0.000		1.750	0.786	0.176	9.952	p<0.001
	FU ₂	0.000		1.750	0.786	0.176	9.952	p<0.001

[BT: Before Treatment; AT: After Treatment; DT₁: During Treatment (4th Day); AT₁: After Treatment (7th Day); FU₁: Follow Up 1 (14th Day); FU₂: Follow Up 2 (21st Day); SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean.]

In Group A, on 07th day (AT₁), the mean difference was 2.000 with S.D as 0.649 and S.E at 0.145. The 't' value for the data was 13.784, thus giving a statistically significant result (p<0.001). The analysis by applying the paired 't' test proved the statistical significance of Yashtimadhuka Rasakriya for Pratisarana in reducing tenderness.

In Group B, on the 07th day (AT₁), the mean difference was 1.700 with S.D as 0.854 and S.E at 0.193. The 't' value for the data was 8.794, thus giving a statistically significant result (p<0.001) The analysis by applying the paired 't' test proved the statistical significance of Panchavalkala kwatha for Gandusha in reducing tenderness.

Table 8: Inter Group Comparison Results

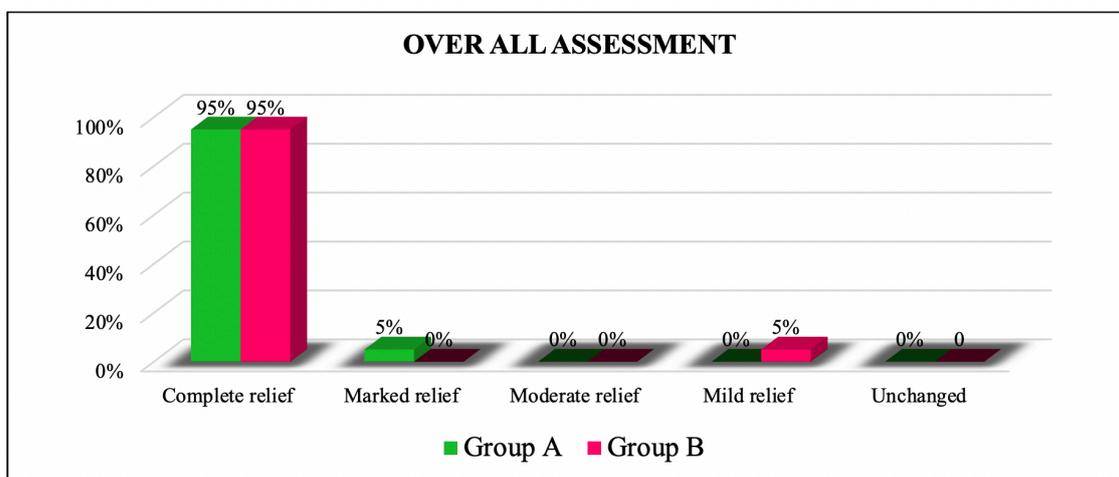
Parameters	GROUP	Mean difference	SDM	SEM	't' value	p-value
Burning Sensation	Group A	1.650	0.745	0.167	0.441	p=0.661
	Group B	1.550	0.686	0.153		
Pain	Group A	2.150	0.587	0.131	1.414	p=0.165
	Group B	1.850	0.745	0.167		
Difficulty in Chewing	Group A	2.000	0.459	0.103	2.517	p=0.016
	Group B	1.500	0.761	0.170		
Size of Ulcer	Group A	1.500	0.513	0.115	0.000	p=1.000
	Group B	1.500	0.688	0.154		
Tenderness	Group A	2.000	0.649	0.145	1.241	p=0.222
	Group B	1.750	0.865	0.193		

[SDM: Standard Deviations from the Mean; SEM: Standard Error of the Mean; t-value measures the size of the difference relative to the variation in sample data; p-value: Probability value.]

The statistical analysis using the 't' test revealed nonsignificant results in all assessment criteria except in difficulty in chewing it was significant in favor of Group A.

Overall assessment of treatment

In both the groups, 95% of patients got complete relief, the remaining 5% of patients in Group A got marked relief and Group B got mild relief.



Graph 1: Overall assessment of treatment in both the groups.

Before and after treatment Figures



Figure 1: Before treatment in Group A



Figure 2: After treatment in Group A



Figure 3: Before treatment in Group B



Figure 4: After treatment in Group B

DISCUSSION

Among 65 Mukharogas, Mukhapaka is considered as one of the Pittaja Nanatmaja and Raktapradoshaja Vikara, characterized by Vedana Yukta Vrana in the Pratyangas of Mukha (oral cavity). It has parlance with Recurrent aphthous stomatitis (RAS) which is explained in contemporary medical science. RAS is a common condition affecting the oral cavity characterized by recurrent bouts of one or several shallow, rounded or ovoid painful ulcers that recur at intervals of a few days or up to 2-3 months¹².

In the present study, two groups are involved where Yashtimadhuka Rasakriya for Pratisarana and Panchavalkala Kwatha for Gandusha are used to evaluate their efficacy in the management of Mukhapaka.

Yashtimadhuka Rasakriya explained in Ashtanga Sangraha in the context of Mukhapaka Chikitsa contains only 3 drugs: Yashtimadhuka as the Pradhana dravya, Madhu and Shuddha Gairika are as Prakshepaka dravyas. Yashtimadhuka has Madhura Rasa, Sheeta Veerya, Madhura Vipaka, Rakta Shodana, and Tridosahara properties. Moreover, studies conducted on modern scientific parameters have proved the anti-ulcer activity, ulcer healing activity, antiulcerogenic activity, and anti-inflammatory activity of Yashtimadhuka¹³. The adjuvant Madhu has properties such as Yogavahi, Madhura Rasa, and Kashaya Anurasa. It is with Laghu, Rooksha Guna, Sheeta Veerya, Madhura Vipaka. Laghutwat acts as Kaphahara, Paicchilyat-Maadhuryat-Kashayabhavat it acts as Vata-Pittahara¹⁴. Madhu promotes the healing process by virtue of its Lekhana, Sodhana, Ropana, Sandhana, and Sukshmamaarganusaari Gunas. The next adjuvant Gairika possesses Kashaya Rasa, Swadu Vipaka, Sheeta Veerya, Snigda Guna and is Rakta-Pittanut¹⁵; which will be also helpful in the healing process.

Panchavalkala Kwatha explained by Chakradatta contains Panchavalkala also known by the name Pancha Ksheeri Vriksha and Madhu as Sahapana. Panchavalkalas namely Nyagrodha, Udumbara, Ashwatha, Plaksha, and Parisha which all have Kashaya rasa, Sheeta Veerya, Rooksha Guna, Kapha-Pitta-Medo

Hara, Mukharogahara, Vrana Shodhana, Ropana, and Sthambhana¹⁶ properties which will be beneficial in the treatment of Mukhapaka.

The Pradhana Sthanika Chikitsa for Mukharoga is Gandusha and Kavala. Gandusha and Kavala go hand in hand where the difference lies in the procedure, quantity, and type of drug used. Acharya Sharangadhara has explained, Pratisarana is done with the same drugs which are indicated for Gandusha and Kavala¹⁷. The benefits, indications, contraindications, Samyak Lakshanas, Atiyoga, and Heena yoga are the same for all¹⁸. So, it can be inferred that the mode of action of Pratisarana and Gandusha is the same.

Probable mode of action

The active ingredients and chemical constituents of the medicine stimulate the chemoreceptors and mechanoreceptors in the mouth to send signals to salivary nuclei in the brain stem. As a result, the parasympathetic nervous system activity increases and impulses sent via motor fibers in facial and glossopharyngeal nerves. They trigger a dramatically increased output of salivary secretion which predominantly watery (serous). The metabolic waste (toxins), food debris, and depositions as well as superficial infective micro-organisms present in the oral cavity get dislodged and removed from the oral cavity. Saliva contains a variety of host defense factors. The IgA, IgM antibodies, and lysozyme present in the saliva provide protection against micro-organisms by acting as local antibiotics. Saliva also contains coagulation factors that protect wounds from bacterial invasion. The active ingredients and chemical constituents in the drugs regulate and balance the pH of the oral cavity and help to reduce bacterial growth in the mouth. Mechanical pressure exerted during procedure irritates the oral mucosa and increases vascular permeability. Therefore, the drugs get rapidly absorbed both locally and systemically. This can help to reduce inflammation and enhance the healing process of disease and thus cures the disease of the oral cavity.

In group A, advised the patients to do the Pratisarana with Yashtimadhuka Rasakriya using the tip of the index finger in affected areas till attaining Samyak Lakshanas. It was observed that all the patients had only Asya Srava as Samyak Lakshana. The duration of Pratisarana was ranged from a minimum of 01 minutes to a maximum of 02 minutes. It may be because the mechanical pressure exerted during Pratisarana karma, stimulates the chemoreceptors and mechanoreceptors in the mouth and accelerate the output of salivary secretion earlier than other Sthanika Karmas.

In group B, the freshly prepared lukewarm Kwatha was given and asked to hold it in the mouth or the oral cavity to its full capacity with head slightly tilted upwards till the Samyak Lakshanas were observed and the patient was asked to spit out the liquid. After the completion of the procedure, the patient was asked to wash the mouth with Sukoshna jala, and observations were made. Regarding the quantity of Kwatha held in the mouth by patients, it was found that 55% of patients had the capacity of holding the liquid in their mouth up to 30 to 40 ml, 25% patients with 41-50ml, 15% patients with 51-60ml and 05% patients with 61-70ml. Thus, the quantity of liquid filled in the mouth was ranging from 30-70 ml depending upon the size of the mouth.

The duration of holding of Panchavalkala Kwatha was ranged from a minimum of 02 minutes to a maximum of 05 minutes.

Among total patients, 80% only Kapha Poornasyata was observed, in 15% observed both Kapha Poornasyata and Ghrana Srava and only 5% observed Kapha poornasyata, Ghrana Srava, and Akshi Srava. As per procedure explained in literature one should retain liquid in the mouth till, he gets secretion in the Mukha, Nasa, Netra. But as per observation Srava was induced only in the mouth in most of the subjects. Probably this may depend upon an individual's sensitivity and holding capacity of the liquid in the oral cavity and the procedure or nature of the drug used for Gandusha.

Madhura Rasa, Sheeta Veerya, Madhura Vipaka, Rakta Shodhana, and Tridosahara properties of Yashtimadhuka Rasakriya might have helped in the reduction of burning sensation in Group A. Sheeta Veerya, Rakta Shodana and Tridosahara properties of Panchavalkala Kwatha might have helped in the reduction of burning sensation in Group B.

Madhura Rasa, Madhura Vipaka, Guru-Snigdha Guna, and Tridosahara properties of Yashtimadhuka Rasakriya might have helped in the reduction of pain in Group A. Vranapaha and Tridosahara properties of Panchavalkala Kwatha might have helped in the reduction of pain in Group B.

Madhura Rasa, Madhura Vipaka, Guru-Snigdha Guna, Vranahara, Ropana and Tridosahara properties of Yashtimadhuka Rasakriya might have helped in the reduction of difficulty in chewing in Group A. Vranapaha and Tridosahara properties of Panchavalkala Kwatha might have helped in the reduction of difficulty in chewing in Group B.

Lekhana, Sandhanakara, Raktashodhaka, and Ropana properties of Yashtimadhuka Rasakriya might have helped in the reduction of the size of ulcer in Group A. Pancha Ksheeri Vriksha which itself is well known for its Vranahara and Vranaropana property, that might have helped in the reduction of the size of ulcer in Group B.

Madhura Rasa, Madhura Vipaka, Guru-Snigdha Guna, and Tridosahara properties of Yashtimadhuka Rasakriya might have helped in the reduction of tenderness in Group A. Vranapaha and

Tridosahara properties of Panchavalkala Kwatha might have helped in the reduction of tenderness in Group B.

CONCLUSION

This study proved that both Yashtimadhuka Rasakriya Pratisarana and Panchavalkala Kwatha Gandusha are significant in the management of Mukhapaka. During the end of the follow-up period also the same result was found without any recurrence. On comparing the two groups the result was nonsignificant. No side effects by medicine were observed during treatment.

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