

# ***PAEDIATRIC OPHTHALMOLOGY***

## ***GUIDANCE FOR PRIMARY CARE OPTOMETRY***

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## Referral Pathways

The following guidance outlines the actions advised and required when presented with the conditions listed below. This list is not exclusive and exhaustive of the conditions which may present. Annex 1 provides 'summary' information on paediatric ophthalmic conditions and the recommended referral pathways/options.

To note in the Belfast Trust area there are 3 pathways which a paediatric ophthalmology referral may follow:

1. Paediatric Ophthalmology - Urgent and Routine Referrals. These can be accessed via CCG under the RVH 'OPHTHALMOLOGY – PAEDIATRIC OPHTHALMOLOGY'. Please read the guidance in order to assist in your decision making as to whether the referral should be noted as 'Urgent' or 'Routine' and the doctors will subsequently triage and assign an appropriate appointment. In particular please note the advice in regard to the management of urgent referrals on page 10 of this guidance document.
2. Eye Casualty (Regional Acute Eye Service – RAES)
3. A&E at the Royal Belfast Hospital for Sick Children (RBHSC)

## Paediatric Ophthalmic conditions

### Blepharitis & Staphylococcal Hypersensitivity Disease (see Annex 4)

- Advice re lid cleaning
- Course of topical chloramphenicol ointment to the lids at bedtime one month
- Issue advice leaflet
- If very photosensitive or chronic corneal changes, refer to Paediatric Ophthalmology as an Urgent Referral for follow up

### Meibomian Cysts - acute and chronic (see Annex 4)



- Advice re lid cleaning and hot bathing long term
- Oral antibiotic not indicated; course of chloramphenicol ointment
- Issue advice leaflet as they tend to occur in crops
- Chronic cysts will settle over time; refer for opinion to outpatients if causing mechanical problems

### Other Lid Lesions

- Molluscum contagiosum of lid with secondary red eye, refer to Paediatric Ophthalmology as an Urgent Referral

### Ptosis

- If obscuring the visual axis in neonate refer to Paediatric Ophthalmology as an Urgent Referral
- If part of suspected new Horner's syndrome refer to Paediatric Ophthalmology as an Urgent Referral
- Otherwise, refer for routine paediatric outpatient appointment

### Viral Conjunctivitis

- Endemic in children, highly infectious and self-limiting.
- Often associated with respiratory infection and pre-auricular lymph nodes
- **DO NOT refer routinely** to hospital, give infection control advice

### Acute Bacterial Conjunctivitis

- Rarely seen. Purulent green discharge.
- Treat with topical Gt Chloramphenicol four times daily 1 week.

### Epiphora

- Chronic watering and discharge since birth suggests blocked nasolacrimal duct (usually clear or mucoid discharge)
- Oral antibiotics not indicated
- Gt Chloramphenicol only if red eye or discharge becomes green
- Lacrimal sac massage by parent advocated as per advice sheet

- Refer to paediatric ophthalmology outpatients if persisting beyond 12 months, parents are keen for probing and child is fit for GA
- Look for epiblepharon in babies, in turning eyelashes; refer to Paediatric Ophthalmology as an Urgent Referral

### **Periorbital Cellulitis**

- Treat any local infection. Refer to GP for oral antibiotic if involving whole lid
- If not responding to oral antibiotic, or with systemic upset, needs referral to RBHSC A&E to consider admission for IV antibiotic

### **Dacryocystitis**

- Lacrimal sac abscess (swelling medially between eye and nose)
- Refer to GP to commence oral antibiotic and to refer to Paediatric Ophthalmology as an Urgent Referral
- Emergency referral to RBHSC for IV antibiotic if systemically unwell

### **Chronic Blinking (see also Annex 2)**

- Suggests corneal epithelial disturbance
- May be secondary to allergic conjunctivitis (history of allergy/allergic rhinitis)
- May be secondary to lid inflammation (red lids, styes and meibomian cysts)
- Try simple lubricant first; Treat any lid inflammation; refer to Paediatric Ophthalmology as an Urgent Referral if chronic photophobia, has chronic red eye or doesn't respond to simple treatment

### **Allergic Eye Disease**

- Trial of antihistamine drops
- Advise oral antihistamine if eyes are involved in acute periorbital allergic reaction
- Refer to Paediatric Ophthalmology as an Urgent Referral for advice if symptoms causing chronic upset in daily life and not responding to treatment

## Herpes Simplex Blepharitis

- Refer to GP to start oral aciclovir and refer to Paediatric Ophthalmology as an Urgent Referral.
- May have more generalised rash associated with eczema (eczema herpeticum) and require dermatology advice via GP

## Herpes Simplex Keratitis

- Refer to GP to commence oral aciclovir and refer to Paediatric Ophthalmology as an Urgent Referral.

## Herpes Zoster Ophthalmicus (Shingles)

- Refer to GP to start oral acyclovir and refer to Paediatric Ophthalmology as an Urgent Referral
- If on immunosuppressant, refer Royal Belfast Hospital for Sick Children (RBHSC) urgently for admission for IV aciclovir

## Chickenpox Rash and Eye Involvement

- To GP to commence oral aciclovir if keratitis, iritis, optic neuritis, retinitis or other cranial nerve involvement
- Refer to Paediatric Ophthalmology as an Urgent Referral

## Chemical Injury

- Irrigation and oral analgesia prior to referral to hospital
- Often pupil will need dilated with cyclopentolate (0.5% under 1 year old, 1% over 1 year old) to allow any assessment of corneal epithelial defect. Refer on to Eye Casualty for advice and topical treatment or seek advice re treatment by phone.

## Corneal Abrasion

- Relieve pain with topical anaesthetic and dilating drops (amethocaine and cyclopentolate – 0.5% under 1 year old, 1% over 1 year old )
- If minor send home on chloramphenicol eye ointment
- If extensive, or unable to examine, refer acutely for ophthalmology opinion.

**Remember to dilate pupil for pain relief**

## Corneal Foreign Body

- Relieve pain with topical anaesthetic (amethocaine) to facilitate exam
- Attempt removal with cotton tipped applicator if FB accessible
- Cover with topical chloramphenicol ointment until heals
- Refer acutely to Eye Casualty if child distressed
- Refer to Paediatric Ophthalmology as an Urgent Referral if problem persists; dilate pupil if photophobic

## Corneal Ulcer

- Relieve any pain with topical anaesthetic and dilating drops (amethocaine and cyclopentolate – 0.5% under 1 year old, 1% over 1 year old)
- Refer to Eye Casualty if child distressed possibility of perforation or sight threatening infection. Otherwise, commence gt chloramphenicol and refer to Paediatric Ophthalmology as an Urgent Referral.

## Hyphaema & blunt trauma

- Refer to Eye Casualty for acute assessment and treatment; may require admission

## Iritis/Uveitis

- Refer to Eye Casualty for assessment and treatment

## Acute Onset Squint

### Unwell child:

- **Systemic upset**, gaze palsy, swollen discs, infection; if some / all present, refer to RBHSC for **urgent neuroimaging**
- Check red reflex - retinoblastoma can present with squint

### If child is well with normal red reflexes:

- Refer to Paediatric Ophthalmology as an Urgent Referral for follow up; enquire if history of previous shunt surgery for raised intracranial pressure.

## Swollen Discs query (see also Annex 3)

- classical papilloedema with disc haemorrhages,
- systemically **unwell child**
- gaze palsy
- neurosurgical history
- refer to RBHSC A& E for **urgent neuroimaging**
  
- If disc swelling detected **in well child** on routine optometric assessment with normal visual functions, refer to **Paediatric Ophthalmology as an Urgent Referral and note the query as optic disc drusen**
  
- **Please note that the provision of OCT scanning for Optic Discs in children is not advised as inconsistencies in scanning methods can arise and the paediatric ophthalmology service in BHSC do not wish to receive OCT scans where optic disc drusen are queried.**

## Unequal Pupils

- If child **systemically well**, and this is new finding: refer to paediatric ophthalmology outpatients.
- If pupil size is associated with other signs, eg gaze palsy, ptosis, refer routinely to Paediatric Ophthalmology as an Urgent Referral

## Assessment of the baby who does not appear to see

- Ascertain child's corrected age before making referral (premature babies will not begin to fix and follow until term + 6 weeks)
- **Check red reflexes are present**
- Record if there is nystagmus or roving eye movements
- Refer to Paediatric Ophthalmology as an Urgent Referral for assessment

## Proptosis

- If child **systemically unwell**, refer to Eye Casualty
- If child **systemically well**, and this is acute finding: refer to Paediatric Ophthalmology as an Urgent Referral
- If child **systemically well**, and proptosis is longstanding: refer for routine Paediatric Ophthalmology appointment

## Headache (see also Annex 3)

- Headache is a common problem in children, and is managed by the GP
- Normal eye exam, refer on to **GP** for advice if interfering with activities of daily living e.g. migraine
- Severe headache with **unwell child** and symptoms of raised intracranial pressure, rare but important not to miss  
worse on wakening, lying down, daily vomiting and hearing whooshing sounds, examine discs, swelling with haemorrhages; refer urgently to Paediatric Ophthalmology as an Urgent Referral

## Absent Red Reflex

- Refer without delay to Paediatric Ophthalmology as an Urgent Referral, record if unilateral or bilateral
- Neonates with darkly pigmented eyes are often a challenge for the non-specialist to assess as pupils are small and the reflexes appear paler. Examine in a darkened room.

## Leucocoria

- Check red reflex; if absent refer to Paediatric Ophthalmology as an Urgent Referral without delay
- If white reflex present in one pupil in **every** photo, refer to Paediatric Ophthalmology as an Urgent Referral without delay
- If red reflex present on your exam and white reflex present as isolated finding on one photo, reassure parents that a serious problem is unlikely and refer to Paediatric Ophthalmology to arrange Outpatient appointment

## Screening for Congenital Glaucoma

- If hazy cornea, enlarged globe with epiphora, refer to eye casualty
- If all normal, send accurate family history of childhood glaucoma and refer as routine paediatric ophthalmology referral  
(NB family history of adult onset glaucoma not significant in this condition)

## Screening babies with family history of Retinoblastoma

- Send referral to Paediatric Ophthalmology as an Urgent Referral with details of family history documented.

### **Incidental fundal findings at routine optometric assessment**

- Incidental findings in otherwise normal eye exam (e.g. flat naevi and CHRPE) identified as new finding because of digital imaging, do not need ophthalmology assessment. These innocent lesions can be safely photographed and observed.

### **Reduced vision at optometric assessment with otherwise normal exam**

- Record distance and near vision using different tests to check consistency of responses
- Check pupil responses and colour vision; formal VF test not useful in children
- Observe if visual behaviour is consistent with level of tested vision
- Document test results and refer to Paediatric Ophthalmology as an Urgent Referral if there are major concerns

## Annex 1

# Summary Guidance on Paediatric Ophthalmic Conditions and Referral Pathways

### Conditions suitable for Eye Casualty:

- Red eye with reduced vision
- Acute blunt or penetrating trauma to the globe / orbit
- Acute chemical injuries
- Severe pain and loss of vision in patients with recent intraocular surgery
- Large corneal abrasion
- Corneal/subtarsal foreign body
- Infective keratitis

### Conditions suitable for the Paediatric Ophthalmology URGENT Referral:

- Painful, photophobic red eye with normal vision
- Herpes Simplex Blepharitis / Herpes Zoster Ophthalmicus / Chicken pox rash with eye involvement (Advise Oral Aciclovir while awaiting POPCC appt)
- Ptosis in neonate obscuring pupil
- Acute onset Horner's syndrome
- Sudden onset squint in well child
- Disc swelling queried by optometrist in child without systemic features of raised intracranial pressure (mild headaches often co-exist with drusen and are not a concerning feature)
- Baby who does not appear to see (check corrected gestational age is at least term + 6 weeks)
- Absent red reflex on ophthalmoscopy
- Expanding orbital vascular lesions in babies

**Please do not give the patient/parents an estimation of timeframe for an Urgent Paediatric Ophthalmology appointment.** The paediatric ophthalmology clinical team will determine the urgency of referrals to the service based on the clinical information provided. Where appropriate, Urgent Paediatric Ophthalmology appointments are allocated in **2-15 working days**. Some less urgent patients may have expedited paediatric ophthalmology outpatient appointments (3-8 weeks) and some may be allocated a routine appointment or, given advice over the phone.

Please advise parents:

- ❖ **Urgent Paediatric Ophthalmology appointments are arranged by phone with the parent/guardian (the call will appear as a withheld number- please notify the parent/guardian of this to ensure they answer the call).**
- ❖ At all appointments, the child will see a multidisciplinary team and may require dilating drops and specialist examinations; therefore, an appointment may take over 2 hours. Again please advise parent/guardian of this.

All referrals **must include patient's daytime telephone number** and **a copy of optometrist's letter** (if applicable).

## Conditions suitable for referral to a Paediatric Ophthalmology ROUTINE

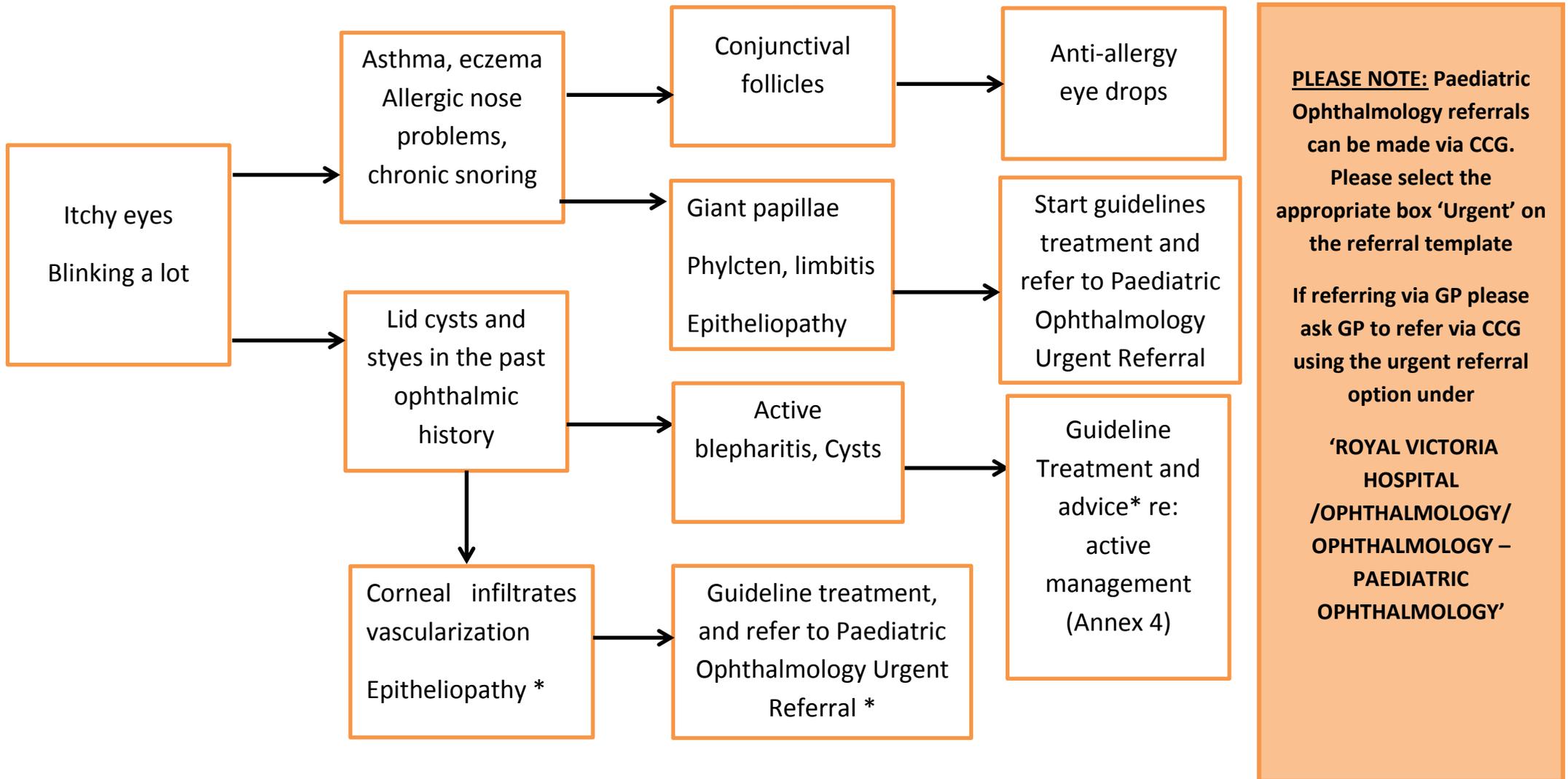
### Referral:

- Blepharitis and cysts
- Other lid lesions e.g. dermoid
- Watering eyes
- Chronic surface problems secondary to allergy
- Misdirected lashes
- Simple Ptosis (not covering the pupil)
- Unequal pupils (longstanding/no systemic problems)
- Nystagmus
- Asymptomatic anterior segment/fundus findings queried by optometrist on routine assessment (may be sent back to referring optometrist if felt not to merit further investigation by ophthalmologist)
- Vision problems detected by optometrist not related to squint
- Screening for congenital glaucoma in asymptomatic baby – send accurate family history, including age of onset, with referral
- Screening for congenital/childhood cataract – check and record that good red reflexes present; Send accurate family history with referral.

Annex 2

## Itchy, uncomfortable eyes in small children.

Children do not complain of sore eyes, instead they rub the eyes or constantly blink or grimace a lot. When this happens, it suggests corneal irritation secondary to conjunctival or lid inflammation. You can get some clues by asking parents and observing younger children across the room. (\* denotes parent advice sheet available)



**PLEASE NOTE: Paediatric Ophthalmology referrals can be made via CCG.**  
 Please select the appropriate box 'Urgent' on the referral template

**If referring via GP please ask GP to refer via CCG using the urgent referral option under**

**'ROYAL VICTORIA HOSPITAL /OPHTHALMOLOGY/ OPTHALMOLOGY – PAEDIATRIC OPTHALMOLOGY'**

## Annex 3

### Headache and Difficult Discs in Children

Headache is a common condition, rarely due to focusing problems in this age group. However, GP's often suggest an eye test when a child complains of headache, mainly to rule out papilloedema. Children can suffer from migraine and older children can have sinus-related problems and chronic daily headache related to posture and stress. All these conditions should be diagnosed and managed by the GP.

Papilloedema is a rare diagnosis, but important not to miss. It is a sign of raised intracranial pressure. Pressure is raised by the mass effect of expanding intracranial tumours, blocked shunts (inserted in children with raised intracranial pressure often as small babies) and can be idiopathic.

Children who have raised intracranial pressure have severe headaches increasing in intensity, worst on wakening in the morning and lying down. They usually begin to look unwell and cannot maintain everyday activities. As intracranial pressure increases, children can become irritable, behave badly and begin to vomit.

Those with large tumours have other presenting signs and all patients need a careful evaluation to look for signs of direct optic nerve/pathway compression, lateral rectus palsy and other cranial nerve involvement. Formal visual field testing is of no value. NB a child with chronic headache and chronic papilloedema may have small grey atrophic discs and reduced vision due to optic atrophy. This is a very late presentation.

#### Record the results of the following

- Age appropriate vision test - often normal or slightly reduced with early presentation of papilloedema
- Pupil responses - direct and indirect
- Colour vision
- Range of ocular movements and cover test
- Visual fields to confrontation
- Appearance of optic nerve heads and whether spontaneous venous pulsation (SVP) is present or can be induced by gently pressing on the globe through the lid while observing the veins as they branch at the centre of the optic disc

## Papilloedema Vs Drusen

NB papilloedema is a cause of binocular symmetrical disc swelling with vessel tortuosity, often accompanied by haemorrhages at optic disc margin.

Optic disc drusen cause lumpy discs, most often bi-nasally and can be quite asymmetric in appearance. Drusen are present in about 1% of the general population. They tend to be buried in children but can be seen as white shiny lumps at the disc surface in older children. SVP is present or can be induced.

## Identifying papilloedema in children

A well child presenting for routine assessment who is identified as having prominent lumpy nerve heads but normal visual functions has drusen. Refer for ophthalmology assessment if SVP is not present or if there is uncertainty about diagnosis.

If optometric imaging shows unchanged lumpy nerve head appearance over serial tests, onward referral is not necessary.

In a child with chronic headache, disc swelling, no SVP, vessel tortuosity and disc haemorrhages, refer urgently via CCG to Paediatric Ophthalmology as an Urgent Referral or, via the GP requesting that they annotate the referral as Urgent.

A child presenting with acute papilloedema and other signs such as lateral rectus palsy or who is unwell should be sent to RBHSC A&E for admission

## Referral and implications for parents and children

A diagnosis of swollen discs in an unwell child can aid the speedy diagnosis of a potentially life-threatening condition.

Thankfully this is a rare occurrence. Drusen discs are common. Benign headaches in children are very common.

It is important to identify the rare diagnosis; however it is equally important to objectively evaluate the more common drusen discs. If a referral onward is felt to be clinically necessary, refer to Paediatric Ophthalmology as an Urgent Referral. **Well children do not need emergency referral with unnecessary neuroimaging and all the anxiety that this referral route brings.**

## Annex 4

### Patient Advice

The following patient advice leaflets may help you in practice when presented with a child who has one or, more of the following conditions:

#### Inflammatory Lid Problems in Children

- Blepharitis & Staphylococcal hypersensitivity disease
- Meibomian cysts, acute and chronic

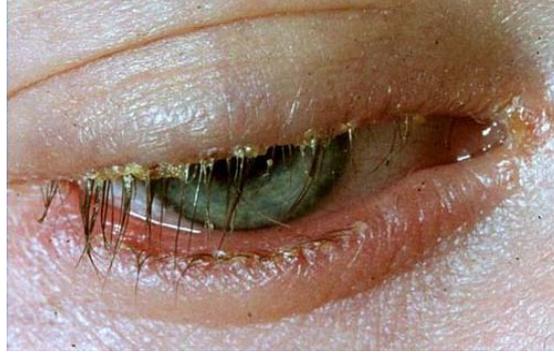
#### Watering Eyes in Babies

**PLEASE NOTE: These leaflets are available in PDF format and are hosted on the BSO website at: <http://www.hscbusiness.hscni.net/services/2376.htm>**

## Inflammatory Lid Problems in Children

### Advice for Parents

#### Blepharitis & Staphylococcal hypersensitivity disease



The skin at the base of the eyelashes can become inflamed and lead to a lot of problems on the surface of the eye. You may notice scaly deposits and debris that look like dandruff along the lid margins. These allow normal friendly skin bacteria to overgrow and produce a toxin in the tears. This causes the eyes to become very irritated. You may notice your child rubbing the eyes and blinking a lot. If untreated, this can progress to an allergic reaction with redness and inflammation of the surface of the eyes. It can progress to constant blinking and intolerance of bright lights, interfering with daily activities.

Your GP will prescribe antibiotic eye ointment. This should be used 4 times a day for 5-7 days. If the lids are very inflamed, it may need to be continued at night only for another 3 weeks.

The lid inflammation is a skin problem. It will flare up and down as your child grows. It is important to carry out simple measures to control this condition, as part of your child's routine.

Daily hot bathing and lid cleaning will help. This is done with a clean facecloth and wash hand basin full of hand hot water (temperature suitable for skin contact). Wring out face cloth and fold to make hot towel. Show your child how to close eyes and apply hot cloth to closed eye lids. The aim is to heat the oil glands in the eyelids and allow them to open. The cloth can be reheated again as soon as it begins to cool. Ideally this should be done every day for up to 2 minutes at a time. Finally, wipe the cloth gently along the base of the lashes to help dislodge any debris.

Lid cleaning can be incorporated as a game into bath time routine in very small children.

A daily omega 3 oil supplement can be useful. It is now available to buy as chewable fruit flavoured capsules for smaller children. Milled linseeds can also be added to breakfast cereals as an omega 3 source.

## Inflammatory Lid Problems in Children

### Advice for Parents

#### Meibomian cysts, acute and chronic



Eyelid cysts are a common problem in small children. They are swollen oil glands. There are around 20 of these oil glands in the body of each of the eyelids. They secrete oil into the tear film to stabilise the tears and keep the eye bathed. They are very long and thin and their mouths open at the base of the eyelashes. When the lid margins become red and inflamed, the tiny mouths swell up and close. The gland expands and the lid swells. It can become infected and appear as a tense red swelling. The active immune system in a child reacts to wall off the cyst. As the infection settles, the cyst wall can take some time to disappear. The cyst can rupture through skin and appear as a yellow based granuloma. It can also rupture into the other side of the eyelid. It then appears as a pink protruding fleshy area under the lid.

Cysts are not a serious health issue, but are very unsightly. They are easier to influence in the very acute stage. If you see any lid redness or swelling, you can start intensive hot bathing with a hot face cloth that day. You should also use chloramphenicol eye ointment to the lid and into the eye at least 4 times daily for up to one week. They all heal eventually and rarely cause any lid scarring.

There is rarely any indication for surgery. Surgery is only indicated when the cyst ruptures and rubs the sensitive surface of the eye. Any surgical procedure would involve a general anaesthetic in this age group.

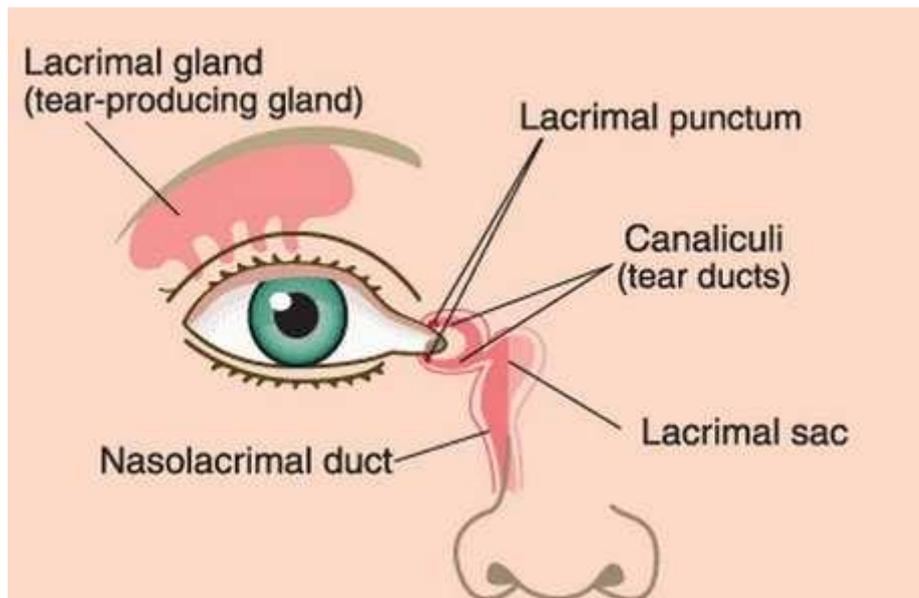
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## Watering Eyes in Babies



Tears are produced by a kidney bean shaped gland under the eyebrow. They are washed across the eye by the blinking lids and pumped through two tiny ducts at the nose. They drain into a sac you can feel in the little depression between the corner of the eye and the nose. From there the tears drain through a tube into the lining of the nose. That is why the nose runs when we cry. The tear drainage system may not be draining freely at birth. It can have persistent webs which spontaneously clear. If the system is blocked, the eye will constantly tear especially out in cold wind. The tears collect in the sac and can become infected. If the eye becomes red or the discharge becomes very green, your GP can prescribe chloramphenicol eye drops for up to 7 days.

You can improve the flow of the tears and reduce the likelihood of infections by carrying out lacrimal massage daily. Place your finger over the bony dip at the nasal corner of the affected eye. Gently massage towards the opposite ear. Sometimes you will express mucus or discharge though the ducts into the tear film. Massage can be done during sleep. Often the tear drainage system opens spontaneously as the baby grows and the watering stops.

If watering persists beyond 1 year, the drainage system is unlikely to open. At that stage you could request referral to a hospital eye clinic to discuss a procedure to probe the tear system with a view to clearing any blockage. This requires to be carried out under general anaesthetic.