

CONCEPTUAL UNDERSTANDING OF CONJUNCTIVITIS THROUGH AYURVEDA

Anuj Kumar Singh^{1*} and Veena Shekar²

¹PG scholar, Department of PG Studies, Shalakyta Tantra (Ophthalmology and Otorhinolaryngology),

²Professor, Department of PG Studies, Shalakyta Tantra (Ophthalmology and Otorhinolaryngology),

Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre Bengaluru, Karnataka, India.

*Corresponding Author: Anuj Kumar Singh

PG scholar, Department of PG Studies, Shalakyta Tantra (Ophthalmology and Otorhinolaryngology), Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre Bengaluru, Karnataka, India.

Article Received on 09/06/2023

Article Revised on 29/06/2023

Article Accepted on 19/07/2023

ABSTRACT

Conjunctivitis, a most common cause of red eye affects all group of individuals irrespective of their age. The clinical features of different types vary depending on causative factor. Though self-limiting, conjunctivitis may sometimes progress to sight threatening complications due to structural continuity with the cornea. It can be compared with the disease *abhishyanda*, one of the eye diseases mentioned in Ayurveda. Through this article, an effort has been made to understand the conjunctivitis in terms of *abhishyanda* and significance of ayurveda in its management.

KEYWORDS: Conjunctivitis, Abhishyanda, Red eye, Ayurveda.

INTRODUCTION

Conjunctivitis is a commonly encountered condition in ophthalmology clinics. Conjunctivitis is the inflammation of conjunctiva characterized by conjunctival hyperemia and discharge. It is the most common cause of red eye and popularly called as 'Pink eye'. It can affect people of any age, demographic, or socioeconomic status. Dilation of conjunctival blood vessels secondary to viral or bacterial infection, chemical exposures, or allergies results in the redness seen on the examination.^[1] Complications of acute conjunctivitis are rare. However, patients who fail to show improvement within 5 to 7 days should have a referral to an ophthalmologist for further evaluation.^[2] Conjunctivitis may cause complications like keratitis, marginal corneal ulcer because of the structural continuity and may also cause uveitis and other sight threatening complications if the organism is highly virulent. The clinical features similar to conjunctivitis are found in *abhishyanda*, one of the *sarvagata netra rogas* mentioned in ayurvedic classics which involves all parts of the eye. It is characterized mainly by excessive discharge and is supposed to be the root cause for all the *netra rogas*. Clinical features of *abhishyanda* vary depending upon the type of the *dosha* involved. Early treatment has been emphasized in *abhishyanda* as otherwise it may lead to *adhimantha* which is associated with severe pain and sight threatening complications. An effort has been made in this review article to compare and understand conjunctivitis with the eye disease *abhishyanda* having

similar signs and symptoms and significance of ayurveda in its management.

MATERIALS AND METHODS

A search for literature related to the diseases i.e., *Abhishyanda* and Conjunctivitis was made through classical ayurveda and ophthalmology texts, websites, journals and the articles published between 2010 and 2023 to gather information about the diseases.

CONJUNCTIVITIS

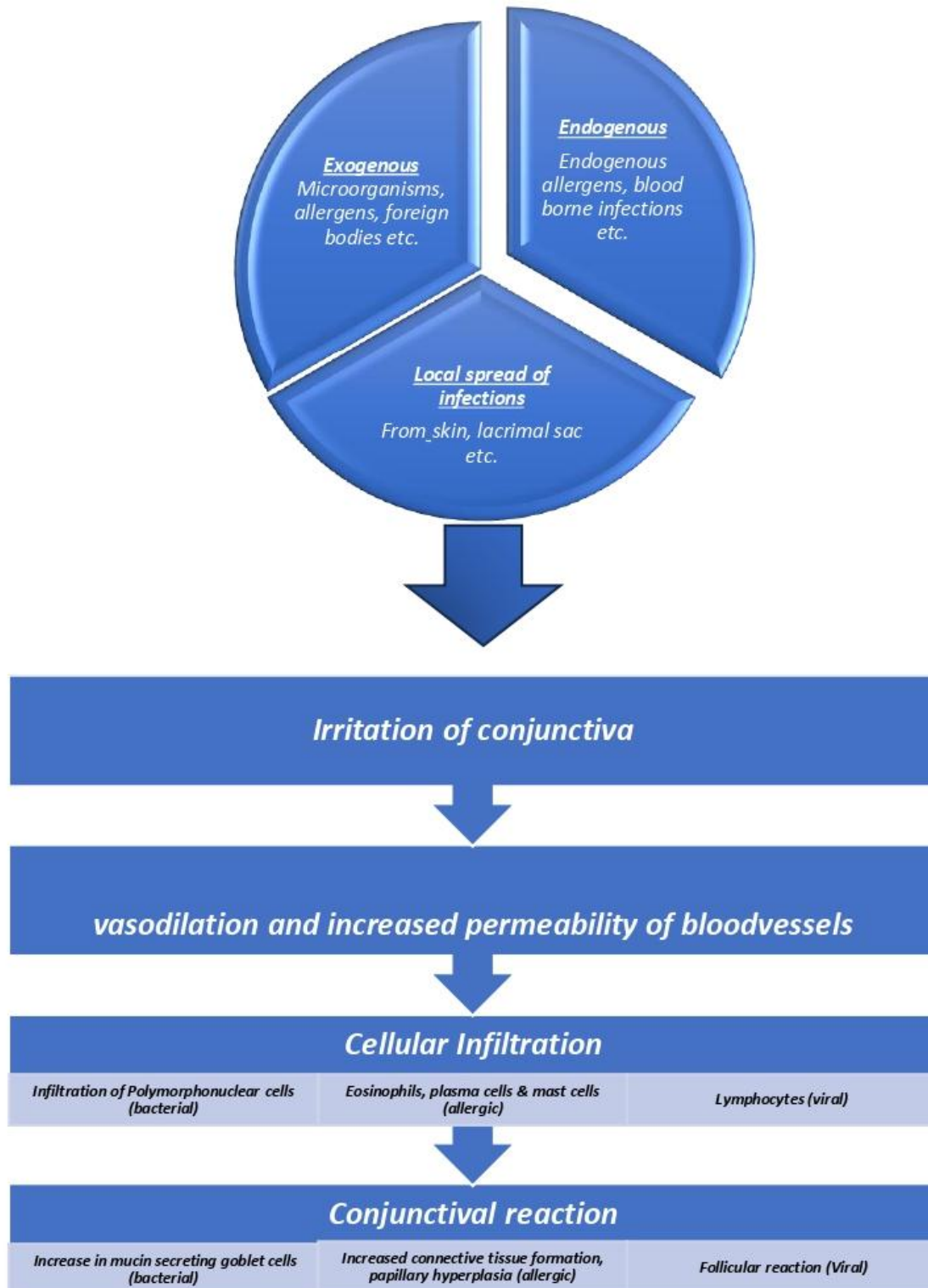
Etiopathogenesis

Normally, conjunctiva has got natural defense mechanisms against any microbial invasion in the form of presence of normal conjunctival flora resisting the invasion by pathogenic microbes, protective action of the eyelids, antimicrobial activity of tear film due to presence of lysozymes and immunoglobulins. Disruption of these normal defense mechanism predisposes to infections of the ocular surface.^[3] **Exogenous** causes of conjunctivitis include contact with micro-organisms, allergens, foreign body or chemicals whereas **endogenous** causes include endogenous allergens like tuberculous proteins as in phlyctenular conjunctivitis, blood borne infections like gonococcal or meningococcal conjunctivitis. Conjunctivitis can also be caused due to local spread of infections from neighboring structures like skin, lacrimal sac, lids and nasopharynx. Pathological changes of conjunctivitis consist of dilatation and increased permeability of the conjunctival vessels followed by cellular infiltration. Cellular

response consists of polymorphonuclear cells and other inflammatory cells in bacterial conjunctivitis and eosinophils, plasma cells and mast cells producing histamine and histamine-like substances in allergic conjunctivitis. Conjunctival response shows edema of

conjunctiva, and increase in mucin secreting goblet cells in bacterial conjunctivitis, papillary hyperplasia in allergic conjunctivitis and follicular reaction in viral conjunctivitis.^[4]

Etiopathogenesis of conjunctivitis



Conjunctivitis is of both infective and non-infective origin. Infective includes bacterial, chlamydial, viral, granulomatous, ophthalmia neonatorum (A separate entity). Allergic, cicatricial (Autoimmune), toxic, traumatic have non-infective origin. Viral conjunctivitis followed by bacterial conjunctivitis is the most common cause of infectious conjunctivitis, while allergic and toxin-induced conjunctivitis are among the most common non-infectious aetiologies. In terms of chronicity, conjunctivitis may be divided into acute with rapid onset and duration of four weeks or less, subacute, and chronic with duration longer than four weeks.^[5]

The common signs of conjunctivitis include discharge, hyperemia, chemosis, formation of pseudo membrane, follicular reaction and papillary hyperplasia whereas common symptoms of conjunctival disorders include redness, stickiness, foreign body sensation or grittiness, lacrimation and sometimes photophobia.^[6]

BACTERIAL CONJUNCTIVITIS

Conjunctivitis of bacterial aetiology is the second most commonly occurring infectious cause and affects children with increased frequency. It is responsible for the majority (50%-75%) of cases in children.^[7] In young children *H.influenzae* is the most commonly isolated bacteria in acute conjunctivitis, followed by *S. pneumoniae* and *M. catarrhalis*. In this age group, *H.influenzae* conjunctivitis may often occur alongside recurring otitis media and respiratory infections.^[8]

Acute catarrhal or mucopurulent conjunctivitis:

It is characterized by a rapid onset of conjunctival redness and mucopurulent discharge. It is considered to be the commonest type of conjunctivitis in developing countries. The predisposing factors for bacterial conjunctivitis, especially epidemic forms, are flies, poor hygienic conditions, hot dry climate, poor sanitation and dirty habits. Most common symptoms include redness, foreign body sensation, grittiness and discharge.^[9] Other symptoms may also include burning and itching, though these are less common. The signs comprise of conjunctival congestion, chemosis, papillary reaction and mucopus flakes in the fornices, canthi and lid margins. Mucopurulent conjunctivitis is usually bilateral, although one eye may become affected 1–2 days before the other.^[10]

Acute bacterial conjunctivitis is almost invariably a disease with a highly favourable prognosis. Spontaneous cure is likely to occur within 1–2 weeks in at least 60% of cases,^[11] and serious complications are very seldomly seen.^[12]

Hyperacute conjunctivitis / Acute purulent conjunctivitis:

The rapid onset and progression of hyperacute bacterial conjunctivitis (often caused by *N. gonorrhoeae*) warrants immediate ophthalmic management to prevent corneal

involvement and potentially perforation. Symptoms include purulent discharge, diminished visual acuity, eye tenderness, and swollen lymph nodes. Its main clinical features include conjunctival hyperemia, chemosis, profuse purulent discharge, pseudo membrane formation, lymphadenopathy. Gonococcal ocular infection can present in neonates after vaginal delivery by infected mothers.^[13]

Chronic bacterial/ Chronic catarrhal conjunctivitis:

The commonest causative agent, *S.aureus* colonizes the skin of the eyelids and it causes chronic conjunctivitis either by direct infection or indirectly because of the liberated exotoxins. Its clinical features include mild chronic redness, foreign body sensation, minimal mucopurulent discharge. On examination, conjunctiva shows signs such as congestion of posterior conjunctival vessels, sticky look of surface of the conjunctiva, papillary hypertrophy of palpebral conjunctiva.^[14]

Laboratory and radiographic testing have limited application in the diagnosis and evaluation of bacterial conjunctivitis. However, conjunctival cultures are the recommended course in cases where ophthalmia neonatorum is suspected, or where copious purulent discharge makes the diagnosis of gonococcal or chlamydial infection more likely. Cultures may also be obtained in the event of recurrent conjunctivitis or in cases where therapy has failed.^[15]

Complications of bacterial conjunctivitis are uncommon; however, severe infections can result in keratitis, corneal ulceration and perforation.^[16]

Treatment of bacterial conjunctivitis:

Topical antibiotics, usually four times daily for up to a week but sometimes more intensively, are frequently administered to speed recovery and prevent re-infection and transmission.^[17]

The prognosis for uncomplicated bacterial conjunctivitis is good with complete resolution and rare adverse events with both antibiotic treatment and expectant management strategies. About 60% resolve within 5 days without treatment. General management includes irrigation of conjunctival sac with sterile saline to clear the stickiness of eyelids. Bacterial conjunctivitis secondary to gonococcal or chlamydial infections requires systemic treatment. Oral antibiotics are also indicated in cases of bacterial conjunctivitis with concurrent acute otitis media.^[18]

VIRAL CONJUNCTIVITIS

Most of the viral infections tend to affect the epithelium, both of the conjunctiva and cornea; so, the typical viral lesion is a 'keratoconjunctivitis'.^[19] Viral conjunctivitis is responsible for the majority of infectious conjunctivitis, accounting for up to 75% of cases. Characteristics of viral conjunctivitis include redness, blood vessel engorgement, ocular discharge,

pain, photophobia, and pseudomembranes. Up to 90% of viral conjunctivitis cases are caused by adenoviruses. Frequently associated infections caused by the adenovirus include upper respiratory tract infections, eye infections, and diarrhea in children. Most cases of viral conjunctivitis are highly contagious for 10-14 days. Palpation of the preauricular lymph nodes may reveal a reactive lymph node that is tender to the touch and will help differentiate viral conjunctivitis versus bacterial.^[20] The diagnosis can be confirmed with conjunctival cytology with Giemsa stain, PCR and viral culture.^[21]

Treatment of viral conjunctivitis:

Due to the highly contagious nature of viral conjunctivitis, frequent hand washing, meticulous disinfection of medical instruments, and isolation of conjunctivitis patients from the rest in the healthcare provider's office has been recommended. There is no single effective treatment modality for viral conjunctivitis; however, use of frequent artificial tears, antihistamines containing eye drops, or cold-compresses seem to alleviate many of the clinical symptoms that are associated with this condition. Topical and oral antiviral medications do not appear to be useful.^[22] Topical steroids such as prednisolone 0.5% four times daily may be required for severe membranous or pseudomembranous adenoviral conjunctivitis.^[23]

ALLERGIC CONJUNCTIVITIS

It is the inflammation of conjunctiva due to allergic or hypersensitivity reactions which may be immediate (humoral) or delayed (cellular). Allergic conjunctivitis is the most frequent cause, affecting 15% to 40% of the population, and is observed more frequently in spring and summer.^[24]

According to the immunological mechanism responsible for the final clinical picture, Leonardi et al have classified ocular allergic conditions into three main categories: IgE-mediated reactions, including seasonal allergic conjunctivitis (SAC) and perennial allergic conjunctivitis (PAC); combined IgE and non-IgE-mediated reactions, including VKC and AKC; and non-IgE-mediated reactions, including giant papillary conjunctivitis (GPC) and contact dermatitis conjunctivitis (CDC).^[25] **Simple allergic conjunctivitis** appears in two forms i.e., seasonal and perennial allergic conjunctivitis. **Seasonal allergic conjunctivitis** is a response to seasonal allergens such as pollens mostly during spring and summer whereas **perennial allergic conjunctivitis** is an inflammatory response to allergens, such as house dust, animal dander and mite.^[26] It is chronic, less common and occurs throughout the year. Itching is a prominent symptom, and redness, watery secretion which is not purulent and a whitish ropy discharge are characteristic. The signs include redness, lacrimation, papillary hyperplasia of the tarsal conjunctiva and lid swelling.^[27]

Vernal keratoconjunctivitis is a recurrent bilateral conjunctivitis occurring with the onset of hot weather, and therefore rather a summer than a spring complaint, and found in young children and adolescents, usually boys. Burning, itching, some photophobia and lacrimation are the chief symptoms.^[28] The signs of **palpebral form** are easily recognized. On everting the upper lid, the palpebral conjunctiva is seen to be hypertrophied and mapped out into polygonal raised areas, not unlike cobblestones. **The limbal or bulbar form** is recognized by an opacification of the limbus, with nodules or a wall of gelatinous thickening at the limbus. White dots consisting of eosinophils and epithelial debris, known as Horner-Trantas dots, if seen at the limbus are a very characteristic feature. **In Mixed form**, both may occur together and both types are complicated by a fine diffuse superficial punctate keratitis. Corneal involvement can take the form of punctate epitheliopathy, shield ulcer and secondary keratoconus.^[29]

Treatment of allergic conjunctivitis:

Patient should be educated about general allergic eye care. They should be discouraged from rubbing their eyes, which causes mast cell degranulation and worsening of symptoms. They should be asked to apply artificial tears and cool compresses frequently. If possible, they need to avoid known allergen exposures and remove contact lenses (if applicable). Seasonal and perennial allergic conjunctivitis should receive combination of antihistamine and mast cell stabilizing drops. Topical nonsteroidal anti-inflammatory drops are more effective than placebo but far less so than antihistamine/mast cell stabilizing drops. For refractory cases, corticosteroid drops are a viable option in short bursts (less than two weeks) in conjunction with a specialist consultation and follow-up. Recurrence of symptoms is not uncommon. For patients who sustain corneal damage, this may be associated with visual loss. The medications used to manage allergic conjunctivitis may sometimes also induce cataracts.^[30]

Some of the trends in prevalence and treatment of ocular allergy include topical immunomodulatory drugs (cyclosporine and tacrolimus) which are used for refractory VKC cases.^[31] and the usage of sublingual immunotherapy in the management of allergic conjunctivitis^[32] by placing the drops under the tongue for two minutes, then swallowing.^[33]

Abhishyanda and Its significance:

The term '*abhi*' means profuse, *syanda* stands for oozing or flowing, collectively it means discharge from all the sides of the eye. It is a disease in which there is *srotosyandana* in all channels of head and neck.^[34] *Abhishyanda* is considered as a causative factor for all the eye diseases and must be controlled in its *purvaroopavastha* (premonitory stage) which otherwise leads to severe eye diseases like *adhimantha* with acute pain.

Nidana and samprapti/ Etiopathogenesis:

Some of the etiological factors mentioned for contagious diseases like *abhishyanda* include repeated physical contact, expired air, sharing bed, eating together, sharing clothes, garlands etc. which can be considered as *agantuja* (external) causes.^[35]

General *samprapti* of *netra roga* can be considered as the *samprapti* of the *abhishyanda*. The *doshas* get vitiated due to *nidana sevana* which are *achakshushya* (unwholesome for eyes) and *pitta prakopaka*, producing *agnimandya* and *ama* formation. The *doshas* further provoked move in the upward direction from their

respective sites in *koshta* through the *siras* and get localized in different parts of the eye due to *kha vaigunya* (defective *dhatu*s). When such eyes come in contact with external causes, there is vitiation of *sthanika doshas* and *rakta*. Initially there happens *shiroabhishyanda* which is later followed by *netra abhishyanda* after localization of *doshas* in ocular tissues, with the manifestation of redness, mild pain etc. which can be considered as premonitory stage. This is later followed by *sravana* or discharge which is the cardinal feature of *abhishyanda*. If it is not controlled it leads to complication like *adhimantha*.

NIJA NIDANA**AGANTUJA NIDANA**

Achakshushya & Rakta pitta prakopaka ahara, vihara



Pitta pradhana doshaprakopa & agnimandya



Vitiated *doshas* reach *urdhwajatru* through *siras*



urdhwajatru sroto syandana



netravaha sroto syandana

& *Dosashraya* in *kapha pradhana sthana* in *chakshu*



Abhishyanda

(Redness, discharge)



Adhimantha

SANCHAYA

PRAKOPA

PRASARA

STHANASAMSHRAYA

Rakta & sthanika dosha dushti



VYAKTA

BHEDA

Abhishyanda is of mainly two types i.e. *Nija* and *Agantuja*. *Nija* involves the disease evolved from the vitiation of doshas in the body which are *Vataja*, *pittaja*, *kaphaja* and *raktaja*. *Agantuja* involves *dosha dushti* due to *abhighata* (injury), exposure to *raja* (dust), *dhooma* (fumes), *keetadamsha* (animal bites) etc.

Lakshanas/ Clinical features:

From the context of *Sushruta*, features in *vataja* variety are pricking sensation, fixity (restricted movements), horripilation and foreign body sensation in the eyes, hardness, cold and watery discharges and headache and dryness of eyes. *Pittaja abhishyanda* exhibits the features, viz., burning and severe inflammation, longing

for coldness (in the eyes), sensation of steam or increased tears, warm lacrimation and yellowish discoloration of the eye. In the *Kaphaja* type of the disease, the affected organ longs for the contact of warm articles and is attended with a heaviness, itching sensation, swelling, excessive whiteness and stickiness due to increased exudates. *Raktaja* type is marked by redness of the eyes, flow of coppery tears, as well as the symptoms of the *pittaja* type of the disease and the presence of generalised deep red vascular markings.

Some additional features in the context of *Vagbhata* are obstruction and swelling of nasal cavities, pain in temporal region, eye, eye-brow and forehead, painful movements of eye lid and eye ball due to swelling, relief with *snigdha* (oily) and *ushna* (hot) measures in *Vataja abhishyanda*, greyish discoloration of external surface of eyelid and a sensation of burnt wound in the eye in *pittaja abhishyanda*, excessive sleep, lethargic feeling and loss of appetite are additional features in *kaphaja abhishyanda*, red coloured tears, blood vessels and exudates in *raktaja abhishyanda*.^[36]

Chikitsa/ Treatment

Management of *abhishyanda* mainly includes bloodletting, systemic treatment and topical ocular therapeutics.

General measures

Tikshna gandusha (except *vataja abhishyanda*), *Tikshna navana* (except *Vata abhishyanda*), *Upawasa* (except *Vata abhishyanda*) during premonitory stage restricts its further progression.^[37] *Chakradatta* recommends *langhana* (fasting), application of *lepa* (paste), *swedana* (fomentation), *raktamokshana* (bloodletting therapy), *virechana* (purgation therapy), *anjana* (collyrium) and *aschyotana* (eye drops).^[38]

Netrapoorana with *amalaki swarasa* and *aschyotana* with *darvi kwatha*, *rasanjana* mixed with *stanya* to subside pain, burning sensation of eyes and excess lacrimation will be helpful in initial stages. *Aschyotana* with *Triphala* or *daruharidra kwatha* is found to be effective in all types of *abhishyanda*.^[39] *Bidalaka* with *patra*, *ela*, *maricha*, *swarna gairika*, *rasanjana*, *yashtyahva*, *chandana* and *saindhava* and *seka* with *kashaya* made out *daruharidra* added with honey is beneficial in pacifying the features of all types of *abhishyanda*.^[40]

Vishishta chikitsa/ Specific treatment:

Purana ghrita is said to be beneficial in *vataja*, *ghrita* added with *sharkara* in *pittaja* and *ghrita* added with *trikatu* in *kaphaja abhishyanda* should be used for *snehapana* and this should be followed by purgation.^[41]

Luke warm *seka* with *kwatha* prepared out of *eranda patra*, *twak* and *moola* processed in goat's milk and luke warm *pindi* made out of *eranda patra mula* and *twak* controls *vata dusti* in this condition^[42] *Tarpana* with

vataghna dravyas like *kashmari*, *madhuka*, *prapoundrika*, *sariva* etc. is said to be beneficial.^[43] In *pittaja abhishyanda*, *nasya* with *ghrita* made out of milk to pacify *pitta* is indicated.^[44] *Aschyotana* can be performed with *kwatha* prepared out of *amalaka*, *shatavari* or *dashamoola* added with *sita*.^[45]

Kaphaja variety should be treated with *apatarpana* (Denourishment therapy) for 3 days followed by intake of *tikta ghrita*. *Avapidana* variety of *nasya* with *bhringaraja swarasa* is said to be useful in this type of *abhishyanda*. *Anjana* can be performed with *pathya*, *haridra*, *madhuka*.^[46] *Pindi* is recommended which is made out of *nimba* leaves.^[47]

Raktaja abhishyanda is told to be treated initially with *snehapana* with 100 years old *ghrita* and then followed by *virechana* and *shirovirechana*. *Mridu sweda* followed by *jalaaukavacharana* is highly effective in controlling severe pain in *raktaja abhishyanda* *Aschyotana* with mixture of *musta* and *yashtimadhu churna* wrapped in a cloth and soaked in rain water is helpful in pacifying vitiated *rakta* as well as *pitta*.^[48]

Kukunaka is seen in neonates and its clinical features are quite similar to conjunctivitis hence, it can be compared to Ophthalmia neonatorum. The management includes treatment of neonate as well as mother with *shodhana* (purification therapy). *Raktamokshana* and *vartma lekshana* of the affected eye should be done followed by *pratisarana* with *trikatu* and *madhu* and *netra prakshalana* with *kashaya* prepared of *jambu*, *amra*, *amalaka* and *ashmanataka*. The mother should also be treated with *doshapachana* followed by *vamana karma* with *krishna*, *sarshapa*, *yashti* and *saindhava*. *Virechana* should be administered using *kashaya* made out of *abhaya*, *pippali* and *draksha*.^[49] The dietic regimen and hygiene has to be followed by mother after *shodhana*.

DISCUSSION

Abhishyanda has been mentioned as *aupsargika roga* in *ayurvedic* classics which indicates that it is of infective origin. Exposure to *raja* (pollen, dust) *dhooma* (toxic fumes), *abhigata* (trauma), *keetadamsha* (insect bites) are some of the causes of non-infective conjunctivitis mentioned in *ayurvedic* classics. *Sroto syanda* and *srvana* i.e oozing or trickling of *srotasas* mentioned in pathogenesis of *abhishyanda* can be considered as increased permeability of capillaries due to vasodilatation leading to exudation which is mentioned under pathogenesis of conjunctivitis. Hyperemia, discharge are common clinical features seen in both *abhishyanda* and conjunctivitis. Conjunctivitis is usually diagnosed by clinical features and history. The nature of discharge which is diagnostic depends on the type of inflammation or the type of dosha involved. The type of discharge seen in bacterial will be mucopurulent, watery in viral and watery or ropy in allergic conjunctivitis, *vataja* variety *abhishyanda* presents features of thin and watery discharge along with *toda* (pricking sensation)

and *sangharsha* (foreign body sensation) which indicates subacute nature of conjunctivitis hence can be correlated to subacute catarrhal conjunctivitis and also allergic conjunctivitis. The *pittaja* variety of *abhishyanda* presents with severe inflammation, warm lacrimation and *raktaja abhishyanda* presents with severe redness which indicates acute nature of these diseases and hence can be correlated to acute conjunctivitis. Both are associated with watery discharge which is seen in viral conjunctivitis. Severe inflammation is a feature of acute purulent conjunctivitis which is seen in *pittaja abhishyanda*. Marked congestion is a feature of acute bacterial conjunctivitis which is also a feature of *raktaja abhishyanda*. The *kaphaja* form of *abhishyanda* presents with thick white sticky discharge hence can be correlated to bacterial or mucopurulent conjunctivitis. Since it also presents with *kandu* (itching sensation) and mild congestion, it can be compared with allergic conjunctivitis.

There is always an involvement of vitiated *rakta dosha* in all types of *abhishyanda* and hence it soon leads to *adhimantha*, a sight threatening complication if not tackled in its early stages.^[50] In conjunctivitis, severe infection with highly virulent organism like gonococcus can lead to keratitis, corneal ulcer, uveitis and sight threatening complications. Allergic conjunctivitis can cause scarring and damage to the cornea and eyelids as its complication if not tackled properly. *Abhishyanda* is a *vyadha sadhya vyadhi* and the management includes topical as well as purificatory therapies according to the different stages (*Ama* and *pakva avastha*) whereas in conjunctivitis topical antibiotic (bacterial and chlamydial infections), antiviral (viral conjunctivitis), topical anti-histamines and mast cell stabilizers (allergic conjunctivitis) are administered. Systemic antibiotics, anti-viral drugs and oral steroids (allergic conjunctivitis) are required in severe inflammatory conditions with complications. Steroids used in viral conjunctivitis may prolong the course of the disease and in allergic conjunctivitis may lead to complications like cataract and glaucoma. Most of the drugs used in the treatment of *abhishyanda* like *triphala*, *daruharidra*, *shigru*, *yashti* possess antibacterial, antiviral and antiallergic properties and hence are useful in both infective and non-infective conjunctivitis. According to *Yogaratanakara*, 5 days of *langhana* is advised in *abhishyanda* as it takes *ashraya* in *kapha sthana* in *netra*. *Langhana* helps to reduce inflammation by *ama pachana* and reduces *dosha dushti* in initial stages and hence prevents the disease from proceeding to severity. *Virechana* and *raktamokshana* helps to reduce *pitta* and *rakta dushti* which are the main *doshas* involved in the pathogenesis of *abhishyanda* and hence helps to prevent complication. These procedures along with *nasya* helps in *srotoshodhana* and therefore reduces *sravana* of *srotasas* or oozing of capillaries. *Langhana*, *swedana*, *seka*, *bidalaka* or *lepa*, *pindi* are indicated in *amavastha* i.e., when there is pain and inflammation. *Anjana*, *tarpana* are to be administered in *pakva avastha* i.e., after reduction of redness, pain and

discharge. *Tarpana* given in *pakva avastha* of *abhishyanda* nourishes the ocular tissues and improves immunity of conjunctiva and prevents recurrent inflammatory reactions.

CONCLUSION

Abhishyanda can be correlated to conjunctivitis due to similarities found in pathogenesis as well as in clinical features. *Abhishyanda* can be successfully managed with wide range of treatment modalities depending on the stages. Timely administration of *raktamokshana* and *virechana* along with topical treatment prevents complications like keratitis and uveitis since vitiated *rakta* is involved in all types of *abhishyanda*. Topical ocular therapeutics used to treat *abhishyanda* are safe and effective in counteracting the disease as well as improving the local ocular immunity. These topical treatment procedures can successfully replace immune therapy which is developing as a recent trend in the treatment of allergic conjunctivitis. Since *abhishyanda* is mentioned as the root cause of most of the eye diseases, proper treatment of *abhishyanda* depending on stages not only cures the disease, also prevents other eye diseases arising out of it.

REFERENCES

1. Pippin MM, Le JK. Bacterial Conjunctivitis. [Updated 2023 Jan 23]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546683/>
2. Hashmi MF, Gurnani B, Benson S. Conjunctivitis. [Updated 2022 Dec 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK541034/>
3. Dadapeer K. Essentials of ophthalmology. First edition. Jaypee Brothers Medical Publishers (p) Ltd, 2015; 5, 4: 83.
4. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, 6th edition. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 62 – 79.
5. Azari AA, Arabi A. Conjunctivitis: A Systematic Review. J Ophthalmic Vis Res, 2020; 6, 15(3): 372-395. doi: 10.18502/jovr.v15i3.7456. PMID: 32864068; PMCID: PMC7431717.
6. Ramanjit Sihota, Radhika Tandon, Parson's diseases of the eye, 2015; 22: 15 – 165.
7. Høvdig, G. Acute bacterial conjunctivitis. Acta Ophthalmologica, 2008; 86: 5-17. <https://doi.org/10.1111/j.1600-0420.2007.01006.x>.
8. Hu YL, Lee PI, Hsueh PR, Lu CY, Chang LY, Huang LM, Chang TH, Chen JM. Predominant role of Haemophilus influenzae in the association of conjunctivitis, acute otitis media and acute bacterial paranasal sinusitis in children. Sci Rep, 2021; 8, 11(1): 11. doi: 10.1038/s41598-020-79680-6. PMID: 33420151; PMCID: PMC7794412.

9. Dadapeer K. Essentials of ophthalmology. First edition. Jaypee Brothers Medical Publishers (p) Ltd, 2015; 5: 4 – 85.
10. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 6 – 63.
11. Sheikh A, Hurwitz B. Topical antibiotics for acute bacterial conjunctivitis: Cochrane systematic review and meta-analysis update. *Br J Gen Pract*, 2005; 55(521): 962-4. PMID: 16378567; PMCID: PMC1570513.
12. Yeu E, Hauswirth S. A Review of the Differential Diagnosis of Acute Infectious Conjunctivitis: Implications for Treatment and Management. *Clin Ophthalmol*, 2020; 12, 14: 805-813. doi: 10.2147/OPTH.S236571. PMID: 32210533; PMCID: PMC7075432.
13. Høvdning, G. Acute bacterial conjunctivitis. *Acta Ophthalmologica*, 2008; 86: 5-17. <https://doi.org/10.1111/j.1600-0420.2007.01006.x>.
14. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, 6th edition. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 65.
15. Pippin MM, Le JK. Bacterial Conjunctivitis. [Updated 2023 Jan 23]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546683/>
16. Pippin MM, Le JK. Bacterial Conjunctivitis. [Updated 2023 Jan 23]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546683/>
17. Brad bowling. Kanski's clinical ophthalmology- a systemic approach, eighth edition. Elsevier, 2016; 6: 136.
18. Pippin MM, Le JK. Bacterial Conjunctivitis. [Updated 2023 Jan 23]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546683/>
19. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, 6th edition. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 73.
20. Solano D, Fu L, Czyn CN. Viral Conjunctivitis. [Updated 2023 Apr 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470271/>
21. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 75.
22. Azari AA, Arabi A. Conjunctivitis: A Systematic Review. *J Ophthalmic Vis Res*, 2020; 6, 15(3): 372-395. doi: 10.18502/jovr.v15i3.7456. PMID: 32864068; PMCID: PMC7431717.
23. Brad bowling. Kanski's clinical ophthalmology- a systemic approach, eighth edition, 2016; 6: 142.
24. Villegas BV, Benitez-Del-Castillo JM. Current Knowledge in Allergic Conjunctivitis. *Turk J Ophthalmol*, 2021; 25, 51(1): 45-54. doi: 10.4274/tjo.galenos.2020.11456. PMID: 33631915; PMCID: PMC7931656.
25. Azari AA, Arabi A. Conjunctivitis: A Systematic Review. *J Ophthalmic Vis Res*, 2020; 6, 15(3): 372-395. doi: 10.18502/jovr.v15i3.7456. PMID: 32864068; PMCID: PMC7431717.
26. A K Khurana. Comprehensive ophthalmology. Disorders of Conjunctiva, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd, 2015; 6: 6 – 79.
27. Ramanjit Sihota, Radhika Tandon, Parson's diseases of the eye, 2015; 22: 15 – 179.
28. Brad bowling. Kanski's clinical ophthalmology- a systemic approach, eighth edition, 2016; 6: 145.
29. Ramanjit Sihota, Radhika Tandon, Parson's diseases of the eye, 2015; 22: 15 – 180.
30. Baab S, Le PH, Kinzer EE. Allergic Conjunctivitis. [Updated 2022 May 23]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK448118/>
31. Vichyanond P, Kosrirukvongs P. Use of cyclosporine A and tacrolimus in treatment of vernal keratoconjunctivitis. *Curr Allergy Asthma Rep*, 2013; 13(3): 308-14. doi: 10.1007/s11882-013-0345-0. PMID: 23625179.
32. Calderon MA, Penagos M, Sheikh A, Canonica GW, Durham SR. Sublingual immunotherapy for allergic conjunctivitis: Cochrane systematic review and meta-analysis. *Clin Exp Allergy*, 2011; 41(9): 1263-72. doi: 10.1111/j.1365-2222.2011.03835.x. PMID: 21848759.
33. <https://www.hopkinsmedicine.org/health/conditions-and-diseases/seasonal-allergies/could-allergy-drops-be-the-key-to-allergy-relief>
34. Vrddha Vagbhata, Ashtanga Sangraha, Shashilekha Sanskrit commentary by Indu; Prologue in Sanskrit & English by Prof. Jyotir Mitra; edited by Dr. Shivprasad Sharma, Chowkhambha Sanskrit Series Office, Varanasi, 2012; 41: 965 – 725.
35. Sushruta, Sushruta Samhita, Nibandha Samgraha Commentary of Sri Dalhanacharya and NyayaChandrika Panjika on Nidanasthana Commentary of Sri Gayadasacharya, by; Vaidya Yadavji Trikamji Acharya, Choukambha Surabharati Prakashan, Varanasi, 2017; 5, 33, 34: 824 – 289.
36. Dr Udaya Shankar, Text book of Shalaky Tantra. Volume-I: Netra roga. Chaukhambha Vishwabharati, Varanasi, 2021; 89: 472-475
37. Vagbhata, Astanga Hrudaya, Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by Bhishagacharya Harisastri Paradkara Vaidya, Choukhambha Orientalia, Varanasi, 2014; 13, 2: 956 – 830.

38. Chakrapanidatta, Chakradatta (Chikitsa Sangraha), English translation by Dr G. Prabhakar Rao, Chaukhambha Orientalia, Varanasi, 2014; 59, 1: 825 – 561.
39. Sharangadhara, Sharangadhara Samhita, translated by Prof. K.R Srikantha Murthy, Chaukhambha Orientalia, Varanasi, 2012; 13, 18, 20: 336 – 260.
40. Vagbhata, Astanga Hrudaya, Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by Bhashagacharya Harisastri Paradkara Vaidya, Chaukhambha Orientalia, Varanasi, reprint- Uttara tantra, chapter, 2014; 16, 3, 8, 956, 830 – 831.
41. Vagbhata, Astanga Hrudaya, Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by Bhashagacharya Harisastri Paradkara Vaidya, Chaukhambha Orientalia, Varanasi, 2014; 16, 18, 956 – 832.
42. Sharangadhara, Sharangadhara Samhita, translated by Prof. K.R Srikantha Murthy, Chaukhambha Orientalia, Varanasi, 2012; 13, 5, 25, 336, 259 – 261.
43. Vrddha Vagbhata, Ashtanga Sangraha, Shashilekha Sanskrit commentary by Indu; Prologue in Sanskrit & English by Prof. Jyotir Mitra; edited by Dr. Shivprasad Sharma, Chowkhambha Sanskrit Series Office, Varanasi, 2012; 19, 12: 965 – 721.
44. Sushruta, Sushruta Samhita, Nibandha Samgraha Commentary of Sri Dalhanacharya and NyayaChandrika Panjika on Nidanasthana Commentary of Sri Gayadasacharya, by; Vaidya Yadavji Trikamji Acharya, Chaukhambha Orientalia, Varanasi, 2014; 10, 6: 824 – 613.
45. Vrddha Vagbhata, Ashtanga Sangraha, Shashilekha Sanskrit commentary by Indu; Prologue in Sanskrit & English by Prof. Jyotir Mitra; edited by Dr. Shivprasad Sharma, Chowkhambha Sanskrit Series Office, Varanasi, Uttara sthana, Chapter, 2012; 19, 19: 965 – 722.
46. Sushruta, Sushruta Samhita, Nibandha Samgraha Commentary of Sri Dalhanacharya and NyayaChandrika Panjika on Nidanasthana Commentary of Sri Gayadasacharya, by; Vaidya Yadavji Trikamji Acharya, Chaukhambha Orientalia, Varanasi, Uttara tantra, chapter, 2014; 11, 614: 7 – 824.
47. Sharangadhara, Sharangadhara Samhita, translated by Prof. K.R Srikantha Murthy, Chaukhambha Orientalia, Varanasi, Uttara khanda, Chapter, 2012; 13, 261: 27 – 336.
48. Sushruta, Sushruta Samhita, Nibandha Samgraha Commentary of Sri Dalhanacharya and NyayaChandrika Panjika on Nidanasthana Commentary of Sri Gayadasacharya, by; Vaidya Yadavji Trikamji Acharya, Chaukhambha Orientalia, Varanasi, Uttara tantra, chapter, 2014; 12, 8: 10 - 824, 616.
49. Vagbhata, Astanga Hrudaya, Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri, edited by Bhashagacharya Harisastri Paradkara Vaidya, Chaukhambha Orientalia, Varanasi, reprint- Uttara tantra, chapter, 2014; 9, 24: 956 – 808.
50. Vrddha Vagbhata, Ashtanga Sangraha, Shashilekha Sanskrit commentary by Indu; Prologue in Sanskrit & English by Prof. Jyotir Mitra; edited by Dr. Shivprasad Sharma, Chowkhambha Sanskrit Series Office, Varanasi, reprint- Uttara sthana, Chapter, 2012; 19, 724: 41 – 965.