



LOCAL OCULAR THERAPEUTICS FOR NETRA ROGAS (AN OVERVIEW)

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ABSTRACT

Ayurveda is one among the ancient science which aims for “swasthasya swasthya rakshanam athurasya vikara prashamanam”, that is to maintain the health of a healthy individual and cure the disease in the diseased. Shalaky Tantra is the branch which deals with the Urdhwajatrugatha vikaras that is Netra, karna, Nasa and Mukha rogas and different modalities of treatment has been explained in classics for the same. Among them KRIYAKALPAS are unique therapeutic procedures explained for different diseases of eyes, they are Tarpana, Putapaka, Anjana, Bidalaka, Seka, Aschyotana and Pindi. Acharya Sushrutha has mentioned separate chapter for kriyakalpa and has explained procedures there. Seka, Bidalaka and aschyotana are the procedures performed in Aama vastha of the disease which are advised in inflammatory process of eyes, whereas Tarpana, Putapaka and Anjana are performed in Niramavastha of the disease and has the ability to reach the posterior segment of eye. KRIYAKALPAS are most effective, preventive and curative topical procedure which are used for strengthening eyes and it also improves vision. It also plays a major role in overcome the complications and arrest the progress of the disease. Kriyakalpas are the topical treatments which has Trans-corneal permeation and has the ability to cross Blood-ocular barrier.

KEYWORDS: Urdhwajatrugatha vikara, Tarpana, Putapaka, Anjana, Bidalaka, Seka, Aschyotana, Seka, Aama, Nirama.

INTRODUCTION

Our Ayurvedic Acharya's has mentioned that the eye is ranked as one of the most important sense organ “sarvendriyanam Nayanam Pradhanam”^[1] and is of utmost importance to maintain the health of eyes and alleviate any disorder of eye in an effective manner. So, the acharya has mentioned the local therapeutic procedures to cure ocular diseases.

Acharya sushrutha, sharanghadhara, vagbhatta, Charaka and others have mentioned different therapies for the Eyes.

- The diseases of outermost parts of cornea and conjunctiva can be treated effectively with topical treatments and any inflammations of these structures which are carried to inner segments are treated effectively with kriyakalpa.^[2] E.g.seka, Aschyotana
- Tarpana is one of the routes of topical administration to alleviate posterior segment disorders and also degenerative changes of eye.
- Kriyakalpas are the visista chikitsa in Shalaky Tantra told by our acharyas for the management of netra vikaras.

- Kriyakalpas can also be used as swastha samrakshana to maintain the proper functioning of netra and to maintain the functional integrity of sense organs.

KRIYA / KARMA / ACTION

- Action in the form of curative effort is known as karma.^[3]
- Karma is the action present in the matter is the cause of combination and separation.
- Karma is the action relating to something to be achieved.

KALPA / KALPANA / YOJANA

- Kalpa is art of preparing medicine (specific formulations)

KALPANA PRAYOJANA

By virtue of appropriate *samyoga* and *vishlesa* that is addition and elimination of ingredients, kala (time) and samskara (processing) – by this even a small quantity of drug can produce more powerful effects, or otherwise even a recipe in large quantity may produce very mild effects.^[4]

KRIYAKALPA

- In netra roga chikitsa tarpanaadi kriyas has been told by acharyas and all that procedures are explained in one place under the heading KRIYAKALPA.
- KRIYA – is chikitsa
- KALPANA – is oushadi yoga Kalpana
- Kriyakalpa procedures is a bahirparimarjana chikitsa which exert sthanika effect on the doshas accumulated in the anterior and posterior segment of eye.

KRIYAKALPA TYPES

- सेक आश्च्योतनं पिण्डि बिडालक तर्पणं तथा पुटपाको अन्जनं चैभिः कल्पै नेत्रमुपाचरेत् ॥

1. According to Sushruta: 5 types
2. According to Sharangadhara: 7 types^[5]

Authors	Charaka Samhita	Sushruta Samhita	Ashtanga Sangraha	Sarangadhara Samhitha	Bhava prakasha
References	Chi. sth Ch.26	Ut.ta Ch.18	Su.sth Ch.32	Ut.kh Ch. 7	Netra Adhikara 63
Total	3	5	5	7	7
Seka	-	+	+	+	+
Aschyotana	+	+	+	+	+
Pindi	-	-	-	+	+
Bidalaka	+	-	-	+	+
Tarpana	-	+	+	+	+
Putapaka	-	+	+	+	+
Anjana	+	+	+	+	+



Seka



Aschyotana



Pindi



Bidalaka



Tarpana



Putapaka



Anjana

IMPORTANCE OF AAMA CHIKITSA IN NETRA ROGA**A] Importance of Langhana in Eye disorders**

By doing Langhana for 5 days -Akshi rogas, Kukshibhava rogas, pratishyaya, vrana, jwara all these diseases are pacified.^[6]

B] Aamaja Netranashaka Shadvidha Upaya

Six therapies such as sweda, pralepa, tikta dravya aahara, seka, langhana and a period of 4 days are act as ama pachana in akshiroga associated with ama.^[7]

SEKA AND ASCHYOTANA

Aschyotana therapy administered appropriate to the aggravated doshas quickly cures those diseases in which doshas are not prabala, while seka is advised in prabala doshas.

- Aschyotana is prime method of treatment in all the diseases of eyes.^[8]

SEKA

- सेकस्तु सूक्ष्मधाराभिः सर्वस्मिन्नयने हितः ॥
मीलिताकशस्य मर्त्यस्य प्रदेयश्चतुरङ्गुलात् ॥

- The etymology of seka is sechanam means sprinkling or watering.^[9]
- Seka is pouring in thin streams of any medicated liquid over the closed eye from a height of about 4 angulis for a stipulated period.

Dosha	Type of SEKA	Duration
In disorders of vata	Snehana seka	600 matrakala
In disorders of raktha and pitta	ropana seka	400 matrakala
In disorders of kapha	lekhana seka	300 matrakala

Seka kala

- SEKA can be done either in forenoon or afternoon, but should be done in day time only.^[10]
- Exceptionally, when the disease is severe can do at night times.^[11]

IMPORTANCE OF SEKA

- The doshas gets subsided by Seka, which is similar to the fire extinguished by water.^[12]
- SYNONYMS: Pariseka, sechana

It is bahir parimarjana chikitsa done in aama vastha of netra roga for pachana of doshas.

INDICATIONS OF SEKA

If redness, too much lacrimation, irritation, pain, burning sensation, pricking and tearing pains, ulcerations, swelling and itching of eyes are present then Seka is indicated.^[13]

Indications of Seka and Aschyotana are in purvarupa state of netra rogas. So Seka, Aschyotana, Bidalaka, pindi are advised in prodromal state of Netra vikaras.

PROCEDURE OF SEKA

- First Dipana and pachana drugs are given prior to treatment.
- Acharya dalhana has mentioned laghu bhojana/ abhojana prior to seka.
- Seka medicine (decoction) is prepared.
- The person is made to lie down - face and eyes are cleaned with cotton dipped in warm water.
- The medicated decoction is poured on eyes from a height of 4 anguli.(stream should be thin and continuous).
- Cleaning of eyes with soft cotton cloth and rest the eyes.

MODE OF ACTION OF SEKA

- For the procedure of seka – Kashaya/ ksheera are used.
- It is the virya, karma and prabhava of drugs which acts, when comes in to contact with skin of eyelids, netra sandhi and siras of netra. By these quality of drugs pachana and shamana of netra gata dosha can be attained.
- Principally corneal epithelium which is lypophilic and stroma is hydrophilic, when poured in thin stream provides more drug delivery to cornea and also reduces the surface tension. It is performed on closed eyes.
- Absorption through conjunctiva also occurs when the drug is hydrophilic.

- The corneal layer that is stroma allows rapid passage of drug through endothelium into anterior chamber, so it is advised in all inflammatory diseases of eye pertaining to Anterior segment.

ASCHYOTANA

- सर्वेषामक्षिरोगाणामादावाश्चोतनं हितम्।
- Aschyothana is the important and beneficial procedure to begin with in all ophthalmic diseases.^[14]
- When doshas are not severely vitiated and the disease is in the early stage, it is beneficial.
- It is to be done in day time only with the eye open, with drops of medicine being instilled from a height of about 2 angulis.^[15]
- Aschyothana will relieve:
 - Ruk, toda – painful conditions
 - Kandu – itching
 - Gharsha – irritation
 - Ashru – excessive watering
 - Daha – burning sensation
 - Raga – redness

It should be done on fourth day of disease manifestation or after Ama lakshanas are settled down.^[16]

TYPES AND NUMBER OF DROPS IN ASCHYOTHANA

3 TYPES:^[17]

- Snehana – 10 bindu
 - Lekhana – 8 bindu
 - Ropana – 12 bindu
- Hot in vataja diseases
 - Luke warm in kaphaja diseases
 - Cold in pittaja diseases.^[18]

The medicines should be.

Quality of the medicine	Doshadushti
Ushna	Vataja rogas
Koshna	Kaphaja rogas
Sheeta	Pitta and raktaja rogas

Similarly the qualities like rasa, guna etc. are modified to counteract dosha dushti.^[19]

Dosha dushti	Aschyotana guna
Vata	Tikta rasa, snigdha guna.
Pitta	Madhura rasa, sheeta guna.
Kapha	Tikta rasa, ushna-ruksha guna.

PROCEDURE OF ASCHYOTANA^[20]

- The patient should comfortably lie down on supine position.
- The eye is opened by stretching and pressing Apanga pradesha(lateral end) by left hand.
- With the right hand, medicine is instilled into the open eye.
- The medicine should fall on the eye from a height of 2 angula.
- It is retained for a period of 100 matrakala.
- Then wiped out with a cotton.

Samyak yoga, Atiyoga, Hina Yoga Lakshanas

Samyak yoga	Atiyoga	Hinayoga
Sukhaswapna-avabodhana	Guru	Ruksha
Vaishadyam	Avila	Avila darshana
Varna patavan	Ati snigdha	Ashru adhyam
Nivrutti vyadividwamsa	Ashru	Ashru adhyam
Kriyalaghava	Kandu	Asaha rupa darshana
Prakasha kshamata.	Upadeha	Vyadhi vriddhi.

Mode of action of Aschyotana

- The medicine dropped into the eye enter the Netragata siras and srotas, then eliminate the accumulated malas and removes the vitiated doshas.
- The medicine which is instilled into the eye will be absorbed through Cornea and Conjunctiva and reduce the inflammation of the anterior segment of eye also controls photophobia, Netra raga, netra shola and Ashrusraava.

- It is also called kavalika.

INDICATIONS OF PINDI

- Netra Abhishyanda
- Netragata vana
- Adhimantha
- Netra shotha
- Netra kandu
- Netra shola^[22]

PINDI

- पिण्डी कवलिका प्रोक्ता बध्यते पट्टवस्त्रकैः॥

The Aushada kalka which is made into pinda and kept in vastra and tied to eyes is called pindi.^[21]

Procedure of Pindi

The pindi dravya should be in kola matra, smeared over vastra and then tied around eyes.^[23]

**BIDALAKA**

उत्पन्नमात्रे तरुणे नेत्ररोगे विडालकः। कार्यो दाहोपदेहाश्रुशोफरागनिवारणः ॥

- Bidalaka is defined as application of medicines over the eye lids; avoiding the area of eye lashes; the application of medicine is over the eye is done by mukhalepa Vidhana of sharangadhara.^[24]

- Such a wide range of initial symptoms of eye diseases can be controlled only with proper ingredients of Bidalaka.

Indications of Bidalaka^[25]

Daha	Burning
Upadeha	Discharges
Asru	Excessive tears
Sopha	Swelling
Rāga	Redness/congestion
Toda/bheda/ruk	Different types of pain
Kandu	Scratching
Gharsa	Foreign body sensation



MODE OF ACTION OF BIDALAKA AND PINDI

- Bidalaka acts through skin of eyelids.
- The skin of the lids is very thin and delicate and is joined to cover the subjacent muscles by loose areolar tissue and is free from fat.
- These characteristics explained redness with which extravasation of blood and oedematous swelling occur in this region. Because of this characteristic feature of the anatomy of the lids, medicine which is applied over the lid is absorbed into the palpebral conjunctiva and to bulbar conjunctiva and in turn reduces the inflammation of anterior segment of eye and due to closure of eye helps in epithelialization of cornea and conjunctiva, which are highlighted the indications said by Acharya Charaka.
- The same mechanism is applicable to pindi, and here medicines are tied over eye.

TARPANA

- अथ तर्पणकं वच्मि नेत्र तृप्तिकरं परम् ॥**
Akshitarpana is the procedure by which Sneha is retained in eye.
- Tarpana is the best method which induce tripti (Satisfaction) to the eye, it is a procedure by which eye is nourished, toned up, strengthened and patient feels contentment.^[27]

Tarpana Indications

Fatigued and inactive eyes, darkness in front of eyes, excessive dry and rough eye, irregular/asymmetrical eye.

THICKNESS OF BIDALAKA

Thickness of the paste in bidalaka: is similar to that of mukhalepa.^[26]

- 1. Dosagna: 4 angula
- 2. Visagna: 2 angula
- 3. Varnya : 1/2 angula.

- Refractive errors, cataract, Retinal vascular disorder, macular disorders)
- Shuskakshipaka, computer vision syndrome (after the patient is relieved from itching, redness, and pain)
- difficult to close the eyelids.
- structural and functional visual disturbances (strabismus)
- falling of eyelashes.
- image not clearly formed. (objects appear blur due to accumulation of tears in eye)^[28]

ACCORDING TO VAGBHATA

- Difficulty in the movement of eye ball and eye lids: Stabdhata, kricronmila
- Diseases of Suklamandala: Sirotkata, Siraharsa, Arjuna
- Diseases of Krisnamandala: Savrana sukla and Avrana sukla
- Diseases of Sarva aksi: Abhisyanda, Adhimantha, Anyatovata, Vataparyaya and Suskaksipaka
- Diseases of dominated by swelling- Sotha
- Diseases due to injuries.^[29]

Contra- Indications

- दुर्दिना** :Climatic conditions -Cloudy weather – In dark light pupil will be dilated, in turn irido-corneal angles will be partially closed which will hamper flow of aqueous humour.

- अत्युष्णशीतेषु – changes in the temperature alters the vascularity of vessels in eye which inturn affect flow of aqueous humour.
- चिन्तायासभ्रमेषु (psychological impact): During excessive stress, worries, tiredness leads to pupil dilatation.
- चिन्तायासभ्रमेषु (psychological impact): During excessive stress, worries, tiredness leads to pupil dilatation.
- अशान्तोपद्रवे – under Inflammatory conditions according to sharanghadhara, if associated with ama lakshanas like Raga, Ashru, Shula, Samrambha upadravas then Tarpana is contraindicated.^[30]

Tarpana Kala

- **As per Sushruta** -Either forenoon or afternoon.
- **As per Vagbhata** -Both in morning and evening.
- **According to Ashtanga Sangraha:**
- अथ दिवसस्य अष्टमे भागे :when one eight part of day has elapsed(after 3 hours from sunrise) or during the rest of the day.^[31]

Tarpana Avadhi

Vataja	One Day	Alpadosha
Pithaja	Three Days	Madhyamadoshha
Kaphaja	Five Days	Mahandosha

Retention time of Tarpana

On The Basis of dosa	Duration (In Matrakala)	
	Susruta	Vagbhata
In Swastha/ Healthy Person	500	500 (4-5min)
Vataja netra roga	1000	1000(7-8min)
Pittaja netra roga	800	600(6 min)
Kaphaja netra roga	600	500(4-5 min)

On The Basis of adhistana	Duration (In Matrakala)		In general practice
	Susruta	Vagbhata	
Vartmagata roga	100	300	1 – 2 min.
Sandhigata roga	300	300	2-4 min.
Suklagata roga	500	600	4-6 min.
Krisnagata roga	700	600	6 min.
Dristigata roga	700	700	8 min.
Sarvagata roga	1000	1000	9-10 min.

Pashchat Karma

- After ghee is drained, dough frame is removed.
- Swedana given – greasiness of eyes is cleansed by yavapishta or fomenting the eye with cotton dipped in warm water for sthanika kapha vilayana and sroto shodana.
- Dhumapana – given with Haridra for kapha vilayana.

- According to Videha:

Tarpana can be carried out daily or nirantara or alternate days or with 2 days break or 3 days break depending on dosha and teevratha of vyadhi as well in swasthya.^[32]

Tarpana Procedure

- **Purva Karma**
- Before tarpana, patient should be subjected to shodana procedures like siramokshana/ virechana / Niruha basti/nasya karma, and also patient administered with deepana pachana drugs.
- Preparation of the black gram paste
- Preparation of the patient- Patient is asked to lie down on the table.
- Warming the ghritha.
- **Pradhana Karma**
- Patient eyes are cleaned with cotton.
- The pali around eyes is formed by black gram paste. This is placed around the eyes touching the eyebrow above, nose medially, lateral border of the orbit laterally, maxillary prominence below. Then it is properly stuck to the skin.
- Patient is asked to close the eyes. The lukewarm ghritha is poured into the pali till the immersion of eyelashes, up to the level of eye brows.
- Pali is covered with Nila,Peeta or Harita vastra (cloth).
- Patient is asked to blink his eyes very slowly for a specific period of time.^[33]

- Then a pad of flowers like malathi and mallika should be tied on eyes at night.^[34]

DONT'S DURING TARPANA

- Avoid visualizing bright light
- Avoid watching television, mobile phones.
- Avoid head bath
- Avoid cold and refrigerated food items, curds etc.

- Avoid exposure to wind, cold.^[35]

Features of Samyak Tarpana

Properly done tarpana results in

- Sound Sleep
- Bliss full Awakening
- Clearness of eye
- Perfect colour vision or clarity of Shukla mandala etc.
- Cure of the disease
- Normal functioning of the eye like eye lid movements, response to the light etc.
- Lightness of the eye.^[36]

Features of Heena Tarpana

- Rough or Dryness
- Indistinct vision
- Blurred Vision
- Worsen condition of disease^[37]

Features of Ati – Tarpana

- Sushruta- heaviness, turbidity, too unctuous, lacrimation, itching, sliminess and aggravation of dosha.
- Ashtanga-Hrudaya/ A.S- kaphaja disorders develop.^[38]

Management of Heena and Atitarpita Netra

- Depending on dosha pre dominance and by seeing symptoms treatment is explained.
- Vatpradhana dushti- Snigdha (unctuous) seka
- Pittapradhana dushti- Sheeta seka
- Kaphapradhana dushti- Ruksha (rough) seka.^[39]

BENEFITS OF TARPANA

- Netra is the site of alochaka pitta. Ghrita having Madhura rasa, Madhura vipaka, sheeta virya – acts as a good medicine for mitigating vata – pitta diseases.
- Dosha occupying the eye, get eliminated due to snigdha, sheeta, guru, mrudu and agnivaradhaka properties of ghrita.
- It mitigates the darkness before eyes, roughness, hardness, turbidity of eye and also improves the strength of eye.
- The triphala ghrita, which is generally used for tarpana, is saturated with decoction of various drugs and hence it contains both lipid and watersoluble constituents and it has got very good penetration through various layers of cornea.

MODE OF ACTION OF TARPANA

- Factors influencing penetration of Ghrita in the form of Tarpana procedure are:
 - **Drug related:** a) Lipid solubility of ghrita
 - b) Low molecular size

The topically administered drugs are absorbed through cornea and conjunctiva because of its lipid solubility and

low molecular size it will cross Retinal and Aqueous Barrier to reach posterior segment.

The lipid solubility of drugs cross through corneal epithelium whereas water soluble cross through stroma of cornea, so the drugs which are lipid and water soluble pass more freely through cornea.

- **Vehicle related:** chemical nature of ghritha(liquid / solid form)

The drugs for tarpana are processed with the ghritha which having guna of samskarasya anuvartanath – takes the qualities of the drugs used in processing and facilitates the transportation of drug to the target area and acts as a main vehicle to cross cornea and lipid soluble barriers of eye.

- **Formulation related:** Drug concentration, Osmolality and Ph

Drugs concentration as well as Tonicity and pH of the formulation can be adjusted to obtain the desired and duration of action of the drugs as well as to avoid local irritation.

Acharyas has mentioned contact time according to adhistana in looking to the factors related under formulations.

- Considering the doshkarma, here vata shamana occurs followed by pittashamana.

PUTAPAKA

- स्नेहपीता तनुरिव क्लान्ता दृष्टिर्हि सीदति
तर्पणानन्तरं तस्माद्गबलाधानकारिणम् ॥
पुटपाकं प्रयुञ्जीत पूर्वोक्तेष्वेव यक्ष्मसु ।

IMPORTANCE

- When symptoms of adequate tarpana therapy have appeared Putapaka should be done
- The unctuous substances used for tarpana, makes the eye lethargic after tarpana. so for this reason putapaka seems to be essential measure and it helps to:
 - Reduce the avasada (dullness)
 - Sharpen vision Improve visual power.^[40]



Putapaka Types

3 Types^[41]

1. Snehana Putapaka
2. Lekhana Putapaka

3. Ropana Putapaka

Indications for Putapaka

- Sushrutha opines:
- Putapaka is indicated in all Tarpana sadhya diseases.

Putapaka Type	Indication as per type	Retaining Time
Snehana Putapaka	In ruksha (very dry and rough eyes and in vataja diseases)	100 Matra Kala
Lekhana putapaka	In snigdha (excessively uncted or moist eye) and vata associated with kapha diseases.	200 Matra Kala
Ropana / Prasadana	To improve visual aquity in debility of vision, to alleviate or mitigate vataja, pittaja, raktaja eye diseases, for healing of ulcers arising from pitta and rakta, in healthy person.	300 Matra Kala

Materials used for Putapaka☐ In **snehana** Putapaka

Prepared of ghee, mutton, muscle fat, drugs of sweet taste.

Retention period: 100 matrakala

☐ In **Lekhana** Putapaka

Prepared with liver and meart of animals of jangala desha and drugs possessing lekhana property, dust of iron, copper, conch, saindhava, samudraphena, kasisa, srotonjana and whey.

Retention period: 200 matrakala

☐ In **Ropana** putapaka

Prepared by using liver, bone marrow, muscle fat, muscles of intestine, heart of animals from arid region and drugs possessing bitter, sweet taste are cooked and macerated with honey, ghrita, breast milk and milk.

Retention period: 300 matrakala

Contraindications of Putapaka

Persons who are contraindicated for Tarpana and Nasya and those who are unfit for snehapana are unsuitable for Putapaka therapy also.^[41]



Mutton



Punarnava Choorna



Kora Cloth



Guduchi



Yastimadhu Choorna



Eranda Patra



Vasa Patra



Utpala



Multani Mitti

PUTAPAKA KALPANA• **PURVA KARMA:**

- Preparation of Medicine:
- Equal quantity of meat and paste of medicine is macerated and medicine ball is prepared.
- Then they are wrapped in leaves of eranda, vata, utpala for all the 3 types of putapaka respectively and tied with thread.
- Then a coating of mud is given on wrapped ball and then it is dried.



- Then they are placed in fire of burning coal till the mud becomes red hot.
- After they cool off, coverings of mud and leaves is removed.
- Then the paste of medicine which is inside collected in a clean cloth and squeezed to obtain juice.
- This juice is administered in the same manner as that of tarpana.

Putapaka Kalpana PRADHANA KARMA

- Same as tarpana.

PASCHATH KARMA

- For eliminating the post procedural accumulated kapha, DHUMAPANA is beneficial.
- Then a pad of flowers like malathi and mallika should be tied on eyes at night.
- Looking at bright, luminous and reflecting objects (mirror) or sky should be avoided.
- Breeze is also avoided.
- Restrictions regarding healthy diet and other activities should be followed.
- According to Acharya Sushruta - Dhuma and Sweda should be administered in snehana and lekhana putapaka excluding ropana putapaka.^[42]

BENEFITS OF PUTAPAKA

- Crystal clear vision
- Ability to tolerate breeze and sunlight
- Induces sound sleep
- Blissful awakening
- Feeling of lightness in eye.^[43]

Putapaka Cures

- Daha
- Shopha
- Vedana
- Gharshana
- Srava
- Kandu

- Dushika – netra mala
- Raktaraji (congestion)^[44]

Heenayoga

- Suppuration, lacrimation, tingling sensation / horripilation are the features of heena yoga.

Atiyoga

- pain, swelling, boils, darkness before eyes are the features of atiyoga.

Management of Heenayoga and Atiyoga putapaka therapy

- The above conditions can be managed by proper Anjana, ashchyotana and swedana.
- The mode of action of putapaka is same as tarpana.^[45]

MODE OF ACTION OF PUTAPAKA

- putapaka, though it looks similar procedure like Tarpana, here the effect is different.
- In putapaka, the material used for preparation are vasa, majja, bhasmas are subjected for Agnisamskara. By doing this we will get a fine refined fluid which also contains Sneha, vasa and other medicinal ingredients and when these are subjected to heat, all of them will get segregated and forms a fine liquid which has greater penetrating effect and also has greater Bioavailability of drug and at the same time targeting effect will be there in a faster way.

- The method of preparation of putapaka is similar like bhasma preparation, that is when bhasma are done by shataputi, sahasraputi method it becomes finer and finer so that it will exhibit Nano effect.
- So here the dosage is reduced because Bioavailability will be more and it catalyses other drugs such that it stimulates the other drugs to release the active principles in the formulation

ANJANA

व्यक्तरूपेषु दोषेषु शुद्धकायस्य केवले |

नेत्र एव स्थिते दोषे प्राप्तमञ्जनमाचरेत् ||

- Anjana is a procedure of applying medicines to the inner side of lower lid, either with fingertip or Anjana shalaka (applicator)^[46]
- The word Anjana derived from the root “Anakti Anena Anjanam” that is which spreads in the eye is Anjana.
- It is indicated when doshas are fully manifested and are localized in the eye.
- When to apply Anjana?.....Anjana Time
- Disease should be clearly manifested indicating dosha dushti and adhistana.
- The body is treated for shodana before Anjana.
- The features of dosha dusti are limited only to the eye.
- Eye being teja Pradhan organ is endangered by kapha because of opposite qualities. Kapha vitiation in eye becomes responsible for eye diseases. Hence

ANJANA PATRA

QUALITIES OF ANJANA	MATERIAL USED FOR CONTAINER AND ALSO FOR SHALAKA
Madhura Rasatmaka i.e Sweet Anjana	Suvarna Patra i.e gold utensil
Amla Rasatmaka i.e Sour Anjana	Rajata Patra i.e silver
Lavana Rasatmaka i.e Salty Anjana	Meshashruna patra i.e horny of sheep

ANJANA SHALAKA

- Anjana shalaka is collyrium rod.
- The ends of shalaka should be in the shape of flower bud.
- Circumference of kalaya (round pea)
- 8 angula long
- In the middle of shalaka it should be regular, even, smooth and suitable to be held firmly with the hand.^[48]

TYPES OF ANJANA

3 Types

- Lekhana
- Ropana
- Prasadana
- According to ashtanga sangraha, there are 4 types

for keeping the eye in physiological condition, daily application of Anjana is beneficial in healthy person.

- Souviranjana should be applied daily, whereas rasanjana can be used once in a week for kapha sravana.
- Charaka gives simile for the same:
- Nobel Metal like Gold or Pearl becomes clean and clear by rubbing with cloth after applying oil and becomes lustrous, similarly Anjana, Aschyotana and all the rest of kriyakalpas makes the drusti clear and lustrous like a moon in the clear sky.^[47]

ANJANA INDICATIONS

- It is indicated in pittaja, kaphaja and raktaja netra roga.

ANJANA CONTRAINDICATIONS

- Person who are suffering from Fatigue (shrama), weeping from sorrow (ruditha), anger (krodha), fear (bhaya), fever (jwara), suppression of urges (vegavarodha), diseases of head (shiro dosha) are not suitable for applying Anjana.
- If applied causes redness, pain, blindness, exudation, pain and swelling in eyes.

ANJANA MATRA

- Lekhana Anjana – 1 harenu matra (1-2mg)
- Prasadana Anjana – one and half quantity of lekhanana Anjana.
- Ropana Anjana – double the quantity of lekhanana Anjana.

- Snehana Anjana is the fourth type.

FORMS OF ANJANA

- Sharangadhara tells Anjana can be prepared in the form of pill, liquid, and powder form and are applied to the eyes with the help of shalaka/ finger.^[49]

ANJANA VIDHI

- The physician should open the patient eye with his left hand and holding the rod in his right, apply Anjana either at the kaninika or apanga as found convenient.
- It may be smeared to the inner side of eyelids using the finger itself
- It should be applied very slight at the ends of the eye.

- When to remove anjana?
- Till the tears flow down.
- Then eyes should be washed.^[50]

MODE OF ACTION OF ANJANA

- Anjana is a medicinal preparation which is applied on the lower palpebral conjunctiva. Its active principles penetrate to the posterior chamber of the eye according to their hydrophilicity and lipophilicity mainly through the conjunctiva and cornea by paracellular and transcellular pathways respectively. pH, viscosity, tonicity, molecular size and molecular weight of the active ingredients are highly responsible for the absorption of Anjana.
- Gutika and Churna Anjana have micro particles which may be deposited in the conjunctiva and thereby increase the bioavailability to enhance ocular absorption. The ocular absorption of Anjana may initiate through the conjunctiva and Cornea.
- Considering all these factors it can be said that Anjana therapy may be highly activated in the anterior segment of the eye.
- Anjana should be applied from medial canthus to lateral canthus, and after the application the patient is asked to move the eyeballs and rotate slowly which allows the medicine to spread into the ocular structures.

DISCUSSION

- Kriyakalpas are the ocular therapeutics in the form of topical administration of medications.
- The main objective of kriyakalpa is to attain effective absorption of the medicament through all possible ways to reach the target site, in a specific time to eliminate the diseases.
- Seka, Aschyotana, Pindi and Bidalaka are effective in eliminating inflammations of eye and are effective in aamavasta of netra and in prodromal conditions of eye.
- Extensive forms of Anjana are mentioned in drushti gata rogas.
- Tarpana and Putapaka procedures though they are similar, the drugs used are different in both.
- Putapaka because of Agnisamskara has greater penetrating effect and enhances the effect of tarpana.
- The karmukatha mentioned for Aschyotana in Ashtanga Sangraha and the karmukatha mentioned for Anjana in Sushruta Samhitha is almost the same.
- In Pindi and Bidalaka is the procedure where medicine is applied over the lid and closure of lid is observed which favours epithelialization.

CONCLUSION

- Ayurveda has highlighted unique therapeutics procedures taking into consideration the strength of nidana, dosha, vyadhi, adhishana and samprapthi ghatakas, so considering these kriyakalpas has been mentioned.

- Each branch of Ayurveda has vishista chikitsa, similarly kriyakalpas are the vishista chikitsa for netra in shalakyata tantra told by our Acharyas.
- In acute conditions, where ama prevails then seka, Aschyotana, Pindi and Bidalaka are choice of kriyakalpas.
- Tarpana is the topical unique therapeutic procedures which cross the barriers of eye and alleviate posterior segment diseases.
- Tarpana reduces the symptoms and arrest the further progress of disease and nourishes the ocular tissues.
- The drugs used in the ghritha is the specific formulations made by our Acharyas to cross the various barriers topically.
- Contraindications are highlighted with the knowledge of patho - physiology of eye and also with the influence of environment in relation to tarpana.
- It has an important role in preventing netra vikaras.
- It is safe and easy to practice and can be implemented in general practice and hospitals.
- Kriyakalpas are selected depend on the strength, part and dosha involved in eye.
- Kriyakalpas have a say in reaching the patalas also both from exterior to interior and from interior to exterior.
- Kriyakalpas can be used as both preventive as well as curative.
- Kriyakalpas are Non-invasive and cost- effective procedures.
- Kriyakalpas are selected on the basis of Avastha of disease and dosha in eye.

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