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# Meta analysis of clinical studies on the effect of various Ayurvedic formulations on *Arma* w.s.r. to Pterygium

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## ABSTRACT

*Arma* is very common ophthalmic ailment in temperate environment like India. It has been described under *Shuklagta Sadhya Vyadhi* in Ayurveda. It is widely compared with Pterygium now a days for which surgical intervention is the only method of salvation. Few works have been done in the field of Ayurveda on this disease. Three clinical trials have been conducted on *Arma* in *Netra Roga* O.P.D. of *Shalaky Tantra* in NIA *Arogyashala*. First clinical trial was conducted in 2009-2010 in which two drug namely *Pippalyadi Anjana & Triphala Ghrita* were given to 45 patients divided in 3 groups for 2 month. In second clinical trial, conducted in 2011-2012, two drugs i.e. *Nayana Sukha Varti & Lauhadi Guggulu* were prescribed to 40 patients of *Arma* randomly divided into 2 groups for 2 months. Third clinical trial was conducted in 2014-2015, two drugs i.e. *Vyoshadhya Varti* and *Chandrodaya Varti* were prescribed to 40 patients of *Arma* randomly divided into 2 groups for 1 month. Marked relief in form of statistical analysis was observed in all three studies. No adverse or toxic effects were observed in either of the trials. Hence on the basis of above studies it can be concluded that Ayurvedic formulations can provide cost effective and safe treatment for *Arma* (pterygium).

**Key words:** *Arma, Pterygium, Pippalyadi Anjana, Triphala Ghrita, Nayana Sukha Varti, Lauhadi Guggulu, Vyoshadhya Varti, Chandrodaya Varti.*

## INTRODUCTION

The eye is the “window of soul” and holds special importance among all the sense organs. Without vision the day and night are same and this beautiful world is useless even if one possess plenty of wealth.<sup>[1]</sup> “*Arma*” is one of the *Shuklagata Roga*.<sup>[2]</sup> It is described as continuous growth in *Shuklamandal*, in

which a wing like growth is gradually developing from either *Kaneeenika Sandhi* (inner canthus) or *Apanga Sandhi* (outer canthus) or from both sides towards the *Krishna Mandala*, causing discomfort in the eye. It is a common problem encountered in *Shalaky* practice. On the basis of signs and symptoms described in modern medical science, the disease ‘*Arma*’ can be correlated to ‘pterygium’.<sup>[3]</sup> Duke Elder defines pterygium as a triangular shaped degenerative and hyperplastic process, occurring medially and laterally in the palpebral aperture, in which the bulbar conjunctiva encroaches onto the cornea. Pterygium is a degenerative condition of the sub conjunctival tissues which proliferates as vascularised granulation tissue to invade the cornea, destroying the superficial layers of the stroma and Bowman’s membrane, the whole being covered by conjunctival epithelium.

The most noticeable features of pterygium are its geographical distribution. The distribution of

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pterygium is worldwide but survey shows higher rates of pterygium are seen in countries near the equator. A pterygium occurs with higher frequency (above 10%) in warm, sunny areas between 30 degree latitude north and south of the equator. It is more common in the pre equatorial "pterygium belt"<sup>[4]</sup>

*Arma* is a type of *Mamsavridhi* (muscle like growth) hence *Acharyas* have indicated *Lekhana* and *Chedana* as the mainstay of treatment. In initial stage of *Arma*, where the growth is thin and confined to a small area limited to *Shukla Mandala*, use of *Lekhana Anjana*<sup>[5]</sup> is indicated whereas when it is thick, fleshy, and extensive and encroaches the *Krishana Mandala* then exision is advised. *Acharya Sushruta*, *Vagbhata*, *Yogaratanakar*, *Bhavprakash*, *Chakradatta*, *Bhaishjya Ratnawali* etc. had mentioned many types of *Anjana* preparations for the management of *Arma* in initial stages. In these studies, patients of *Arma* fulfilling the inclusion criteria were registered from OPD/IPD of P.G. Department of *Shalaky Tantra*, NIA, Jaipur. Their individual and comparative effects were revealed in these three clinical studies.

## AIMS AND OBJECTIVES

1. To study the efficacy of "*Pippalyadi Anjana*"<sup>[6]</sup> and "*Triphala Ghrita*"<sup>[7]</sup> in the Pterygium.
2. To study the role of "*Nayan Sukha Varti*"<sup>[8]</sup> and "*Lauhadi Guggulu*"<sup>[9]</sup> in the Pterygium.
3. To evaluate the efficacy of "*Vyoshadi Varti* and "*Chandrodaya Varti*" in the Pterygium.

## MATERIALS AND METHODS

### Inclusion Criteria

- Clinically diagnosed patient of *Arma* (Pterygium)
- Age between 20 to 60 years.

### Exclusion Criteria

- Patients not willing for trial.
- Age below 20 years and above 60 years.
- The patients in which pterygia is involving the pupillary area
- Any inflammatory disease of eye.

- Any systemic disease.

### Study Design

#### In first study

A total number of 45 patients with signs and symptoms of Pterygium were registered and randomly divided into 3 groups viz.

- **Group I** - 15 patients were administered *Pippalyadi Anjanam* with rose water for LA.
- **Group II** - 15 patients were administered *Pippalyadi Anjanam* in eyes with *Triphalam Ghritam* orally after food.
- **Group III** - 15 patients of pterygium (*Arma*) were administered only *Triphalam Ghritam* orally after food.

#### In second study

Total number of forty (40) patients with signs and symptoms of pterygium were registered and randomly divided into the following 2 groups.

#### Group A

20 patients were administered *Nayansukha Varti* locally with honey two times in a day for two months.

#### Group B

20 patients were administered *Lohadi Guggulu* orally two tab twice daily with water along with *Nayansukha Varti* as *Anjana* with honey two times a day for two month.

**Duration of Trial:** 2 months.

#### In third study

**Group I** - 20 registered patients of Pterygium (*Arma*) were administered *Vyoshyadi Varti*, one *Harenu Matra* locally with honey once a day (morning) for 30 days.

**Group II** - 20 registered patients of Pterygium (*Arma*) were administered *Chandrodaya Varti*, one *Harenu Matra* locally with honey once a day (morning) for 30 days.

**Assesement Criteria**

The patients were diagnosed on the basis of the features described in Ayurvedic text and Modern text.

*Mansa Vriddhi* (fleshy growth of conjunctival tissue)

- *Raga* (Redness/congestion of conjunctiva)
- *Vedana* (Pain in eyes)
- *Daha* (Burning Sensations)
- *Sopha* (Swelling of conjunctival tissue/ chemosis)
- *Prakash Ashahisnuta* (Photophobia)
- *Gharsha* (Foreign body sensation )
- Although no inflammatory signs and symptoms have been attributed to *Arma* or pterygia but due to conjunctival surface irregularity some patients also present with mild *Vedana*, *Daha*, *Gharsha* and *Raga*.

**OBSERVATION AND RESULT**

**In first study**

**Effects of Pippalyadi Anjana (Group-I)**

*Pippayadi Anjana* provided significant relief in *Raga* (100%), *Vedana* (77.78%), photophobia (69.23%), *Sopha* (57.8%), blurred vision (57.69%), *Daha* (55.55%), foreign body sensation (53.57%), and *Mamasa Vriddhi* in *Shukla Mandala* (35.13%).

**Effect of Pippalyadi Anjana<sup>[1]</sup> & Triphala Ghritam (Combined) (Group-II)**

Combined group effect provide significant relief in *Vedana* (100%), *Daha* (100%), *Raga* (100%), *Sopha* (90%), *Mansa vriddhi* (40%), Photophobia (75%), foreign body sensation (71.42%), Blurred vision (60.74%).

**Effects of Traiphalam ghritam (Group-III)**

*Traiphalam Ghritam* provided significant relief in blurred vision (52.38%), *Daha* (50%), *Raga* (31.57%), foreign body sensation (12.5%). The result shows Group-I have 65.48% improvement which is moderate, Group-II has 70.37% improvement which is also moderate, while in Group-III shows 68.50%

improvement which indicates moderate improvements.

**In second study**

Effects of *Nayansukha Varti* (Group - I)

*Nayansukha Varti* provided 72.22% relief in irritation (marked improvement), 58.53% in *Raga* (moderate improvement), 57.14% in *Daha* (moderate improvement), 60% in foreign body sensation (moderate improvement), 20.45% in *Mansa Vriddhi* (unchanged), and 33.33% in blurred vision (mild improvement).

Effects of *Nayansukha Varti* along with *Lohadi Guggulu* (group II)

The second group provided 76% relief in irritation, 85.71% in burning sensation, 72.5% in redness, 65.75% in foreign body sensation, 27.27 % in blurred vision and 35.55 % in *Mansa Vriddhi*.

**In third study**

Effect of *Vyoshadi Varti Anjana* (Group I)

*Vyoshadi Varti* provided 80%, relief in foreign body sensation, 78.9% relief in Lacrimation, 73.61% relief in Photophobia, 75.71 % relief in *Raga*, 69.96% relief in blurred vision, 69.93% relief in vascularity, 16.44 relief in width of neck of pterygium, 13.01% relief in length of pterygium mass and 13.70% relief in *Mamsa Vriddhi*.

Effect of *Chandrodaya Varti Anjana* (Group II)

*Chandrodaya Varti* provided 14.97% relief in *Mamsa Vriddhi*, 64.98% relief in lacrimation, 70.02% relief in photophobia, 70% relief in foreign body sensation, 75.08% relief in blurred vision, 73.84% in *Raga*, 73.6% in vascularity, 15.11% in length of pterygium mass, 17.88% relief in width of neck of pterygium.

**RESULTS**

Symptoms	PA <sup>1*</sup>	PA& TG <sup>2*</sup>	TG <sup>3*</sup>	NV <sup>4*</sup>	NV&L G <sup>5*</sup>	VV <sup>6*</sup>	CV <sup>7*</sup>
<i>Raga</i>	100%	100%	31.57%	58.53%	72.5%	69.96%	-
<i>Vedana</i>	77.78%	100%	-	-	-	-	-

<i>Sopha</i>	51.8 %	90%	-	-	-	-	-
<i>Praskash Ashahisn uta</i>	69.23 %	75%	-	72.2 2%	76%	75.7 1%	70.2 %
<i>Gharsha</i>	53.57 %	71.42 %	12. 5%	60%	65.75 %	80%	70%
<i>Mansa Virdhi</i>	35.13 %	40%	-	20.4 5%	35.55 %	13.7 0%	14.9 7%
<i>Daha</i>	55.55 %	100%	50 %	57.1 4%	85.71 %	-	-

1\*- Pippalyadi Anjana, 2\*- Pippalyadi Anjana & Triphala Ghritam, (Combined), 3\*- Triphala Ghritam, 4\*-Nayansukha Varti, 5\*- Nayansukha Varti & Lohadi Guggulu (Combined), 6\*-Vyoshadi Varti Anjana, 7\*- Chandrodya Varti Anjana.

## DISCUSSION

*Arma* is a common eye problem, found more commonly in population residing in tropical and subtropical area. Risk factors include outdoor work, exposure to UV radiation, dark skin complexion, dry and dusty polluted environment, genetic predisposition. Pterygium is a common ocular disorder in India because of the geographic location and climatic conditions. *Arma* is a type of *Mamsasvridhi* (muscle like growth), hence *Acharyas* have indicated *Lekhana* and *Chedana* as the main stay of treatment. In initial stage of *Arma*, where the growth is thin and confined to a small area limited to *Shukla Mandala*, use of *Lekhana Anjana* is indicated whereas when it is thick, fleshy, and extensive and encroaches the *Krishana Mandala* then excision is advised. In modern parlance as well, surgical excision is the definitive treatment, though not devoid of complications and recurrence causing more spread in recurrence stage. Therefore, in present study it was tried to assess the effect of non surgical approach of *Arma* by *Lekhana Karma* so as to promote a cheap, cost effective non surgical approach for *Arma* (Pterygium). Risk factors for Pterygium development appear to be predominantly environmental in nature. The major environmental factor for the development of Pterygium is exposure to sun light or UV-B radiation.

## Mode of Action of Pippalyadi Anjanam and Traiphalam Ghritam

In the first study *Pippalyadi Anjana* and *Traiphala Ghritam* having ingredients like *Pippali* and *Triphala* possess Anti-inflammatory, Anti-bacterial, Antioxidant property. *Daruharidra* having Anti-inflammatory, Anti-bacterial, Anti-tumour, Anti-oxidant property. *Saindhava Lavana* is having *Sukshma Guna* and *Lekhana Karma* properties hence commonly used as drug for *Pratisarana*. Honey has Anti-inflammatory and Anti-bacterial properties.

## Mode of Action of Nayansukha Varti and Lohadi Guggulu

In the second study *Nayansukha Varti* and *Lohadi Guggulu* having ingredients like *Pippali* and *Triphala* possess anti-inflammatory, anti-bacterial and anti-oxidant properties. *Guggulu* is having anti-inflammatory, anti-bacterial, anti-tumor and anti-oxidant property. *Lauha Bhasma* is having *Ruksha*, *Sukshma Guna* and *Lekhana Karma* properties.

## Probable mode of action of Chandrodya Varti and Vyoshadi Varti<sup>[2]</sup>

Both the drugs contain mainly *Katu*, *Tikta*, *Kashaya Rasa*, *Laghu*, *Ruksha*, *Tikshana Guna* and *Ushna Virya*. Maximum of the drugs are having *Lekhaniya* properties which are responsible to give best effect in *Lekhana Karma*. *Arma* is (*Mamsa Dhatu Dusta*) *Kapha* predominant *Tridoshaja Vyadhi*. Looking into the pathogenesis of *Arma* it become clear that the Ayurvedic treatment having *Kaphanashaka* and *Lekhana* properties can effectively control this disease. So *Vyoshadi Varti* and *Chandrodya Varti* seem to be ideal treatment for *Arma*. Hence the *Anjana* mentioned in the above trial are effective in regression the growth of *Arma* and there by preventing in progression in cases of progressive pterygium.

## CONCLUSION

All the above studies indicate that *Pippalyadi Anjanam* and *Triphala Ghritam* are very effective in *Arma*. Combined group effect provides mark improvement in *Raga*, *Vedana*, *Daha*, *Sopha*,

photophobia and foreign body sensation. *Nayansukha Varti* provides 72% relief in irritation. *Nayansukha Varti* and *Lohadi Guggulu* is very effective in controlling irritation burning sensation and redness. *Vyoshadi Varti* is effective in control in the symptoms of foreign body sensation, lacrimation and photophobia. *Chandrodaya Varti* is very effective in blurred vision, foreign body sensation, lacrimation and photophobia.

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