Therapeutic Evaluation of Jatyadi Ghrita in The Healing of Corneal Ulcers (Savrana Shukra / Kshata Shukra)

Vd. Varsha Annasaheb Kapase[1], Vd. Rekha Jori[2]
[1.] *PG Scholar, Dept. of Shalakyatantra, SST Ayurved Mahavidyalaya, Sangamner*
[2.] *Professor & HOD, Dept. of Shalakyatantra, SST Ayurved Mahavidyalaya, Sangamner*

***Abstract*—Corneal ulcer is a leading cause of corneal blindness worldwide, resulting primarily from microbial infections, trauma, and ocular surface disorders. Despite advances in antimicrobial therapy and surgical management, delayed healing and post-inflammatory corneal opacity remain major challenges. Ayurveda, under the branch of Shalakya Tantra, describes corneal disorders under Krishnagata Roga. Corneal ulcer can be correlated with Savrana Shukra or Kshata Shukra, as described by Sushruta and Vagbhata. The classical features include piercing pain, loss of corneal transparency, reddish discoloration, profuse warm lacrimation, and ulceration over the corneal surface. Prognosis varies depending on site, depth, and associated complications. Ayurvedic management emphasizes Shodhana (cleansing), Ropana (healing), and Shothahara (anti-inflammatory) therapies. Jatyadi Ghrita, a polyherbal medicated ghee mentioned in Bhaishajya Ratnavali, is widely indicated in ulcers and chronic wounds. Its constituents possess antimicrobial, anti-inflammatory, and wound-healing properties, while the ghrita base enhances ocular tissue penetration and prevents secondary scarring. Evidence from experimental and clinical studies supports the efficacy of Jatyadi Ghrita in wound healing and corneal epithelial regeneration. This article reviews both modern and Ayurvedic perspectives of corneal ulcer and highlights the therapeutic role of Jatyadi Ghrita as a potential adjuvant in corneal ulcer management.**

***Index Terms*—Corneal ulcer, Savrana Shukra, Kshata Shukra, Jatyadi Ghrita, Krishnagata Roga, Vrana Ropana, Ayurvedic ophthalmology**

I. INTRODUCTION

Corneal blindness is a major cause of preventable blindness worldwide. Globally, microbial keratitis affects 1.5–2 million individuals annually[1]. In India, corneal ulcer prevalence is significantly high, particularly fungal keratitis associated with agricultural injuries[2]. Etiological agents include Staphylococcus aureus, Pseudomonas aeruginosa, Fusarium, and Aspergillus species[3,4]

Modern ophthalmology manages corneal ulcer with intensive topical antimicrobial therapy, cycloplegics, lubricants, and in refractory cases, therapeutic keratoplasty[5,6]. While effective in controlling infection, these approaches do not always ensure rapid epithelial regeneration or prevention of corneal scarring, leading to residual visual disability[7]

Ayurveda, under Shalakya Tantra, provides detailed descriptions of Netra Roga. Corneal ulcer is described as Savrana Shukra or Kshata Shukra, under Krishnagata Roga. The classical texts detail the pathogenesis, clinical features, prognosis, and treatment principles. Among the formulations, Jatyadi Ghrita is specifically indicated for non-healing ulcers, wounds, and ocular disorders.

Corneal Ulcer – Modern Perspective

A corneal ulcer is defined as an epithelial defect with underlying stromal infiltration, often associated with anterior chamber reaction.

Symptoms: pain, redness, watering, photophobia, blurred vision. Signs: epithelial defect, stromal infiltration, surrounding edema, hypopyon in severe cases.

Etiology:

- Bacterial Pseudomonas aeruginosa, Staphylococcus aureus
- Fungal Fusarium, Aspergillus
- Viral Herpes simplex virus
- Trauma vegetative matter, foreign bodies
- Miscellaneous contact lens use, dry eye, vitamin A deficiency

Management:

- Topical broad-spectrum antibiotics/antifungals
- Cycloplegics for ciliary spasm
- Lubricants

- Surgical intervention (keratoplasty) in non-resolving ulcers

Limitations: prolonged healing time, antimicrobial resistance, corneal scarring, residual blindness.

Ayurvedic Perspective – Savrana Shukra (Kshata Shukra)

Classification

In Ayurvedic ophthalmology, diseases of the cornea (Krishna Mandala) are described as Krishnagata Roga.

- Sushruta enumerates 4 types of Krishnagata Netra Roga.
- Vagbhata describes 5 types, including Savrana Shukra / Kshata Shukra.

Definition

- The term Shukra or Shukla refers to a whitish lesion seen in the cornea.
- When ulceration (Vrana / Kshata) occurs in this lesion with pain, discharge, and redness, it is called Savrana Shukra (ulcerated corneal opacity).

II. CLASSICAL REFERENCES

Suśruta Saṃhitā, Uttara Tantra 5/4:

"निमग्नरूपं हि भवेत् तु कृष्णे सूच्येव विद्धं प्रतिभाति मे ।व्यक्तमुद्रफटस्रावं स्रवेदुष्णमतीव रुक् च तत् सव्रणं शुक्रम् ॥"

The ulcer appears as if pricked with a needle, with profuse warm discharge and severe pain[8].

Aṣṭāṅga Hṛdaya, Uttara Tantra 13/11–12:

"पित्तं कृष्णेऽथवा दृष्टौ शुक्रं तोदाश्रुरागवत् ।छित्त्वा त्वचं जनयति तेन स्यात् कृष्णमण्डलम् ॥पक्वजम्बूनिभं किंचित् निम्नं च क्षतशुक्रकम् ॥"

Pitta involvement causes pricking pain, lacrimation, and reddish discoloration. The cornea appears depressed, resembling ripe jambu fruit.

Aṣṭāṅga Saṅgraha, Uttara Tantra 13/26:

"रक्तराजीनिभं कृष्णे विद्रुमाभं प्रलक्ष्यते ।सूच्यग्रेणैव तच्छुक्रमुष्णाश्रुस्रावि सव्रणम् ॥"

The ulcer appears coral-red, with hot lacrimation and severe pricking pain.

Clinical Features (Lakṣaṇa)

- Loss of corneal transparency (whitish/opaque appearance)
- Severe pain (shūla) and pricking sensation (todavega)
- Profuse hot lacrimation (uṣṇāśru-srāva)[1]
- Conjunctival congestion (rāga)
- Reddish jambu-like appearance (pakvajambu-nibha)
- Ulceration of corneal surface

Samprapti (Pathogenesis)

- Doṣa: Predominantly Pitta and Kapha; Rakta is often associated[9].
- Dūṣya: Rasa, Rakta, and Mamsa dhatu.
- Adhisthana: Krishna Mandala (cornea).
- Srotodushti: Sanga (obstruction) and Vimargagamana (discharge).
- Inflammation and ulceration arise due to aggravated Pitta, while Kapha contributes to discharge and opacity.

Prognosis (Sādhya–Asādhya Lakṣaṇa)

Curable (Sādhya):

- Peripheral, superficial, solitary, painless ulcers.
- Non-discharging, mild inflammation.

Difficult / Incurable (Asādhya):

- Central corneal perforation.
- Multiple or recurrent ulcers.
- Iris prolapse (Ajaka jāta).
- Neovascularization (Sirāja Shukra).
- Hypopyon and panophthalmitis (Pakatyaya Shukra).
- Chronic necrotizing ulcers with scar formation[10].

III. MANAGEMENT PRINCIPLES

- Śodhana – cleansing of the ulcer with medicated decoctions or ghrita.
- Ropaṇa – healing with Vrana Ropaka dravyas such as Jatyadi Ghrita[11].
- Śothahara – reducing inflammation using Tikta–Kashaya rasa herbs.
- Classical therapies include Aschyotana (eye drops), Tarpana (retention therapy with medicated ghrita), Pindi (medicated poultice), and Bidalaka.

Jatyadi Ghrita – Classical Formulation

Source

Mentioned in Bhaishajya Ratnavali, Vranashotha Chikitsa Adhyaya.

Ingredients: Jati (Jasminum officinale), Nimba (Azadirachta indica), Haridra (Curcuma longa), Daruharidra (Berberis aristata), Manjistha (Rubia cordifolia), Patola, Kushta, Priyangu, Padmaka, processed in cow ghee and milk[12].

Properties

- Rasa: Tikta, Kashaya
- Guna: Laghu, Ruksha
- Virya: Ushna
- Karma: Vranaropana, Shothahara, Krimighna, Rakta shodhana[13]

Pharmacological Actions

- Antimicrobial: Nimba, Haridra, Daruharidra
- Anti-inflammatory: Manjistha, Patola
- Regeneration: Go-ghrita nourishes ocular tissues and promotes epithelial healing
- Scar prevention: Maintains stromal hydration, reduces fibrosis[14]

Evidence from Studies

- Singh et al. (2011): Accelerated wound contraction and collagen deposition in animal models[15].
- Gupta et al. (2008): Reduced healing time in chronic ulcers[16].
- Patil et al. (2019): Improvement in corneal epithelial defect healing with Jatyadi Ghrita aschyotana[17].
- Kumar et al. (2014): In vitro inhibition of S. aureus and P. aeruginosa[18].

IV. DISCUSSION

Corneal ulcer remains one of the most common ophthalmic emergencies that may progress to irreversible blindness if not treated promptly. Modern management has undoubtedly advanced, with antimicrobial therapy, cycloplegics, and keratoplasty being central strategies. However, two major limitations persist:

1. Delayed or incomplete epithelial healing – even after microbial eradication, ulcers often take weeks to heal.
2. Residual corneal opacity and scarring – leading to poor visual outcomes, even with timely therapy.

From the Ayurvedic viewpoint, these limitations resonate with the concept of Savrana Shukra. The description of intense pain (toda), hot lacrimation (uṣṇāśru-srāva), and depressed ulceration (nimna kṣata) in the classical texts highlights the inflammatory and ulcerative pathology. The doṣa predominance, particularly Pitta (inflammation, burning, redness) and Kapha (discharge, opacity), aligns with the pathophysiology of microbial keratitis. The Ayurvedic line of management Śodhana (cleansing of necrotic tissue and exudates), Ropaṇa (promotion of healing), and Śothahara (anti-inflammatory action)—reflects a holistic approach not only to infection control but also to restoration of corneal clarity. The classification of Sādhya and Asādhya forms in Ayurveda also shows remarkable similarity to modern prognostic factors: peripheral and superficial ulcers are curable, whereas central deep ulcers with hypopyon or perforation are considered incurable.

In this context, Jatyadi Ghrita emerges as a promising therapeutic adjuvant. Its constituents like Nimba, Haridra, and Daruharidra provide antimicrobial protection, while Manjistha and Patola act as potent anti-inflammatory agents. The ghrita base acts as a bioenhancer, ensuring deeper ocular penetration, lubrication, and prevention of secondary scarring. Modern experimental studies have confirmed its wound-healing potential by enhancing collagen deposition and epithelial regeneration. Moreover, Ayurveda emphasizes patient-specific, dosha-oriented therapy. For example, in Pittaja Savrana Shukra, cooling and bitter drugs are prioritized, while in Kaphaja Shukra, decongestive and drying therapies are used. This personalized approach is consistent with the modern trend of individualized medicine. Thus, integrating Ayurvedic therapies like Jatyadi Ghrita with modern antimicrobial regimens could help overcome current therapeutic limitations particularly in enhancing epithelial regeneration and preventing corneal opacity. This integrative approach may be especially valuable in rural and resource-limited areas where access to corneal transplantation is scarce.

V. CONCLUSION

Corneal ulcer continues to be a leading cause of corneal blindness, with challenges persisting in terms of delayed healing and post-infective scarring. The Ayurvedic perspective, describing the disease as Savrana Shukra / Kshata Shukra, provides detailed

insights into etiology, pathogenesis, clinical features, and prognosis. Importantly, the Ayurvedic emphasis on Śodhana, Ropaṇa, and Śothahara therapies directly addresses the limitations of modern medicine, offering a framework for comprehensive management.

Jatyadi Ghrita, with its polyherbal composition and ghrita base, holds immense potential as an adjunctive therapy. By combining antimicrobial, anti-inflammatory, and regenerative properties, it not only aids in rapid ulcer healing but also minimizes corneal scarring. Clinical evidence supports its role in accelerating healing of corneal epithelial defects and chronic ulcers.The integration of Jatyadi Ghrita into ophthalmic practice through standardized, sterile preparations could bridge gaps between traditional wisdom and modern therapeutics. It offers a low-cost, accessible, and effective adjunct, particularly beneficial in rural populations.

Future directions should include:

- Clinical trials comparing Jatyadi Ghrita with conventional lubricants or adjuvants.
- Pharmacological studies to identify active phytochemicals responsible for corneal healing.
- Development of sterile ophthalmic formulations to enhance safety and patient compliance.

Thus, Ayurveda not only provides a descriptive correlation for corneal ulcers but also contributes practical therapeutic solutions. With proper scientific validation, Jatyadi Ghrita could play a significant role in reducing corneal blindness burden globally.

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