Common Eye Conditions  
A to Z

Marilyn Smith RO  
Clinical Faculty Lecturer  
University of Waterloo  
School of Optometry & Vision Science  
Nova Scotia Association of Optometrists  
November 2014
Clouding of the cornea by a single cell organism that infiltrates the corneal tissue causing infection

Caused by poor CL hygiene practices such as rinsing or storing contact lenses in tap water or not washing hands

Coming into contact with contaminated water, hot tubs, swimming pools etc

topical chlorhexidine 0.02% and propamidine isethionate 0.1% are prescribed if treatable
Acanthamoeba

Treatable with drug
Due to poor CL hygiene
If untreated, severe loss of vision

Severe case
Requires cornea replacement
Can be common in 3rd world countries
Major cause of blindness
Blepharitis

Symptoms
- burning, itching and dry, gritty eyes
- dandruff-like flakiness on eyelashes

Signs
- hard, crusting scales on the anterior lid margin
- rosettes - dilated blood vessels on lid margin
- lid margin edema (swelling)
- tylosis (notching and thickening of the lid margin)
- madarosis (loss of lashes)
Blepharitis

Management

- explain chronicity to patient
- warm compresses
- lid scrubs - commercial or “home-made”
- artificial tears
- oral oxytetracycline/erythromycin (250mg qid) for 6/52
- topical ointment
  - OTC polymyxin B + bacitracin zinc
  - polycidin or polysporin ophthalmic ointment
- topical gtt
- Blephamide
  - sulfaacetamide sodium 10% + prednisolone 0.2%
Effects of Blue Light

- Blue light emittance from computers, tablets etc may affect melatonin ability
- Melatonin is our natural sleep device but becomes de-activated if too much blue light!!
- Warn patients not to use devices too close to bedtime so melatonin can work naturally
Effects of Blue Light

- Encourage full time computer users to have lenses with blue light AR coating – Plano or Rx
- Blue light is a concern for > 30 years old – always have been exposed to computer use, lots of electronic activity – leisure, school & work!
- Early on-set Aging Macular Degeneration, Cataracts, other retinal issues??
- Advise parents to limit children’s exposure time to blue light
- AR on kids specs!
Cataract

An opacification or loss of transparency of the crystalline lens that gradually impairs vision.

Cataracts often develop at different stages in each eye.

Up until 30 years ago a leading cause of low vision

The intraocular lens implant is one of vision’s greatest medical inventions

OD should reassure patient of new technologies!
Age Related (Senile) Cataract

**Nuclear Sclerotic**
- Most common type
- Clouding & hardening of the nucleus of the lens
- Can progress slowly
- Age related, smoking & UV exposure can be factors
- Usually removed & IOL implanted

**Cortical**
- Develops in the lens Cortex (peripheral)
- Looks like white spokes
- Can cause light scatter, blurred vision
- Diabetes is major cause
- Usually removed & IOL implanted

**Posterior Sup Capsular**
- Develops behind the back surface of the lens
- Causes glare/halos
- Can be quick onset
- Diabetes, RP, steroids, smoking can be causes
- Not treated until vision symptoms are severe
Cataract

- common after age 65
- crystalline lens is removed surgically
- new lens implant placed inside eye
- distance vision is often better than ever
- reading rx is always needed in presbyopic patients
- Common in 3rd world countries & leading cause of blindness when untreated

Watch for symptoms in elderly of withdrawl from regular activities!
Congenital Cataract

- Child born with cataracts
- Measles/rubella, diabetes, drug interaction during pregnancy
- IOL when possible (may have to be changed with growth)
- MUST have correction asap to encourage growth in visual system
- If no IOL, glasses and contact lens
Aphakia

- Loss of crystalline lens due to cataract surgery
- Unusual now (interocular lenses circa 1980ish)
- Rx is usually > +12.00D
- Spectacles prescribed, sometimes CLs
- Use lens gauge to determine add power if lensometry is difficult (only on plastic lenses, compare F1 curves)
- All aphakic lens designs are CR-39 and aspheric
- Very flat F2!
- Lenticular design an option to reduce weight & thickness
- Choose well fitting frame, nosepads help
- Make sure temples are long enough or consider cable temples
Chalazion

Symptoms
• painless focal lump on lid (upper)
• occasional blurred vision from pressure

Signs
• slow growing sub-cutaneous nodule
Chalazion

Management

• hot compresses
• digital massage
• referral for steroid injection
• excision and curettage
• no drug treatment
• if reoccurs then consider sebaceous gland carcinoma
Conjunctivitis

- An inflammation of the conjunctiva with/without discharge
- Often called “pink eye”
- Very contagious
- Often passed around daycares, schools etc where hygiene can be an issue
- Most cases manageable at the primary care level
Conjunctivitis (Pink Eye)

Treatments:

- Bacterial – antibiotics
- Allergic – allergy medication
- Viral – usually clears in 2 – 3 days, dry eye drops relief itchiness
- Warm compresses helpful BUT hygiene must be diligent!!
- Often “passed around” in daycares, primary schools due to touching and less understanding of hygiene by children
- Remind patients not to share drops!!
Other causes of red eye

- acute glaucoma
- anterior uveitis
- blepharitis
- contact lens complications
- corneal trauma/infection
- dry eye
- episcleritis/scleritis
- subconjunctival haemorrhage
Ectropion

- an outward turning of the eyelid margin
- most common in the lower lid
  - Involutional (senile)
    - due to natural ageing changes within the lid muscle
    - aggravated by gravity
  - Cicatricial
    - due to scarring of the palpebral conjunctiva
    - trauma, burns, radiotherapy or chemical injuries
Ectropion

Cicatricial

Involutional

Mechanical
Ectropion

Symptoms
- FB sensation; epiphora

Signs
- everted lower lid
- secondary corneal changes

Management
- artificial tears at night
- lid taping at night
- lid surgery if severe
Entropion

- an inversion of the eyelid margin towards the globe
- mainly affects the lower lid
- Involutional
  - most common cause
  - with age the subcutaneous tissues become redundant and less adherent to the orbicularis muscle
  - atrophy of the orbital tissues simultaneously allows the globe to move posteriorly, producing a relative enophthalmos
Entropion

- congenital
- involutional
- cicatricial
Entropion

Management
- epilation of lashes in minor cases
- electrolysis
- lid taping
- bandage lens
- surgery
Floaters

- small specks that move through the field of vision
- tiny clumps of cells inside the vitreous fluid
- caused by aging, eye injury, diabetes, formation of cataracts etc
- no cure
Giant Papillary Conjunctivitis (GPC)

Signs and symptoms:

- itchy and gritty feeling eyes
- FB sensation
- blurred vision
- reduced CL wearing time
- high-riding or excessive movement of CL
- mucous discharge
- huge papillae of the upper tarsal conjunctiva
- mild bulbar conjunctival injection
- ptosis
Giant Papillary Conjunctivitis (GPC)

- usually associated with soft contact lens wear, prostheses or residual sutures
- possibly a delayed hypersensitivity reaction to protein deposits.
Giant Papillary Conjunctivitis (GPC)

Management:

- optimise hygiene regimens
- increase enzyme use
- switch to more frequent replacement or RGPs
- optimise fit/design
- discontinue or reduce wear
- no steroids, consider NSAIDs
- remove protuberant sutures
- polish prosthesis /consider non-allergenic coating
Glaucoma

- Intraocular pressure (IOP) is the eye’s “blood pressure”
- Aqueous humor (fluid in anterior chamber) not moving through the trebecular meshwork
- Increased IOP causes pressure on the optic nerve
- Glaucoma reduces sight in the peripheral and can lead to total blindness if not treated
Types of Glaucoma

OPEN ANGLE
- silent vision “thief”
- gradual onset
- no real signs
- gradual increase in IOP, permanent optic nerve damage
- only detected with regular eye exams

CLOSED ANGLE (ACUTE)
- medical emergency
- eye pain, headache, vision loss, nausea, haloes
- permanent optic nerve damage
- surgery may be required if IOP lowering drops cannot be administered in time
Who can get Glaucoma?

- people over 65 of any background are more prone to glaucoma
- those with diabetes, high myopia or previous eye surgeries
- prolonged use of oral or inhaled steroids & other drugs
- 4 times more common in black population
- heredity of glaucoma in family history
New Glaucoma Testing

- No aesthetic drops
- No puffs of air
- A very light probe makes contact with the cornea without pain
- Can be patient monitored at home
- Can be used by vets on animals
Glaucoma

Treatments

 Miotics – constrict the pupil & improve drainage, most common treatment (pilocarpine)
 Beta blockers to slow production of aqueous humour (fluid)
 Laser treatment on trebecular meshwork in increase fluid flow
 Sometime patients need reminders to take meds daily!!
 Many glaucoma treatments now approved for optometrist through TPAs but may still need ophtho referral!
 Latisse,™ originally a glaucoma med now prescribed for eyelash growth!
Herpes Zoster (Shingles)

Etiology
- Infection with Varicella virus along the first (ophthalmic) branch of the fifth (trigeminal) cranial nerve (always one half of body with defined line!)

Symptoms
- Pain
- Headache
- Unilateral red eye
- Scalp tingling on one side of the head
Herpes Zoster

- Signs
  - Typically in a middle to older age-group of patients
  - Erythematous papules & vesicles
  - Crusted lesions on one side of the forehead does NOT cross mid-line
  - May develop late-stage post-herpetic neuralgia
Herpes Zoster

Management

- contagious for adults and children who have not had chicken-pox
- if under 40 then consider immuno-compromised status
- oral analgesics as needed (OTC Tylenol)
- cold compresses
- acyclovir po (Zovirax) 5x/day for 7-14 days
- topical antibiotic gtt (Garamycin)
Hordeolum (Stye)

Symptoms
- acute, tender swelling
- hyperaemia of lid margin
- if contact lens wearer
  - lens awareness
  - excess lens movement

Signs
- lid swelling
- single or multiple and recurrent
- yellowish head at opening of infected gland
Hordeolum
Hordeolum

Management

- self limiting
- counsel NOT to “squeeze”
- temporary cessation of lens wear
- epilation of lash
- hot compresses qid
- lid hygiene if recurrent
- oral antibiotics if chronic
  - 250mg erythromycin/tetracycline qid for 1/12
Aging Macular Degeneration (AMD)

- blurring or loss of central visual field
- loss or fading of colour vision may also occur
- print looks wavy or jumbled
- most significant and frustrating cause of disability within the aged population
AMD
What is the Macula?

- the macula is the “bulls’ eye” of sharp, central vision

- the macula contains the most blood vessels within the eye structure

- the macula contains the fovea (most acute vision)
Why do we get ARMD?

- smoking
- high blood pressure
- sedentary lifestyle, obesity
- heredity
- gender (more women than men)
- Caucasian
- diet low in green, leafy vegetables
- light coloured eyes
- major UV light exposure, not wearing sunglasses
- drug interactions
# Types of AMD

<table>
<thead>
<tr>
<th>Wet AMD</th>
<th>Dry AMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>✉️ usually sudden onset</td>
<td>✉️ more gradual onset</td>
</tr>
<tr>
<td>✉️ dark spot(s) in central vision</td>
<td>✉️ blurring of central vision</td>
</tr>
<tr>
<td>✉️ caused by sub-retinal bleeding/fluid</td>
<td>✉️ eye care practitioner will detect Drusens (yellow spots on retina in the macula) from atrophy</td>
</tr>
<tr>
<td>✉️ if treated quickly with laser photo-coagulation new vessel growth can be prevented</td>
<td>✉️ no cure or medication</td>
</tr>
</tbody>
</table>
Treatments for ARMD

**Wet ARMD**

- Laser photo-coagulation, preventing new vessel growth
- PDT (Photo Dynamic cold laser Therapy) puts drugs into eye & then lasers them to activate, reduced damage to the retinal layers
- Anti-VEGF injections, directly into the eye (developed for colon cancer & found to stop bleeding in the eye
- NEW – non eye injections being tested!!

**Dry ARMD**

- Vitamin care
- Low Vision Aids
- Rheopheresis (experimental), exchange of blood to filter fat/protein molecules that deposit to the macula
AMD Warning

AMD is lose of CENTRAL VISION ONLY!
Many websites say “leading Cause of blindness”
With vision aids & good counseling, px can live very productive lives
Offer good follow up care & various aids to try
Etiology

- Infestation of the eyelids and eyelashes by pubic lice (Phthirus pubis)
- Transmitted via sexual contact
Symptoms

• redness
• watery eyes
• intense itching
• sub acute, unilateral or bilateral

Signs

• pubic lice & egg cases ("nits") adherent to lashes
• blepharitis
• conjunctival injection
• follicular conjunctivitis
• marginal keratitis
Pediculosis

Management

forcible removal of all eggs & lice (anaesthetic)
epilation
suffocation with petroleum jelly, bid X 10 days
counselling
non-ocular use of lice shampoo
inform GP/Police?
child - sexual abuse
Ptosis

 Symptoms
  - often none
  - cosmetically aware

 Signs
  - “droop” of the top lid

 Management
  - depends upon the cause
  - severe cases may require surgery
Ptosis

- congenital
- Horner's
- Involutional
- III N palsy
- VII N palsy
- congenital
Ptosis Crutch

- Metal “crutch” soldered to nasal side of frame
- Frame is usually metal
- “Crutch” is adjusted to fit under lid fold & hold up eyelid
- Short wearing time
- Creates partial blink & dry eyes
- Can be unilateral or bilateral
Retinitus Pigmentosa

- loss of peripheral vision from deterioration of the retinal cones
- total night blindness
- often affects young people with onset in their teens
- can lead to almost total blindness
Retinitus Pigmentosa

- No current cures or treatments
- Much research being done
- Stem cell therapy indicated
Strabismus

- One eye moves normally, the other point in another direction.
- Can develop into double vision &/or Amblyopia (lazy eye) if not treated.
- Caused by unequal pulling of the muscles on one side of the eye.
How Can We Fix Strabismus?

- encourage eye exams for infants & children
- obvious signs of the turned eye can be treated
- eye patches
- spectacle therapy
- surgery if necessary
Uveitis

- inflammation of the uvea — the middle layer of the eye that consists of the iris, ciliary body and choroid
- many causes, including eye injury * inflammatory diseases
- toxic exposure, such as to pesticides and acids used in manufacturing processes, also can cause uveitis.

Types of uveitis

**Anterior uveitis** refers to inflammation of the iris alone (iritis) or the iris and ciliary body.

**Intermediate uveitis** refers to inflammation of the ciliary body.

**Posterior uveitis** is inflammation of the choroid.

**Diffuse uveitis** (also called panuveitis) is inflammation in all areas of the uvea.
Uveitis

Symptoms
- sometimes none
- light sensitivity, eye pain
- reduced VA
- red eyes

Can cause
- glaucoma, cataracts, retinal detachment
- potential permanent vision loss

Management
- steroid (topical or oral depending on location)
- surgical implant of drug reservoir (30 months)
- Dilation drops to reduce eye pain (creates more light sensitivity)
UV Damage to the Eye

Pinguecula
Growth over the conjunctiva to the edge of the cornea
Can be removed

Pterygium
Growth over the conjunctiva Can grow over the cornea
Can be removed

Photokeratitis
“Sunburn” of the cornea, possible permanent scarring
Needs meds & healing time

Sunglasses from infants to elderly!!!
Xanthelasma

Etiology

- Yellowish deposits of cholesterol and other lipids from blood serum, deposited within the loose tissue of the lids
- Presence may be idiopathic (spontaneous)
- Usually found near inner canthus
- Could be sign of heart disease
Symptoms
- none; occasional cosmetic concerns

Signs
- yellowish, raised plaques, medially

Management
- if young, refer for serum lipid evaluation
- surgical removal
- chemical cauterization with bichloroacetic acid
- often can reoccur even when removed
It is the optometrists responsibility to explain all eye conditions, medications, outcomes & referrals. Not all eye conditions requiring medication can be treated by optometrists but many now can due to updated TPA legislation. Many eye conditions still require integrated care between the optometrist & ophthalmologist.
Thank you!

Any questions?