

### 3.8.9. Abhishyanda (Neonatal Conjunctivitis)

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#### Learning goals

By the end of this chapter you will be able to: write a precise exam definition of neonatal conjunctivitis; classify by **onset** and **cause**; recognise danger signs; outline **diagnostic tests** (bedside and laboratory); write **cause-specific treatment** (chemical, gonococcal, chlamydial, HSV, and other bacteria); describe **prevention** including ocular prophylaxis and maternal screening; and relate neonatal conjunctivitis to the **Ayurvedic concept of Abhishyanda**.

**Classical anchor:** In **Suśruta Samhitā, Uttara-tantra, Sarvagata-roga-vijñāniya (Chapter VI)**, *Abhishyanda* is enumerated among diseases affecting the **whole eye**, and the text cautions that **many eye diseases arise from, or progress from, Abhishyanda**, hence it should be remedied **swiftly**.

#### 1) Definition and terminology

**Neonatal conjunctivitis (ophthalmia neonatorum)** is **inflammation of the conjunctiva** occurring within the **first 28 days** of life, caused by **chemical irritation, bacteria** (notably *Neisseria gonorrhoeae, Chlamydia trachomatis*), **viruses** (HSV), or other organisms. In Ayurvedic nosology, it correlates with **Abhishyanda** (profuse ocular discharge with redness/irritation), a **Sarvagata netraroga**.

#### 2) Etiology and pathogenesis (use onset to remember)

Onset from birth	Likely cause	Pathophysiology / notes
<24 h	<b>Chemical</b> (e.g., silver nitrate)	Direct irritation; typically self-limited in <b>24-48 h</b> .
2-5 days	<b>Gonococcal</b>	Hyper-acute purulent discharge; rapid corneal involvement, perforation risk; <b>medical emergency</b> .
5-14 days	<b>Chlamydial</b>	Mucopurulent discharge ± eyelid swelling; may herald <b>afebrile pneumonia</b> in weeks.
6-14 days	<b>HSV</b>	Watery to mucoserous discharge, periocular vesicles ± keratitis; risk of disseminated disease/encephalitis.
<b>Any time</b>	<b>Other bacteria</b> (Staph, Strep, GNB)	Purulent discharge, generally less aggressive than gonococcal; treat per local antibiogram.

Mechanisms: **exposure during delivery**, nosocomial contamination, or prophylactic chemical irritation. In the Ayurvedic frame, **Abhishyanda** implies **“oozing/flow”** from ocular channels (srotas) with **redness, irritation, and discharge**, matching modern features of conjunctivitis.

#### 3) Clinical features & red flags

- **Common signs:** conjunctival hyperaemia, eyelid oedema, discharge (watery → mucopurulent → frankly purulent), glued eyelids after sleep.
- **Gonococcal clues:** **copious thick pus**, tense chemosis, rapid corneal haze/ulcer. **Red flags:** corneal involvement, severe lid oedema, systemic toxicity.

- **Chlamydial clues:** mucopurulent discharge, moderate lid swelling, often **bilateral** but may start unilateral; later risk of **chlamydial pneumonia**.
- **HSV clues:** vesicular skin lesions, keratitis, or systemic HSV; may be subtle.
- **Chemical:** mild erythema/tearing/chemosis **resolving within 24-48 h**.

**Differentiate from:** **nasolacrimal duct obstruction** (continuous tearing/mucus without conjunctival injection), **congenital glaucoma** (photophobia, blepharospasm, corneal haze), trauma.

#### [Conjunctivitis 3D Model](#)



#### **Ophthalmia Neonatorum**

This image shows gonococcal ophthalmia. Symptoms and signs of eyelid edema, chemosis, and purulent discharge develop 2 to 5 days after delivery.

DR M.A. ANSARY/SCIENCE PHOTO LIBRARY

## **4) Diagnostic approach (step-wise)**

### **A. Bedside:**

- Age of onset; maternal STI history; type of discharge; exposure to prophylactic agent; systemic symptoms.
- Fluorescein stain **if corneal involvement** suspected (especially in gonococcus).

### **B. Laboratory (collect before starting therapy if safe, but do not delay emergency treatment):**

- **Gram stain** of conjunctival exudate: look for **Gram-negative diplococci** (gonococcus).
- **Culture** on selective media (e.g., Thayer-Martin) for *N. gonorrhoeae*.
- **NAAT/PCR** for **Chlamydia trachomatis** and **Neisseria gonorrhoeae** where available.
- **HSV PCR** from conjunctival swab/lesion if suspected; evaluate for systemic HSV.
- Consider **complete evaluation** for disseminated infection in gonococcus/HSV.

## 5) Management principles (always write these first)

1. **Infection control:** hand hygiene; single-use swabs; clean away discharge with warm sterile saline.
2. **Avoid topical corticosteroids** in neonates unless directed by ophthalmology.
3. **Urgent ophthalmology referral** for corneal haze/ulcer, severe chemosis, or any suspected gonococcal/HSV disease.

## 6) Cause-specific treatment (with doses you can remember)

### 6.1 Chemical conjunctivitis

- **Supportive only:** frequent saline irrigation, reassurance; usually resolves in **24-48 h**. **No antibiotics** needed.

### 6.2 Gonococcal ophthalmia—emergency

- **Systemic antibiotic (single dose):** Ceftriaxone **25-50 mg/kg IV/IM** once (**maximum 250 mg**). Use **caution** in premature infants or those with hyperbilirubinaemia (risk of kernicterus); **avoid with recent IV calcium** use (see alternative below).
- **Alternative if ceftriaxone contraindicated or calcium interactions:** Cefotaxime **100 mg/kg IV/IM** once.
- **Irrigation:** copious **normal saline** to clear exudate and reduce bacterial load.
- **Topical therapy alone is inadequate and unnecessary** when systemic treatment is given. Evaluate for **disseminated gonococcal infection** (sepsis, arthritis, meningitis).

### 6.3 Chlamydial conjunctivitis

- **Preferred:** Azithromycin **20 mg/kg orally once daily for 3 days**.
- **Alternative:** Erythromycin base/ethylsuccinate **50 mg/kg/day** orally in 4 divided doses **for 14 days** (watch for **infantile hypertrophic pyloric stenosis**; recurrence ~20% may require a **second course**). Evaluate for **pneumonitis**.
- **Treat mother (and partner)** per adult STI guidelines to prevent reinfection.

### 6.4 Herpes simplex (HSV) conjunctivitis/ keratoconjunctivitis

- **Acyclovir IV 20 mg/kg every 8 hours** for **14-21 days** (as for neonatal HSV disease), with ophthalmology input; topical antivirals **are not sufficient** alone.

### 6.5 Other bacterial conjunctivitis (e.g., Staphylococcus/ Streptococcus, Gram-negative bacilli)

- **Topical** agents (per local sensitivity), e.g., **erythromycin** ointment or **polymyxin B/trimethoprim** drops; escalate if poor response or systemic features.

## 7) Prevention

### 7.1 Universal ocular prophylaxis at birth

- Apply within **first hour** after delivery (facility practice varies). Agents supported internationally include **0.5% erythromycin ointment**, **1% tetracycline ointment**, or **2.5% povidone-iodine** solution; all reduce **gonococcal transmission** (efficacy against **chlamydia** is limited).
- **Operational issues:** temporary **erythromycin shortages** have occurred but were resolved in many regions by late **2024**. Always follow current local policy.

## 7.2 Maternal screening and treatment

- **Antenatal STI screening** and **intrapartum risk reduction** are the most effective prevention for gonococcal/chlamydial disease; ensure **partner treatment**.

**Kaumārabhṛtya alignment:** The classical warning that **Abhishyanda** can lead to severe ocular disease underscores **early cleansing, gentle care, and prompt treatment**, exactly mirrored by modern **prophylaxis** and **early therapy**.

## 8) Quick diagnostic & treatment algorithm

1. **Age <24 h** + mild tearing/congestion → **chemical** → saline care, observe **24-48 h**.
2. **Age 2-5 days** + **copious pus/chemosis** → **suspect gonococcus** → **STAT ceftriaxone 25-50 mg/kg IV/IM (max 250 mg)**; saline irrigation; culture/NAAT; screen for dissemination.
3. **Age 5-14 days** + mucopurulent discharge → **suspect chlamydia** → **azithromycin 20 mg/kg PO daily × 3 days** (or erythromycin × 14 days); evaluate for pneumonia; treat mother/partner.
4. **Vesicles/keratitis/systemic signs** → **HSV** → **acyclovir IV 20 mg/kg 8-hourly × 14-21 days**; ophthalmology.
5. **Others** → topical antibiotic per local guideline; monitor response.

## 9) Documentation, counselling, and follow-up

- **Record:** onset, maternal history, exam (discharge type, cornea), investigations, treatment given (dose/time), and response.
- **Counsel parents:** hygiene (handwashing, separate towels), medication technique (ointment ribbon across lower sac), return immediately if **reduced eye opening, corneal haze, fever, poor feeding**, or no improvement in **24-48 h**.

## 10) Abhishyanda: bridging classical & modern views

- **Abhishyanda** (Sarvagata netraroga) denotes **profuse ocular “oozing” with redness/irritation**; Suśruta places it among conditions **affecting the entire eye** and warns that many ocular diseases **arise from or progress from Abhishyanda**, demanding **rapid remedy**. The neonatal entity **ophthalmia neonatorum** fits this **Abhishyanda-lākṣaṇa** but needs **mṛdu** (gentle), evidence-based neonatal measures: **early cleansing, systemic therapy for gonococcus/HSV, and oral therapy for chlamydia**, alongside **prophylaxis** at birth.

## Self-check (MCQs)

1. A 3-day-old neonate has **copious purulent discharge** with tense chemosis. The **best immediate** step is:
  - A. Start topical tobramycin alone
  - B. **Give ceftriaxone 25-50 mg/kg IV/IM single dose and irrigate; send swab**
  - C. Start acyclovir IV
  - D. Observe for 24 h**Answer: B.** Systemic therapy is mandatory for gonococcal ophthalmia; topical alone is inadequate.
2. The **preferred regimen** for **chlamydial** neonatal conjunctivitis is:
  - A. Erythromycin ointment both eyes × 14 days
  - B. **Azithromycin 20 mg/kg PO daily × 3 days**
  - C. Acyclovir IV 20 mg/kg 8-hourly × 21 days
  - D. Cefotaxime 100 mg/kg once**Answer: B.** (Erythromycin **oral** ×14 days is an alternative.)



3. Which **prophylaxis** statement is **true**?
- Ocular prophylaxis prevents both chlamydial and gonococcal transmission equally
  - 0.5% erythromycin ointment at birth prevents gonococcal ophthalmia; efficacy for chlamydia is limited**
  - Povidone-iodine 2.5% is unsafe for neonates
  - Prophylaxis is unnecessary if mother is screened
- Answer: B.**
4. The **most dangerous early complication** of gonococcal ophthalmia is:
- Nasolacrimal obstruction
  - Corneal ulcer/perforation with vision loss**
  - Dacryocystitis
  - Pseudomembrane formation only
- Answer: B.**
5. Which is **recommended** for **HSV** neonatal conjunctivitis?
- Topical steroid + erythromycin only
  - Acyclovir IV 20 mg/kg every 8 h for 14-21 days**
  - Levofloxacin drops only
  - No treatment needed
- Answer: B.**

## Short-answer prompts (3-4 lines each)

- Define ophthalmia neonatorum and list **four causes** with **typical onset** windows.
- Write the **diagnostic tests** you would send **before** antibiotics in suspected gonococcal disease.
- Outline **azithromycin** and **erythromycin** regimens for **chlamydial** conjunctivitis and one key caution for erythromycin.
- Explain **why topical therapy alone** is insufficient for **gonococcal** ophthalmia.

## References

### Classical sources (conceptual alignment)

- **Suśruta Saṃhitā, Uttara-tantra, Sarvagata-roga-vijñāniya (Chapter VI):** enumeration of **Abhishyanda** among diseases affecting the whole eye, with note that many ocular diseases **arise from Abhishyanda** and should be treated **promptly**. English translation access: Wisdomlib edition.

### Modern guidelines & reviews

- CDC STI Treatment Guidelines (2021)—Neonates, gonococcal infections: ceftriaxone 25-50 mg/kg IV/IM once** (max 250 mg); alternative **cefotaxime 100 mg/kg**; topical therapy alone inadequate.
- StatPearls: Ophthalmia Neonatorum / Neonatal Conjunctivitis**—classification by onset, features, prophylaxis agents.
- USPSTF Recommendation (2019)—0.5% erythromycin** at birth prevents **gonococcal** ophthalmia; benefits outweigh harms.
- Cochrane/Review (2020)**—evidence on **prophylactic agents** (erythromycin 0.5%, tetracycline 1%, povidone-iodine 2.5%, silver nitrate 1%).
- Chlamydial conjunctivitis therapy**—Azithromycin **20 mg/kg/day × 3 days** (evidence base) and erythromycin **50 mg/kg/day × 14 days**, recurrence and pyloric stenosis caution.
- Medscape/EyeWiki/MSF**—additional practical dosing and preventive options; calcium-ceftriaxone interaction cautions.
- AAP Red Book (advisory)**—erythromycin ointment shortage update (resolved September **2024**).



## 60-second last-minute revision

- **Think in windows:** <24 h chemical; 2-5 d gonococcus; 5-14 d chlamydia; 6-14 d HSV.
- **Emergency:** gonococcus → **ceftriaxone 25-50 mg/kg IV/IM once (max 250 mg)**; irrigate; **topical alone isn't enough.**
- **Chlamydia:** **azithro 20 mg/kg/day × 3 d** (or **erythro ×14 d**; warn **IHPS**). Treat **mother & partner.**
- **HSV:** **acyclovir IV 20 mg/kg q8h** for **14-21 d**; ophthalmology.
- **Prophylaxis at birth:** **erythromycin 0.5%** (or **tetracycline 1%** / **povidone-iodine 2.5%**) within **1 h**—prevents **gonococcus**, not reliably chlamydia.

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