

## OPHTHALMIA NEONATORUM

<b>Policy author</b>	Antibiotic Advisory Group with guidance from Miss Lucilla Butler, Consultant Ophthalmologist
<b>Accountable Executive Lead</b>	Clinical Director
<b>Approving body</b>	Directorate Governance Group Drug and Therapeutics Committee
<b>Policy reference</b>	SWBH/BMEC/Ophth/045

<p><b>Overall purpose of the guideline</b> Management of Ophthalmia Neonatorum</p> <p><b>Principal target audience</b> Ophthalmologists, Paediatricians</p> <p><b>Application</b> Child patients (Neonates)</p> <p><b>Scope</b> Babies, 28 days of age or less</p> <p><b>National Guidance incorporated</b> Conjunctivitis (Pink Eye) in Newborns <a href="http://www.cdc.gov/conjunctivitis/newborns.html">http://www.cdc.gov/conjunctivitis/newborns.html</a></p>
---

### DOCUMENT CONTROL AND HISTORY

Version No	Date Approved	Date of implementation	Next Review Date	Reason for change (e.g. full rewrite, amendment to reflect new legislation, updated flowchart, etc.)
1	May 2011	May 2011	May 2013	
2	May 2014	June 2014	June 2017	Routine review

Drugs marked in **red** contain penicillin and are contra-indicated in penicillin allergy; drugs marked in **orange** should be used with caution in penicillin allergy and avoided if there is any history of anaphylaxis to penicillin; drugs marked in **green** are safe in penicillin allergy

## 1. Definition

Ophthalmia neonatorum is a conjunctival inflammation occurring during the first month of life.

## 2. Causes

These include bacteria, most commonly *Staphylococcus aureus*, Chlamydiae and rarely Herpes simplex virus and chemical irritants. Almost any common bacterial pathogen can cause the condition, but *Neisseria gonorrhoea* infection is of particular concern as it can cause corneal ulceration.

- Chlamydial conjunctivitis:
  - This is an increasingly common cause of neonatal conjunctivitis in the UK.
  - Typical onset is 5–14 days.
- Gonococcal conjunctivitis:
  - Occurs in the first few days of life (0–5 days of age).
  - Mild inflammation with sero-sanguineous discharge to thick, purulent discharge with tense oedema of eyelids.
  - The cornea can be rapidly affected: ulceration and even perforation can occur resulting in destruction of the eye.
- Conjunctivitis caused by other bacteria:
  - Typically, symptoms develop in the first 4–5 days of life, but they can occur at any time.
  - Organisms include: *S. aureus*, *S. epidermidis*, *Streptococcus pneumoniae*, *Escherichia coli*, *Serratia* spp., *Pseudomonas* spp. and *Haemophilus* spp.
- Viral infection:
  - Herpes simplex blepharoconjunctivitis usually develops in the first 5–7 days of life and can be complicated by a keratitis and rarely an encephalitis.

## 3. Empirical Management

### 3.1 Investigations

- Exclude congenital nasolacrimal duct obstruction (by reflux of mucopurulent material with pressure over the lacrimal sac).
- Take dry conjunctival swabs for Herpes simplex and for *Chlamydia* for PCR.
- *Chlamydia* is an obligate intracellular organism so it is important to sample conjunctival cells with any swab.

Drugs marked in **red** contain penicillin and are contra-indicated in penicillin allergy; drugs marked in **orange** should be used with caution in penicillin allergy and avoided if there is any history of anaphylaxis to penicillin; drugs marked in **green** are safe in penicillin allergy

- Take a sample of pus for culture and sensitivity

### 3.2 Treatment

4–6-hourly eye toilet using sterile sodium chloride solution 0.9%

Empirical treatment depends upon the date/timing/age at time of presentation:

- Presenting in first few days of life
    - severe purulent conjunctivitis
    - likely causative organism is similar to those presenting at 4–5 days of life
- BUT consider *N. gonorrhoea***
- Request an urgent Gram stain, which will be performed within working hours
  - treat with **chloramphenicol** eye drops 0.5% at least six times a day (frequency dependent upon severity)
  - If high clinical suspicion or if urgent Gram stain shows Gram negative diplococci (probable *N. gonorrhoea*), administer **cefotaxime** 100 mg/kg intravenously stat. For severe cases, admit the child under joint care with paediatricians, frequent saline irrigation of the eyes and treatment with parenteral **cefotaxime**.
  - **Cefotaxime** may be continued at 100 mg/kg twice daily intravenously for up to 5 days at the discretion of the consultant. If due to *N. gonorrhoea*, discuss with parents referral to Genitourinary medicine services.
  - Other organisms identified may need to be discussed with a Microbiology Consultant.

**N.B. If the child is systemically unwell, the opinion of a paediatrician should be sought.**

Refer to paediatric ophthalmologist for urgent review.

- Presenting at 4–5 days of life
  - bacterial infection with causative organisms likely to be from *S. aureus*, *S. pneumoniae*, *E. coli*, other coliforms, and *Haemophilus* spp.
  - empirical treatment **chloramphenicol** eye drops 0.5% six times daily, adjust treatment dependent upon microbiology results.
- Presenting at 5–14 days of life
  - watery, mucopurulent discharge. The conjunctival reaction is papillary rather than follicular
  - likely causative organism *Chlamydia* - empirical treatment oral **erythromycin** 12.5 mg/kg four times a day for 14 days

Once swab results are obtained, treat according to the culture and sensitivity test results.

- Presenting with Herpes simplex
 

Admit under joint Paediatric care for intravenous treatment, usually **aciclovir** 20 mg/kg every 8 hours for 14 days (21 days if CNS involvement) together with topical therapy **aciclovir** eye ointment 3% five times a day for 14 days.

Drugs marked in **red** contain penicillin and are contra-indicated in penicillin allergy; drugs marked in **orange** should be used with caution in penicillin allergy and avoided if there is any history of anaphylaxis to penicillin; drugs marked in **green** are safe in penicillin allergy

#### 4. Advice to parents

If gonococcal or chlamydial infection is suspected, this should not be relayed to parents until the diagnosis is confirmed.

If confirmed, parents should be referred to the local genito-urinary clinic:  
Birmingham - Whittall Street (male patients) 0121 237 5700 / (female patients) 0121 237 5701, Sandwell – Dartmouth Clinic 0121 507 3094

#### 5. References

Birmingham and Midland Eye Centre – Treatment of Ophthalmic Infection (BMEC/Ophth/09)

Lepage P, Kestelyn P, Bogaerts J. Treatment of gonococcal conjunctivitis with a single intramuscular injection of cefotaxime J Antimicrob Chemother. 1990 Sep;26 Suppl A:23-7.

Gururaj AK, Ariffin WA, Vijayakumari S, Reddy TN. Changing trends in the epidemiology and management of gonococcal ophthalmia neonatorum Singapore Med J. 1992 Jun;33(3):279-81.

Drugs marked in **red** contain penicillin and are contra-indicated in penicillin allergy; drugs marked in **orange** should be used with caution in penicillin allergy and avoided if there is any history of anaphylaxis to penicillin; drugs marked in **green** are safe in penicillin allergy