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Ophthalmia Neonatorum

Definition

Ophthalmia neonatorum is a conjunctival inflammation occurring during the first month of life. As of April 2010, it is no longer a notifiable disease (<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/NotificationsOfInfectiousDiseases/ListOfNotifiableDiseases/>).

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.
 - The incubation period is 5 -14 days.
 - Initially unilateral, it usually becomes bilateral.
 - The lids are swollen and there is a watery, mucopurulent discharge which may be blood stained. The conjunctival reaction is papillary rather than follicular.
 - It can give rise to a superior pannus, conjunctival scarring and rarely, a corneal opacity.
 - Systemic complications include rhinitis, otitis and pneumonitis.
- Gonococcal conjunctivitis:
 - Occurs in the first few days of life.
 - There is a rapidly progressing severe purulent conjunctivitis.
 - The cornea can be rapidly affected: ulceration and even perforation can occur resulting 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.

Empirical Management

- Investigations:
 - Exclude congenital nasolacrimal duct obstruction (by reflux of mucopurulent material with pressure over the lacrimal sac).
 - Take conjunctival swabs for *Herpes simplex* and for *Chlamydia*. *Chlamydia* is an obligate intracellular organism so it is important to sample conjunctival cells with any swab.
 - Take a sample of pus for culture and sensitivity
 - Do a conjunctival scrape for urgent Gram stain, culture and sensitivity: looking particularly for Gram negative diplococci ie *N. gonorrhoea*.
- Treatment

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
- 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*), amend topical treatment to Polyfax eye ointment and administer cefotaxime 100 mg/kg intra-venously stat. For severe cases, admit the child under joint care with paediatricians, frequent saline irrigation of the eyes and treatment with both parenteral cefotaxime and Polyfax® eye ointment. 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 Genito-urinary 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*, *Strep. 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 daily + G ofloxacin 0.3% six times daily

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 20mg/kg every 8 hours for 14 days (21 days if CNS involvement) together with topical therapy aciclovir eye ointment 3% five times a day.

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

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