

KRIYAKALPAS: UNIQUE OCULAR THERAPEUTIC MODALITIES IN AYURVEDA

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ABSTRACT

Ayurveda, one of the world's most ancient medical sciences, is founded on the principle of "Swasthasya swasthya rakshanam athurasya vikara prashamanam"—preserving the health of the healthy and curing ailments of the diseased. *Shalakyta Tantra*, a specialized branch of Ayurveda, focuses on disorders occurring above the clavicle, known as *Urdhwajatrugata Vikaras*, including diseases of the eyes, ears, nose, and oral cavity. Classical Ayurvedic texts describe several therapeutic strategies for these conditions, among which *Kriyakalpas* occupy a unique position as specialized local ocular procedures. The major *Kriyakalpas* comprise *Tarpana*, *Putapaka*, *Anjana*, *Bidalaka*, *Seka*, and *Aschyotana*. *Acharya Sushruta* dedicated an exclusive chapter to these therapies, detailing their methodologies and applications. Procedures such as *Seka*, *Bidalaka*, and *Aschyotana* are indicated during the *Aamavastha*

(acute or inflammatory stage), while *Tarpana*, *Putapaka*, and *Anjana* are preferred during the *Niramavastha* (chronic or post-inflammatory stage), possessing the potential to influence the posterior segment of the eye. *Kriyakalpas* serve as powerful, preventive, and curative topical

treatments that not only strengthen ocular tissues and enhance visual function but also help to prevent complications and halt disease progression. Their effectiveness is attributed to trans-corneal absorption and their ability to cross the blood-ocular barrier, making them a cornerstone of *Ayurvedic* ocular care.

KEYWORDS: *Ayurveda, Shalakyā Tantra, Kriyakalpa, Tarpana, Putapaka, Anjana, Bidalaka, Seka, Aschyotana, Urdhwajatrugata Vikara, Aamavastha, Niramavastha, Ocular therapy, Trans-corneal permeation, Blood-ocular barrier.*

INTRODUCTION

In *Ayurveda*, the eyes are regarded as the most vital among all sensory organs, as stated by the *Acharyas* — “*Sarvendriyanam Nayanam Pradhanam*^[1]” — emphasizing the necessity of maintaining ocular health and effectively managing visual disorders. To achieve this, classical *Ayurvedic* scholars have detailed a range of localized therapeutic measures specifically aimed at preventing and treating eye diseases.

Eminent *Acharyas* such as *Sushruta, Sharangadhara, Vagbhata, and Charaka* have elaborated various treatment modalities for ocular conditions.

- Disorders affecting the outer layers of the eye, including the cornea and conjunctiva, respond well to topical therapies. Inflammatory conditions involving these structures, which may extend to deeper ocular segments, are effectively managed through *Kriyakalpa* procedures like *Seka* and *Aschyotana*.
- Among these, *Tarpana* serves as a vital form of topical therapy beneficial in treating posterior segment pathologies and degenerative eye disorders.
- *Kriyakalpas* represent specialized therapeutic interventions (*Visishṭa Chikitsa*) within *Shalakyā Tantra*, formulated by ancient scholars for the comprehensive management of *Netra Vikaras* (eye diseases).
- Besides their curative function, *Kriyakalpas* also play a significant preventive role (*Swastha Samrakshana*), preserving ocular function and maintaining sensory balance.

Kriya / Karma / Action

- The term *Karma* denotes an action undertaken as a therapeutic or curative effort.^[2]
- It signifies the inherent activity present in matter, responsible for processes of combination (*Samyoga*) and separation (*Viyoga*).

- Essentially, Karma refers to purposeful action directed toward achieving a desired outcome.

Kalpa / Kalpana / Yojana

Kalpa pertains to the art of preparing medicines, involving specific formulations and procedural techniques.

Kalpana Prayojana

Through the precise application of *Kalpana Prayojana*—which utilizes appropriate *Samyoga* (combination), *Vishlesha* (separation), *Kala* (time), and *Samskara* (processing)—even a small quantity of a well-formulated medicine can yield potent therapeutic effects.^[3] Conversely, improper preparation or excessive formulation may result in diminished efficacy.

Kriyakalpa

- In the management of *Netra Roga Chikitsa* (ocular diseases), the classical *Ayurvedic* texts describe a series of therapeutic procedures such as *Tarpana* and related practices, collectively known as *Kriyakalpa*.
- The term *Kriya* refers to *Chikitsa* (treatment or therapeutic action), while *Kalpana* signifies *Aushadhi Yoga Kalpana*—the formulation and preparation of medicinal combinations.
- Thus, *Kriyakalpa* represents a distinct group of *Bahirparimarjana Chikitsa* (external therapeutic measures) that act locally (*Sthanik Chikitsa*) on the *Doshas* accumulated within both anterior and posterior segments of the eye.

Types of *Kriyakalpa*

- As per *Acharya Sushruta*: Five types of *Kriyakalpa* are mentioned.
- As per *Acharya Sharangadhara*: Seven types have been enumerated.^[4]

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

<i>Putapaka</i>	-	+	+	+	+
<i>Anjana</i>	+	+	+	+	+

Importance of *Aama Chikitsa* in *Netra Roga*

A. Significance of *Langhana* in Eye Disorders

According to *Ayurvedic* principles, *Langhana* plays a crucial role in the management of ocular ailments. Performing *Langhana* for five consecutive days has been described as effective in alleviating a range of disorders such as *Akshi Roga* (eye diseases), *Kukshi Bhava Roga* (abdominal disorders), *Pratishyaya* (rhinitis), *Vrana* (ulcers), and *Jwara* (fever).^[5]

B. *Amaja Netranashaka Shadvidha Upaya*

When ocular diseases are associated with *Aama* (morbid metabolic toxins), six specific therapeutic measures—*Sweda* (sudation), *Pralepa* (external application), *Tikta Dravya Ahara* (bitter dietary regimen), *Seka*, *Langhana*, and a treatment duration of four days—serve as classical *Aama Pachana Upayas* (detoxifying methods) for *Akshi Roga*.^[6]

SEKA AND ASCHYOTANA

- In *Aama Avastha* (the stage of acute inflammation), *Aschyotana* and *Seka* are the foremost line of therapies. *Aschyotana* is indicated when the aggravated *Doshas* are mild (*Aprabala*), while *Seka* is preferred when the *Doshas* are intense (*Prabala*).
- Among ocular therapies, *Aschyotana* is considered the most fundamental and is administered in almost all eye disorders.^[7]

Seka

- The term *Seka* is derived from *Sechanam*, which means sprinkling or irrigation.^[8]
- In this procedure, a continuous, fine stream of medicated liquid is gently poured over the closed eyes from a height of approximately four *Angulas* (finger breadths) for a prescribed duration.
- This helps pacify inflamed *Doshas* and provides soothing relief to the eyes, making *Seka* an essential therapeutic measure during the acute phase of ocular conditions.

<i>Dosha</i>	<i>Seka</i>	Duration
<i>Vata</i>	<i>Snehana</i>	600 <i>matrakala</i>
<i>Rakta & Pitta</i>	<i>Ropana</i>	400 <i>matrakala</i>
<i>Kapha</i>	<i>lekhana</i>	300 <i>matrakala</i>

***Seka Kala* (Time of Administration)**

- The procedure of *Seka* should ideally be performed during the daytime, either in the forenoon or afternoon.^[9]
- However, in cases of severe ocular affliction, *Seka* may be administered at night as an exception.^[10]

Importance of *Seka*

- *Seka* is one of the vital *Bahirparimarjana Chikitsas* indicated during the *Aama Avastha* of *Netra Roga* (acute inflammatory stage) to pacify the aggravated *Doshas*. The therapeutic effect of *Seka* is compared to extinguishing fire with water, symbolizing how this cooling therapy helps subdue ocular inflammation.
- It is also known by synonymous terms such as *Pariseka* and *Sechana*.

Indications of *Seka*

- *Seka* is indicated when symptoms such as redness, excessive lacrimation, irritation, pain, burning, pricking or tearing sensations, ulceration, swelling, and itching of the eyes are present.^[11]
- It is especially beneficial in the *Puravarupa* (prodromal) stage of *Netra Roga*, where it helps prevent further progression of disease. Along with *Seka*, procedures like *Aschyotana*, *Bidalaka*, and *Pindi* are also recommended in such early stages.

Procedure of *Seka*

Prior to treatment, suitable *Dipana* and *Pachana* (digestive and detoxifying) medicines are administered to prepare the patient.

- According to *Acharya Dalhana*, a light meal or fasting (*Laghu Bhojana* or *Abhojana*) is advised before beginning the therapy.
- The medicated decoction (*Dravya*) is then freshly prepared.
- The patient is made to lie down comfortably, and the face and eyes are gently cleansed with cotton soaked in warm water.
- A fine, continuous stream of the medicated liquid is then poured from a height of approximately four *Angulas* over the closed eyes for a prescribed duration.
- After completion, the eyes are wiped with soft, clean cotton, and the patient is advised to rest, avoiding immediate exposure to dust, sunlight, or strain.

Mode of Action of Seka

- In the *Seka* procedure, medicated decoctions (*Kashaya*) or milk formulations (*Ksheera*) are typically utilized. The therapeutic action of *Seka* is primarily attributed to the inherent *Virya* (potency), *Karma* (pharmacological action), and *Prabhava* (specific effect) of the drugs employed.
- When these medicated liquids come into contact with the skin of the eyelids, *Netra Sandhi* (ocular junctions), and the vascular network of the eye, they produce *Pachana* (metabolic correction) and *Shamana* (pacification) of the vitiated *Doshas* localized in the ocular region.
- From a physiological standpoint, the corneal epithelium is lipophilic, while the underlying stroma is hydrophilic.
- Pouring the medicated fluid in a continuous, thin stream helps enhance drug permeation through both layers by reducing surface tension and facilitating corneal uptake—particularly as the procedure is performed on closed eyelids.
- Additionally, the hydrophilic components of the medicated solution can be absorbed through the conjunctiva, further contributing to the overall therapeutic efficacy of *Seka*.
- The corneal stroma permits the swift transmission of medicinal substances through the endothelium into the anterior chamber.

Therefore, *Seka* is particularly recommended in inflammatory disorders affecting the anterior segment of the eye.

Aschyotana

- The classical texts state that *Aschyotana* is the foremost and most beneficial procedure for initiating the treatment of all ocular diseases.^[12]
- It is especially useful when the *Doshas* are mildly aggravated and the disease is in its early stage.
- The procedure is performed during the daytime, with the patient's eyes kept open while medicated drops are instilled from a height of approximately two *Angulas*.^[13]

Aschyotana effectively alleviates a range of symptoms including:

- *Ruk* (pain) and *Toda* (pricking sensation)
- *Kandu* (itching)
- *Gharsha* (irritation)
- *Ashru* (excessive watering)

- *Daha* (burning)
- *Raga* (redness)

This therapy is generally administered on the fourth day after the onset of symptoms or once *Aama Lakshanas* (signs of metabolic toxins) have subsided.^[14]

Types and Number of Drops in *Aschyotana*

According to the classical descriptions, *Aschyotana* is of three types:^[15]

1. *Snehana Aschyotana* – 10 *bindu*
2. *Lekhana Aschyotana* – 8 *bindu*
3. *Ropana Aschyotana* – 12 *bindu*

The temperature of the medicine used varies according to *Dosha* predominance:

- Warm for *Vataja* eye disorders
- Lukewarm for *Kaphaja* conditions
- Cold for *Pittaja* disorders^[16]

The medicines used for *Aschyotana* should be freshly prepared and selected based on the *Dosha* and stage of the disease to ensure optimal therapeutic efficacy.

Quality of the medicine	<i>Doshadushti</i>
<i>Ushna</i>	<i>Vataja rogas</i>
<i>Koshna</i>	<i>Kaphaja rogas</i>
<i>Sheeta</i>	<i>Pitta and raktaja rogas</i>

Similarly the qualities like *Rasa*, *Guna* etc. are modified to counteract *Dosha dushti*.^[17]

<i>Dosha dushti</i>	<i>Aschyotana guna</i>
<i>Vata</i>	<i>Tikta rasa, snigdha guna</i>
<i>Pitta</i>	<i>Madhura rasa, sheeta guna</i>
<i>Kapha</i>	<i>Tikta rasa, ushnaruksha guna</i>

Procedure of *Aschyotana*^[18]

- The patient is made to lie comfortably in a supine position.
- The physician gently opens the eye by stretching and pressing the *Apanga Pradesha* (lateral canthus) using the left hand.
- With the right hand, the medicated liquid is instilled into the open eye from a height of approximately two *Angulas*.

- The medicine is allowed to remain in contact with the eye for about 100 *Matrakala* (a short unit of time).
- After the stipulated period, the excess medication is carefully wiped away using a clean piece of cotton to prevent irritation or discomfort.

Samyak yoga, Atiyoga, Hina Yoga Lakshanas

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

Mode of Action of Aschyotana

- When medicated drops are instilled into the eyes, they permeate the ocular channels (*Netragata Siras* and *Srotas*), facilitating the elimination of accumulated *Malas* and pacifying the vitiated *Doshas*.
- The active principles of the medicine are absorbed through the corneal and conjunctival surfaces, exerting their therapeutic effect primarily on the anterior segment of the eye.
- This process helps reduce inflammation and alleviates symptoms such as photophobia (Aversion to light), redness (*Netra Raga*), pain (*Netra Shoola*), and excessive lacrimation (*Ashru Srava*).

Pindi

- *Pindi* involves placing a medicated paste (*Aushadha Kalka*) inside a clean cloth, forming it into a bolus (*Pinda*), and tying it over the closed eyes.^[19]
- This therapy is also referred to as *Kavalika*.

Indications of Pindi

Pindi is particularly indicated in the following ocular conditions:

- *Netra Abhishyanda* (conjunctivitis)
- *Netragata Vrana* (corneal ulcer)
- *Adhimantha* (glaucoma or severe ocular pain)
- *Netra Shotha* (inflammation or swelling of the eyes)
- *Netra Kandu* (itching of eyes)
- *Netra Shoola* (ocular pain)

Procedure of *Pindi*

The *Pindi* preparation should be made into a bolus approximately the size of a *Kola* (Indian jujube fruit), spread evenly over a clean piece of cloth, and then gently tied around the eyes to allow the medicated paste to act locally.^[20]

Bidalaka

- *Bidalaka* refers to the topical application of medicated paste over the eyelids, while carefully avoiding the area of the eyelashes.
- The procedure follows the *Mukhalepa Vidhi* (method of facial application) detailed by *Acharya Sharangadhara*.^[21]
- This therapy helps alleviate early symptoms of ocular disorders such as burning, pain, swelling, watering, and redness.
- The therapeutic success of *Bidalaka* largely depends on the careful selection of appropriate ingredients, which ensure effective control of these initial manifestations of eye diseases.

Indications of *Bidalaka*

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

Thickness of *Bidalaka*

The thickness of the *Bidalaka* paste should be comparable to that used in *Mukhalepa*^[22] (facial applications).

- For *Doshaghna* (*dosha*-pacifying) purpose – the paste should be about 4 *angulas* thick.
- For *Vishaghna* (detoxifying) purpose – it should be around 2 *angulas* thick.
- For *Varnya* (complexion-enhancing or soothing) purpose – the thickness should be approximately ½ *angula*.

MODE OF ACTION OF *BIDALAKA* AND *PINDI*

Bidalaka and *Pindi* reduce anterior segment inflammation by transdermal absorption of drugs through the thin eyelid skin, which then act on palpebral and bulbar conjunctiva while the closed eye favors healing of cornea and conjunctiva.

- In *Bidalaka*, the medicated paste acts primarily through the skin of the eyelids.
- The eyelid skin is extremely thin and delicate, attached to the underlying muscles by loose areolar tissue and notably lacking in fat.
- Because of these anatomical features, this region shows marked redness, easy extravasation of blood, and oedematous swelling; the same properties also facilitate absorption of medicines applied on the lids into the palpebral and then bulbar conjunctiva, thereby alleviating inflammation of the anterior segment of the eye.
- Keeping the eyes closed during the procedure further supports epithelial healing of the cornea and conjunctiva, which aligns with the indications described by *Acharya Charaka*.
- The same principle applies to *Pindi*, except that here the medicine is enclosed in a cloth pad and tied over the eyes rather than being applied directly on the lid skin.

Tarpana

Akshitarpana refers to the *Ayurvedic* ocular therapy in which medicated *ghee* or oil (*Sneha*) is retained over the eyes for a specific duration.

This procedure deeply nourishes, strengthens, and refreshes the eyes, inducing a sense of satisfaction (*Tripti*) and improving their overall function and vitality.^[23]

Indications

Tarpana is recommended in conditions such as:

- Tired, weak, or inactive eyes.
- Diminished or blurred vision and a feeling of darkness before the eyes.
- Dryness and roughness of the ocular surface.
- Structural or functional irregularities like asymmetry or difficulty closing the eyelids.
- Refractive errors, cataract, retinal or macular disorders.
- *Shushkakshipaka* (dry eye) and computer vision syndrome (when inflammation and pain subside).
- Drooping or loss of eyelashes.

- Blurred or unclear images caused by excessive tearing.^[24]

➤ **As Described by Vagbhata**

Vagbhata mentions *Tarpana* in conditions such as:

- Restricted eye movement or difficulty opening/closing the eyelids (*Stabdghata*, *Krichronmila*).
- Disorders of the white part of the eye (*Shuklamandala*) such as *Sirotpata*, *Siraharsha*, and *Arjuna*.
- Disorders involving the cornea or black portion (*Krishnamandala*) like *Savvana Shukla* and *Avvana Shukla*.
- General eye diseases (*Sarvakshi Vyadhis*) such as *Abhishyanda*, *Adhimantha*, *Anyatovata*, *Vataparyaya*, and *Shushkakshipaka*.
- Eye swelling (*Shotha*) and injuries affecting ocular tissues.^[25]

Contraindications

- Unfavorable climatic conditions (*Durdina*): *Tarpana* should not be performed on cloudy or dim days because the pupil remains dilated in low light, partially closing the iridocorneal angle and obstructing the outflow of aqueous humor.
- Extreme temperatures (*Atiushna* or *Atisheet*): Excessive heat or cold causes vascular changes in the ocular tissues, which can disrupt the normal circulation of aqueous humor and affect the eye's physiology.
- Psychological stress (*Chinta*, *Amasambhram*): Emotional distress, anxiety, or fatigue can lead to dilation of the pupil, making the procedure unsuitable during such conditions.
- Inflammatory eye diseases (*Ashanta upadrava*): As per Sharangadhara, *Tarpana* should be avoided when acute inflammation with *Ama lakshanas*—such as redness, tearing, pain, or irritation—is present, since it can aggravate the symptoms instead of relieving them.^[26]

Tarpana Kala (Ideal Time for the Procedure)

- According to *Sushruta*: *Tarpana* should be performed either in the forenoon or the afternoon, when the environmental conditions are stable and comfortable.
- According to *Vagbhata*: The procedure may be conducted in both the morning and evening hours.
- As per *Ashtanga Sangraha*: The ideal time is after one-eighth of the day has passed—approximately three hours after sunrise—and it can also be done at any suitable time later in the day when conditions remain favorable.^[27]

- According to *Videha*: *Tarpana* may be administered daily, continuously, on alternate days, or with an interval of two or three days. The frequency should be decided based on the predominant *dosha*, the severity of the disease, and also the condition of a healthy person when used for preventive or nourishing purposes.^[28]

Tarpana Procedure

Purva Karma (Pre-procedure)

- Before performing *Tarpana*, the patient should undergo *Shodhana* therapies such as *Siramokshana*, *Virechana*, *Niruha Basti*, or *Nasya Karma* to purify the body.
- The patient should also be administered *Deepana* and *Pachana* medicines to kindle the digestive fire and balance *doshas*.
- A paste of black gram (*Masha*) is prepared for constructing the eye boundary (*Pali*).
- The patient is asked to lie comfortably on a table, and the medicated *Ghrita* is gently warmed for use.

Pradhana Karma (Main procedure)

- The eyes are first cleansed with sterile cotton.
- A circular wall (*Pali*) made of black gram paste is built around both eyes, extending from the eyebrows above, the nasal bridge medially, the outer margin of the orbit laterally, and the cheekbones below. This structure is carefully sealed to prevent leakage.
- The patient is then asked to close the eyes, and lukewarm *Ghrita* is poured into the enclosed area until the eyelashes are submerged, reaching up to the eyebrow level.
- The *Pali* is covered with a clean cloth of blue, yellow, or green color (*Nila*, *Peeta*, *Harita Vastra*).
- The patient should slowly open and close the eyes (blink) at intervals for the prescribed duration to facilitate the therapeutic action of the medicated *ghee*.

Tarpana Avadhi

<i>Vataja</i>	One Day	<i>Alpadosha</i>
<i>Pittaja</i>	Three Days	<i>Madhyamadasha</i>
<i>Kaphaja</i>	Five Days	<i>Mahandasha</i>

Retention time of Tarpana

	Duration (In Matrakala)	
On The Basis of dosha	<i>Sushruta</i>	<i>Vagbhata</i>
In <i>Swastha</i> / Healthy Person	500	500 (4-5min)
<i>Vataja netra roga</i>	1000	1000(7-8min)

<i>Pittaja netra roga</i>	800	600(6 min)
<i>Kaphaja netra roga</i>	600	500(4-5 min)

On The Basis of <i>Adhishtana</i>	Duration (In <i>Matrakala</i>)		In practice
	<i>Sushruta</i>	<i>Vagbhata</i>	
<i>Vartmagata roga</i>	100	300	1 – 2 min
<i>Sandhigata roga</i>	300	300	2-4 min
<i>Shuklagata roga</i>	500	600	4-6 min
<i>Krishnagata roga</i>	700	600	6 min
<i>Dristigata roga</i>	700	700	8 min
<i>Sarvagata roga</i>	1000	1000	9-10 min

Pashchat Karma (Post-procedure care)

- Once the medicated *ghee* is drained, the dough boundary (*Pali*) around the eyes is gently removed.
- *Swedana* (fomentation) is then performed to remove residual greasiness and facilitate localized *Kapha Vilayana* and *Srotoshodhana*. This can be done by applying *Yavapishtha* (barley paste) or by fomenting the eyes with cotton dipped in warm water.
- *Dhumapana* (medicated smoking) using *Haridra* (turmeric) is advised to eliminate *Kapha* from the head region.
- At night, the eyes may be covered with a soft pad made of fragrant flowers such as *Malati* or *Mallika* to provide a soothing and cooling effect.

Don'ts During Tarpana

During and soon after the procedure, the patient should avoid:

- Exposure to bright light.
- Watching television or using mobile phones.
- Taking head baths.
- Consuming cold or refrigerated foods, including curd.
- Exposure to wind or cold environments.^[29]

Features of Samyak Tarpana (Properly Performed Tarpana)

Well-conducted *Tarpana* results in:

- Sound and refreshing sleep.
- Pleasant awakening and a feeling of lightness in the eyes.
- Clear and bright visual perception.
- Restoration of normal ocular color, especially in the *Shukla Mandala*
- Relief from existing eye ailments.

- Normal functioning of ocular structures, including eyelid movement and light reflexes.^[30]

Features of *Heena Tarpana* (Inadequate Procedure)

If *Tarpana* is insufficiently performed, it may lead to:

- Dryness or roughness of the eyes.
- Blurred and indistinct vision.
- Aggravation or worsening of the existing disease condition.^[31]

Features of *Ati-Tarpana* (Excessive *Tarpana*)

- As per *Sushruta*: Overdoing *Tarpana* can lead to heaviness in the eyes, turbidity of vision, excessive unctuousness, persistent watering, itching, sliminess, and aggravation of *doshas*.
- According to *Ashtanga Hridaya* and *Ashtanga Sangraha*: Excessive *Tarpana* may cause the manifestation of *Kaphaja* (*Kapha*-dominant) eye disorders.^[32]

Management of *Heena* and *Ati-Tarpana* *Netra* (Improper or Excessive *Tarpana*)

The corrective approach depends on the predominant *dosha* and observed symptoms:

- *Vata*-predominant vitiation: Treated with *Snigdha Seka* (warm, unctuous fomentation).
- *Pitta*-predominant vitiation: Managed with *Sheeta Seka* (cool fomentation).
- *Kapha*-predominant vitiation: Treated with *Ruksha Seka* (dry or rough fomentation).^[33]

Benefits of *Tarpana*

- The eyes are the principal site of *Alochaka Pitta*. Medicated *Ghrita*, having *Madhura Rasa*, *Madhura Vipaka*, and *Sheeta Virya*, acts as an excellent pacifier of *Vata* and *Pitta*-related ocular disorders.
- Because of its *Snigdha* (unctuous), *Sheeta* (cooling), *Guru* (heavy), *Mridu* (soft), and *Agnivardhaka* (digestive stimulating) properties, *Ghrita* helps eliminate morbid *doshas* accumulated in the eyes.
- It alleviates ocular symptoms such as roughness, hardness, turbidity, and dimness of vision while also strengthening and revitalizing the visual apparatus.
- *Triphala Ghrita*, commonly used for *Tarpana*, is infused with decoctions of multiple herbs. As a result, it contains both lipid- and water-soluble constituents, enabling effective penetration through the corneal layers and enhancing its therapeutic efficacy.

Mode of Action of *Tarpana*

Several factors influence how medicated *Ghrita* acts and penetrates ocular tissues during the *Tarpana* procedure:

1. Drug-related factors

- The *Ghrita* base facilitates drug absorption due to its lipid solubility and small molecular size, enabling deeper penetration through the cornea and conjunctiva.
- Lipid-soluble components pass efficiently through the corneal epithelium, while water-soluble ones move through the stroma.
- Therefore, drugs that are both lipid- and water-soluble diffuse more effectively across the cornea, and some reach the posterior segment by traversing the retinal and aqueous barriers.

2. Vehicle-related factors

- The chemical nature of *Ghrita*—whether in liquid or semi-solid form—significantly affects drug delivery.
- As per the *Ayurvedic* principle of “*Samskarasya Anuvarthanat*,” *Ghrita* absorbs and retains the therapeutic qualities of herbs processed in it.
- It acts as an efficient carrier, helping the active compounds traverse the corneal and lipid-rich ocular layers to reach their site of action.

3. Formulation-related factors

- The drug concentration, osmolality, and pH of the *Tarpana* formulation can be altered to optimize absorption, extend drug action, and prevent irritation.
- Classical texts emphasize tailoring contact time and formulation parameters according to the disease site (*Adhithana*).
- Therapeutically, *Tarpana* first pacifies *Vata Dosha*, followed by *Pitta Dosha*, restoring ocular balance and function.

Putapaka

After adequate signs of *Tarpana* are observed, *Putapaka* is performed. The classical verse indicates that once the eyes become heavy and moist after *Tarpana*, *Putapaka* should be administered to restore their vitality.

Clinical Significance

- Post-*Tarpana*, the eyes may feel dull or sluggish due to excess unctuousness. *Putapaka* counteracts this effect.
- It revitalizes and sharpens visual function, relieves ocular dullness (*Avasada*), and enhances overall vision clarity and strength.

Putapaka Types

3 Types^[34]

1. *Snehana Putapaka*
2. *Lekhana Putapaka*
3. *Ropana Putapaka*

Indications for *Putapaka*

- *Sushruta* opines

Putapaka is indicated in all *Tarpana sadhya* diseases.

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

Materials Used for *Putapaka*

1. *Snehana Putapaka* (Nourishing Type)

- This form of *Putapaka* is prepared using medicated ghee, mutton, muscle fat, and herbs with a sweet taste (*Madhura Rasa*).
- It primarily provides lubrication and nourishment to the eyes.
- Retention period: Approximately 100 *Matrakala*.

2. *Lekhana Putapaka* (Cleansing Type)

- Prepared with liver and meat from animals of *Jangala Desha* (arid zones), along with *Lekhana Dravyas*—substances possessing cleansing or reducing properties.
- Ingredients include iron, copper, conch shell powder, rock salt (*Saindhava*), sea foam (*Samudraphena*), *Kasisa*, *Srotonjana*, and *Takra*.

- This form helps remove excess secretions or deposits from the eye and clears obstructed channels.
- Retention period: Approximately 200 *Matrakala*.

3. *Ropana Putapaka* (Healing Type)

- Prepared using liver, bone marrow, intestinal muscles, heart, and muscle fat from desert animals.
- These are cooked with bitter and sweet-tasting herbs, then macerated with honey, ghee, breast milk, and milk.
- It supports tissue repair, strengthens ocular structures, and promotes healing.
- Retention period: Around 300 *Matrakala*.

Contraindications

Individuals who are unsuitable for *Tarpana*, *Nasya*, or *Snehapana* therapies are also unfit for *Putapaka*, as it involves similar principles of unctuous application and systemic absorption

Putapaka Kalpana

Purva Karma (Pre-procedure preparation)

- Preparation of the medicine:^[1]Equal parts of meat and the medicinal paste are thoroughly mixed and shaped into a spherical mass.
- This mixture is then wrapped in specific leaves — *Eranda* for *Snehana Putapaka*, *Vata* for *Lekhana Putapaka*, and *Utpala* for *Ropana Putapaka* — and tied securely with a thread.
- The wrapped ball is coated with a layer of mud and dried properly.
- It is then placed in a fire pit with burning coal, allowing it to roast until the mud covering turns red hot.
- After cooling, the mud and leaf coverings are removed, and the inner medicated content is collected.
- The juice or extract obtained by squeezing this material through a clean cloth is used for administration, following the same procedure as *Tarpana*.

Pradhana Karma (Main Procedure)

- The actual procedure of *Putapaka* is performed in the same manner as *Tarpana*, where the medicated extract is retained over the eyes for a specific period depending on the type of *Putapaka*.

Paschat Karma (Post-procedure care)

- *Dhumapana* (medicated smoking) is recommended to expel any accumulated *Kapha* after the procedure.
- A soothing pad made of flowers such as *Malati* and *Mallika* is tied over the eyes at night to calm and refresh them.
- The patient should avoid exposure to bright or reflective light (such as mirrors or the sky) and also shield the eyes from wind and breeze.
- A wholesome diet and appropriate lifestyle modifications should be followed as aftercare.
- *Acharya Sushruta* specifies that *Dhuma* and *Swedana* should be given only after *Snehana* and *Lekhana Putapaka*, but not after *Ropana Putapaka*.^[35]

Benefits of *Putapaka*

- Enhances visual clarity, providing crystal clear vision.
- Increases tolerance to sunlight and airflow.
- Promotes sound sleep and pleasant awakening.
- Instills a feeling of lightness and comfort in the eyes.^[36]

Diseases Cured by *Putapaka*

Putapaka is effective in managing

- *Daha* (burning sensation)
- *Shopha* (swelling)
- *Vedana* (pain)
- *Gharshana* (grittiness or friction)
- *Srava* (discharge)
- *Kandu* (itching)
- *Dushika* (ocular impurities or mala)
- *Raktaraji* (redness or congestion)

Complications and Their Management

- *Heenayoga* (Insufficient therapy): Results in suppuration, watering of eyes, tingling, or goosebumps.
- *Atiyoga* (Excessive therapy): Leads to pain, swelling, pustules, or transient darkness before the eyes.
- Management: Both conditions can be corrected through appropriate *Anjana*, *Aschyotana* (eye drops), and *Swedana* (fomentation).

Mode of Action of *Putapaka*

- Although *Putapaka* resembles *Tarpana* in technique, its mechanism and therapeutic impact differ because of its preparation method.
- The ingredients—such as *Vasa* (muscle fat), *Majja* (bone marrow), and various *Bhasmas*—undergo *Agnisamskara* (thermal processing).
- Heating refines the mixture into a potent, fine liquid that retains both oil- and fat-based medicinal components.
- This process enhances drug penetration, increases bioavailability, and ensures faster, targeted therapeutic action within ocular tissues.
- The preparation technique of *Putapaka* closely resembles that of *Bhasma* production. In the *Shataputi* and *Sahasraputi* methods of *Bhasma* preparation, repeated incineration makes the material increasingly fine, eventually attaining nano-sized particles.
- Similarly, in *Putapaka*, the processed materials become extremely fine, enhancing bioavailability. Because of this improved absorption, a smaller dosage suffices, and the formulation also acts as a catalyst, stimulating other ingredients to release their active principles more effectively.

Anjana (Medicated Collyrium)

The term *Anjana* is derived from the root “*Anakti Anena Anjanam*,” meaning “that which spreads over the eye.” It refers to the application of medicated formulations to the inner surface of the lower eyelid, either with the fingertip or using an *Anjana Shalaka* (applicator).

- According to classical texts, *Anjana* should be applied when *doshas* are fully manifested and localized within the eyes.

Time and Indications for Application

- *Anjana* is performed after systemic purification (*Shodhana*) and when the disease is clearly established, showing definite *dosha dushti* confined to the eyes.
- The eyes, being *Tejo-pradhana* (dominated by fire element), are prone to diseases due to the opposing, heavy, and cold nature of *Kapha dosha*.
- Regular use of *Anjana* helps preserve ocular health by preventing *Kapha* accumulation and maintaining clarity of vision.
- *Souviranjana* (soothing variant) should be applied daily, while *Rasanjana* (stimulating type) is recommended once a week to cleanse *Kapha* secretions.

Charaka's simile: Just as gold or pearls achieve enhanced brightness when polished with oil and cloth, similarly, Anjana, Aschyotana, and other Kriyakalpas purify and brighten the Drishti (vision), making it luminous like the moon in a clear sky.^[37]

Indications

Anjana is beneficial in ocular diseases of *Pittaja*, *Kaphaja*, and *Raktaja* origin.

Contraindications

It should not be administered to individuals experiencing:

- Physical or mental fatigue (*Shrama*)
- Crying due to grief (*Rudita*)
- Anger (*Krodha*), fear (*Bhaya*), or fever (*Jwara*)
- Suppression of natural urges (*Vegaavarodha*)
- Head disorders (*Shiro Roga*)

If applied during such states, it may cause redness, pain, discharge, swelling, and even temporary blindness.

Dosage (*Matra*)

- *Lekhana Anjana*: 1 *Harenu Matra* (approximately 1–2 mg)
- *Prasadana Anjana*: One and a half times the dose of *Lekhana Anjana*
- *Ropana Anjana*: Twice the dose of *Lekhana Anjana*

ANJANA PATRA

QUALITIES OF ANJANA	MATERIAL USED FOR CONTAINER AND ALSO FOR SHALAKA
<i>Madhura Rasatmaka</i> i.e. <i>Sweet Anjana</i>	<i>Madhura Rasatmaka</i> i.e. Sweet Anjana
<i>Amla Rasatmaka</i> i.e. <i>Sour Anjana</i>	<i>Rajata Patra</i> i.e. silver
<i>Rajata Patra</i> i.e. <i>silver</i>	<i>Meshashrunaga patra</i> i.e. horn of sheep

Anjana Shalaka (Collyrium Applicator)

- *Anjana Shalaka* refers to the rod or applicator used for applying collyrium to the eyes.
- The tip of the *Shalaka* should be shaped like a flower bud, facilitating smooth application.
- It should have a thickness comparable to a *kalaya* (pea) and be 8 *angula* (approximately 6 inches) long.

- The middle portion must be uniform, polished, and smooth, allowing a firm and comfortable grip during use.^[38]

Types of *Anjana*

According to classical references, three main types of *Anjana* are described

1. *Lekhana Anjana* – possesses scraping and cleansing properties.
2. *Ropana Anjana* – promotes healing and tissue repair.
3. *Prasadana Anjana* – soothes and maintains ocular health.

As per *Ashtanga Sangraha*, a fourth type—*Snehana Anjana* (unctuous or lubricating *Anjana*)—is also recognized.

Forms of *Anjana*

As described by *Sharangadhara*, *Anjana* can be prepared and applied in three physical forms:

- Pill (*Varti*) form
- Liquid (*Drava*) form
- Powder (*Churna*) form

These are applied either using the *Anjana Shalaka* or directly with the finger.^[39]

Anjana Vidhi (Method of Application)

- The physician should gently open the patient's eyelids with the left hand and hold the *Anjana Shalaka* in the right.
- The medicine is applied either at the inner canthus (*Kaninika*) or the outer canthus (*Apanga*), depending on convenience and condition.
- It can also be delicately smeared on the inner surface of the lower eyelid using the finger.
- The application should be light and smooth, particularly at the corners of the eyes.

Removal

- The *Anjana* should remain until tears begin to flow, indicating the desired local effect.
- Afterwards, the eyes should be washed gently to cleanse residual medicine.^[40]

Mode of Action of *Anjana*

- *Anjana* is a medicated preparation applied to the lower palpebral conjunctiva, from where its active ingredients penetrate deeper ocular structures, particularly the posterior chamber.

The absorption occurs primarily through the conjunctiva and cornea — via paracellular (between cells) and transcellular (through cells) pathways.

- The degree of absorption depends on several factors, such as the lipophilicity and hydrophilicity of the drug components, as well as their pH, viscosity, tonicity, molecular size, and weight.
- In the case of *Gutika* or *Churna Anjana*, the formulation contains microparticles that settle on the conjunctival surface, leading to sustained drug release and improved bioavailability. Thus, the therapeutic action of *Anjana* is primarily concentrated in the anterior segment of the eye.
- For effective dispersion, *Anjana* is applied from the inner (medial) to outer (lateral) canthus, and the patient is instructed to move and rotate the eyeballs slowly, ensuring even spread across ocular tissues.

DISCUSSION

Kriyakalpas represent specialized *Ayurvedic* ophthalmic therapies involving the topical administration of medicated substances to the eyes. Their main objective is to achieve targeted absorption of medicines through local pathways for rapid and precise therapeutic effect.

- Procedures like *Seka*, *Aschyotana*, *Pindi*, and *Bidalaka* are particularly useful in managing inflammatory eye conditions and are indicated during the *Aamavastha* (acute or early stage) of ocular diseases.
- *Anjana* is described extensively for *Drishtigata Rogas* (vision-related disorders).
- Though *Tarpana* and *Putapaka* share procedural similarity, the composition and potency of their drugs differ significantly; *Putapaka*, due to *Agnisamskara* (thermal processing), offers deeper tissue penetration and enhanced potency compared to *Tarpana*.
- The mode of action (*Karmukata*) described for *Aschyotana* in *Ashtanga Samgraha* and for *Anjana* in *Sushruta Samhita* are practically similar, both emphasizing targeted delivery into ocular tissues.
- *Pindi* and *Bidalaka* act via transdermal absorption through the eyelids; the closure of the eyes during these therapies promotes epithelial healing of cornea and conjunctiva.

CONCLUSION

Ayurveda emphasizes specialized therapeutic approaches that align with the causative factors (*Nidana*), *doshas*, disease site (*Adhithana*), and pathogenesis (*Samprapti*). *Kriyakalpas*, as

outlined in *Shalaky Tantra*, serve as the distinct and specialized ocular treatments (*Vishishta Chikitsa*) for maintaining and restoring visual health.

- During acute stages with *Aamavastha*, therapies like *Seka*, *Aschyotana*, *Pindi*, and *Bidalaka* are most effective.
- *Tarpana* is a unique topical therapy capable of penetrating ocular barriers, addressing even posterior segment disorders, nourishing visual tissues, and halting disease progression.
- The *Ghritha*-based formulations devised by ancient *Acharyas* are pharmacologically designed to cross ocular membranes and deliver active principles at deeper layers.
- The clearly stated contraindications show the *Acharyas'* deep understanding of ocular physiology, pathology, and environmental influences on eye health.

Overall, *Kriyakalpas* play a vital preventive and curative role in eye care. They are safe, economical, non-invasive, and adaptable for both clinical practice and hospital-based therapy. The selection of a particular *Kriyakalpa* depends on the strength of the patient, the location of the diseased tissue (*Patalas*), and the dominant *Dosha* involved.

Thus, *Kriyakalpas* serve as a comprehensive, targeted, and sustainable approach to both maintain ocular wellness and treat eye disorders.

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