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 ijirset@gmail.com

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Review on Anjana

Pramila¹, Sanfi A.P.M², Shamsa Fiaz³

M.S Scholar, National Institute of Ayurveda, Jaipur, India^{1,2}

Professor and HOD, Department of Shalaky Tantra, National Institute of Ayurveda, Jaipur, India³

ABSTRACT: Ayurveda mentioned 'Ashtang chikitsa' is a comprehensive approach to treatment, with "Urdhvang Chikitsa" being a significant component. Urdhvang Chikitsa focuses on addressing ailments related to the upper body, specifically those above the neck. All vital organs are situated in head & out of them eye is an important organ. Among all the sense organs, the eyes have a special place because vision is essential to a person's social and intellectual growth. As a result, Acharyas have recommended a number of therapeutic and preventive approaches to the treatment of eye conditions. Kriyakalpa serves as the cornerstone of treating ophthalmic disorders, much like Panchakarma in general body care (Kayachikitsa). Drawing from classical texts, therapeutic strategies for eye diseases encompass a blend of topical and systemic treatments. Among these, Netra Kriyakalpas exhibit rapid efficacy on ocular tissues. The Kriyakalpa protocol involves diverse procedures such as Tarpana, Putapaka, Seka, Ashchyotana, and Anjana, specifically targeted at eye ailments. Anjana Karma, a pivotal local intervention, entails the application of herbomineral preparations (Gutika, Raskriya, & Churna) mixed with water onto the lower eyelid margin using a Shalaka. Through paracellular and transcellular pathways across the conjunctiva and cornea, the active constituents of Anjana penetrate into the eye. This therapy demonstrates significant efficacy in both anterior and posterior segment eye disorders. This article presents an Ayurvedic review and explores the potential mechanisms underlying the therapeutic action of Anjana Karma.

KEY WORDS: Ayurveda, kriyakalpa, panchkarma, Anjana karma, hydrophilic, lipophilic.

I. INTRODUCTION

Shalaky Tantra, one of the eight specialized branches of Ayurveda, is devoted to addressing ailments that manifest above the Jatru Pradesha, encompassing the eyes, ears, nose, mouth, throat, and related areas. Among these, the eyes hold a particularly esteemed status among the sensory organs due to their pivotal role in facilitating social interaction and intellectual growth. Indeed, vision is indispensable for acquiring knowledge through direct observation, highlighting the crucial importance of ocular health. As aptly expressed in ancient wisdom, the preservation of vision is emphasized as paramount, as blindness not only alters one's perception of time but also renders the splendors of the world meaningless, irrespective of material wealth. Hence, in the pursuit of maintaining optimal health and vitality, our revered Acharyas have advocated a range of preventive and therapeutic measures, including the application of collyrium, aimed at safeguarding ocular well-being.²

Nearly all the Acharyas have recommended various therapeutic approaches to address ophthalmic ailments, encompassing systemic, surgical, para-surgical, and local or topical treatments. Among these, local treatments stand out as highly specific, effective, and distinctive in the context of eye diseases, termed as "Netra Kriyakalpa." This approach parallels the significance of Panchakarma in general body care (Kayachikitsa). Notably, Netra Kriyakalpa exhibits rapid efficacy on target tissues, including the posterior segment of the eye.

In all kriyakalpas, Anjana has unique therapeutic efficacy for various type of ocular diseases and highly recommended as preventive measure of various eye disorders.

Anjana involves the application of medicinal substances, such as Gutika, Raskriya, or Churna (powder), along the inner side of the lower eyelid margin, either using fingertips or an Anjana Shalaka. Numerous Acharyas have detailed Anjana therapy as a daily practice, particularly highlighting Sauvira Anjana (Antimony sulphide) and Rasanjana (a decoction of Berberista aristata – Daruharidra) mixed with bee honey. This regimen aids in the elimination of excessive Kapha Dosh from the eyes, as they are predominantly governed by Pitta Dosh or the Teja Mahabhuta, crucial for maintaining clarity of vision and proper functioning.^[3,4,5]

Anjana proves beneficial not only for maintaining eye health but also in managing ocular disorders. The definition of Anjana is "Anakthi Thi Anjanam," and the term root is Anji because it provides eyes with mobility, cleanliness, and clarity.[6]

Table 1: Classification of Anjana (acc.to karma)

Sushruta [7]	Vagbhat [8,9]	Sharngadhar [10]	Yogratnakara[11]	Bhavaprakash[12]
Lekhana	Lekhana	Lekhana	Lekhana	Lekhana
Ropana	Ropana	Ropana	Ropana	Ropana
Prasadana	Snehana	Snehana	Snehana	Snehana
-	Prasadana	-	-	-

As per karma, Anjana is 3 types-

Lekhana means scraping action, beneficial in kaphaja vikara,

Ropana means healing, beneficial in pittaja vikara.

Prasadana means purifying helpful in vataja vikaras.

Table 2: Akrti anusara classification

Classification of Anjana (according to matra)^[13, 14]

Type of Anjana	Lekhana	Prasadana	Ropana
Gutika (pills form)	1 Harenu	1½ Harenu	2 Harenu
Raskriya (semisolid form)	1 Harenu	1½ Harenu	2 Harenu
Churna (powder form)	2 Shalaka	3 Shalaka	4 Shalaka

Strength of Anjana increases in preceding order as Gutika, Raskriya and Churna.

The Anjanas are classified into two categories based on the quality of drugs they contain: 1. Tikshna & 2. Mridu. These classifications further determine the dosage of Anjana administered. For instance, the dose of Gutika Anjana of the Tikshna type is prescribed as Harenu Matra, whereas for the Mridu type, it's double the Tikshna dosage. Similarly, for Raskriya, the dosage for Tikshna is Harenu Matra, while for Mridu, it's twice the Tikshna dosage. Additionally, the application amount of Choorna Anjana differs between Tikshna and Mridu types, with approximately two Shalaka for Tikshna and three for Mridu.

Composition of Anjana as per types^[15]

Type of Anjana	Composition	Action
Lekhana	Tikta, Kashaya, amla, katu, lavana tastes kshara, Tikshna guna	Remove Doshas from eyelids, vessels, sacs, channels, and vital points like Srotas and Sringataka Marma using methods such as rinsing through the mouth, nostrils, and eyes.
Ropana	Kashaya, tikta +ghee/oil	Healing, improves the colour and visual acuity
Prasadana/snehana/ prasadana	Drishhti Madhura +ghee/oil	Calming the imbalances in vision through the process of lubrication.

Time of application as per season ^[16]

Season	Timing
Shishira, Hemanta	Madyana
Grishma	purvanha
Sharat	Aparanha
Vasant	Anytime
Varsha	Sudina

Time of application acc. to diseases-^[17]

Timing for Anjana	Indications
Purvahna (morning)	Kaphaja Rogi
Sayaanha (evening)	Vataja Rogi
Raatri (night)	Pittaja, Raktaja Rogi

Type of Anjana patra as per type of Anjana-

SN	Anjana	Patra
1.	Madhuranjana	Swarna
2.	Assmlanjana	Meshashrunga
3.	Lavanajana	Rajata
4.	Katukanjana	Vaidurya
5.	Tiktanjana	Kamsya
6.	Kashayanjana	Tamra, loha

The Anjana Shalaka,^[18] also known as a collyrium probe, is a cylindrical rod approximately 8 Angulas long, crafted from materials such as metals, stones, or animal horns. Its ends are designed to be bluntly pointed resembling a flower bud.

Regarding the storage of Anjana, it is kept in a container called Anjana Patra.^[19] The material used for this container should match the medicinal properties of the substance stored within. Additionally, it is recommended that the Anjana Shalaka can also be fashioned accordingly.

Contra-indications- ^[20,21,22]

Srama – tiredness

Udavarta- upward movement of vata

Ajirna- indigestion

Rudita- crying

Madya-alcohol addicted

Krodha- anger

Jwara-fever

Vegaghata- inhibition of natural urges

Shoka- depression

Dhuma- smoking

Arka-exposure to light

Agni-exposure to heat

Divaswapana- day sleep

Jagaran-awakening in night

Bhita-afraid

When to advice Anjana

The optimal time to apply Anjana is subsequent to Shodhana therapy, particularly when the Doshas are localized solely in the eye and during the Niramavastha phase, marked by signs such as diminished swelling, intense itching, and absence of discharge.

Adhering to these treatment protocols while considering the varying Dosha statuses is crucial, as the patient only benefits when the appropriate method is applied at the correct time. Failure to do so could exacerbate the eye condition rather than alleviate it, potentially leading to complications.

When to apply Anjana-

According to Acharya Sushruta, Anjana should be applied in the morning for conditions primarily influenced by Kapha, during the evening for ailments related to Vata, and at night for diseases associated with Rakta Pitta. When applying Anjana in the morning, it's essential for it to possess Kapha-calming properties, as there's a likelihood of Kapha aggravation during that time. Conversely, in the evening, it's advisable for the Anjana to have Pitta-calming qualities to refresh and cool the eyes, weakened by exposure to the hot sun. This regimen helps to counteract the daily Dosha imbalances in healthy eyes, but it's not suitable for pathological eye conditions.

The other view concerns the application of Tikshna Anjana. Because it contains Katu, Lavana, and Amla Dravyas, a unique combination of Agni and Vayu, applying it during the day will damage the eyes again because of the heat; however, at night, when the moon is cool, the eye can recover more quickly from the negative effects of Tikshna Anjana.

II. METHOD OF APPLICATION OF ANJANA**Poorva karma^[23]**

Once determining the type and dosage of Anjana, the appropriate quantity can be administered to the eyelid utilizing specific applicators designed for this purpose. To avoid the worry of the patient the procedure should be explained to them.

Position – can be applied in supine or sitting position.

Pradhana karma –

The left hand is used to retract the eyelids, while the right hand is used to apply Anjana with Shalaka from the inner to the outer canthus and vice versa. After applying the Anjana, the patient is asked to close the eyelids gently and rotate the eyeball, which helps in spreading of medicine in the eye. It is not advised to blink, touch your eyes, or wash your eyes while the treatment is being done. Through lacrimation, the dissolved Doshas are released.

Paschat karma-

Following the Anjana Karma, when lacrimation ceases, Netra Prakshalana (Eye wash) is conducted using an appropriate decoction tailored to the individual's Dosha, ailment, and season. Subsequently, the eye is gently wiped with a clean cloth, and Pratyanjana of the opposite quality of the initial Anjana is applied.

Prakshalanavyapad-

Performing Prakshalana before the elimination of Doshas may lead to a risk of disease recurrence. Improper Prakshalana can result in symptoms such as itching and lethargy. In such cases, the use of Tikshnaanajana or Tikshna Dhuma is recommended.

Samyak, Atiyoga, Hinayoga of Anjana^[24]

Lekhananjana Samyak Yoga-The eye appears clear, devoid of any discharge, accompanied by sensations of lightness, improved clarity in vision, proper functioning of eyelids, and absence of any associated complications.

Atiyoga Lakshana & Chikitsa -Causes of squint, stiffness, change in color, dryness, and excessive discharge should be addressed with nourishing treatments that alleviate Vata imbalance.

Hinayoga Lakshana & Chikitsa-Dosha aggravation takes place, and methods like Dhuma, Nasya, and Anjana are recommended to eliminate the Doshas.

Prasadana Anjana and Ropana Anjana -Samyak yoga, atiyoga and Ayoga of Ropananjana are explained similarly to Prasadananjana.

Samyak yoga-The eye experiences a pleasant sensation, free from Doshas, achieving a lubricated, natural color, strength, and the ability to execute proper eye movements.

Atiyoga- Manifestations like eye heaviness, tear-filled eyes, excessive moisture, tear production, itching, and eyelash sticking exhibit milder severity compared to the excessive usage of Tarpana.

Ayoga -Fails to fulfill the intended application.

III. MODE OF ACTION

According to Acharyas, the application of Lekhan Anjana is effective due to its sharp properties, as it removes doshas from the channels associated with the vartma & eyes, related tissues, and related srotas and also from the sringataka marma through mouth, nose and eye.^[25] The medicine applied to eye spreads to netra sandhi, enters the nose through nasolacrimal duct and reaches the nasa siras, and also to Shrungataka marma and takes away the doshas and expels them.^[26] Gutika and Churna Anjana contain tiny particles that can accumulate in the cul-de-sac of the eye, potentially boosting their bioavailability and improving absorption into the eye. The ocular absorption of Anjana may initiate through the conjunctiva and cornea. Primarily, lipophilic active components can be absorbed through the cornea via a transcellular route, while hydrophilic ingredients are absorbed from the conjunctiva through a paracellular pathway. The size and weight of the active molecules are crucial factors in their absorption. After passing through the conjunctiva, which primarily absorbs hydrophilic substances, the sclera becomes more permeable. This increased permeability facilitates the penetration of drugs into other internal eye structures, such as the ciliary body, iris, aqueous humor, lens, and vitreous humor. The medication traverses the corneal epithelium, primarily lipophilic, directly reaching the aqueous humor and subsequently distributing to other eye tissues. However, some drugs reaching the aqueous humor, whether via the cornea or conjunctiva, undergo metabolism by enzymes present in the aqueous humor. Taking all these factors into account, it can be concluded that Anjana therapy is highly advantageous in treating ocular diseases.^[27]

Anjana vyapad^[28]: Anjana applied in case of

- Improper sleep causes lethargy to blink.
- In presence of wind causes dimness of vision
- In presence of dust and smoke causes redness, secretion and glaucoma
- After nasya causes sneezing
- In headache inturns aggravates the condition
- After head bath, before sunrise causes stagnation of doshas which doesn't serve the purpose.
- In indigestion causes redness, swelling

So Anjana should be planned as per Dosha (location), kala (time), Roga avasta (stage of the disease)

IV. PHARMACOKINETICS OF ANJANA

Pharmacokinetics encompasses the process of a drug's absorption into the body, its distribution to target tissues, metabolic transformation, and eventual elimination. In the context of ocular drug absorption, various methods are employed, including passive diffusion, carrier-mediated transport (involving facilitated diffusion and active transport), and endocytosis.^[29]

Passive diffusion involves the movement of drug molecules across biological barriers according to their concentration gradient, requiring no energy. This method is predominantly utilized for drug transport across the ocular surface and is influenced by factors such as the drug's ionization (pH) and lipid solubility.

Carrier-mediated transport allows certain drugs to traverse biological barriers. Facilitated diffusion, a form of carrier-mediated transport, occurs along the concentration gradient without energy expenditure, relying on the ability of drug molecules to bind with carriers. In contrast, active transport involves carrier-mediated drug transport against the concentration gradient, necessitating energy.

Endocytosis refers to the uptake of drug molecules by plasma membrane-derived vesicles. Thus, all topical instillations, including Anjana therapy, utilize these methods to cross various ocular structures, such as the conjunctiva, cornea, sclera, iris, ciliary body, and lens.

Anjana therapy encompasses three types: Gutika, Rasakriya, and Churna. Rasakriya Anjana resembles modern eye drops, being completely soluble without sedimentation. However, its rapid drainage from the cul-de-sac results in comparatively lower bioavailability and ocular absorption rates compared to the other two types.

Gutika and Churna Anjana, similar to ophthalmic suspensions, contain sedimented micro-particles that improve drug contact time and duration of action by retaining in the cul-de-sac. Particle size significantly affects suspension characteristics, with smaller particles promoting faster dissolution and absorption but being prone to rapid drainage. Conversely, larger particles aid in particle retention and slower drug dissolution.

Anjana preparation involves dry milling, grinding, and micro-pulverization to achieve optimal particle size, typically less than 10 μm to minimize ocular irritation. The formulation process follows steps similar to modern pharmacology, including drug dispersion preparation, vehicle formulation, addition of adjuncts (excluding specific preservatives), and homogenization. Common vehicles and wetting agents in Anjana preparation include bee honey, ghee, breast milk, and medicinal juices. Proper sterilization methods and maintenance of pH, tonicity, and viscosity are crucial for optimizing bioavailability and absorption rates of Anjana preparations. While modern pharmacology emphasizes sterilization and preservative use, Ayurvedic practices often rely on freshly prepared drugs with inherent preservative properties.

The Anjana application involves a sequence of events triggered by the presence of a foreign object, which leads to eye response and reflex secretion. Initially, some of the drug administered is washed out by tears, while a portion drains into the nasolacrimal duct. Additionally, some of the drug may evaporate or be metabolized by enzymes present in the tears. Interactions with tear proteins also occur, resulting in only a minimal amount of the drug remaining in the cul-de-sac for absorption.

V. DISCUSSION AND CONCLUSION

In consideration of the various factors discussed above, Anjana therapy emerges as a holistic and well-developed method for topical ocular drug administration. Detailed descriptions in authentic texts outline its indications, contraindications, application methods, pre- and post-procedure measures, dosage forms, and proper storage guidelines. Anjana therapy represents a further evolution from Ashyotana, offering increased bioavailability on the ocular surface.

Ancient Acharyas also provided insights to overcome practical challenges associated with Anjana therapy. Techniques such as applying Anjana from the medial canthus to the lateral canthus and vice versa, along with eye movements and slight eyelid massages, aim to enhance bioavailability by facilitating absorption and minimizing nasolacrimal drainage. Despite these advancements, the exact mechanism of action remains unproven by experimental studies, highlighting the need to bridge ancient knowledge with modern perspectives.

Challenges such as ocular irritation and limited contact time present obstacles to Anjana therapy. However, optimizing particle size, pH levels, viscosity, and tonicity can mitigate irritation and enhance bioavailability. Understanding the kinetics of drug disappearance from the cul-de-sac, particularly in relation to timing between successive applications, can further optimize therapeutic outcomes, especially in Rasakriya Anjana.

Acharyas have highlighted the use of anjana for both preventive and curative purposes. In terms of prevention, daily administration of anjana can help alleviate meibomian gland dysfunction. For curative aspects, it is effective in treating conditions related to both the anterior and posterior chambers of the eye.

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