This session is a response to your requests for some further ophthalmology teaching and discussion.

You should feel free to interrupt and to ask any question that comes to mind during the session. I want to address your agenda, not mine. You should not regard any question as too daft to ask. This is a safe, non-judgemental environment.

You wanted to cover a lot of ground but unfortunately this won’t be possible in today’s 1hr lecture format. Nevertheless I’ve distilled some essentials and I am open to the possibility of further sessions, including more single topic practical workshops in the future, if you’d like.

If anyone would like an electronic copy of this presentation then please could they email Paula Wright who oversees and co-ordinates these sessions. I understand that it can also be made available on the website. Any queries/errors/comments in respect of content can be addressed to me, preferably via Paula so she can keep track of any omissions/changes/corrections.

Alan Whitmore, March 2008
Your verbal and email feedback suggested that you were interested in learning about things that were relevant to everyday general practice and that fitted into a 10 or 15 minute consultation format. Specifically:

- How to recognise common eye problems that could be treated in general practice and how to identify those that needed referral to an eye specialist.

  - In order to be able to do this consistently you wanted:
    - Hints and tips on how to examine the eye
    - Advice on history and signs that were diagnostic of the common conditions
    - A discussion of pitfalls and “red flag” signs whose presence warrants immediate referral, irrespective of whether you are sure of the diagnosis.

- How to manage the common problems in a systematic and, if possible, evidence-based way.

  - In order to do this you wanted:
    - My opinion on the best sources of ophthalmology information relevant to general practice
    - My advice on your specific questions, based on my previous ophthalmology experience.

- How to present a patient’s case in the best possible light to gain appropriate access to an ophthalmology opinion, especially out-of-hours.
What you’re going to get!

• How to use the ophthalmoscope to look at the front of the eye and a practical example: assessing the tear film

• How and when to put in drops (fluorescein, anaesthetic, dilating)

• A list of common things you should be able to deal with in general practice

• A discussion of diagnostic symptoms and signs relevant to those common things

• Recommended Web resources for management of common things

• Red and yellow flag symptoms and signs

• Common pitfalls and omissions

• Eye jargon – what the hell’s a limbus?

• How to sell to on-call ophthalmologists – an interactive game!

• Time for questions and discussion

• A handout of this presentation
Not many people know this, but you can get a very good view of the front of the eye (and even small skin lesions anywhere on the body and eyelids) by using a big “plus” lens on your direct ophthalmoscope. In practice this usually means about +20 on the dial (black letters usually).

This will give you a magnified image in focus at 5cm (if you are wearing your spectacles or contacts or have normal vision).

When examining the outside and inside of the lids, the conjunctiva, the cornea, iris and lens you should always use this setting. If you have a blue light (NOT the green (=red-free) setting ) then you can use this when you have put in some fluorescein but it is always important to look with a white light too since your own acuity is optimal with this illumination.

Using the above system you should be able to obtain much of the information you need to decide if this is a condition you recognise (and can treat), or need to refer (even if you have an idea what it is – in this case you will be able to make a good case to the ophthalmologist).
How and when to use eye drops during eye examination

- **Fluorescein always** – no excuses, especially in kids
- **Anaesthetic when eye is painful** to permit proper examination – NEVER for analgesia
- **Dilating drops** – tropicamide – when you can’t see the back and need to!

This slide is pretty self explanatory.

For some reason GPs are generally shy of putting in eye drops as part of the examination but this is usually an essential part of a complete assessment and can easily be accommodated within a normal consultation.

Putting in eyedrops is easy and involves asking the patient to tilt back the head and look up at the top of their head (so they can’t see you coming!). Then, with a fore finger, pull down the lower lid to expose the conjunctival fornix and squeeze in a single drop.

GPs are fairly frequently sued for failing to distinguish conjunctivitis from other causes of a red eye, such as corneal ulceration, and one of the main ways to make the distinction is to use fluorescein.

Mixing fluorescein with an anaesthetic prior to instillation is easy and means you only need to put in one drop. The anaesthetic usually makes examination easier.

On rare occasions, for example if you think you may have seen an abnormality on fundoscopy but have a poor view, it is appropriate and desirable to dilate the pupil with tropicamide 0.5%. This takes about 15min to work so you may need to see a couple of other patients and bring the person back in.
Before we talk about recognition and management of those common conditions let’s have a practical interlude. I’m going to get you to pair up with the person next to you and you will have a go at putting in drops and using the ophthalmoscope in the way I’ve just described to make a useful observation.

First you can practise mixing the fluorescein with some local anaesthetic, then you can practise putting it in your neighbour’s eye in the way I described earlier.

Just squeeze the minim and a bead of anaesthetic will appear on the tip. Touch this to the fluoret strip and allow it to suck back into the minim by relaxing your grip. Do this a few times until the anaesthetic has taken up a good amount of the dye.

Then instil a drop into your neighbour’s eye and wait for the stinging to wear off. Give them a tissue to hold, and mind your clothes!

Get your ophthalmoscope ready, as described above, and get their eye in focus. Then ask them to blink once and then hold the eye open for as long as possible. The anaesthetic will help control the urge to blink. You should see a nice, even, green reflection (see 1st picture). Count the seconds (this is approximate) until the even green film starts to fragment (see 2nd picture). This interval is the approximate tear break up time. It is reduced (sometimes quite markedly) in dry eye syndrome and in blepharitis/meibomianitis and will help you make a diagnosis.
Above is a list of the things it would be reasonable for a GP to be able to treat without reference in the first instance to specialist help.

We will go through the various treatment options in a short while.

The list seems short but being able to deal with these things will probably cover the majority of eye presentations in general practice.

Obviously more things will present to you, either directly, or via the GOS18/optician route but you won’t need to know the management of the rest, just recognise that there is a problem needing referral and be able to assess how urgently. We will talk a bit about that later on too.
Ok, now back to that list of common and treatable things.

Let’s think about conjunctivitis for a moment:

Do you know how to distinguish between these (mostly) fairly common conditions?

In fact they can often mimic one another to some extent but the treatments are quite different, so it is important to have some tricks to tell them apart (not always possible).

On the next slide is a table with some helpful distinguishing features:
This grid will help you classify probable conjunctivitis based on a few key clinical observations. The most important being presence of follicles, papillae (see next slide), preauricular lymphadenopathy and discharge. Acuity should also be normal usually, so if you find it isn’t then you need to worry (and that underlines an important essential part of eye assessment – a feel for the VA in each eye.

Having a table like this to hand (or better still, in your head) will help you decide on appropriate management.
Follicles are hypertrophied mucosa-associated lymphoid tissue – they look like translucent rice grains.

Papillae are basically oedematous conjunctival tissue that is prevented from expanding laterally by the connective tissue network – they look like little, red, hyperaemic cobblestones. When very severe the connective tissue septae separating them can break down and several papillae become confluent, forming “giant papillae”, as in vernal conjunctivitis.
Here is a pretty extreme example of preauricular lymphadenopathy – in this case due to a malignant melanoma of the conjunctiva.

In the context of red, itchy eyes, with conjunctival follicles and watery discharge it is almost pathognemonic of viral conjunctivitis.

Subconjunctival haemorrhages are also reasonably common in this context. They will usually be bilateral, scant and multiple in viral infection.
The first milestone you’ll pass is when you can decide that you’re pretty sure you are dealing with bacterial conjunctivitis – see grid.

Now the tricky bit! What do you do? The best evidence suggests that most bacterial conjunctivitis (over 90%) will resolve spontaneously in a week or two. Antibiotics confer a marginal benefit in these cases but are useful in persistent conjunctivitis. The url above is to the Cochrane Best Evidence for 2008 which supports this view. There are other studies too.

It would be reasonable to withhold antibiotics for the first 5 days, even if you are sure you are dealing with bacterial conjunctivitis, unless the symptoms are very severe.
Viral conjunctivitis is easier – do nothing!

Reassure patient
This is a pitfall. We are very used to seeing molluscum on the skin but it can be a cause of persistent follicular conjunctivitis that mimics self-limiting viral infections, except that it doesn’t self-limit!!

Look for molluscum lesions on the lid margins. If you see them and are confident then you can tease them off with a sterile needle and some local anaesthetic. If not, refer to clinic – eye casualty is not ideal since the SHOs frequently, will have less experience than you.
This warrants same day referral to paeds/ophthalmology

In adults, chlamydial infection can be more indolent – beware persistent follicular conjunctivitis. Do serology & chlamydial PCR of swabs if not sure, or refer to clinic.
These are obviously subconjunctival haemorrhages. They do not affect vision and have no visual consequences. However, ignore them at your peril!

They can be the first sign of hypertension and can occasionally be an early indicator of a clotting disorder.

Measure BP always.

Check platelets and clotting if other concerns e.g. bruising or if recurrent.

Reassure the patient if no abnormality found and offer lubricants if uncomfortable or “bullous” = bulging.
This is a metallic corneal foreign body.

Consider the mechanism of injury – if high velocity then refer for slit lamp assessment – risk of penetration.

If low velocity / no risky history then attempt removal if confident, else refer. Use good topical anaesthetic, such as amethocaine, and the tip of a sterile needle at an oblique angle.

DO NOT USE A COTTON BUD WHATEVER YOU MAY HAVE BEEN TOLD/READ – YOU WILL STRIP OFF THE CORNEAL EPITHELIUM AND THE F/B IS LIKELY TO REMAIN EMBEDDED. YOU WILL THEN HAVE AN UNHAPPY PATIENT WHO IS IN AGONY AND WILL PROBABLY END UP IN EYE CAS ANYWAY!!!
Left to right, top to bottom these are:

“cat scratch” fluorescein staining pattern caused by a subtarsal (usually upper lid) foreign body.

You need to evert the lid and remove it with a needle/tweezers/cotton bud if you must... The conjunctiva is tougher than the corneal epithelium.

A corneal epithelial defect with stromal infiltrate – early ulcer – refer!

A large corneal abrasion in the visual axis. If you are confident you can treat with:

Analgesia (oral); dilation with cyclopentolate 1% (for ciliary spasm); chloramphenicol ointment; pressure patch for a few hours only (or you may miss secondary infection/failure to heal).

Big abrasions need to be monitored daily and the patient warned of the possibility of recurrent erosions. When healed it is a good idea to give lubricants (especially at night) for a while after.

If in doubt – refer!
Red flags are:

Contact lens wear
Photophobia
Pain++
Hazy cornea with stromal infiltrates

Refer!
This is not as unusual as you might imagine. The rule is probably to have a very low threshold for referring contact-lens wearers to eye casualty – you may not make this diagnosis but you will pick up the red flags:

- Contact lens wear
- Pain++ with an eye that isn’t that red
- Corneal changes

Refer!
This is a herpes simplex dendritic ulcer – characteristic branching pattern of epithelial disturbance, terminal bulbs, often with stromal infiltrates – may enlarge to become geographic:

Red flags are:

Pain
Reduced acuity
Characteristic fluorescein staining pattern

Never mind what the treatment is...

Refer!
The following slides show some examples of eyelid margin disease.

This is seborrhoeic blepharitis – due to hypersensitivity reaction to lid microflora and dysfunction/hyperactivity of meibomian glands.
This is staphylococcal blepharitis – due to active infection of lid margin and meibomian glands.

This is more likely to respond to antibiotics – tetracyclines are the mainstay since they also alter meibomian gland function and have anti-inflammatory properties.

Doxycycline and limecycline are most commonly used.
This is an example of meibomian gland dysfunction that frequently precedes and is associated with blepharitis.
When the glands become inflamed/infected they can interfere with normal tear film and cause irritation through dry eyes, as well as through localised inflammation and cyst formation.

Blepharitis and meibomianitis frequently occur together.

Lid hygiene measures are beneficial in all kinds of lid margin disease. The patient.co.uk PIL on blepharitis is my personal favourite.
Incision and curettage of chalazia is going out of fashion since they frequently recur.

Hot compresses, lid massage, lid hygiene measures, tetracyclines, topical chloramphenicol ointment and steroid ointment/injections are the preferred management options currently.
These are some other common eyelid lesions you might see.

A Cyst of Moll is just a hidrocystoma of the lid margin.

A Cyst of Zeiss is just a sebaceous cyst of the lid margin.

Treatment is by incision +/- curettage and is quite easy – but best to refer!

Pigmented lid or conjunctival lesions and things that are getting bigger or look suspicious need early referral.

No time for examples today – use your common sense.

We can do a session on nasty lid lesions another time but fundamentally this is dermatology.
This is iritis

Although you can’t see the inflammatory cells in the anterior chamber at this magnification there are some obvious red flags:

Pain – not eased by topical anaesthetic
Photophobia
Perilimbal injection
Keratic precipitates
Irregular pupil with posterior synechiae (adhesions or the iris to the anterior lens capsule)
Reduced acuity
Poss systemic association – history of Ank Spond, IBD, RA, JCA, sarcoid etc.

Refer unless you know what you are doing!
These are respectively:

An infected chalazion: treat with broad spectrum antibiotic and daily review to assess risk of progression to frank cellulitis (augmentin is best)

An infected lash follicle: as above.

Refer to eye cas if ANY doubts at all
These are my favourite web resources.

The first two are by far the best. I like patient.co.uk but GP Notebook has the advantage of letting you set up an audit trail for appraisal purposes.

eMedicine is good but a bit specialist and for a US target audience.

I find the CKS (used to be Prodigy) inconsistent in both quality, depth of coverage, range of coverage and target audience – they talk about treatments for some eye conditions that you would never institute in general practice.

Wills Eye and the Royal College are a bit specialised by often have useful info on referral criteria for things like macular degeneration.

There are any number of textbooks but none I would really recommend as ideal for GPs – so I am writing one!
As you can see – there is quite a lot you could potentially do/prescribe in general practice and this should empower you to refer a bit less and feel a bit more confident and useful when an eye problem arises.

I’ll give you examples (you can probably work most of them out) of when you’d use each during the talk.

We haven’t talked much (at all!) about allergic conjunctivitis – but this is common, often seasonal, bilateral, associated with other atopic conditions and, usually relatively easy to diagnose.

Antihistamines (topical or oral) and identification/avoidance of triggers are the mainstay.
Red flags from history & examination for immediate referral / discussion with ophthalmologist

- Sudden visual loss/field defect/distortion
- Growing lumps, especially pigmented on lid
- Sudden onset diplopia/nystagmus
- Associated headache/scalp tenderness
- Other contemporaneous neurology
- Flashing lights and floaters
- Red, painful eye and no clues
- Cellulitis in children
- Pupillary distortion/abnormality
- Abnormal-looking fundus/disk with acute symptoms
- Hazy cornea
- Other mucosal symptoms
- Chemical injury
- Mechanism of injury

Ok, so you don’t know what is going on – you haven’t recognised a familiar and GP-treatable condition.

What now?

If you’ve done your history taking and examination diligently you will have a fair idea of the things you aren’t happy with – here are some important red flags that should prompt referral, even if you aren’t sure what the diagnosis is – mentioning any one of them ought to get an ophthalmologist’s attention. Don’t always expect the patient to be seen immediately. There are very few screaming emergencies in ophthalmology – 9am the following morning may actually be quite appropriate for many.

However, you should be prepared to stand your ground if you feel you are being fobbed off, especially by eye cas SHOs who may be VERY inexperienced:

If your patient has:

Sudden visual loss/disturbance/reduced acuity
Severe pain or photophobia
Is a child
Has a hazy cornea
Has an unresponsive or distorted or asymmetrical pupil
Has a funny-looking fundus
Has had a high velocity injury

DIG YOUR HEELS IN AND INSIST.
Some things may come your way that are serious but not emergencies. The above are some examples. Usually the optician will have given you a clue or two!

Glaucoma suspects do not need to be referred urgently – soon is ok – within 2-4 weeks is good. Within 6-8 weeks is probably ok.

If in doubt, send a fax and let the eye doctors decide.
So, we’ve looked at what sorts of things you should be able to treat, how to recognise them and a bit about how to treat them. We have talked about red flag symptoms and signs that should trigger referral/discussion with an ophthalmologist but haven’t talked much about the serious associated conditions or their management – there wasn’t time and your preference was to concentrate on what your function as GPs should be in respect of eye problems. I hope this session has helped you.

We will finish by looking at some common pitfalls
There are lots of things people do wrong but this lists the commonest reasons GPs get sued by patients. Most are indefensible.

This is the place to admit you don’t know! It isn’t a problem. Medicine used to have a culture of never admitting ignorance or mistakes but, particularly in general practice this has changed. You should all see your gaps as opportunities to find out, to discuss and to share – not as an embarrassment.
Here is a potentially missable red flag.

Unilateral eyelid vesicles (the red flag!)  Acute follicular conjunctivitis
-
refer for topical antivirals to prevent keratitis
Here is another.

There could be many explanations for this little boy’s leukocoria (white pupil) – does it matter? Not really since this should trigger an IMMEDIATE referral for assessment – he should be seen within days.

In fact he has retinoblastoma.

Remember the red reflex is a really useful sign.
If there is time I'll talk a bit about eye jargon. If not then typing the above terms into Google will probably be just as helpful!
Phoning the Eye Doctor...

- Cut to the chase: “I think I have someone with a macula-on retinal detachment”
- Because: abnormal red reflex, inferior monocular field defect, normal acuity, flashing lights and floaters, acute onset (and myopic).

So, you’ve decided to take the bull by the horns and refer:

Sound like you are confident of your observations, even if not of the diagnosis.

Get to the point – on-call eye doctors get loads of nonsense phone calls.

Say why you think they need to be seen now rather than in clinic, or ask advice if you aren’t sure.

Question if you feel you are being fobbed off.
A game (if we have time!)

- Need 3 volunteers and someone to time us.
- I’m the eye Dr and you need to refer me someone that you aren’t happy with.
- I’ll give you a diagnosis for which you ought to know the red flag signs (I’ll help you if necessary and you can confer – it’s just a bit of fun)
- A prize to the person who gets me to agree to see the patient tonight in the least amount of time!!

Diagnoses:

- Iritis
- Retinal detachment
- Corneal ulcer
- Temporal arteritis
- Acute angle closure glaucoma
- Child with possible orbital cellulitis

Red flags:

- Child!
- Hazy cornea
- Photophobia
- Field defect
- Acute onset
- Associated symptoms
- Pain
- Pupil shape/response
- Reduced vision
- Eye movements
- Optic disk appearance