

## A COMPARATIVE STUDY ON THE EFFECT OF *SARVATOBHADRAVARTI ANJANA* AND *SARVATOBHADRAVARTI ARKA ASCHYOTANA* IN THE MANAGEMENT OF ARMA

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### ABSTRACT

**Background and Objective:** *Arma* is the *Shuklagata roga*. *Arma* can be correlated to Pterygium based on character of growth. Pterygium is a common ocular surface disorder capable of causing significant visual impairment and cosmetic deformity. At present surgical treatment is the only satisfactory approach. Recurrence after surgical excision is common and recurred lesions grow more aggressively than the primary lesions. The *Ayurvedic* approach of the disease mainly concentrates on preventing the progression of the disease. With this aim the following clinical study was undertaken. **Materials and Methods:** In present study 40 patients were selected from inpatient and outpatient department of Sri. Jayachamarajendra Institute of Indian medicine, Bangalore. Among them 20 were treated with *Sarvatobhadra varti anjana* and 20 with *Sarvatobhadra varti Aschyotana* for 45 days, twice a day in the morning. Follow up done for 90 days. (Once in 45 days). Assessment done based on scoring given to signs and symptoms according to severity and relief after treatment. With unpaired t-test comparative analysis of overall effect of treatment done in both groups. The results having P value <0.05 were considered statistically significant in this study. **Observation and Results:** The test shows that treatment is statistically significant in Group A compared to Group B. **Interpretation and Conclusion:** after observing results it can be concluded that *Sarvatobhadra varti anjana* is more effective in the management of *Arma* than *Sarvatobhadravarti Arka Aschyotana* in reducing redness, watering, foreign body sensation, burning sensation and thick-jness of *Arma*. The details of clinical observation and result are discussed in the complete work presented here after henceforth.

**Keywords:** *Sarvatobhadra varti anjana*, *Aschyotana*, *Arka*, *Arma*

### INTRODUCTION

The eye is not only most beautiful but the most important sensory organ of the human body, four fifth of all the impressions on the senses come from the eyes. We gain 80% of knowledge through our eyes. Even though eyes are one of the most important organs in

human body, people neglect to care eyes and rarely pay attention until there is some serious vision threatening issue.

Under Ayurvedic classics, *Arma* is described under *Shuklagata netra roga*. Clinical features of *arma* are-

*mamsa vrudhhi* originating from *kaninika sandhi*, *apangasandhi* or from both *sandhis* towards *dristi-mandala* causing loss of vision<sup>1</sup>. Disease Pterygium mentioned in modern science has its similarities with Arma based on its site of manifestation, clinical presentation and surgical method of management.<sup>2</sup>

Pterygium is a common ocular surface disorder characterized by triangular fold of conjunctiva encroaching upon the cornea from either side within the interpalpebral fissure<sup>3</sup>. Worldwide prevalence of Pterygium varies from 1 to 25 percent. Though it occurs worldwide, its prevalence is high in the 'Pterygium belt' between 30 degrees north and 30 degree south of the equator<sup>4</sup>. The prevalence of Pterygium is reported to be 3% in Australians, 23% in blacks in united states, 15% in Tibetans in china, 18% in Mongolians in china, 30% in Japanese and 7% in Singaporean Chinese and Indians<sup>5</sup>. Pterygium occurs more commonly in tropical regions; although the exact mechanism for this is not well known. *Arma* is a common problem in modern era due to global warming, which results in excessive exposure to sunlight because of depletion of ozone layer<sup>6</sup>. Even though the treatment of choice is surgical; the initial stage is managed by medical treatment relating to size and thickness of Arma. There is 30-50% recurrence even after surgery<sup>7</sup>.

Ayurvedic texts have explained many *lekhana yogas* in the initial stage which help in arresting the progression and reducing the *arma* and *kriyakalpa* are the main mode of management in all types of *nethra rogas* and *anjana* is one of the simple yet very effective methods of treatment in Arma. Considering the above factors present study has been taken in order to evaluate the comparative effect of *Sarvatobhadravarti anjana* and *Aschyotana* in the management of *Arma*.

## MATERIALS AND METHODS:

**Source of data:** Patients were selected from the inpatient and outpatient departments of *Shalakyta tantra* and Sri. Jayachamarajendra Institute of Indian Medicine, Bengaluru.

**Selection of patient:** The selection was done on the basis of clinical examination. A careful clinical history of all those patients complaining of *Netraragata*, *Ash-*

*rusrava* and *Toda* were considered. The patients were then subjected to a thorough examination and after establishing the diagnosis, the patients were taken for the clinical study. Total 40 patients were selected for study and they were randomly divided in 2 groups, group A and group B with 20 patients in each group.

### Inclusion criteria:

Patient's age group 20-60 years. Gender- both. Pterygium presented with or without redness, watering, foreign body sensation, Pterygium which limited to limbus., Patients with *pakwa avastha* of eye diseases

### Exclusion Criteria:

*Arma* with other ocular conditions like conjunctival cystic degeneration, neoplastic changes like epithelioma or malignant melanoma. Pseudopterygium will be excluded. Those contraindicated for *Anjana* and *Ashyotana* therapy i.e. those in grief, fever, alcoholic and in diseases of head, Patient with any other systemic disorder, Pterygium completely encroaching the Cornea/Pupil.

**Preparation of Sarvatobhadra varti anjana<sup>8</sup>:** 1 part each of *Haridra*, *Amalaki*, *Pippali*, *Kataka*, *Shweta sarsapa* are taken in equal quantity, pounded in *khalvayantra* (mortar) separately till it becomes fine powder. *Vastraghalana* (filter) is done to get fine powder.

**Table 1:** Showing study design

Group	Treatment	Time of Administration	Duration	Dose	Follow up
A	<i>Sarvatobhadravarti anjana</i>	morning and evening	45 days	1/2hare nu	90 days
B	<i>Sarvatobhadra Aschyotana</i>	Morning and evening	45 days	4 drops	90 days

Then subjected to *bhavana* (triturate) with sufficient quantity of *trikatu kwata* till it become soft in consistency. This is then made into *varthi* (wick) form and dried under shade and preserved in an air tight container. *Anjana* is prepared according to patients need.

**Preparation of Sarvatobhadra arka Aschyotana:<sup>9</sup>** Same ingredients of *Sarvatobhadravarti Anjana* taken in equal quantity in course powdered form and soaked in sufficient quantity of water for overnight. The well soaked drug is transferred to the distillation apparatus and 10 parts of water is added to it. The mixture is

continuously heated till 60% of distilled liquid is collected. After cooling, the distilled liquid (collected *arka*) is preserved in air tight bottles. It is used for *Aschyotana* (eye drops).

**DURATION AND MODE OF ADMINISTRATION OF THE YOGAS:**

**Group A: Shobhanavarti anjana**

**Purvakarma:** The patient is explained about the entire procedure and then patient is made to sit on a knee height chair comfortably

**Pradhana karma:** The eye of the patient is opened with left hand. Then holding the *shalaka*(probe) dipped in *anjana* having *ardha harenu matra* with right hand *anjana* is smeared from *kaneenika sandhi*(inner canthus)to *apanga sandhi*(outer canthus) on the inner side of the eyelid uniformly. It was applied twice a day in the morning and evening for 45days.

**Paschat Karma:** When tears start flowing out of the eye, the eye is washed with lukewarm water or *triphala kashaya*.

**Group B: Sarvatobhadra arka Aschyotana**

**Purva karma-Aschyotana** is done during day time, employing the procedure during night is contraindicated. There is no specific indication of the patient to carry out this therapy. The patient is made to lie down on the treatment table in supine position.

**Pradhana karma-**The lower lid is retracted with left hand. The prepared *Sarvatobhadra Arka* is instilled

with right hand through the dropper one drop at the medial canthus of the eye from a height of 2 *angulas* keeping patients eye open. Following dropping of the medicine it is left undisturbed for prescribed *dharana kala*

**Paschat karma-**Following *Aschyotana karma* the medicine is gently wiped off with a soft cotton cloth. The eyes are then subjected to mild fomentation. For this a pad of cotton is soaked in warm water and the water is squeezed off. This moist warm pad of cloth is placed on the closed eyes.

Follow up period: Follow up study will be undertaken once in one and half months for 3 months after the completion of treatment.

**ASSESSMENT CRITERIA:** Assessment has been done on the basis of clinical observation (subjective and objective) before and after treatment. The result obtained has been statistically analyzed by “Unpaired –t test” and conclusions have been drawn. Effect of the therapies were compared before and after the treatment on the basis of self formulated scoring scale to signs and symptoms in Subjective and Objective parameters

**Subjective Parameters:**

1. Burning sensation, 2. Watering of the eyes,
3. Redness, 4. Foreign body sensation, 5. Thickness

**Objective Parameters:** 1. Pictorial presentation

**Table 2:** Showing Parameters Gradation Index:

Symptoms	Grade – 0 Absent	Grade – 1 Mild	Grade – 2 Moderate	Grade – 3 Severe
<b>Burning sensation</b>	No burning sensation in eyes.	Occasional burning sensation in eyes.	Frequent burning sensation in eyes	Continuously burning sensation.
<b>Watering of eyes:</b>	Absent	Occasional watering of eyes(2-3 times/day)	Intermittent (5-10 times/day)	Continuously (more than 10times/day)
<b>Redness</b>	Absent	Slight redness	Moderate redness	Severe redness
<b>Foreign body sensation</b>	No foreign body sensation	Slight foreign body sensation	Moderate foreign body sensation	Severe foreign body sensation
<b>Thickness</b>	Negligible growth	Had clearly visible episcleral vessels under the body of Pterygium (Atrophic)	Had partially visible episcleral vessels under the body of Pterygium (Intermediate)	Had totally obscured episcleral vessels underlying the body of Pterygium (Fleshy).

**ASSESSMENT OF RESPONSE:** The net result obtained by various parameters of assessment both before and after treatment was taken into consideration

to assess the overall effect of the therapies. Then they were graded in terms of percentage of relief in subjective and objective parameters.

**Table 3:** Showing assessment of response

Excellent response/ improvement	More than 77-100% relief in objective and subjective parameters.
Good response/ Improvement	51-76% relief in objective and subjective parameters.
Moderate response/Improvement	26-50% relief in objective and subjective parameters.
Poor response/Improvement	0-25% relief in objective and subjective parameters.

**OBSERVATION AND RESULTS:**

**Gender:** Out of 40 patients selected for clinical trial in Group A, 12 (60%) were Male and 8 (40%) were female. In Group B, 8(40%) were male and 12 (60%) were female

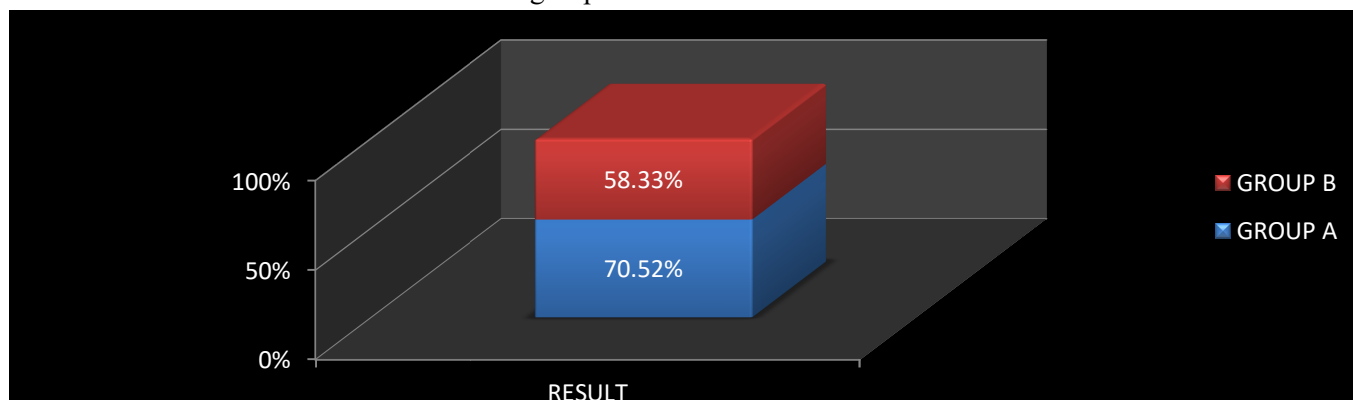
**Age:** Out of 40 patients selected for clinical trial in Group A, 3 (15%) patients were between age group of 21-30 years, 5 (25%) patients were between age group of 31-40 years, 3 (15%) patients were between age group of 41-50 years, 9 (45%) patients were between age group 51- 60 years. In group B, 4 (20%) patients were between age group of 21-30 years, 8(40%) patients were between age group of 31-40 years, 5(25%) patients were between age group of 41- 50 years, 3 (15%) patients were between age group 51- 60 years. **Occupation:** Out of 40 patients, maximum patients were found in agriculture, Business, labour class and housewives. **Symptoms:** Out of 40 patients selected for clinically study 31(77.5%) were

having burning sensation, 26(65%) were having watering, 39(97.55) were having redness, 25(62.5%) were having foreign body sensation and all were having thickness. **Affected side of eye:** Out of 40 patients taken for clinical study, in group A, 2(10%) patients having Pterygium affected only to right eye, 1(5%) patient had only to left eye, 17 (85%) were having Pterygium affected to both eyes. In group B, 3 (15 %) had Pterygium affected only to right eye, 2 (5%) having Pterygium affected to only left eye, 16(80%) patients were having Pterygium affected to both eyes. **Affected site of eye:**Out of 40 patients taken for study, in group A 16(80%) were having Pterygium near medial canthus, 2 (10%) were having Pterygium on lateral side and 2(10%) were having in both medial and lateral canthus. In group B, 17 (85%) were having Pterygium on medial canthus, 1(5%) was having Pterygium on lateral canthus and 2(10%) were having on both medial and lateral canthus.

**Table 4:** Comparative results of treatment in Group A and Group B

Symptoms	GROUP A				GROUP B			
	Mean score		Mean difference	%	Mean score		Mean difference	%
	BT	AF			BT	AF		
Burning sensation	2.10	0.47	1.4	77.38	1.67	0.775	0.89	46.31
Watering	1.80	0.40	1.4	77.78	1.37	0.50	0.87	63.66
Redness	2.30	0.50	1.8	78.22	2.12	0.95	1.17	55.38
Foreignbody sensation	1.15	0.45	0.7	60.87	2	1.05	0.95	47.58
Thickness	2.4	1.22	1.18	48.96	2.25	1.65	0.6	26.75

**Chart 1:** Overall effect of treatment in each group



## DISCUSSION

The ingredients of *Sarvtaobhadra varti anjana* are – *Haridra*, *Amalaki*, *Krishna*, *Kataka*, *Shweta Srarshapa* and *Trikatu* taken from *Gadanigraha* 3<sup>rd</sup> chapter *Shalakyata* *netrarogadhikara* 287<sup>th</sup> shloka. *Haridra* (*Curcuma longa*): it is having *tikta*, *katu rasa*, *ruksha* and *laghu guna*, *ushna veerya*, *katu vipaka* and *kaphavat shamaka*, *pitta rechaka* and *shamaka* property. By virtue of its *Vruna shodhana*, *Lekhana*, *chakshushya* and *rasayana* property it helps to relieve the clinical features of *arma*.

**Amalaki (*Emblia officinalis*):** It has *pancharasa*, *laghu rooksha*, *sheeta veerya*, *tridosahara* and *pit-tashmaka* property hence it helps to reduce watering of eyes, burning sensation and redness of eye. It also acts as *rasayana* and *chakshushya*. **Pippali (*Piper longum*):** Having *katu rasa*, *laghu*, *snigdha*, *teekshna*, *pramathi guna*, *anushna sheeta veerya* does *Lekhana* action. By its *madhura vipaka* has *rasayana* and *chakshushya* property. **Kathaka (*Strychnos potatorum*):** It has *madhura*, *tikta*, *kashaya rasa*, *laghu vishadaguna*, *sheeta veerya* and *madhura vipaka* hence it acts as *vata kaphashamaka*. It is *chakshushya*, *chedana*, *vrana shotha hara* hence helps alleviate the symptoms of *arma*. **Shweta sarsapa (*Brassica campestris*):** it has *katu*, *tikta rasa*, *teekshna*, *ruksha guna*, *ushna veerya*, *katu vipaka* so acts as *kapha vata nashaka*. It acts as *kandugna*, *Lekhana*, *krimignan chakshushaya* properties hence it helps to alleviate symptoms. **Maricha (*Piper nigrum*)**– Having *katu rasa*, *laghu*, *teekshna*, *pramathi guna*, *ushna veerya*, *katu vipaka*, and *kaphavatahara* property. Chemical Composition contains Piperine, alkaloid, Sesanin, Pipalsetrol and acts as *chakshushya*, *Rasayana*, *deepana*. **Sunti (*Zingiber officinale*):** Having *katu rasa*, *guru*, *snigdha*, *rukshsaguna*, *ushna veerya* does *lekhana* action. By its *madhura vipaka*, *vatakaphahara* and having *deepana* and *bhedhana* karma.

The drugs having anti angiogenic and anti tumour property hence it prevent vascularity and reduces the further growth and there by further complications. Also because of anti inflammatory, anti oxidant property which helps to arrest further degeneration of conjunctiva.

By virtue of their combined pharmacological action of *tridhoshashamaka*, *lekhana*, *raktashodaka*, *chakshushya* and *rasayana* formulation has a potency to relieve the clinical features.

**Sarvatobhadra varti arka Aschyotana:** the same ingredients of *Sarvatobhadra varti anjana* is used for making arka and administered in Aschyotana form. Similar action of drugs can be seen in this group. The anjana is administered in suspension form and particle size is in nanometer, thus particle are retained in the conjunctival cul-de-sac, this increases the contact time of drug with the absorption surface. Transient microscopic hyperaemia in the vascularity of the conjunctiva i.e. conjunctival capillaries. In response to this hyperaemia capillaries inturn changes the permeability (i.e. structural integrity of capillaries is altered) for a short duration. This causes drugs to gain access into capillaries which again interconnected with the vascular system of the eye. By the scraping action of drugs there will be reduction in size of growth. The *teekshna* property of drugs helps to flushes out debris and unwanted tissues.

**DISCUSSION ON MODE OF ACTION ASCHYOTANA:** The drug delivered into cul-de-sac to achieve greater availability and has local fast action. The arka is in aqueous suspension form it gets absorbed by conjunctival mucosa and to bulabar conjunctiva. It helps to lubricate the eyes. The absorption mechanism of arka is through vascularity and absorbing surface. Conjunctiva and cornea form main absorbing surface. The corneal epithelium is lipophilic so fat soluble drugs readily penetrates through it. The stroma is hydrophilic so water soluble drugs cross stroma. Arka is in aqueous suspension form and hence it crosses the cornea. Systemic absorption may take place either directly from the conjunctival sac or after the solution flow to the nasal cavity. Systemic absorption of drug through conjunctiva is considered to be nonproductive due to the presence of conjunctival blood capillaries and lymphatics. It can cause significant drug loss into the systemic circulation thereby lowering ocular bioavailability

## CONCLUSION

*Arma* can be correlated to Pterygium as per contemporary science. In contemporary medicine corticosteroid eye drops to reduce redness and inflammation leads to dry eyes. Surgery is recommended when vision is affected but it may recur after surgery. In the present clinical study total 40 patients divided in two different groups treated with *Sarvatobhadra varti anjana* and *Sarvatobhadra varti arka Aschyotana* respectively. After observing the results it can be concluded that *Sarvatobhadra varti anjana* and *Aschyotana* both are effective in pacifying the burning sensation, redness, watering of eyes. *Sarvatobhadra varti arka* has shown significantly less effective than *anjana* and also recurrence was seen in group B during follow up period. No adverse effect of the drug was observed during the course of study after administration. Thus it can conclude that *Arma* can be better managed with *Lekhana anjana* along with conservative line of treatment in initial stage as told in the classics. Better results can be obtained with *Nidana parivarjana*. Thus early and adequate treatment will definitely relieve the patients from the disease without leading too much complication.

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