



***Kukunaka* W.R.T. Ophthalmia Neonatorum In Children: A Comparative Review And Management Insights**

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ABSTRACT

In Ayurveda, *Kukunaka* is a disease that affects the eyes in infants. According to *Aacharya Vagbhata*, it is *Netra Vartmagata Vyadhi*, which is particularly observed during the eruption of teeth in children, while *Aacharya Shushruta* stated it arises during *Ksheerapa Awastha* due to *Stanyaprakopa*, involving *Tridosha* and *Rakta Dushti*.

Ophthalmia Neonatorum is a bilateral inflammation of the conjunctiva occurring in an infant, less than 30 days old. It is a preventable disease that usually occurs as a result of carelessness at the time of birth. Typically, due to neonatal bacterial infection, *Neisseria gonorrhea* or *Chlamydia trachomatis* this disease may occur during vaginal delivery from exposure to these bacteria from the birth canal. It can be correlated with *Kukunaka* as both have similar clinical features, like *Abhikshnamastravum* (continuously mucoid or mucopurulent discharge from eyes). *Saprakasha Na Sahate* (Intolerance to light), *Shotha* (oedema), *Netrakandu* (itching), if left untreated, may cause permanent blindness. Treatment protocol in modern science includes systemic and topical antibiotics, steroids, etc, and Ayurveda mainly focuses on *Shamanchikitsa* that includes *Vartmapakshmashalana*, *Parisheka*, *Ashchotana*, and *Shodhanchikitsa*.

KEYWORDS: *Kukunaka*, Ophthalmia Neonatorum, *Ksheerapaka Awastha*, *Vartmagata Vyadhi*.

INTRODUCTION

Shalakyatantra is a branch of *Ayurveda* which deals with the study of sense organs, i.e, Eyes, Ear, Nose, and Head. Among them eyes are *Pradhantama*, i.e, the main sense organ, because its loss of function leads to various serious complications, and Life without eyesight is miserable and valueless. Hence, it is very important to protect the eyes.

Conjunctivitis is an inflammatory condition of the conjunctiva that mainly occurs due to infection of the membrane. It is characterized by discharge, which may be watery, mucoid, or mucopurulent, irritation, and discomfort.^[1] *Aacharya Sushruta* described that *Netrabhishyanda* (Conjunctivitis) is a contagious (*Aupsargic*) disease ^[2], which means it may be transmitted through contact with the infected person. This explains the urgency of treating the disease to avoid further spread. *Kukunaka* is a disease that affects the eyes in infants. According to *Aacharya Vagbhata*, it is *Netra Vartmagata Vyadhi*, which is particularly seen during tooth eruption in children ^[3] whereas *Aacharya Shushruta* said it occurs during *Ksheerapaka Awastha* due to provoked *Tridosha* and *Rakta Dushti*, breast milk gets vitiated, leading to *Kukunaka*.^[4]

Ophthalmia Neonatorum is a bilateral inflammation of the conjunctiva occurring in an infant, less than 30 days old. It is used as a broad term to include all types of conjunctivitis of the newborn or infant. It is also known as Neonatal conjunctivitis. It may be caused by two ways-Aseptic, Septic, i.e, infectious or noninfectious agents.^[5]

EPIDEMIOLOGY ^[6]

Before 1880, ophthalmia neonatorum was the leading cause of permanent blindness in neonates, mainly caused by Neisseria gonorrhoeae. In 1881, Dr. Crede used 2% of silver nitrate for the first time at the time of birth for ophthalmia prophylaxis. After that time, the epidemiology of this eye disease changed, and the incidence of N. gonorrhoeae as the causal agent of ophthalmia decreased from 10% to 0.3%.

Table 1: Hetu/Causative factors of Kukunaka as per various Samhitas.

NAME OF SAMHITA	CAUSATIVE FACTOR /HETU
<i>Sushruta Samhita</i> ^[4]	<i>Dusta Stanya due to vitiated Vata, Pitta, Kaph & Rakta.</i>
<i>Kashyapa Samhita</i> ^[7]	<i>Dusta Stanya due to vitiated Kapha, Rakta.</i>
<i>Ashtanga Hridaya</i> ^[3]	<i>Dantotpatti Nimitaj Vyadhi.</i>
<i>Yogratnakar</i> ^[8]	<i>Ksheer Doshajanya</i>
<i>Harita Samhita</i> ^[9]	<i>Kshaar Yukta Dugdha.</i>
<i>Ravanakrita Kumartantra</i> ^[10]	<i>Ksheer Doshajanya.</i>
<i>Vangasena Samhita</i> ^[11]	<i>Ksheer Doshajanya.</i>
<i>Madhava Nidana</i> ^[12]	<i>Kshaar Yukta Dugdha.</i>

Causes of Ophthalmia Neonatorum According to the modern point of view ^[5]

- Aseptic: - Chemical agents: Silver nitrate, Antiseptics as prophylaxis at the time of birth.
- Septic:- Sexually transmitted bacteria like Neisseria gonorrhoeae, Chlamydia trachomatis.
- Non-sexually transmitted bacteria like Streptococcus haemolyticus, Streptococcus aureus, Haemophilus.
- Adenovirus and Herpes simplex virus are the most common causes of viral conjunctivitis.

Ophthalmia Neonatorum infection occurs in three ways

- Before birth (very rare): -Infected liquor
- During birth (very common): -Infected birth canal
- After birth: - First bath, from clothes or fingers soiled with infected lochia.

Table 2: *Lakshana* of *Kukunaka* as per different *Samhitas*

Sr No.	Name of <i>Samhita</i>	<i>Lakshanas</i>
1	<i>Sushruta Samhita</i>	<i>Atimardan of Akshikut, Nasa & Lalata</i> due to <i>Atikandu</i> , Photophobia, Excessive exudates with tears, Adhered eyelids. ^[14]
2	<i>Kashyapa Samhita</i>	Excessive lacrimation, absence of sneezing. discomfort, frequent rubbing of the nasal area, forehead & eyeballs, itching in the eyes, intolerance to light, swelling over the eyelids. ^[15]
3	<i>Ashtanga Hridaya</i>	<i>Vartmashoola, Pichilayta, karna-nasa-akshimardan</i> ^[15]
4	<i>Yogratnakara</i>	<i>Netrakandu, NetraSrava, lalataakshi kantha Nasagharshanam.</i> ^[8]
5	<i>Ravanakrita Kumartantra</i>	<i>Netra Atikandu, Srava, Mastakakshikuta, Nasagharshanam, Netronmilankshaya</i> ^[10]
6	<i>Vangasena Samhita</i>	<i>Netrakandu, strava, Atimardan of Akshikut, Nasa & Lalata, Suryaprabha Na Sahate.</i> ^[11]
7	<i>Madhava Nidana</i>	<i>Netrakandu, Strava Atimardan of Akshikut, Nasa & Lalata, Suryaprabha Na Sahate.</i> ^[12]

CLINICAL FEATURE ^[13]

Ophthalmic Neonatorum is an acute, purulent, mucopurulent or mucoid discharge from one or both eyes in less than 30 days old infant.

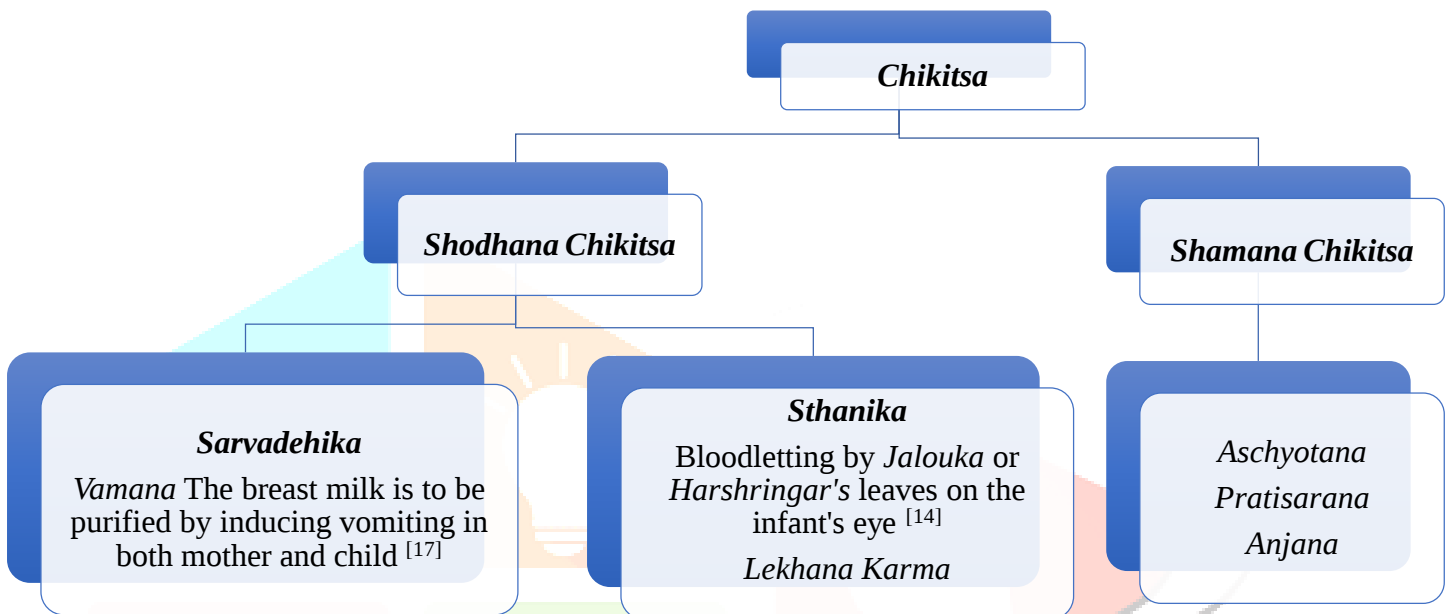
The sign and symptoms of ophthalmic neonatorum

- Pain and tenderness in eyeball
- Redness in eyes, itching, irritation of eyes.
- Conjunctival discharge-Purulent discharge- Chlamydial infection
Mucopurulent discharge -Gonococcal infection
Bloody discharge -HSV infection
- Lids are usually swollen
- Chemosis of the conjunctiva
- Corneal inflammation (in simplex herpes) superficial punctate keratitis
- If untreated, it can develop Staphyloma or Corneal ulcerations, if left untreated cause permanent blindness.

DIAGNOSIS

- History Taking
- Eye examination.
- Eye discharge for culture and sensitivity
- Taking a swab from the infected conjunctiva.

TREATMENT FROM AYURVEDIC POINT OF VIEW



Shaman chikitsa ^[17]

- Aschyotana* i.e Eye wash with *Amalaki*, *Jambu*, *Aamra*, *Eranda*, *Varuna* kwatha. *Aschyotana* with *Triphla ghrita* or *Giloy ghrita*.
- Pratisaran* with *Trikatu churna*.
- Anjana Varti*:- Equal amount of *Manahshila*, *Maricha*, *Sankhnabhi*, *Rasanjana*, *Sandhavlavana*, *Guda*, Honey, milk., *Madhu*, *Ghrita* in *Lohabhasma*, to make *Varti* ,it is called *kukunakahar Anjana*.
- Anjana*: -Burn *Murva*, *Mulethi*, *Aamratawaka* then use it as an *Anjana*.

According to *Vagabhata* ^[18]

- Lekhana Karma* with *Shetalipatra* or *Harshringar Patra*.
- Pratisarana* with *Trikatu* and honey.
- Gutikanjana*.
- Lepana* on mother breasts with *Nagarmotha*, *Haridra*, *Daruharidra*, *Pimpali*
- Pidana Karma* to breast of mother.
- Dhupana Karma* to breast of mother with *Sharshapa* and *Ghrita*.

PROPHYLACTIC TREATMENT ACCORDING TO MODERN SCIENCE ^[5]

Prophylactic treatment is always better than curative. Prophylaxis needs antenatal, natal and postnatal care.

A. Antenatal measures

Thorough care of mother and treatment of genital infections when suspected. Surveillance of women during the third trimester of pregnancy for evidence of chlamydial, herpetic or gonococcal infection is critical in the prevention of neonatal conjunctivitis.

B. Natal measures

1. Deliveries should be conducted under hygienic conditions, taking all aseptic measures.
2. The newborn baby's closed lids should be thoroughly cleansed and dried.

C. Postnatal care

1. Isolation of infants during 24 hours of treatment.
2. Povidone iodine 2.5% solution is effective against common pathogens.
3. Use of 0.5% erythromycin ointment in eyes of the babies immediately after birth is useful for preventing bacterial and chlamydial ophthalmia neonatorum.
4. A single injection of ceftriaxone 50mg/kg IM or IV should be given to infants born to mothers with untreated gonococcal infection.

Curative treatment ^[19]

Topical therapy

1. Saline lavage (hourly till the discharge is eliminated)
2. Eye ointment (Bacitracin 4 times a day).
3. If the cornea is involved, then use atropine sulphate ointment.
4. Broad-spectrum antibiotics if the organism is resistant to penicillin. otherwise, topical penicillin therapy is given.
5. Neonatal inclusion conjunctivitis responds well to topical tetracycline 1% or erythromycin 0.5% eye ointment qid for 3 weeks.

Systemic therapy-

1. Neonates with gonococcal ophthalmia should be treated for 7 days with one of these (Ceftriaxone: 75-100mg/kg/day IV QID, Ciprofloxacin: 10-20mg/kg/day IV).
2. Neonatal inclusion conjunctivitis systemic erythromycin 125mg orally, QID for 3 weeks should also be given since the presence of chlamydia agents in the conjunctiva implies colonization of the upper respiratory tract as well. Both parents should also be treated with systemic erythromycin.
3. Herpes simplex conjunctivitis is usually a self-limiting disease. However, topical antiviral drugs control the infection more effectively and may prevent its recurrence. High-dose Intravenous Acyclovir is indicated in cases suspected of systemic herpes infection.

CONCLUSION

Abhishyanda is *Sarvagata Netraroga*, which affects the eye in all ways and possesses symptoms of conjunctivitis as per modern science. Ophthalmic Neonatorum is the name given to bilateral inflammation of the conjunctiva occurring in a neonate, less than 30 days old. It is a preventable disease that usually occurs as results from carelessness at the time of birth. *Kakunaka* is a common disease in neonates due to the vitiation of *Tridoshas* and *Rakta*^[4]. It is explained under *Danttopati Kaleena vyadhi* affecting *Netra* ^[3]. By analysing the history and symptoms, it might be caused due to *kapha Pradhana Dushta Stanyapana*. *Kakunaka*

particular type of inflammatory disease of eye seen in infants of one month or less than one month. The *Lakshanas*, which were explained in classics for *Kukunaka*, are similar to Ophthalmia Neonatorum. It may also occur as a secondary complication during tooth eruption. It is *Sadhya* in nature. Treatment protocol in modern science includes systemic and topical antibiotics, steroids, etc, and Ayurveda mainly focuses on *Shamanchikitsa* that includes *Vartmapakshmalana*, *Parisheka*, *Ashchotana*, and *Shodhanchikitsa*.

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