



## COMPARATIVE STUDY ON THE EFFICACY OF PUSHPAVARTI EYE DROPS AND NAYANASUKHAVARTI EYE DROPS IN THE MANAGEMENT OF ARMA WITH SPECIAL REFERENCE TO PTERYGIUM

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### ABSTRACT

*Arma* is the *Shuklagata roga*. *Arma* can be correlated to pterygium based on the character of growth. Pterygium is a common ocular- surface disorder capable of causing significant visual impairment & cosmetic deformity. At present surgical treatment is the only satisfactory approach, recurrence after surgical excision is common & 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 clinical study was undertaken. The objectives of the study are to evaluate the efficacy of *Pushpavarti* eye drops and the efficacy of *Nayanasukhavarti* eye drops in the management of *Arma* before and after treatment in the group and between the groups. In the present study 30 patients were randomly selected and divided into 2 groups, with 15 patients each. Group A patients were treated with *Pushpavarti* eye drops for 45 days. Group B were treated with *Nayanasukhavarti* eye drops for 45 days. Observations were made on 45<sup>th</sup> day and 2 follow ups on 15<sup>th</sup> and 30<sup>th</sup> day after treatment to observe the possible recurrences. In both the groups subjective and objective parameters were assessed and the results were statistically analysed.

**KEYWORDS :** *Arma*, Pterygium, *Pushpavarti* Eyedrops, *Nayanasukhavarti* Eyedrops.

### INTRODUCTION:-

*Arma* is a *Shuklagata roga*, described in classical texts of Ayurveda. Clinical features of *arma* are *mamsavrudhi* originating from *Kaninika sandhi*, *Apanga sandhi* or from both *sandhi's* towards the *Drushti mandala* causing loss of vision.<sup>1</sup>

The disease pterygium mentioned in modern science has similarities with *Arma* based on its site of manifestation, clinical presentation & surgical method of management. Hence it is apt to correlate *Arma* with pterygium as has been considered in the present clinical study.

Pterygium is a common ocular surface disorder characterized by a triangular fold of conjunctiva encroaching upon the cornea from either side within the inter palpebral fissure.<sup>2</sup> Pterygium is fairly common in our country, India, which is located within the tropics. Basically the treatment of pterygium is surgical, but medical management can be tried in cases where the pterygium is in early stage. Cosmetic intolerance also forces the patient to turn towards surgical management which is not devoid of complication.

In Ayurveda all the *Acharyas* have mentioned about *Lekhananjana* for the treatment of *Arma* which is in early stage and having thin membrane. When the growth encroaches to *Krishnamandala* then it is to be surgically removed by (*Chedana karma*).<sup>3</sup>

*Lekhananjana* which is the proposed line of treatment for *arma* in our classics is an apt option to be considered here. Previous works done have already proved the efficacy of certain *Anjana* in treating *arma*. Considering all the above facts as well as patient comfort the present study has been taken up to compare the efficacy of *Pushpavarti* eye drops with that of *Nayanasukhavarti* eye drops in the management of *Arma*.

### AIMS & OBJECTIVES:-

#### AIM:-

To prove that *Pushpavarti* eye drops clinically more efficacious in the management of *Arma* (pterygium) compared to *Nayanasukhavarti* eye drops.

#### OBJECTIVES:-

1. To evaluate the efficacy of *Pushpavarti* eye drops in the management of *Arma*.
2. To evaluate the efficacy of *Nayanasukhavarti* eye drops in the management of *Arma*.
3. To compare the efficacies of both the groups in the management of *Arma*.

### MATERIALS & METHODS:-

#### Source of data

Patient were selected from the outpatient of Parul Institute of Ayurveda, Vadodara was taken for the study.

#### Selection of patient

The selection was done on the basis of clinical examination. A careful clinical history of all those patients complaining of redness, watering and Foreign body sensation were considered. The patients were then subjected to a thorough examination and after conforming their diagnosis, the patients were taken for the clinical study.

#### Inclusion Criteria:-

Patient age group of 40-70 yrs and of either sex  
Pterygium which is limited to limbus

#### Exclusion Criteria:-

Patients having pterygium associated with anterior and posterior segmental disease of eye.

Patients having Pseudopterygium

Patients having any inflammatory disease of the eye.

Patients with any other systemic disease that can interfere with the course of treatment.

#### Study design:-

Single blind, randomized, comparative clinical trial.

#### Drugs:-

*Pushpavarti* mentioned in *Sharangadhara Samhita*, *Nayanasukhavarti* mentioned in *Bhaishajya Ratnavali*.

*Pushpavarti* Ingredients<sup>4</sup>- *Tila Pushpam* (300gms), *Jati Pushpam* (650gms), *Marica*, *Pippali Tandula*.

*Nayanasukhavarti* Ingredients<sup>5</sup>- *Haritaki* (1kg), *Pippali* (500gms).

#### Preparation of Eyedrops:-

**Soaking:** The preparation area was sterilized with formalin before 24 hours of starting the preparation. 300 gms of coarse powder was soaked in RO water in the ratio of 1:10 for 12 hours.

**1st Distillation:-** Distillation process was started with simple distillation process. 50ml of the beginning of 1st distillation is discarded. 1000ml of distillate was obtained at the end of 1st distillation is collected in sterile beaker. Before collecting, the beaker was cleaned with spirit then washed with distilled water finally kept inside the hot air oven. The distillate is shifted to sterile conical flask capped with stopper.

**Dilution:** - 1 ml of distillate was diluted with 8ml of distilled water in a sterile test tube. The final product was filled in the dropper bottles (each of 10ml) with the help of wash bottle and stored in sterile aseptic condition.

**Preservation:** - Then the distillation was shifted into conical flask & preservative (benzalkonium chloride) was added & thoroughly mixed.

**Packing & Storage:** - Bottles were stored in refrigerated condition till use.

**DURATION AND MODE OF ADMINISTRATION:-**

**DOSE:** 8 drops/day (2 drops in divided dose)

**TIME & DURATION:** 4 times in a day for total period of 45 days.

**MODE OF ADMINISTRATION:** The medicated drops are put into eyes from 2" height by open the eyes of the patient with his left hand and has to put the drops with his right hand.

**Follow up period:**

A follow up period of 30 days was fixed to observe the possible recurrences in cases where relief was obtained by the treatment.

**ASSESSMENT CRITERIA**

**Table No.1 Subjective parameters**

REDNESS	GRADE
No Redness	0
Scanty Redness	1
Moderate Redness	2

Severe redness	3
<b>FOREIGN BODY SENSATION</b>	
No foreign body sensation	0
Occasional foreign body sensation	1
Frequent foreign body sensation	2
Continous foreign body sensation	3
<b>WATERING</b>	
No watering	0
Occasional watering	1
Frequent watering	2
Continous watering	3

**Table No. 2 : Objective parameters**

LENGTH	GRADE
Beginning of the growth (0.5cm)	0
In between the canthus and limbus (0.75cm)	1
In between the canthus and limbus (1cm)	2
Upto limbus (1.5cm)	3
<b>THICKNESS</b>	
Negligible growth	0
Had clearly visible episcleral vessels under the body of pterygium (Atrophic)	1
Had partially visible episcleral vessels under the body of pterygium (intermediate)	2
Had totally obscured episcleral vessels underlying the body of pterygium (fleshy)	3

**OBSERVATION & RESULTS:-**

**Effect of Pushpavarti Eye drops (Table no- 3):-**

Parameters	Average		Difference (d)	% of difference % d	SD	SE	T Value	P Value	Remarks
	BT	AT							
Redness	1.53	0.20	1.33	86.9%	0.414	0.107	1.871	<0.001	HS
Watering	1.20	0.13	1.07	89.1%	0.352	0.091	1.468	<0.001	HS
Foreign body sensation	1.47	0.27	1.20	81.6%	0.458	0.118	2.256	<0.001	HS
Length	2.40	2.40	0	0	0	0	0	>0.05	NS
Thickness	2.27	1.73	0.54	23.7%	0.884	0.228	7.597	<0.05	S

From the data available the following conclusions are made for subjective and objective parameters of Group A. This has been done by Paired T-test.

**Effect of Nayanasukhavarti Eye drops (Table no-4) :-**

Parameters	Average		Difference (d)	% of difference % d	SD	SE	T Value	P Value	Remarks
	BT	AT							
Redness	1.87	0.53	1.33	71.1%	0.834	0.215	2.477	<0.001	HS
Watering	1.07	0.20	0.87	81.3%	0.414	0.107	1.871	<0.01	HS
Foreign body sensation	1.33	0.33	1.00	75.1%	0.617	0.159	2.256	<0.01	HS
Length	2.60	2.60	0	0	0	0	0	>0.05	NS
Thickness	2.67	2.40	0.27	10.1%	0.737	0.190	12.616	<0.05	S

From the data available the following conclusions are made for subjective and objective parameters. This has been done by Paired T-test.

**Table no-5: Comparison between Group-A and Group-B:-**

Parameter	Group	Mean	% of difference	SD	SE	T Value	P Value	Remarks
Redness	A	1.33	86.9%	0.617	0.159	0.000	>0.05	NS
	B	1.33	71.1%	0.488	0.126			
Watering	A	1.07	89.1%	0.458	0.118	1.122	>0.05	NS
	B	0.87	81.3%	0.516	0.133			
Foreign body sensation	A	1.20	81.6%	0.561	0.145	0.823	>0.05	NS
	B	1.00	75.1%	0.756	0.195			
Length	A	0	0	0	0	0	>0.05	NS
	B	0	0	0	0			
Thickness	A	0.53	23.7%	0.516	0.133	1.497	>0.05	NS
	B	0.27	10.1%	0.458	0.118			

From the data available the following conclusions between the groups. This has been done by Unpaired T-test.

**Table no- 6 : Percentage of recurrence of both the groups:-**

Pterygium	Group-A	%	Group-B	%
Recurrence	02	13.3%	04	26.6%
Non-recurrence	13	86.6%	11	73.3%

The higher recurrence percentage shown in Group-B.

**DISCUSSION:-**

**Probable mode of action of Aashcyotana (Eyedrops) & drugs: -**

After topical instillation of a drug, the rate and extent of absorption are determined by the time the drug remains in the cul-de-sac and tear film.



The aqueous solution of (aqueous extracts) different drugs containing the active principles are assimilable form facilitates absorption



Transient microscopic hyperaemia in the conjunctival capillaries. In response to this hyperaemia capillaries in turn altering the structural integrity of capillaries for a short duration. This causes drugs to gain access into capillaries which again interconnected with the vascularity system of the eye.



The drugs which are *tikshna*, *ushna viryas* as well as *lekhana karma* helps to enhancing the *lekhana* property.

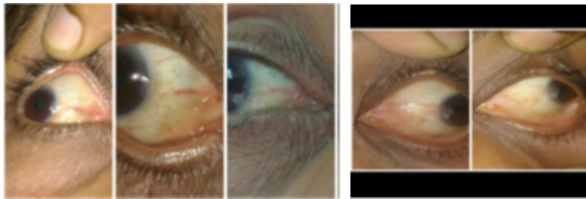


Thus gradually scrapes the fibrovascular growth thereby desired therapeutic effect is obtained.

*Tila Pushpa* & *jati pushpa* having *Kashaya*, *Tikta rasa*, *Pippali* and *marica* having *Katu*, *tikshna rasa*, *Haritaki* having *Kashaya pradhana panca rasa* with *ruksha guna*. *Kashaya rasa* is *grahi*, *stambhana* property.<sup>6</sup> *Ruksha*, *tikta*, *katu rasa* having *Shoshana* property. This will lead to cure *ashru srava*, *mamsa vrudhi*. *Tila pushpa*, *pippali*, *haritaki* having *Lekhana* property and *marica* having *chedana* property which help to scrape the growth. *Rasayana*, *chakshushya* property of drugs prevent further degeneration and helps to retarding the progression of the disease.

### CONCLUSION:-

Pterygium is quiet common. In acute stage, no one gives importance to it later growth progresses towards cornea leading to visual disturbances. Farmers were more in Occupation wise distribution. Patients those were belonged to rural areas were affected more. In this study, general *Arma* has been taken not selected as a specific type in 5 types of *Arma*. In this clinical study, 30 patients were selected who are in acute stage of pterygium where divided into two groups containing each of 15 patients. Two groups were compared and came into conclusion, both the groups were shown effective in redness, watering, foreign body sensation which is statistically significant but *Pushpa varti* eye drops shown better results compared to *Nayanasukha varti* eye drops. In length, there is no improvement in both the groups which showed non-significant results. In thickness, some improvement was seen in both the groups but *Pushpa varti* eye drops showed a better result here too. During 30 days of follow up there was a higher recurrence rate seen in Group-B. Most of the drugs of the present study have *rasayana* property which inhibits the further degeneration of the tissues.



Before & After Treatment of Group-A & Group-B

### RECOMMENDATIONS:-

Other drugs mentioned for *Arma* can be selected for the study.

The same study can be done in large number of patients with a long term of treatment and follow up because the disease is progressive nature.

Other methods mentioned for the treatment of *Arma* can be selected for study.

Anyone specific type of *arma* can be selected for the further study among the 5 types.

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