## CASE THREE

**Short case number: 3_23_03**
**Category: Children and Young People**
**Discipline: Paediatrics Surgery**
**Setting: Urban_General Practice**
**Topic: Nasolacrimal duct blockage**

### CASE

**Amy Essex is 6 weeks old, her mother Kate is concerned about her left eye which is often watery and 'mucky'. One of the mothers at her mother's group said that it could be conjunctivitis and she is worried because she knows that this is very contagious.**
**Amy is otherwise well and has been developing normally.**

### QUESTIONS

1. What are the key components of your history and examination of Amy?
2. Amy's mother asks you how well a 6 week old baby can see, what would you explain to Kate regarding Amy's vision? How would you assess Amy's vision at this consultation?
3. What clinical features would concern you that Amy has conjunctivitis? What are the possible causes of conjunctivitis in children and how may the clinical presentation differ?
4. Your examination reveals a normal eye and conjunctiva, but there is a marked yellow coloured discharge present at the inner canthus of Amy's left eye [pictured]. You conclude that Amy most likely has a blockage of her naso-lacrimal duct. Explain why this occurs and outline the natural history of this condition.
5. Briefly outline the management plan that you would recommend to Kate and when she should seek follow-up.
6. One possible differential diagnosis of watery eyes is neonatal glaucoma; outline the clinical features of this condition.

**Resources**


- South M, Isaacs D editors. Practical Paediatrics. 7th edition. Edinburgh: Churchill Livingstone; 2012.

- Therapeutic Guidelines – antibiotics
  http://www.tg.org.au/?sectionid=41

**Red Flags for child presenting with red eyes**

- Photophobia
- Decreased visual acuity
- Hx of penetrating trauma to eye
- Chemical exposure/burns

**Any of these = *Refer to opthalmologist*

**Amy's mother asks you how well a 6 week old baby can see, what would you explain to Kate regarding Amy's vision?**

Visual Acuity goes from 6/120 at birth to 6/12 at 12 months (then near adult levels by 18 mos)

**What clinical features would concern you that Amy has conjunctivitis? What are the possible causes of conjunctivitis in children and how may the clinical presentation differ?**

Clincial Features of Conjunctivitis:

- Red sclera/eyes
- Swollen eyelid
- Yellow/Green discharge - crusts overnight
- Gritty feeling in eyes
- Itchy eyes (baby unsettles, uncomfortable)

Causes of conjunctivitis (4):

- Viral - *highly contagious (Adenovirus)*
- Bacterial - *(S. aureus, S. pneumoniae, H. influnezae)*
- *Allergic -*
- *Chemical*

*Treatments:*
*Cool Compress*
*Topical lubricant*
*Topical vasocontrictors (phenylephrine)*
*Systemic Analgesic (Paracetamol)*

*Hard to distinguish cause so often give empirical Abx (Clorsig)*

**Your examination reveals a normal eye and conjunctiva, but there is a marked yellow coloured discharge present at the inner canthus** *(corner)* **of Amy's left eye [pictured]. You conclude that Amy most likely has a blockage of her naso-lacrimal duct. Explain why this occurs and outline the natural history of this condition.**

Most common in first 12 mos life
Due to failure of membrane at end of tear duct to open at time of birth
(other causes = narrow duct system or infection)
Symptoms exacerbated if child has URTI b/c more tears produced

Treatment:
- 90% self resolving by 12 mos life
- 10% not resolved, GA then probe duct by opthalmologist

Supportive Care:
- Nasolacrimal duct massage (4-5x day)
- Warm compress
- ABx eye drops (Chlorsig) if compress & massage dont reduce discharge

FU if:
- signs infection
- Increasing discharge
- Not resolved by 12 months life

## Neonatal Glaucoma: *Define, *Symptoms/signs (3), *causes (4), *Complications (2), *Treatment (3)

Definition: Buildup of aqueous humour in vitreous cavity (high pressure)

Presentation
1. cloudy enlarged cornea
2. epiphora (watery eye)
3. Photophobia

Common causes in Kids:
1. Inadequate drainage of aqueous humour
2. Structural Changes in Eye
3. Cataract Surgery
4. High pressure in aqueous draining vein

Complications:
- Optic nerve damage > vision loss > irreverible
- Eye Swelling > Corneal Scaring > Photophobia

*Treatment:*
- Eye drops to inprove drainage of aqueous humiur (Latanoprost, timolol)
- Tablets/Syrup to reduce production of aqueous humour/fluid (Acetzolamide)
- Surgery (Goniotomy - *manually drain OR* Trabeculotomy - *cannulate Sclemm's canal)*

## ANSWERS

**Question 1**
**What are the key components of your history and examination of Amy?**

History

- The current problem
- Past history
- Social history
- Family history
- Systems review
- Growth and development
- Immunisations
- Behaviour
- Medications
- Allergies

Examination

- General observation and behaviour
- Measurements
- Specific examination
    - Vital signs
    - Resp system
    - Cardiovascular system
    - Genitalia
    - Head and neck ( fontanelle, soft palate, ENT, eyes)
    - Hydration status

**Question 2**
**Amy's mother asks you how well a 6 week old baby can see, what would you explain to Kate regarding Amy's vision? How would you assess Amy's vision at this consultation?**

Vision develops from a very low level after birth to near adult levels by 12-18 months of age. At birth an infant has visual acuity of approximately 6/120 and by 12 months this has improved to about 6/12.

According to the World Health Organisation a person is considered blind if their vision is worse than 6/120. This means they would not be able to see the top E on the chart pictured opposite, when standing 6 meters away.

**Question 3**
**What clinical features would concern you that Amy has conjunctivitis? What are the possible causes of conjunctivitis in children and how may the clinical presentation differ?**

Conjunctivitis may result from infective, allergic or chemical agents interacting with the conjunctiva. Symptoms are itch, pain and irritation or a gritty sensation. Signs are epiphora (watering), discharge and erythema of conjunctiva and lids. The relative prominence of different symptoms and signs varies with the cause of the conjunctivitis

Most mild conjunctivitis is allergic or irritative, from which viral or bacterial infections are difficult to distinguish; empirical antibiotic therapy may therefore be appropriate. More severe symptoms, including significant pain, loss of vision or photophobia, indicate acute keratitis or another serious disorder, and require prompt referral to an ophthalmologist

Adenovirus is the major cause of viral conjunctivitis. However, only symptomatic treatment is available, and includes the use of cold compresses several times a day, artificial tears, topical vasoconstrictors such as phenylephrine 0.12%, avoidance of bright light and systemic analgesics

In young children, a follicular conjunctivitis may indicate an infection with herpes simplex virus.

Many children under 12 months with sticky eyes have blocked tear ducts and the material accumulating represents skin debris rather than pus

**Question 4**
**Your examination reveals a normal eye and conjunctiva, but there is a marked yellow coloured discharge present at the inner canthus of Amy's left eye [pictured]. You conclude that Amy most likely has a blockage of her naso-lacrimal duct. Explain why this occurs and outline the natural history of this condition.**

This occurs commonly in infancy as the result of congenital nasolacrimal duct obstruction. About 10% of newborn infants have obstructed nasolacrimal ducts. This will present as a watery and sticky eye in the first few weeks of life. Despite the persistent discharge the eye is generally not red or inflamed. An inflamed eye suggests an alternative diagnosis such as infective conjunctivitis. If the obstruction persists, the lower lid will often become red and sometimes slightly scaly as a result of the skin being constantly moist.

Most congenital nasolacrimal duct obstructions resolve spontaneously. Approximately 95% of cases have resolved by the time of the first birthday, with most doing so in the first 6 months. In persistent cases, probing under a general anaesthetic is recommended after 1 year of age.

**Question 5**
**Briefly outline the management plan that you would recommend to Kate and when she should seek follow-up.**

As Amy is only 6 weeks old, conservative management such as gentle cleaning of the discharge with cotton wool soaked in a sterile saline solution is appropriate. If the condition persists beyond 1 year referral to an ophthalmologist is needed.

**Question 6**
**One possible differential diagnosis of watery eyes is neonatal glaucoma; outline the clinical features of this condition.**

Glaucoma in infancy presents with a cloudy and enlarged cornea with associated epiphora (watery eye) and photophobia. It may be unilateral or bilateral and is usually an isolated ocular abnormality. If unrecognized it will result in severe and untreatable visual loss over weeks to months. Prompt diagnosis allows surgical treatment, which controls the glaucoma in the majority of cases.