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To evaluate the clinical efficacy of *Palash Mula Arka* in *Pittaja Netrabhishyanda*

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ABSTRACT

Abhishyanda is one of the *Sarvagata Vyadhi* mentioned by *Acharya Sushruta*. In modern science, signs and symptoms of *Netrabhishyanda* may be correlated with conjunctivitis, which is the inflammatory condition of conjunctiva. *Kavala Dharana*, *Dhumrapana*, *Aschyotana*, *Sechana Putapaka* etc. are various suggested regimens in Ayurvedic texts for the treatment of Netrabhishyanda. Considering this effectiveness of *Palasha* as mentioned by *Acharya* Sushruta, it is planned to study the use of *Palasha Mula Arka Aschyotana* in *Pittaja Netrabhishyanda*. 60 patients having classical signs and symptoms of *Pittaja Abhishyanda* (Acute Bacterial Conjunctivitis) as per Ayurvedic and modern texts were selected for the study. After completion of therapy, mean Conjunctival hyperemia was reduced to 0.2167 ± 0.4086 in Control and 0.5667 ± 0.5040 in Trial Group. *Palasha Mula Arka* was found effective in reduction in conjunctival hyperemia, watering and the number of culture colonies, it was also found effective in burning sensation, discharge, foreign body sensation and photophobia.

Key words: *Abhishyanda, Aschotana,* Conjunctivitis*, Palasha Mula Arka.*

INTRODUCTION

Shalakya is the branch of Ashtanga Ayurveda in which *Shalakas* are mainly used for treatment of various diseases. *Shalakya* is concerned with the diseases of parts of body which are above the clavicle i.e. *Urdhwa Jatrugat* including eye, ear, nose, throat and head.[1] *Shalakya* is concerned with the diseases of parts of body which are above the clavicle i.e. *Urdhwa Jatrugat* including eye, ear nose, throat and head.

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Eyes are greatly valued by ancient Indians and prime importance given for the protection of eyes. They took every measure to ensure good vision and keep eye free from different influences. According to Manu, out of five senses, Eye is held to be most precious. It is like the Sun in the sky. *Vagbhattacharya* in *Ashtanga Hridaya*, has given tremendous importance to the protection of eyes. He says that as long as there is desire for living, so long all efforts should be made always by human beings to protect the eyes.[2]

Acharya Sushruta, the father of ancient surgery mentioned that cause of all eye diseases is *Abhishyanda*. *Abhishyanda* is one of the *Sarvagata Vyadhi* mentioned by *Sushruta*. Its types viz. *Vataja*, *Pittaja*, *Kaphaja* and *Raktaja*.[3] Common sign and symptoms of *Pittaja Abhishyanda* are *Netradaha*, *Netrapaka*, *Pitanetrata*, desire for cold treatment, hot and profuse watering etc.

In modern science, signs and symptoms of *Netrabhishyanda* may be correlated with Conjunctivitis, which is the inflammatory condition of conjunctiva. *Pittaja* Abhishanda can be correlated with Acute Bacterial Conjunctivitis. It is characterized

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by conjunctival hyperemia, chemosis, watering, discharge, burning sensation and foreign body sensation. *Kawala Dharana*, *Dhumrapana*, *Aschyotan*, *Sechana*, *Putpaka* etc. are various suggested regimens in Ayurvedic texts for the treatment of *Netrabhishyanda*.[4] Among the various references *Acharya Sushruta* has clearly mentioned that the *Palasha Mula* and flowers are of great use in the management of *Pittaja Netrabhishyanda*.[5]

So this condition requires appropriate treatment because if it is not treated sensibly then it develops various eye diseases. So looking towards importance of this disease, there is needed to look forward for its right management. Considering this effectiveness of *Palasha* as mentioned by *Acharya Sushruta*,[6], it is planned to study the use of *Palasha Mula Arka* in *Pittaja Netrabhishyanda*.

OBJECTIVE

To assess the efficacy of local application of *Palasha Mula Arka* in *Pittaja Netrabhishyanda* and to find safe, cheap and effective remedy for the treatment of *Pittaja Netrabhishyanda*.

Clinical study

Study Population

Patients attending the OPD of Shalakya Tantra Department provided material for clinical study. 60 patients were selected irrespective of their sex, religion, race, occupation etc. fulfilling the criteria of selection and eligibility for the study.

Ethical Clearance

It was obtained from Institutional Ethical committee IEC of College.

Criteria for selection of patients

Patients having classical signs and symptoms of *Pittaja Abhishyanda* (Acute Bacterial Conjunctivitis) as per Ayurvedic and modern texts.

Exclusion criteria

1. Severe or complicated conjunctivitis having third grade of conjunctival hyperemia and third grade of Chemosis.
2. Patients having corneal ulcer.
3. Patients suffering from serious systemic diseases.
4. Chronic alcoholic patients.
5. Mentally weak patients or in co-operative patients.
6. Those who are not ready to accept the treatment.

Selected patients were divided into Control and Trial groups. Patients in both the groups were asked not to undergo any ophthalmic therapy other than that in the present study from any private practitioner or institute.

MATERIALS AND METHODS

A. *Palasha Mula Arka*

Readymade *Palasha Mula Arka* of Bhavsar Pharmaceutical Works, Vyara, in Tapi District with trade name "*Dhak Ki Jad Ka Arka Netrabindu*" used for the management of Trial Group.

Packaging

For easy administration and to maintain their sterility, ophthalmic eye drops were packed. *Arka* was filled in 50 liters sterile glass containers. Droppers are normally pre-sterilized and packaged in a convenient blister pack.

Packing Bottle size: 14 ml

Dose: 2 – 3 drops 6 times a day.

B. Ciprofloxacin Eye Drop (Ciplox)

Composition:

Ciprofloxacin Hydrochloride, IP equivalent to Ciprofloxacin 0.3 % w/v Benzalkonium chloride NF - 0.01 %w/v (preservative)

Packing bottle size: 5 ml

Dose: 2 – 3 drops 6 times a day.

Patients from both the groups were examined clinically. Thoroughly clinical assessment of ocular signs and symptoms was performed in the eyes as well as visual acuity testing, bimicroscopy and culture of infected eyes. The detailed case histories and informed written consent were obtained for participation in the present study.

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Intervention

Trial Group

Patients of this group were treated with *Palasha Mula Arka Aschyotana* to be instilled 2-3 drops 6 times a day for 7 days at home. All the patients were provided with '*Dhak Ki Jad Ka Ark*' *Netrabindu* bottles and instructed for its use.

Control Group

Patients in this group were managed by Ciprofloxacin Eye Drop (Ciplox), 2-3 drops 6 times a day for 7 days.

All the Patients were instructed to wash their hands and to instill 2-3 drops in each eye. Patients were instructed not to touch the nozzle tip once nozzle is pierced as this may contaminate the solution.

Special instruction given for medicine use

- Keep out of reach of children.
- If you experience persistent discomfort or irritation, stop the medication.
- Close the bottle after use.
- Store in a cool and dry place.

Conjunctival swab of infected eyes was taken on first day of follow up. Only the patients having positive conjunctival swab were included in the study. The number of culture colonies on first day and after 7 days completion of treatment was evaluated for bacterial eradication.

Gradation of clinical parameters

Conjunctival Hyperemia *(Netra Lalima)*

1.	Vessels normal (Normal)	0
2.	Some vessels definitely infected (Mild)	1
3.	Diffusely injected (Moderate)	2
4.	Intensely injected with individual vessel not easily seen (severe)	3

Chemosis

1.	Not present (Normal)	0
2.	Poorly visible (Mild)	1
3.	Clearly visible (Modrate)	2
4.	Very strong (severe)	3

Watering of eyes

1.	Absent	0
2.	Intermittent watering	1
3.	Frequency is more	2
4.	Continuous watering	3

Discharge

1.	No discharge	0
2.	Sticky, watery discharge	1
3.	Frank mucoid discharge	2
4.	Mucopurulent discharge	3

Burning sensation and ocular pain

1.	Not present	0
2.	Not disturbing (Mild)	1
3.	Disturbing (Moderate)	2
4.	Painful (Severe)	3

Foreign body sensation

1.	Not present	0
2.	Not disturbing (Mild)	1
3.	Disturbing (Moderate)	2
4.	Painful (Severe)	3

Photophobia

1.	Absent	0
2.	Present	1

Method for conjunctival swab

Sterile cotton swab was moistened with sterile normal saline. Conjunctival swab was taken from lower palpebral conjunctiva using sufficient force to sluff

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epithelial cells on to swab. Smear of discharge was prepared by gently rolling the swab along glass slides. Number of culture colonies in both the groups before and after treatment was assessed on the basis of following scoring.

- 1 - 10 colonies - 0
- 11 - 100 colonies - 1
- 101 - 1000 colonies - 2
- More than 1000 colonies - 3
- Each type of colonies can be identified - 4

Follow up

Patients of both the groups were recalled for evaluation of conjunctival condition on 1st, 2nd, 5th and 7th day of treatment.

OBSERVATION AND RESULTS

Table 1: Showing *Prakriti* wise distribution of patients.

Prakriti	Control Group		Trial Group	
	n	%	n	%
Vata- Pittaja	12	40.00	12	40.00
Kapha-Pittaja	13	43.33	13	43.33
Vata-Kaphaja	5	16.67	5	16.67

Most of the patients were having *Kapha Pittaja Prakruti* in both the group (43.33%) followed by *Vata Pittaja* (40%).

Table 2: Showing comparison of effect of therapy on conjunctival hyperemia in trial groups by Wilcoxon-matched pairs signed-ranks test.

No	Symptoms	Mean ± SD		Median		P Value
		BT	AT	BT	AT	
1	Conjunctival Hyperemia	1.467 ± 0.507	0.5667 ±0.504	1	0.75	<0.0001
2	Chemosis	0.1833 ±0.3824	0.0500 ±0.2013	0	0	0.1250
3	Watering	1.733± 0.8683	0.3667 ±0.4901	1	0	<0.0001
4	Discharge	0.816± 0.8855	0.3000 ±0.4661	0.5	0	<0.0001
5	Burning Sensation	1.700± 0.5960	0.4333 ±0.5040	2	0	<0.0001
6	Foreign Body Sensation	0.8000 ±0.9248	0.2667 ±0.4498	0	0	<0.0002
7	Photophobia	0.2167 ±0.3869	0.0500 ±0.1526	0	0	<0.0078

In the Trial Group, mean Conjunctival Hyperemia at baseline was 1.467 ± 0.5074 and it reduced to 0.5667 ± 0.5040 after 7 days treatment of *Palasha Mula Arka Aschyotana*, as p value is <0.0001 shows significant result.

The difference between BT and AT was statistically highly significant. This indicates that the effect of *Palasha Mula Arka Aschyotana* in Trial Group showed a marked reducing trend in Conjunctival Hyperemia throughout the study. Likewise in symptoms viz. discharge, burning sensation, foreign body sensation, photophobia result was observed significant. However in chemosis it did not shows significant result. (Table 2)

Table 3: Showing comparison of effect of therapy on conjunctival hyperemia in control groups by Wilcoxon-matched pair's signed-ranks test.

No	Symptoms	Mean ± SD		Median		P Value
		BT	AT	BT	AT	
1	Conjunctival Hyperemia	1.567±0.504	0.216±0.408	2	0	<0.0001
2	Chemosis	0.233±0.568	0.0333± 0.126	0	0	0.0625
3	Watering	2.067±0.6915	0.1333± 0.3457	2	0	<0.0001

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4	Discharge	0.7667±0.8584	0.0666±0.1729	0.5	0	<0.0001
5	Burning Sensation	1.717±0.7154	0.2500±0.4869	2	0	<0.0001
6	Foreign Body Sensation	0.9333±0.9353	0.1167±0.4086	1	0	<0.0001
7	Photophobia	0.2000±0.4068	0.0333±0.1826	0	0	0.0625

The difference between BT and AT was statistically highly significant which indicates that Conjunctival Hyperemia reduced after Ciprofloxacin Eye Drop therapy. The difference between BT and AT was statistically highly significant. This indicates that the effect of *Palasha Mula Arka Aschyotana* in Trial Group showed a marked reducing trend in Conjunctival Hyperemia throughout the study. Likewise in symptoms viz. discharge, burning sensation, foreign body sensation, result was observed significant and in chemosis, photophobia it did not showed significant result (Table 3)

Table 4: Showing statistical comparison between Trial and Control Groups at different treatment levels by Mann-Whitney test.

No	Symptoms	Mean ± SD		Median		p Value
		Gr - A	Gr - B	Gr - A	Gr - B	
1	Conjunctival Hyperemia	0.5667±0.504	0.2167±0.408	0	0.75	0.657
2	Chemosis	0.050±0.201	0.0333±0.1269	0	0	0.9864
3	Watering	0.366±0.490	0.1333±0.3457	0	0	0.0395
4	Discharge	0.3000±0.4661	0.0666±0.1729	0	0	0.0569
5	Burning Sensation	0.433±0.5040	0.250±0.4869	0	0	0.1228
6	Foreign Body Sensation	0.2667±0.4498	0.1167±0.4086	0	0	0.1015
7	Photophobia	0.0500±0.1526	0.0333±0.1826	0	0	0.3383

After completion of therapy, mean Conjunctival Hyperemia was reduced to 0.2167 ± 0.4086 in Control and 0.5667 ± 0.5040 in Trial Group. The difference between two medians of control mean AT and Trial AT differs significantly showing better results of Ciprofloxacin Eye Drop than *Palasha Mula Arka*. In all symptoms except discharge there was no difference observed in both the intervention.

Table 5: Comparison of effect on culture colonies of therapy in Trial and Control Groups by paired't' test.

Group	Mean ± SD		Median		p value
	BT	AT	BT	AT	
Trial	1.700±0.7381	0.6667±0.6738	1.75	0.50	<0.0001
Control	1.500±0.6159	0.1833±0.2780	1.25	0.00	<0.0001

In objective criteria of therapy i.e. culture colonies in trial group the result after treatment was significant as p-value <0.0001. (Table 5)

Table 6: Statistical comparison of number of culture colonies between Control and Trial Groups at different treatment levels by paired t' test.

Group	Mean ± SD		Median		p value
	BT	AT	BT	AT	
Trial	1.700±0.7381	0.6667±0.6738	1.75	0.50	<0.0001
Control	1.500±0.6159	0.1833±0.2780	1.25	0.00	<0.0001

Mean of Culture Colonies at baseline 1.500 ± 0.6159 was reduced to 0.1833± 0.2780 after completion of therapy in Control Group. There was highly significant difference between BT Vs AT, showing effect of Ciprofloxacin Eye Drop in reducing No. of Culture Colonies. (Table 6)

In the Trial Group, mean of Number of Culture Colonies at baseline was 1.700±0.7381 that reduced

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to 0.6667±0.6738 after treatment. The difference between both treatment levels was statistically highly significant. Thus the mean Number of Culture Colonies was reduced significantly in both Control and Trial Groups.

Discussion

Acharya Sushruta has described "*Abhishyanda*" under the heading of *Sarvagata Roga*. It is '*Vedhya' Sadhya Vyadhi* i.e. cured by blood letting. *Acharya Sushruta* has described 4 types of *Abhishyanda*. *Pittaja Abhishyanda* was selected as problem for the study. The signs and symptoms of *Pittaja Abhishyanda* resembles with acute bacterial conjunctivitis. It is an inflammatory disease in which there is an inflammation of the conjunctiva which is characterized by conjunctival hyperemia, chemosis, watering, discharge, burning sensation, foreign body sensation, photophobia. *Vagbhatta* has mentioned the *Aschyotana* as *Adya* treatment of eye diseases. It reduces pain, itching, foreign body sensation, watering and hyperemia. In eye diseases, when *Dosha Dushti* is *Prabala* then "*Parisheka*" is used but in *Alpa Dosha Dushti* "*Ashchyotana*" is useful. *Palasha Mula* has *Pittashamaka* and antimicrobial activity, therefore *Palasha Mula Arka* was selected for the present study.

Mode of action

Palasha Mula is *Sheeta*, *Kashaya* and has *Pittashamaka* property. Burning sensation might be reduced by *Pittashamaka* property of *Palasha* Mula. *Palasha Mula* is *Sheeta*, *Kashaya* and *Tikta*, and has *Pittaghna* property due to which it reduces '*Daha'* of *Pitta* and hence Photophobia may be reduced.

Ciprofloxacin eye drop reduces burning sensation by reducing bacterial toxins due to reduction in bacterial colonies. Thus *Palasha Mula Arka* proved its antimicrobial property but comparatively it reduces lesser no. of colonies than Ciprofloxacin.

Probable Action of *Palasha Mula Arka Aschyotana*

Abhishyanda is the initial pathological change in developing eye diseases and *Pitta* is the initiating factor. Hence *Aschyotana* can be applied in diseases of mild to moderate *Pitta* vitiation. *Samprapti* of *Pittaja Abhishyanda* is *Pitta Pradhana*. Action of local treatment modality i.e. used *Aschyotana* is *Kashaya* and *Tikta Rasa Pradhana* which is capable of breaking *Samprapti* of *Vyadhi*.

Palasha Mula is known for its effectiveness in various types of eye diseases for a long time. *Palasha Mula Arka* is extremely potent in curing different acute and chronic ophthalmic conditions without any side effects or any local damage to sclera, cornea or other delicate eye structure.

Conclusion

Palasha Mula Arka was found effective reduction in Conjunctival Hyperemia, Watering and the Number of culture colonies, it was also found effective in burning sensation, discharge, foreign body sensation and Photophobia. However it has shown less efficacy in Chemosis compare to ciprofloxacin. Watering was reduced over the treatment period either by Ciprofloxacin Eye Drop and *Palasha Mula Arka*. But Ciprofloxacin was found more effective than *Palasha Mula Arka*. In sign Chemosis and photophobia ciprofloxacin has not shown too much efficacy. Both the therapies found equally effective in reducing Burning Sensation. *Palasha Mula Arka Aschyotana* as well as Ciprofloxacin Eye Drop showed equal effect in reducing Foreign Body Sensation. Thus *Palasha Mula Arka* and Ciprofloxacin Eye Drop were equally effective in reducing Chemosis, Burning Sensation, Discharge, Foreign Body Sensation and Photophobia. *Aschyotana* is effective in improving conjunctival status i.e. in management of *Pittaja Abhishandya*. Considering the results of the study, the application of *Palasha Mula Arka Aschyotana* can be recommended as effective and safe ophthalmic solution. In the present study, it was observed that the *Palasha Mula Arka* was comparably effective in the management of *Pittaja Netrabhishyanda*, hence it can be said that *Palasha Mula Arka* can be used as an alternative cheaper remedy for the management of *Pittaja Netrabhishyanda*. However, further similar studies on a larger sample size can be done in this direction.

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