

EFFECT OF SHANKHADI RASAKRIYA ANJANA IN THE MANAGEMENT OF AVRANA SHUKLA WITH SPECIAL REFERENCE TO CORNEAL OPACITY

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ABSTRACT

Avrana Shukla is a disease of *Krishna Mandala* exhibits whitish dots or patches on cornea due to scarring or clouding of the corneal tissue which decreases vision. It can be correlated to Corneal Opacity or non ulcerative keratitis. The incidence is very common in economically backward and skilled laborers of rock cutting trade, among persons employed in various processes of thrashing, husking and pounding of paddy and also highly prevalent among the working class. Corneal opacity is one of the major causes of blindness. Out of total blind people 1.52% is blind only because of corneal opacity. Any opacity in the refractive media causes blurriness of vision to blindness and cosmetic problem. Cornea being the first refractive media of eye has greater importance in refraction. The affection and complications of cornea and vision depends upon the site, spread and density of corneal scars. Here a prompt clinical effort is carried out to establish the efficacy of *Shankhadi Rasakriya Anjana* in management of *Avrana Shukla*. In *Avrana Shukla* mild pain, mild discharge and visual impairment are cardinal features due to formation of white patches on *Krishna Mandala* by vitiation of *Kapha* and *Rakta*. *Shankhadi Rasakriya Anjana* contains *Shankha Bhasma*, *Shukti Bhasma*, *Yashtimadhu Churna*, *Kataka Beeja*, *Draksha* and *Madhu*. The contents of drug are *Lekhana*, *Chakshushya* and *Ropaka* in action. The *Kataka Beeja*, *Shukti Bhasma*, *Yashtimadhu*, *Draksha* and honey are *Pitta Rakta Shamaka*, *Shoola* and *Shothahara*, *Chakshushya* and *Kandughana*. Therefore the drug was selected for this study. 40 patients of *Avrana Shukla* were treated by randomly dividing them into two groups. SA group patients were subjected to *Shankhadi Rasakriya Anjana* and MA group patients were applied with *Madhu Anjana* once daily in the morning on the affected eye for 15 days. *Shankhadi Rasakriya Anjana* showed better result in clinical study.

Key words: *Avrana Shukla*, *Krishna Mandala*, *Anjana*, *Lekhana*, *Chakshushya*, Corneal opacity

INTRODUCTION

A person who desires for a long life must care of his eyes throughout the life, as for a blind man there is no difference between day and night. Hence even though he has wealth he will be poor¹. So protection of eye sight is topmost priority of *Shalaky Tantra* since the loss of vision completely disables a person. *Avrana Shukla*² or *Shuddha Shukla*³ is a disease of *Krishna Mandala* exhibits whitish dots or patches, single or multiple, stationary or diffused spreads from *Prathama Patala* to *Tritiya Patala* and becomes complicated. The

blind life is miserable hence advised to protect the eyes from diseases and injuries. Due to *Abhishyanda* and other external causes, white opacities develop on the *Krishna Mandala* that is known as *Avrana Shukla* or *Shuddha Shukla*. It is characterized by *Alpa Vedana* and *Ashrusrava*. In some cases it associates with visual impairment if *Shukla* arises at the *Drishti Mandala*. It can be correlated to corneal opacity, due to the similarity in *Lakshnas*, *Samprapti* and stages of the disease. Non-spreading, superficial lesion of *Prathama Pa-*

tala is said to be curable. It can be correlated to Corneal Opacity or non ulcerative keratitis. Avrana Shukla is a disease affecting Krishna Mandala which may ultimately lead to disfigurement of cornea and blindness. Any opacity in the refractive media causes blurriness of vision to blindness and cosmetic problem. Cornea being the first refractive media of eye has greater importance in refraction. The affection and complications of cornea and vision depends upon the site, spread and density of corneal scars. Here a prompt clinical effort is carried out to establish the efficacy of Shankhadi Rasakriya Anjana in management of Avrana Shukla. In this venture it is sincerely hoped that present study will be a positive step in providing a solution to a burning problem, and will be a valuable contribution to the scientific world.

Aims and objectives

- 1 To study the efficacy of Shankhadi Rasakriya Anjana in the management of Avrana Shukla.
- 2 To study the efficacy of Madhu Anjana in the management of Avrana Shukla.
- 3 To compare the efficacy of Shankhadi Rasakriya Anjana and Madhu Anjana in the management of Avrana Shukla.

CLINICAL STUDY

MATERIAL AND METHODS

The Shankhadi Anjana was prepared in the Rasashastra department of SDM college of Ayurveda and hospital, Hassan as per the following method. Shankha Bhasma, Shukti Bhasma, Draksha, Yashtimadhu, and Kataka Beeja were taken in equal quantity and made into a very fine powder form and was kept in an airtight container. On the day of Anjana the powder was mixed with honey well and taken in the dropper and put on the finger and then applied inside of lower lid in the form of Rasakriya Anjana.

Patients with the classical features of Avrana Shukla were selected from OPD and IPD of Shalaky Tantra of SDM college of Ayurveda and hospital, Hassan.

Inclusion criteria

- 1 Patients of 10-70 years of age were selected irrespective of sex, socioeconomic status and religion.

- 2 The chronicity of the disease less than 5 years.
- 3 Grade 1 & 2 corneal opacities.

Exclusion criteria

- 1 Savrana Shukla
- 2 Associated with diabetes, hypertension, malignancy and acute specific infectious systemic disease.
- 3 Anjana Anaraha.
- 4 Corneal opacities with other complications like adherent leucoma, corneal facet, kerectasia and anterior staphyloma etc.
- 5 Grade 3 corneal opacity.

Groups of treatment

40 patients of Avrana Shukla were randomly selected and equally divided into the following two groups.

SA Group: The patients of this group were applied with Shankhadi Rasakriya Anjana, once a day in the morning for 15 days.

MA Group: The patients of this group were applied with plain Madhu Anjana, once a day in the morning for a period of 15 days.

Method of Application of Anjana: In the morning hours the patient was advised to sit comfortably and 2 drops of Anjana was applied inside of lower eyelid with finger in affected eye. Then the patient was asked to close his eyes and rotate the eye balls for well distribution of the drug in eyes. When the lacrimation stopped, the eye was washed with clean water and wiped with sterilized swab and patient was advised to take rest for a while and not to expose for dust, smoke and bright light etc. The patients were followed up at regular intervals of fifteen days after stopping the treatment for a period of two months.

Assessment Criteria: Patients were assessed with subjective and objective parameters formulated for Avrana Shukla before and after treatment.

Subjective Parameter

1. Lacrimation.
2. Pain
3. Visual improvement

Objective Parameter:

1. Size of the opacity measured in millimeter by slit lamp biomicroscope.
2. Density of the opacity by transillumination test.

3. Pictorial presentation.

Blood and urine routine tests were done according to the need.

Laboratory Investigations:

Grading of Sign and Symptoms for assessment of study

Subjective	Srava or lacrimation: 0-No secretion 1-Mild secretion 2-Moderate secretion 3-Severe secretion
	Vedana or pain: 0-No pain 1-Mild pain 2-Moderate pain 3-Severe pain
Objective	Length and Breadth of Opacity in mm
	Pictorial Representation
	Visual Acuity or Visual improvement if papillary area is involved
	Density of opacity : 1-Faint opacity 2-Semi dense/ whitish 3-Dense/white

Criteria for the assessment of overall effect of therapies

Complete Remission: 100%improvement in signs and symptoms.

Moderate Improvement: 51-99%improvement in signs and symptoms.

Mild Improvement: 1-50% improvement in signs and symptoms.

No Improvement: <1%improvement in signs and symptoms.

Master charts

Statistical Evaluation of results- The obtained data were analyzed statistically. The values were expressed as percentage of Mean reduction, SE, SD, t and P values. The data were analyzed by paired t test. The level of P between 0.10 to 0.001, and P<0.001 was consider as statistically significant and highly significant respectively. P value more than 0.10 results were taken as insignificant.

SA Group	Vedana		Lacrimation		Density of opacity		Visual Acuity		Length of opacity		Breadth of opacity	
	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	0	0	0	0	2	1			11.1	10.9	5	4.8
2	1	0	0	0	2	1			3	2.8	2	1.8
3	2	1	1	0	2	1			5	4.8	2	1.8
4	1	0	1	0	2	1	6/36	6/24	8.3	8.1	8	7.9
5	1	0	1	0	2	1	6/60	6/60	8	7.9	5	4.8
6	0	0	0	0	2	0	6/60	6/60	10.9	10.7	10	9.8
7	1	0	1	0	2	1	6/60	6/36	4	3.8	4	3.8
8	1	0	2	0	2	0	6/60	6/60	10	9.8	10	9.8
9	1	0	1	0	2	1			3	2.9	2	1.8
10	1	0	2	0	2	1	6/24	6/18	7	6.8	8	7.8
11	0	0	0	0	2	1	6/12	6/9	5.1	4.9	5	4.8
12	2	0	1	0	2	1	6/60	6/60	3	2.9	3	2.9
13	1	0	1	0	2	0	6/60	6/60	7	6.8	9	8.8
14	1	0	0	0	2	1	6/60	6/36	5	4.8	5	4.8
15	1	0	1	0	2	1	6/60	6/36	7	6.8	6	5.9
16	1	0	1	0	2	1	6/60	6/60	4.5	4.3	5	4.8
17	1	0	1	0	2	1	2/60	3/60	4	3.8	3	2.8
18	1	0	1	0	2	0	6/60	6/60	7	6.8	6	5.8

MA Group	Vedana		Lacrimation		Density of opacity		Visual Acuity		Length of opacity		Breadth of opacity	
Patient	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
19	1	0	1	0	2	1			4	3.9	1	0.9
20	2	1	1	0	2	1			2	1.9	3	3
1	1	0	1	0	2	1	6/60	6/60	2.2	2.0	1	1.9
2	1	0	1	0	2	1	6/36	6/24	4	3.9	1	0.9
3	1	0	1	0	2	1	6/24	6/24	3.5	3.4	2	1.9
4	1	0	1	0	2	1	6/24	6/24	4	3.9	2	1.9
5	1	0	1	0	2	1	6/24	6/18	2.4	2.4	1	1
6	1	0	1	0	2	1			4	4	2	2
7	2	1	1	1	1	1			4	4	2	2
8	2	1	1	0	2	2			3	2.9	4	3.9
9	3	2	1	0	2	2			2	2	3	2.9
10	1	1	1	1	1	1			2	2	4	3.9
11	1	1	1	1	2	2	6/36	6/24	1	0.9	3	2.9
12	1	1	1	0	1	1			3.4	3.3	4	3.9
13	1	0	1	0	1	1			2	2	3	2.9
14	1	0	1	1	2	2	6/36	6/36	1	0.9	4	3.9
15	0	0	1	1	2	2			3.3	3.2	1	1
16	0	0	1	0	2	1			5	4.9	2	2
17	0	0	1	1	2	1			4	3.9	1	1
18	0	0	1	1	2	2			5.3	5.3	3	3
19	0	0	1	0	1	1			4	4	2	2
20	1	1	1	0	2	1	6/36	6/36	2	2	1	0.9

Results

Effects of Shankhadi Rasakriya Anjana on signs and symptoms of 20 patients of Avrana Shukla

SA Group	Mean		% of reduction in mean score	SD of mean	SE of mean	t' Value	P Value	Remarks
	BT	AT						
Length of opacity in mm	5.9	5.73	2.88	0.047	0.01	17	<0.001	Significant
Breadth of opacity in mm	5.1	4.93	3.33	0.057	0.013	13.08	<0.001	Significant
Visual acuity	6/48	6/41.36	13.83	10	2.67	2.48	<0.05	Significant
Density of opacity	2.0	1.2	40	0.41	0.09	8.89	<0.001	Significant
Lacrimation	0.85	0.25	70.59	0.6	0.13	4.6	<0.001	Significant
Vedana	1.0	0.45	55	0.51	0.11	5.0	<0.001	Significant

Improvement Seen in Sign and Symptoms of patients of Avrana Shukla in SA group

Sign and Symptoms	Unchanged		Mild		Moderate	
	No. of patients	%	No. of patients	%	No. of patients	%
Length of opacity in mm	00	00	20	100	00	00
Breadth of opacity in mm	01	05	19	95	00	00
Visual Acuity	8 out of 14	57.14	06 out of 14	42.86	00	00
Density of opacity	04	20	16	80	00	00
Lacrimation	09	45	01	05	10	50
Vedana	11	55	02	10	07	35

Improvement Seen in Sign and Symptoms of patients of Avrana Shukla in MA group

Sign and Symptoms	Unchanged		Mild		Moderate	
	No. of patients	%	No. of patients	%	No. of patients	%
Length of opacity in mm	09	45	11	55	00	00
Breadth of opacity in mm	08	40	12	60	00	00
Visual Acuity	5 out of 8	62.50	03 out of 08	37.50	00	00
Density of opacity	11	55	09	45	00	00
Lacrimation	10	50	00	00	10	50
Vedana	13	65	01	05	06	30

Effects of Madhu Anjana on signs and symptoms of 20 patients of Avrana Shukla

MA GROUP	BT	AT	% of reduction in mean score	S.D of mean	S.E of mean	t value	P value	Remarks
Length of opacity in mm	3.0	2.95	1.83	0.05	0.012	4.58	<0.001	Significant
Breadth of opacity in mm	2.3	2.24	2.6	0.05	0.012	5	<0.001	Significant
Visual acuity	6/34.5	6/30.75	10.9	5.3	1.87	2.00	<0.10	Significant
Density of opacity	1.75	1.30	25.71	0.51	0.11	4.09	<0.001	Significant
Lacrimation	1.0	0.5	50	0.51	0.11	4.54	<0.001	Significant
Vedana	0.95	0.6	37	0.47	0.11	3.18	<0.01	Significant

Overall improvement seen in sign and symptoms opacity of 40 patients of Avrana Shukla

	SA Group	MA Group
Unchanged	30%	55%
Mild	60%	35%
Moderate	10%	10%

DISCUSSION

Effect on pain: Shankhadi Rasakriya Anjana provided significant relief ($p < 0.001$) in pain of 55% after 15 days of treatment. In this group 35% patients got moderate relief and 10% patients got mild relief in pain. On the other hand Madhu Anjana provided significant ($p < 0.01$) relief in pain of 37% after 15 days of treatment. In this group 30% patients got moderate relief and 5% patients got mild relief in pain. On the basis of above results it can be said that effect of Shankhadi Rasakriya Anjana was better in relieving pain in patients of

corneal opacity in the comparison to Madhu Anjana group.

Effect on Srava: Shankhadi Rasakriya Anjana provided significant relief ($p < 0.001$) in Srava of 70.59% after 15 days of treatment. In this group 50% patients got moderate relief and 05% patients got mild relief in Srava. On the other hand Madhu Anjana provided significant ($p < 0.001$) relief in Srava of 50% after 15 days of treatment. In this group 50% patients got moderate relief. On the basis of above results it can be said that effect of Shankhadi Rasakriya Anjana was better in relieving Srava in

patients of corneal opacity in the comparison to *Madhu Anjana* group.

Effect on length of corneal opacity: *Shankhadi Rasakriya Anjana* provided significant relief ($p < 0.001$) on length of corneal opacity of 2.88% after 15 days of treatment. and 100% patients got mild relief in length of corneal opacity. On the other hand *Madhu Anjana* provided significant ($p < 0.001$) relief in length of corneal opacity of 1.83% after 15 days of treatment and 55% patients got mild relief in length of corneal opacity. On the basis of above results it can be said that effect of *Shankhadi Rasakriya Anjana* was better in relieving length of corneal opacity in the comparison to *Madhu Anjana* group.

Effect on breadth of corneal opacity: *Shankhadi Rasakriya Anjana* provided significant relief ($p < 0.001$) on breadth of corneal opacity of 2.88% after 15 days of treatment. and 100% patients got mild relief in breadth of corneal opacity. On the other hand *Madhu Anjana* provided significant ($p < 0.001$) relief in breadth of corneal opacity of 2.60% after 15 days of treatment and 60% patients got mild relief in breadth of corneal opacity. On the basis of above results it can be said that effect of *Shankhadi Rasakriya Anjana* was better in relieving breadth of corneal opacity in the comparison to *Madhu Anjana* group.

Effect on Visual acuity: *Shankhadi Rasakriya Anjana* provided significant relief ($p < 0.05$) on Visual acuity of 13.83% after 15 days of treatment. and 42.86% patients got mild relief in Visual acuity. On the other hand *Madhu Anjana* provided significant ($p < 0.10$) relief in Visual acuity of 10.9% after 15 days of treatment and 37.50% patients got mild relief in Visual acuity. On the basis of above results it can be said that effect of *Shankhadi Rasakriya Anjana* was better in improving Visual acuity in the comparison to *Madhu Anjana* group.

Effect on density of opacity: *Shankhadi Rasakriya Anjana* provided significant relief ($p < 0.001$) on density of opacity of 40% after 15 days of treatment. and 80% patients got mild relief in density of opacity. On the other hand *Madhu Anjana* provided significant ($p < 0.001$) relief in density of opacity of

25.71% after 15 days of treatment and 45% patients got mild relief in density of opacity. On the basis of above results it can be said that effect of *Shankhadi Rasakriya Anjana* was better in improving density of opacity in the comparison to *Madhu Anjana* group.

Overall relief: Among 20 patients after 15 days of *Anjana* therapy in SA group 60% patients got mild relief 10% patients got moderate relief. Among the 20 patients after 15 days of *Anjana* therapy in MA group 35% patients got mild relief 10% patients got moderate relief.

Follow up: In SA group after completion of follow up study (60 days) all patients showed sustained relief. No recurrence was observed. In MA group after completion of follow up study (60 days) all patients showed sustained relief. No recurrence was observed.

Comparison of the effects:

On the basis of above results it can be said that effect of *Shankhadi Rasakriya Anjana* were more significant in relieving the signs and symptoms of corneal opacity in comparison to *Madhu Anjana* group.

Drug Action

The treatment principles of *Avrana Shukla* is divided into two groups

1 Sthanik Shodhana 2 Sarvadaihika Shodhana

In *Sthanik Shodhana Seka*, *Ashchyotana*, *Gharshana* and *Lekhana Anjana* are explained. Among them *Gharshana* and *Lekhana Anjana* are given utmost importance. In *Sarvadaihika Shodhana Virechana* and *Nasya* is given utmost importance. The treatment principle of *Avrana Shukla* is *Lekhana*, *Gharshana* or *Pratisarana*, especially in the form of *Anjana*. The drug should possess *Lekhana*, *Kaphahara*, *Chakshushya*, *Shothahara*, *Kanduhara* and *Vedanashamaka* efficacy.

The *Shankhadi Anjana* is very good *Lekhana* Drug due to containing drugs like *Shankha Bhasma*, *Shukti Bhasma*, *Yashtimadhu* and *Madhu*. This *Lekhana Anjana* with its efficacy scrapes the vitiated *Kapha* of *Krishna Mandala* by which the vitiation of *Krishna Mandala* gets corrected. These contain *Madhura*, *Tikta*, *Kashaya Rasa*, *Madhura Vipaka*,

Sheeta Veerya and *Tikshna Guna*. Hence these are effective as *Lekhana*, *Gharshana*, and *Pratisaraniya Dravya* without harming peripheral or underlying tissues.

The *Kataka Beeja*, *Shukti Bhasma*, *Yashtimadhu*, *Draksha* and honey are *Pittarakta Shamaka*, *Shoola* and *Shothahara*, *Chakshushya* and *Kandughana*. The fine drugs have very good *Lekhana* efficacy without damaging the underlying tissue due to their smoothening effect, anti-inflammatory effect and also imparts healing effect.

Shukti Bhasma is well known drug used for external and internal usage especially for *Pitta* and *Rakta* disorders.

Draksha has anti-inflammatory, anti-allergic and smoothening activity. It is widely used as one of the components in different medicines of eye disorders. It has *Madhura Rasa Sheeta Veerya* and *Madhura Vipaka*, *Daha Prashamana*, *Jwaraghana*, *Shothahara*, *Raktapittashamaka*. So, it can be used safely in management of eye diseases.

Shankha Bhasma is well known drug commonly used as one of the components in different *Lekhana Anjanas*. It has *Katu Rasa*, *Katu Vipaka*, *Ushna Veerya* and *Laghu*, *Ruksha*, *Tikshna Guna*, *Shothahara*, *Dahahara*, *Amlapitta Hara*, *Vranaropaka* and *Lekhana* efficacy.

Shankha Bhasma and *Shukti Bhasma* is a drug with natural calcium supplements commonly used in most of *Lekhana Anjana Yogas*. It has *Ruksha*, *Sheeta Guna* and efficacy of *Lekhana*, *Gharshana* or *Pratisarana*.

Madhu for having *Madhu Kashaya Rasa*, *Kaphahara* efficacy enhances the potency of compound. The application of medicine spreads to *Netra Patala*, *Sira*, *Dhamani*, *Srotas* disintegrates the vitiated *Doshas* of *Krishna Mandala*. The *Doshas* thus mitigated is removed through *Ashru Srava* and brings normalcy in ocular structures.

Avrana Shukla is caused by derangement of *Kapha Pitta Dosh*. The drugs incor-

porated in *Shankhadi Anjana* are having *Kaphapittahara*, *Shothahara*, *Ropaka*, *Lekhana* and *Chakshushya* properties. Therefore the drug is helpful in *Samprapti Vigatana* of *Avrana Shukla*.

On the basis of all details it can be concluded that both the therapies selected for this study provided significant relief in signs and symptoms of patients of *Avrana Shukla*. But on comparison it was found that *Shankhadi Rasakriya Anjana* provided better relief to patients of *Avrana Shukla* in comparison to *Anjana* application done with *Madhu*.

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