

Ophthalmic tips and traps

practical advice for GPs

The GP is likely to be faced with a number of perplexing ophthalmic conditions. This article presents a selection of such problems, with the emphasis on diagnoses possible with the resources available.

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Problems of the eyelids

Problems associated with the eyelids often lend themselves to ready diagnosis by simple inspection. A magnifying lens or binocular loupe may be necessary, and make sure you have a good source of illumination.

Swellings or lumps

It is often necessary to determine whether a swelling or lump on the eyelid is a hordeolum (stye) or chalazion (Figures 1 and 2). In general, a hordeolum will be more painful and exhibit more external hyperaemia; it will also be more

tender to the touch, and may already be pointing externally. The margins of a hordeolum tend to be diffuse; a chalazion has more clearly defined boundaries, and is often associated with a feeling like rolling a pea or ball bearing within the tissue of the eyelid. Other swellings can present on the eyelids and should be kept in mind:

- epidermal cysts (Figures 3 and 4)
- keratoacanthoma (Figure 5)
- molluscum contagiosum (Figure 6)
- malignant lesions, such as basal cell carcinoma (Figure 7), squamous cell carcinoma and melanoma.

IN SUMMARY

- Remind patients with an everted lower punctum that wiping tears away in a downward direction from the eye tends to evert the punctum further. Tell patients to wipe tears away in an upward direction.
- Do not omit to palpate the preauricular gland when an eye is red. Preauricular adenitis is an almost *sine qua non* with viral keratitis.
- Recurrent unilateral 'conjunctivitis' may be a herpetic ulcer. If any suspicion exists that a lesion may be herpetic, do not use topical steroids. (There is a place for topical steroids in some ophthalmic herpetic infections at certain stages of the condition, but such a decision should be made by an ophthalmologist.)
- Remember that an anaesthetic eye can prevent a patient from being aware of a foreign body or an ulcer.
- An individual's risk of glaucoma is higher when diabetes or hypertension is present. Diabetes in a close relative also increases the risk.
- If you have the slightest doubt about the possibility of a turned eye in a child, refer promptly to an ophthalmologist for cycloplegic refraction. Do not be misled by a child seeing 6/6. Many children with latent hypermetropia can see 6/6, but the effort involved may produce an ocular deviation.
- Remember what a great imitator zoster ophthalmicus can be in the painful prodromal stage before skin lesions appear.

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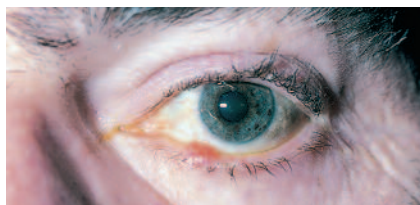


Figure 1. A marginal chalazion on the lower eyelid.



Figure 2. The lower eyelid everted, showing a chalazion.

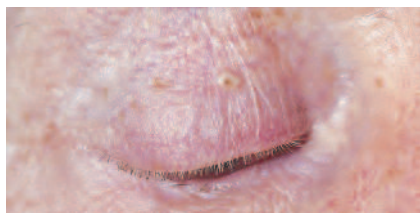


Figure 3. An epidermal cyst.



Figure 4. An epidermal retention cyst.

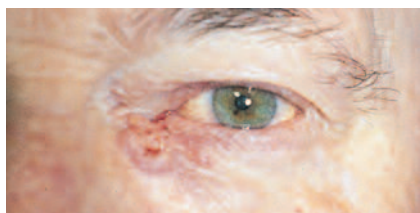


Figure 5. Keratoacanthoma in the lower eyelid region.



Figure 6. Molluscum contagiosum.

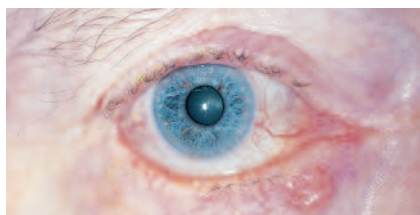


Figure 7. A paramarginal basal cell carcinoma on the lower eyelid.

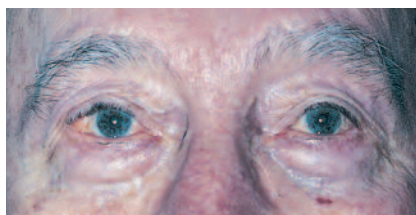


Figure 8. Orbital fat herniation mainly involving the lower eyelids.

Many years ago I encountered a primary chancre, the result of a practice that existed in some factories then for removing foreign bodies from a workmate's eye by licking the object out with the tongue. These lesions can be mistaken for an ulcerating stye.

In older patients, some relatively large, diffuse swellings in the eyelids are caused by fat herniation (Figure 8); however, upper eyelid swellings in a child

should raise suspicion of a dermoid. Remember that in older patients a recurrent chalazion in the same location may really be a malignant neoplasm; any such case should be referred promptly to an ophthalmologist.

Cysts

Small white translucent cysts of the eyelid can arise from several glands within the eyelids. For the GP, the very

superficial nature of these cysts permits evacuation, usually by a simple needleprick. As a rule, a watery fluid or mucoid material will emerge readily; often extra material can be made to extrude by gentle pressure with a sterile cottonbud. If there is no exudation, the original diagnosis of a cyst needs to be questioned.

Trichiasis and corneal abrasions

An eyelash abrading the cornea or conjunctiva can easily be overlooked, especially in older people whose lashes have lost pigment. In suspected cases, it is useful to apply fluorescein because often the tip of an offending lash will pick up the stain where it touches the cornea. With appropriate magnification, look for scratches on the cornea that can be traced upwards or downwards to an offending lash (Figure 9) or to another cause, such as a bee's stinger. It is worth looking at the upper or lower lacrimal punctum – a lash stuck in the punctum can be very painful and may need removal with forceps.

Trichiasis is possibly the most common unrecognised cause of a sore eye. Always look and look again. Pay particular attention to the inner and outer canthi, and ask the patient to gaze to the right and then to the left. Often I find a lash will touch only when the patient looks in a particular direction.

Eyelid discharge

The GP sometimes has to decide whether lid inflammation or 'mattering' is caused by infection. If examination of the lashes (preferably with magnification) shows attached dandruff-like flakes or somewhat greasy collarettes encircling individual lashes, the diagnosis is most likely to be squamous blepharitis (Figure 10).

Squamous blepharitis usually responds well to simple eyelid hygiene, such as the use of mild baby shampoo or bicarbonate solution – which the patient can easily

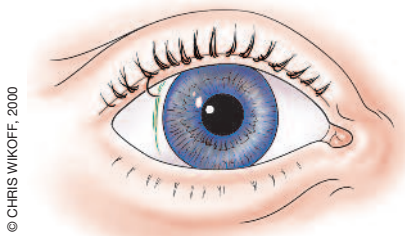


Figure 9. An eyelash causing corneal abrasion.

make up by dissolving half a teaspoon of bicarbonate of soda in one cup of tepid water and then using cotton wool swabs to tease away the material surrounding the lashes. Application of a simple ocular ointment once or twice daily after the eyelid hygiene is usually helpful.

With a true infection, such as may be associated with conjunctivitis, the lashes will be surrounded by clumps of hardened discharge that is often gluing several lashes together.

Spasm

Many patients complain of twitching or tremulousness of the eyelids. In many instances, the sensation is induced by stress or nervous tension, but it is occasionally caused by eyelash irritation. Often these fine fibrillary twitchings are far more obvious to the patient than to an observer. There is a tendency for attacks to occur in clusters with long symptom-free intervals.

The watery eye

Watering of one or both eyes is a common complaint. It may be produced by irritation (such as an eyelash or foreign body) and will frequently be found with ocular inflammation accompanying allergies or infections. A search should always be made to see if any such cause can be found.

Remember that in older patients a watery eye may be the body's response to a rapid breakup of the corneal tear film, resulting in dry areas that incite excessive lacrimation. Paradoxically,

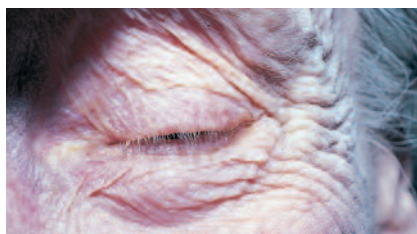


Figure 10. Squamous blepharitis. Note the scale on the lashes of the upper eyelid.

patients with watery eyes often need tear substitutes which cling to the cornea better than their own tears. It is wise to explain this paradox to your patient when prescribing tear drops.

Blockage

If a cause of excessive watering is not apparent, instil fluorescein and, after a blink or two, observe the lower punctum with magnification. Exert gentle pressure just below the punctum, pressing back towards the inner wall of the orbit. An upward spurt or ooze of fluorescein-stained tears indicates a blockage in the lacrimal drainage path. To test further, insert a cottonbud dampened with local anaesthetic into each nostril. Leave the buds in place for a minute or so and then remove. Obvious fluorescein on a bud indicates the duct on that side is draining; no colour is indicative of a probable blockage.

When these simple tests suggest a blockage, a decision has to be made regarding ophthalmic intervention. The patient's opinion is the first consideration. If symptoms are interfering with the patient's livelihood (as in the case of a professional driver) or daily activities, help should be sought. However, if the symptoms are only a minor inconvenience, I would leave the situation alone, especially if the patient is elderly.

Remember that in infants there may be delay in canalisation. Therefore, it is often advisable to wait until the infant is 9 months old before considering



Figure 11. Punctal ectropion on the right side.

intervention, provided there is no evidence of infection in the watery eye.

Malposition of the lower punctum

In adults, many cases of watering are caused by eversion of the lower punctum or the more obvious ectropion (Figure 11). Ectropion is often caused by excessive sun exposure in sportsmen, but is not uncommonly caused by cicatricial contraction after treatment of a solar keratosis or cancer. After the treated lesion has healed, gently rubbing a vitamin E ointment into the skin may help to soften the cicatrix.

It is worth reminding patients that wiping tears away with a downward movement tends to further evert the punctum; it is far better to wipe in an upwards direction, thus pushing the eyelid or punctum back to where it belongs.

Spectacles are an interesting cause of eye watering. The lower rim of some ill-fitting frames exerts sufficient pressure on the lower lid or cheek to turn the lower eyelid out, inducing the equivalent of an ectropion. If you notice that a patient has an ectropion while wearing spectacles, ask him or her to take the spectacles off and then watch to see if the lid resumes its normal position. The ectropion should be 'cured' quickly with appropriate adjustment by an optician.

The red eye

The red eye is one of the most common problems presenting to the GP. It is

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Finding the cause of a red eye

A red eye may be associated with much pain and systemic symptoms. Differentiation of the possible causes can be difficult, but a careful ophthalmic examination will be of help.

First, determine whether a red eye is painless (or relatively so) or associated with definite discomfort or severe pain (see Table). Further clues will be provided by:

- the hue of the redness
- the intensity and location of the colour
- involvement of one or both eyes
- any discharge (watery or purulent).

Symptoms

Pain

Ask about the pain: acute angle closure congestive glaucoma has intense pain radiating from the eye, whereas the pain of keratitis (and especially corneal ulcer) is more likely to be sharp and often like a foreign body. Ulceration may produce much purulent discharge (which does not occur in glaucoma).

Photophobia is not a feature of conjunctivitis (other than viral conjunctivitis), but occurs with foreign bodies, ulcers, keratitis and iritis; it is less marked with glaucoma and episcleritis.

Blurring

Ask about any less severe episodes of blurring (especially at night

or in dark situations) prior to the current severe attack, or if any haloes have been noticed when looking at naked light globes (such minor attacks may precede a major episode). Attacks of acute glaucoma have occurred in a dark cinema, especially when watching a movie that produced a strong adrenaline surge.

Signs

The cornea

Observe the cornea: acute glaucoma is more likely if the cornea has an overall steamy appearance (Figure 12). More localised areas of haziness tend to be seen in keratitis.

The pupil

The pupil is our second major yardstick. In particular, pupil size, shape, reactivity, and symmetry with the other eye will help to differentiate between angle closure glaucoma and iritis (see the Table below).

The blood vessels

The ciliary nature of perilimbal hyperaemia in iritis is helpful diagnostically (Figure 13); in scleritis and episcleritis the conjunctiva can be moved freely over the underlying stationary inflamed vessels because the involved vessels are deeper (Figure 14). Segmental redness is also important – tracking from a red area will often point to an ulcer or foreign body.

Table. Features and causes of a red eye

A painful red eye

	Angle closure glaucoma	Iritis	Episcleritis or scleritis	Corneal ulcer or keratitis	Foreign body
Pain	Severe	Moderate	Slight to moderate	Moderate or severe	Superficial
General symptoms	Often severe, possible vomiting	Mild	Rare	None (usually)	None
Blurring	Severe	Moderate	Rare	Moderate to severe	None
Oedema	Marked	Slight	None	Variable	Rare
Pupil appearance	Dilated or semi-dilated, ovoid	Small, irregular, crenated	Normal	Normal	Normal
Pupil reactions	Fixed	Sluggish or fixed	Normal	Normal	Normal
Red reflex	Obscured	Hazy	Normal	?Hazy	Normal

A painless red eye*

	Bacterial conjunctivitis	Viral conjunctivitis	Dry eye	Haemorrhage	Allergy
Redness	Deep	Moderate	Moderate	Solid colour	Variable
Discharge	Thick	Watery	Variable	Nil	Watery
Eyelids	Crusting	Variable	Normal	Normal	Inflamed

* Note that pain and photophobia will occur if the cornea is involved.

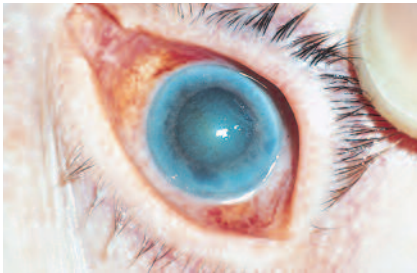


Figure 12. A mid-dilated pupil in a patient with acute glaucoma. Note the steamy cornea.

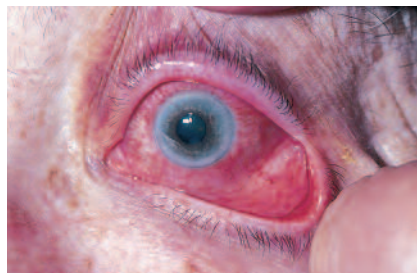


Figure 13. Iritis. Note the ciliary injection.

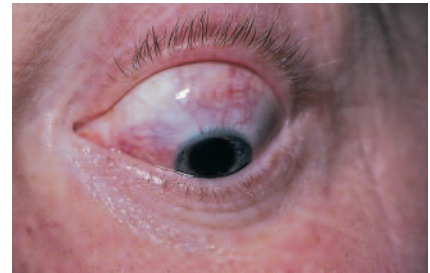


Figure 14. Two patches of episcleritis in the medial and superior positions.

important to remember that red eyes may be caused by serious internal inflammation such as glaucoma (Figure 12) or iritis (Figure 13), or by keratitis or episcleritis (Figure 14). The differentiation of these conditions is discussed in the box on page 72. Acute angle closure glaucoma is a medical emergency, and appropriate measures are discussed in the box on this page.

It is possible to encounter ulcers and other conditions without the redness normally expected. Remember that an anaesthetic cornea can be produced by many conditions. I remember an elderly man with an ulcer that occupied half of the cornea who had no pain whatsoever.

Conjunctivitis

Conjunctivitis is the most likely diagnosis for bilateral red eyes, especially if there is no significant pain, only superficial irritation. When initially seen in general practice, the condition may be unilateral. Generally, there will be discharge that is purulent or mucopurulent if the origin is bacterial, or watery if the conjunctivitis is viral or allergic (Figure 15).

Adenoviral conjunctivitis tends to produce more pain than the average bacterial infection. The pain is partly caused by corneal involvement; further, the eye will usually be very light sensitive, which is not common with the simple bacterial variety. Remember to feel for preauricular adenitis, an almost *sine qua non* with viral keratitis.

It is worth paying attention to the

eyelids because many allergic conditions show considerable eyelid hyperaemia or oedema. Crusting or discharge in the eyelashes strongly favours a bacterial infection.

Haemorrhage

A red eye may be caused by a simple subconjunctival haemorrhage (usually unioocular) with a solid 'tomato sauce' type redness and without pain unless the haemorrhage is very large and bulging anteriorly. It is always important to seek to define the margins of an apparent conjunctival haemorrhage because an intracranial haemorrhage from an unrecognised fracture may present as a large subconjunctival haemorrhage with a nondefinable upper edge.

Herpes simplex infection

Herpes simplex infections most frequently occur in dendritic form (Figure 16), but they can present in amoeboid and other ulcer patterns.



Figure 15. Viral conjunctivitis. Note the papillae and follicles on the conjunctival surface of the lower eyelid.

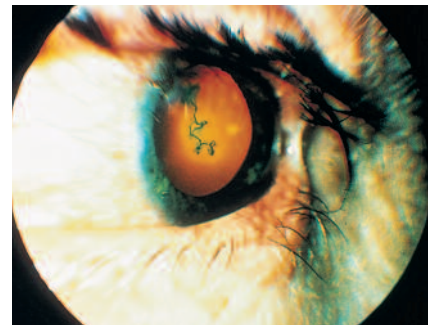


Figure 16. A herpetic dendritic ulcer.

EMERGENCY MEASURES

Acute angle closure glaucoma

If you are convinced that acute angle closure glaucoma is happening, urgent ophthalmic referral is essential. However, the following may be instituted while referral arrangements are being made:

- 2% pilocarpine eye drops (Isopto Carpine, Neutral Pilocarpine Eye Drops, Pilocarpine, Pilopt, PV Carpine), every 10 to 15 minutes
- 500 mg acetazolamide (Diamox) by mouth (or intramuscularly if the patient is vomiting)
- pain relief – local heat is often effective.

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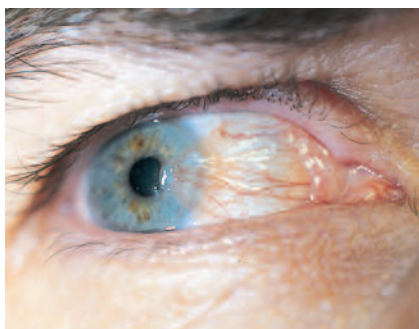


Figure 17. Medial pterygium.

If a patient has recently had a cold sore, the probability that the ulcer contains herpes virus is high. Bear this in mind with what might seem to be a simple post-traumatic ulcer – I have found stress and sunburn to precipitate a herpetic ulcer.

A child who has frequently recurring conjunctivitis should be checked by an ophthalmologist for a herpetic lesion, especially if the condition is unilateral

and accompanied by a discharge that is watery rather than mucopurulent. When I first examined one primary schoolgirl with recurrent conjunctivitis for over a year, extensive corneal scarring from repeated ulceration was already present with significant impairment of vision. The trap is that in such cases the primary lesion may be insignificant and easily overlooked. A dendritiform pattern may be found also in the corneal lesions of zoster.

Allergy

Allergic conditions can produce extremely inflamed eyes, frequently accompanied by considerable eyelid inflammation and swelling that may be extensive enough to prevent a view of the globe itself. Severe chemosis can occur and may prevent proper eyelid closure, causing the added complication of exposure keratitis.

Ocular allergy may arise from local instillation of drops – the preservative is

frequently the culprit – but may be caused by something ingested or applied to adjoining facial skin. Ask whether any new local treatment has been used or if there has been contact with an allergen via the hands (such as chemicals or plant sap). It should not be overlooked that the patient may have caused the problem by using, instead of eye drops, home-made salt water at a much greater concentration than normal saline.

Pterygium

A segmentally red eye may be caused by a very active pterygium (Figure 17). Magnify the blood vessels on the pterygium to see if they are engorged. Apply fluorescein to see if there is intense staining at the apex, which indicates aggressive activity.

Deliberate actions

Rarely, one encounters instances in which the patient has deliberately made the eye red (such as by rubbing or even inserting soap), often as an attention seeking ploy.

Foreign bodies

Many simple superficial foreign bodies can be removed satisfactorily by the GP. Some respond to the moistened cottonbud technique; others can simply be irrigated away. However, be wary of wood-related injury (see the box on this page).

Foreign bodies will often be discovered on everting the upper eyelid; in rare instances, they may work into the deep recess of the upper fornix. Double eversion is not an easy technique to master, but may be necessary when symptoms indicate the possible presence of a concealed foreign body in this area. Dampen a cottonbud with ocular anaesthetic and gently push it under the tarsal plate margin of the everted lid until you feel contact with the solid upper fornix (Figure 19). Then, gently run the bud from one end of the fornix to the other.

EMERGENCY MEASURES

Wood-related corneal injuries

Many cases of injury to the eye by a foreign body are relatively simple and the offending object can easily be removed. However, be particularly wary of wood-related injury.

A simple fragment of wood might look to be just adherent to the cornea and capable of being wiped off, but the tip of the fragment may actually be perforating the cornea.

Attempting to remove such a splinter can unplug a perforation sealed by the splinter and allow some of the contents of the eye to escape, with disastrous results.

If in doubt, seek urgent ophthalmic attention, but do not just put a pad directly over the eye for transit to the ophthalmologist. If you have access to a proper Cartella ophthalmic shield, apply this so that pressure on the foreign body does not occur, and then strap the shield in position. If no such shield is available, a plastic drinking cup, cut down in size if necessary, or plastic medicine glass may be used (Figure 18).

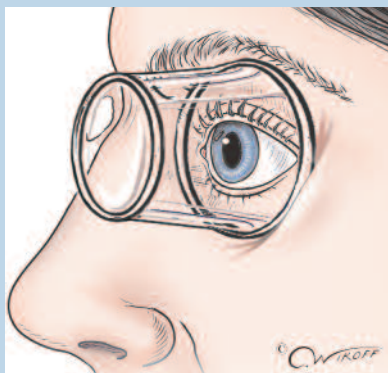


Figure 18. A plastic cup can be used to protect a possible perforation of the cornea during transit to the ophthalmologist.

The question of whether to use topical antibiotics is often decided by the nature of the foreign body and the effort required to remove it. If the circumstances under which the foreign body entered the eye carry minimum risk of infection and you are able to simply wash it away, antibiotic cover is probably not necessary. However, if the foreign body is suspect in origin or nature (or has to be scraped with a cottonbud to remove it), topical antibiotic drops by day and ointment at night for four to five days would be a wise precaution.

Simple open angle glaucoma

Simple open angle glaucoma, the most common type of glaucoma, is not necessarily accompanied by symptoms. In fact, patients may not even notice anything wrong until the problem has advanced almost to tunnel vision. Features of glaucoma are discussed in the box on page 72.

More and more predisposing factors for glaucoma are emerging. We have long been aware of the importance of family history; the risk rises when diabetes or hypertension is present, and diabetes in a close relative also increases the risk. Patients who have not previously been considered to be at risk may need referral for glaucoma checks if the GP is aware of such genetic link.

A severe individual instance of trauma or repeated blows to the eye can produce glaucoma or predispose to it – this is why boxers are at increased risk.

Migraine and myopia are also predisposing factors.

Remember that glaucoma is not a single disease, but a condition that encompasses a whole spectrum. A patient who has sustained a central retinal vein thrombosis is at risk of secondary glaucoma, especially within three months from onset.

Cataracts

Cataracts in a young person (other than congenital cataracts) always call for investigation, with metabolic disturbances (particularly diabetes) heading the list of suspects (Figure 20). Do not overlook the possibility of injury as the cause, and keep in mind that a young person who seems to be intellectually impaired may have myotonic dystrophy, which is usually accompanied by cataracts.

If a person of middle age has a predominantly unilateral cataract, ask if he or she is a metallurgist, potter or baker, or engaged in an occupation in which any type of radiation exists. Often a cataract will be in the eye closest to an oven or kiln being loaded. By being aware of this, one may be able to act early enough to arrest progress of the cataract. Also, remember that many cataracts are caused by medications (often quite rapidly), and that patients who have had electroconvulsive therapy may present with an unusual pattern of cataracts a decade or more after treatment.

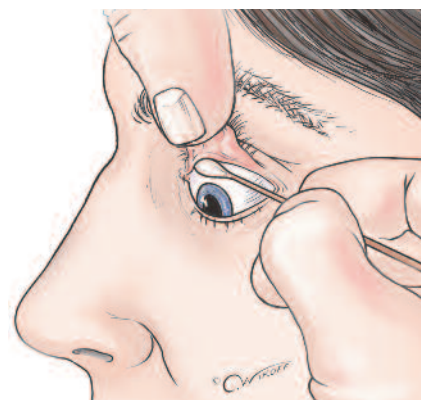


Figure 19. Seeking a foreign body under an everted upper eyelid.

Strabismus

The GP will often be asked to look at a child that a parent or grandparent feels may have a turned eye. This is a field ripe with traps as some 'turns' are not really such at all, and genuine turns can be intermittent (see Figures 21 and 22).

If a child has a prominent epicanthal fold at the inner corner of the eye, part of the white of the eye will be more hidden on one side than the other when the child is not looking straight ahead; therefore, you must assess the turn with the child in the straight ahead position. The cover and uncover tests are easily applied by the GP, taking care to observe not only the way in which the eye behaves when the cover is applied, but also what happens when the cover is removed. One can observe whether the white reflex from the light is falling symmetrically on each cornea by

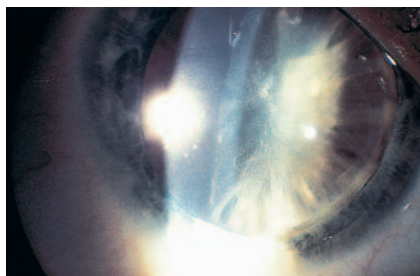


Figure 20. Metabolic cataract in hypoparathyroidism.



Figure 21. Pseudosquint. Note the central light reflexes.



Figure 22. True squint. Note the fixing of the right eye and the asymmetrical light reflexes.

having the child look straight ahead and shining a flashlight directly on both eyes at the same time.

Take care to explain your findings to the parent or grandparent. If you are in any doubt as to whether strabismus is present, refer the child to an ophthalmologist – partly for your own professional protection. The ophthalmologist can perform a cycloplegic refraction that will often indicate whether a child is at risk of an intermittent strabismus because of excessive hypermetropia.

Visual patterns and flashes

Visual patterns and flashes are a cause of extreme concern to many patients. The primary care physician frequently has to decide if a described pattern could represent retinal damage (such as a detachment) or a manifestation of a vascular phenomenon (such as migraine or one of its variants). Many patients have told me they thought they were having a stroke when they were actually experiencing a migraine attack.

Ascertain some information from the patient before deciding on your course of action:

- Was the pattern in one eye only or in both eyes simultaneously? If the patient can clearly answer that the pattern was still there if one or other eye was closed, you can almost certainly rule out a retinal problem.
- Can the patient describe the pattern? If the pattern was clearly like a streak or flash of white light the odds favour a vitreous or retinal problem (especially if it was going down the side of the eye).
- Did the pattern come on abruptly and how long did it last? A sudden onset will favour a central vascular problem, especially if bilateral and lasting between a few seconds and up to two hours before disappearing quite abruptly.
- Was the patient under stress? If the answer is no, ask if stress was

present within a relevant time prior to the incident. Many vascular attacks do not appear at the time of stress, but occur as a rebound phenomenon on release from nervous tension.

- Finally, was the patient aware of anything like a shadow drifting across the eye (with or after the flashes), of insect-like shapes flying around, or of a 'curtain' (particularly a thick, velvety, undulating curtain) obscuring the whole or part of that eye's vision? If the flashes occur in only one eye and these other symptoms are present, urgent ophthalmic consultation is imperative.

If you are satisfied that the patient's symptoms are migrainous or vascular, explain that any subsequent attacks may not present with the same visual pattern as the previous one. This explanation may help to prevent possible anxiety in the future.

Conclusion

The GP remains the primary source for assistance with ophthalmic problems, although there is an increasing tendency for patients to present to an optometrist instead. Some eye problems are quite straightforward and will cause a GP little difficulty; in other cases, immediate ophthalmic help should be sought. **MT**

Acknowledgement

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