Epiphora

The tear film is a complex and important entity that provides corneal lubrication, nourishment and immunological protection among other functions. The air/tear interface is also the most important site of light ray refraction. Tears drain into the upper and lower puncta medially, into their respective canaliculi and then into the common canaliculus. From there, they enter the lacrimal sac (adjacent to the bridge of the nose) and then down into the nasolacrimal duct, to exit just beneath the inferior turbinate.

Epiphora is the term commonly used to describe a watery eye. It is one of the most common ophthalmic symptoms. More specifically, lacrimation describes persistent welling of tears in the eye and epiphora occurs when these spill over. It is caused by overproduction of tears or by inadequate or blocked drainage.

Lacrimal outflow can be compromised by anatomical obstructions or stenoses (non-functional epiphora) or by defective lacrimal 'pump' function (functional epiphora).

Patients tend to experience this as a nuisance more than anything else. However, both lacrimation and epiphora can be associated with interference in vision and the surrounding skin can get very sore and excoriated from the constant wiping of tears associated with epiphora. There may also be underlying conditions that need to be addressed.

Aetiology

Overproduction of tears:

- Lid or lash malposition - eg, trichiasis or entropion.
- Lid margin disease - eg, blepharitis.
- Tear film deficiency (inappropriate reflex reaction).
- Corneal foreign body.
- Conjunctivitis.
- Corneal disease.
- Inflammatory disease - eg, uveitis, scleritis.
- It may occasionally be a presentation in congenital glaucoma.
- Punctal malposition (lid laxity - eg, ectropion).

Stenosis or obstruction at any point along the nasolacrimal duct:

- Congenital nasolacrimal duct obstruction - the most common cause of epiphora in childhood
- Lacrimal sac mass or mucocele
- Dacryocystitis
- Lacrimal pump failure - eg, facial palsy.
- Nasal obstruction - eg, mass, inflammation or scarring.
- Previous surgery or trauma.

Presentation

There may be additional symptoms or signs depending on the underlying aetiology. There are a few pointers that can help guide diagnosis:

- Medial spillage suggests impaired drainage.
- Lateral spillage is more common with lower lid laxity.
- Reflex watering from a tear film deficiency is more likely to occur in dry, warm conditions or where blink rate is reduced - eg, computer work.
- A simultaneous runny nose suggests overproduction.
- 'Crocodile tears' are associated with facial palsy and arise as a result of neurogenic reflex watering (thought of food, eating or chewing).

Investigation

Investigations may include:

- Fluorescein disappearance test: a tiny drop of fluorescein 2% is instilled at the start of history. After about five minutes, a judgement is made about tear film height and dilution of the fluorescein. If the tear film is high and the fluorescein diluted, there is overproduction. If it remains undiluted, there is impaired drainage.
- Syringing: saline is irrigated through the canaliculi via the puncti after instilling a drop of local anaesthetic. Reflux through the upper canaliculus suggests obstruction at the common canaliculus. If the patient feels it trickling at the back of the throat, there is some degree of patency at least.
- Dacryocystogram (DCG): radioactive isotope is injected into the nasolacrimal duct and its passage is recorded with a series of sequential pictures. This can be a useful investigation both to assess whether there is patency or not and the level of any obstruction.
- CT, MRI scans and nasoendoscopy may be undertaken - eg, for sinonasal disease or tumours.

Management

This depends on the underlying cause.

Bloody tears suggest a sac tumour (rare), canaliculitis or trauma to the canaliculi. Lacrimal sac swelling may be due to dacryocystitis or a tumour. These cases need more urgent referral.

Impaired drainage due to lid malposition or stenosis at various points along the nasolacrimal duct usually involves surgery.

- Simple probing may suffice and is particularly successful in non-resolving congenital nasolacrimal duct obstruction. One study suggested that the success rate falls with repeated probing and that other techniques (eg, balloon catheter insertion) should be used if the condition recurs after treatment.1
- Dacryocystorhinostomy (DCR) is among the common oculoplastic surgeries performed for managing epiphora due to nasolacrimal duct obstruction. It is a bypass procedure that creates an anastomosis between the lacrimal sac and the nasal mucosa via a bony ostium.2 It may be performed through an external skin incision or intranasally with or without endoscopic visualisation.3
- Powered endoscopic DCR is a safe procedure and offers excellent long-term results both in primary and revision DCRs.4 One study has demonstrated final anatomical success of 97.7% and functional success in 95.5% of the cases with this technique.5
- Functional epiphora after DCR occurs in 5-10% of cases.6 This is often managed with intubation (transient or permanent) or eyelid tightening.
- No benefit has been shown for silicone tube intubation in primary DCR.7

Further reading & references

- Nasolacrimal duct obstruction (nasolacrimal drainage dysfunction); College of Optometrists (Feb 2012)

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