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Assessment of Competence in Ocular Therapeutics
Information for candidates

The following document provides information for candidates undertaking the Assessment of Competence in Ocular Therapeutics (ACOT). OCANZ would like to acknowledge that some of the information contained here has been adapted from material published by the Department of Optometry and Vision Sciences at the University of Melbourne.

1. Eligibility to sit the Assessment of Competence in Ocular Therapeutics

Applicants for the ACOT must complete a Form 4 Application. The application is available by email – exam.manager@ocanz.org. The application will be considered by the OCANZ Examination Eligibility Committee which will make a decision on eligibility to undertake the assessment.

To be eligible for the ACOT, an applicant must:

a) be an optometrist trained outside Australia and New Zealand who has successfully completed the OCANZ Competency in Optometry Examination; and
b) hold current registration with the Optometry Board of Australia or be registered with and hold a current Annual Practicing Certificate (APC) from the Optometrists and Dispensing Opticians Board in New Zealand.

In determining eligibility to undertake the ACOT the Examination Eligibility Committee will consider documents assembled by the applicant containing the following (as requested in the Form 4 Application):

a) Evidence of completed training in ocular therapeutics at either undergraduate or postgraduate level.
b) Details of the therapeutic training undertaken by the applicant.
c) Evidence of current registration permitting ocular therapeutic practice, or previous registration permitting ocular therapeutic practice, or completion of training (within past two years) permitting ocular therapeutic practice.
d) The range of ocular therapeutic drugs that the registration in part (c) above entitles a registrant to prescribe.
e) Evidence of maintenance since registration of continuing professional education related to ocular therapeutic practice to the level required by the Optometry Board of Australia and/or the Optometrists and Dispensing Opticians Board.
f) Evidence of recency of practice (within the past 5 years) involving ocular therapeutics.

2. Format of the Assessment of Competence in Ocular Therapeutics

Case Reports:

The candidate is required to submit three (3) case reports of patients requiring therapeutic management. The cases must be ones managed by an ophthalmologist or by an optometrist authorised for therapeutic practice (or by a combination of these people) and observed by the candidate. It is preferable if they have been seen in Australia or New Zealand. If not seen in Australia or New Zealand, the case report must discuss the case with regard to therapeutic management practices appropriate to Australia and New Zealand. The assessment of the case reports includes both an assessment of the content of the reports and the candidate's defence of the reports during the oral examination.

Oral Examination:

The candidate must undertake a one (1) hour oral examination.

3. Examination Venue and Schedule

Once the 3 case reports have been submitted to OCANZ and the assessment fee paid, an oral examination will be scheduled within 3 months.

4. Application Procedures

An application form for assessment of qualifications to be eligible to sit the ACOT examination can be obtained from the Examination Manager at exam.manager@ocanz.org.

The application form for the ACOT examination is only available from OCANZ once eligibility has been determined.

5. Fees

All the fees applicable are available on the OCANZ website.

The venue for the oral examination will be in Australia or New Zealand. The candidate will be required to meet the costs of travel and accommodation associated with traveling to the examination. OCANZ will endeavour to conduct the examination at a convenient location to the examiners and the candidate.

6. Outcomes

To achieve a pass in the ACOT, candidates must demonstrate safe and competent use of ophthalmic therapeutic agents for a primary practice setting in the Australian or New Zealand situation. For up to date information on access to ocular therapeutics in each jurisdiction, please refer to the Optometry Board of Australia website (www.optometryboard.gov.au) or the Optometrists and Dispensing Opticians Board in New Zealand (www.odob.health.nz).

ACOT is primarily concerned with clinical competence and as such will be assessed on a pass/fail basis.

On successful completion of the ACOT, the candidate will be issued with a certificate from OCANZ. The certificate will be accepted by the registration boards in Australia and NZ as evidence that a suitable level of competency in the use of ocular therapeutic drugs has been established. It does not automatically confer a right to therapeutic practice in any jurisdiction as that is the decision of the relevant registration board.

If the ACOT is not completed successfully, the possible outcomes include:

- Pass the oral examination but with unsatisfactory case report(s) and an unsatisfactory defence of the case reports. The case report(s) will need to be re-submitted (fee applicable – refer to OCANZ website). The re-assessment of the case reports could include another oral defence of the reports.
- Fail the oral examination with unsatisfactory case report(s). The case report(s) will need to be re-submitted and the oral examination repeated, including defence of the case reports (full fee payable).
- Fail the oral examination overall, but with satisfactory case reports. The oral examination (except for the defence of the case reports) will need to be repeated (fee applicable – refer to OCANZ website).

In the event of an unsatisfactory outcome, a report from the examiners will be provided that sets out the areas where the examiners were of the opinion that the candidate's knowledge/understanding was insufficient.

A total of three attempts to complete the ACOT examination process will be permitted. If a fail is recorded in the third and final attempt, the candidate will no longer be eligible for the ACOT. In this situation competency in ocular therapeutics can only be established through the completion of one of the OCANZ-accredited postgraduate ocular therapeutics courses available in Australia or New Zealand.

Candidates who believe they have cause to appeal in relation to the conduct and/or outcome of the ACOT must lodge an appeal with OCANZ within 28 days of the date of the release of the result of the assessment.
Appeals against the outcome will only be accepted when based on the following grounds:

1. an error in the examination process; or
2. evidence of unfairness by the person or persons conducting the examination.

Difficulties in preparation or alleged difficulties in tuition are not grounds for appeal. The appeal process is not a means of circumventing the normal assessment procedures. Except in very limited circumstances (such as an administrative error), a successful appeal will not lead to an examination outcome being altered. Where an appeal is upheld, the usual outcome is to allow the candidate an opportunity to re-sit that part of the examination that was in dispute without payment of further examination fees. However, this only occurs where the results of the original examination, taken as a whole, show that the candidate demonstrated competency close to meeting the standard required, and when a fault in the examination process has been established.

Information about appeals against other decisions, including decisions concerning eligibility for admission to the ACOT, is available from the OCANZ Executive Officer.

The first stage of the appeals process is an administrative review to ascertain whether any administrative or procedural error occurred. A fee applies and will be refunded in the event that an error is identified and rectified to the candidate's satisfaction. If an administrative review does not find any error, a candidate may ask that the appeal be considered by an independent Appeal Committee. An administrative review fee applies (refer to OCANZ website).

Every effort will be made to deal with all appeals within 3 months from the receipt of the appeal. The appeal fee will be refunded in the event that the appeal is upheld, but is retained to offset the cost of undertaking the independent review if the appeal is unsuccessful.

7. Guidelines for the Preparation of the Case Reports

Candidates are required to prepare three case reports of 2,500 words in length with particular emphasis on the therapeutic management of the cases in the Australian and New Zealand context. The patients must be those the candidate has personally observed being examined and managed by an ophthalmologist or an optometrist qualified for therapeutic practice. If not seen in Australia or New Zealand, the case report must discuss the case with regard to therapeutic management practices appropriate to Australia and New Zealand. The word count does not include the abstract or reference list.

Each case report is expected to critically review a therapeutic case, to provide detailed discussion of the presentation of the patient observed by the candidate including a description of the clinical findings, discussion of the significance of the findings, the differential diagnoses and the rationale for the final diagnosis and treatment plan. Comment should be made on any uncertainties or unusual features of the case. It is expected that candidates will choose to prepare these case reports on patients presenting with unusual or challenging features. References to journal articles and textbooks are essential to support comments and statements made in the report.

Case reports must cover each of the following three broad categories (one from each area):

- Cornea;
- Red Eye/Acute Anterior Segment presentation;
- Glaucoma (including Ocular Hypertension);

Candidates may wish to detail several cases (patients) within one case report in order to demonstrate the diversity of clinical presentations and/or management strategies for the particular category.

All reports must be printed single sided, on A4 paper using 12 point font, 1.5 x line spacing with at least 2 cm margins, and bound in A4 size folders. Three (3) copies of each report, together with the Case Report Cover Sheet (see appendix A) must be submitted to OCANZ. A sample case report is included in Appendix A.

Each case report must include the following:

1. **Separate Cover page** containing: title (the broad category addressed in the report), candidate's name, word count, where the patient was seen and the name of the practitioner responsible for management of the patient. *Note: the cover page is not provided to the examiners.*

2. **Title page** containing: title (the broad category addressed in the report), the candidate's name and the word count.

3. **Abstract**: a 200 to 300 word overview of the case.

4. **Introduction**: a brief comment about the presentation or condition discussed in the report.

5. **Case Summary**: in this section describe the presentation and the relevant findings. Include drawings, photographs and other relevant clinical information as is appropriate.

6. **Diagnosis**: critically review the diagnosis and if appropriate, provide an alternative diagnosis with justification. Discuss any differential diagnoses. Comment on the presence or absence of risk factors and associated with the diagnosis, and on the expected incidence of the disease.

7. **Pathophysiology and Discussion**: discuss the aetiology and pathophysiology of the condition, the possible sequelae, and the systemic and ocular complications that may develop if the condition is not treated appropriately. Suitable references must be included to ensure an evidence-based approach to patient care.

8. **Management**: critically review the therapeutic management of the case. Provide alternative treatment options with appropriate justification of these options. Discuss the action, contraindications, and side-effects of the therapeutic agents. Medication formulations and dosage regimes must be provided. This section should incorporate the basic scientific principles underpinning the treatment options available as well as a critical discussion of differing managing protocols.

9. **Prognosis:** discuss the likely prognosis of the patient given the therapeutic management plan. Consider issues including natural history of the condition, risk of recurrence, long term management and future complications.

10. **References**: provide citations within the text at appropriate points and a reference list at the end of the report. Candidates should conduct a literature search and use recent original journal articles. Search engines such as PubMed or Google Scholar are suggested. The citations do not have to be exhaustive and it is usually sufficient to cite ~15 references per case. Reference lists that include only textbooks do not demonstrate that the candidate is able to keep abreast of developments in therapeutics.

11. **Other information**: include other information, e.g. photographs, visual fields, etc. as required. Provide a summary of key clinical findings rather than copies of reports/printouts. Patient identifiers must be removed from any of the aforementioned material. The name of the supervising ophthalmologist or optometrist must not appear inside the report; however this information is be provided on the Case Report Cover Sheet (appendix A) which will not go to the examiners.

As a guide to the quality of the reports, OCANZ recommends reviewing cases on the Digital Journal of Ophthalmology, Harvard, website http://www.djo.harvard.edu/site.php?url=/physicians/cr. Most of the cases here are not relevant to therapeutic optometry however the presentation provides guidance on the minimum requirements to be included in the case studies.

8. Guidelines for the Oral Examination

The duration of the examination will be up to 60 minutes and will be conducted by two examiners (one will be a therapeutically experienced practitioner and the other a therapeutically qualified optometric educator). During this examination, candidates will have to demonstrate an appropriate knowledge base for use of therapeutic agents, display problem solving and decision making abilities that include the use of referral criteria appropriate in primary care optometric practice settings in Australia or New Zealand. Appendix B contains a sample oral examination.

The publication of the Optometry Board of Australia *Guidelines for the Use of Scheduled Medicines* is essential reading. This document is available at: www.optometryboard.gov.au/

The following principle will be in effect during the oral examination: if your answers would lead to serious mismanagement of a condition including irreversible vision loss or serious systemic complication, an overall **FAIL** will be recorded. This principle is called the **RED FLAG** principle.

The oral examination will consist of two parts:

(a) **Case Defence:** approximately one-third of the examination duration will be devoted to the case report defence which will include discussion of issues raised in the 3 case reports submitted by the candidate;

(b) **Topic Examination:** approximately two-thirds of the examination duration to discuss other topics associated with the therapeutic management of ocular disease. This will include a series of presentations with questions requiring answers such as the most likely diagnosis, differential diagnoses and appropriate management and treatment plans. To facilitate discussion, slides will be used for some topics.

Topic Examination

Each candidate should be examined over at least 5 topic areas selected from the list below. The range of topics selected, and cases presented within those topics, should take into account the content of the case studies to minimise duplication of areas of examination.

The topic examination should include both short answer and long answer questions. The purpose of the short answer questions is to probe the breadth of knowledge of the candidate. It is expected that each question would take approximately one minute to complete. Long answer questions are designed to probe in depth information. An image would normally be provided and some information relating to the patient from which the image is taken. The candidate would then be expected to seek specific test or diagnostic results or other pertinent information. As the amount of information increases, the candidate is expected to develop a likely diagnosis, differentials, and a management plan that lies within the scope of practice of a therapeutic optometrist. However, a working knowledge of the potential management plans that might be instigated by other health care practitioners is also required. The focus of questions to be chosen in this section will depend upon the topic areas covered by the case reports.

<u>Examination Topic Areas (modified by case studies)</u>

1. Conjunctival, Episcleral and Scleral Conditions incl. allergic, infective and immunological aetiologies.
2. Corneal Conditions incl. Microbial Keratitis (Bacterial, Herpetic, Protozoan etc.); CL associated Red Eye; Recurrent Corneal Erosion Syndrome; Trauma incl. Foreign Bodies.
3. Anterior Chamber – Anterior Uveitis incl. traumatic, idiopathic, systemic, infective; Posterior Uveitis as differential Dx.
4. Optic Neuropathies – Glaucoma/Ocular Hypertension/Acute Angle Closure; Optic Neuritis; Papilloedema; Anterior Ischaemic Optic Neuropathy
5. Retinal Vascular conditions – Diabetic Retinopathy; Hypertensive Retinopathy; Vascular Occlusions (as differentials for retinal conditions).
6. Visual Field Defects - incl. Glaucomatous, pre-chiasmal (other retinal and optic nerve), chiasmal, post-chiasmal (optic radiations and cortical), neurological conditions incl. stroke.

In general, the oral will examine, but not be limited to:

- a thorough knowledge of the most common anomalies and diseases of the eye and visual system, and their diagnosis. This includes congenital or acquired ocular motor and binocular vision dysfunction, and the management of associated deficits;
- an ability to interpret clinical information that may be presented in any form including diagnostic print-outs (e.g. visual field and OCT plots), and images of visual structures recorded using a variety of clinical imaging techniques;
- a thorough understanding of all aspects of the drugs/medicines available in Australia and New Zealand for the diagnosis and therapeutic management of eye conditions;
- the ocular effects of systemic drugs;
- the systemic effects of ocular drugs;
- the interaction of ocular drugs and systemic drugs;

- the dosing, storage, formulations, disposal, use/indications, modes of action, contraindications, precautions, side effects, interactions and patient information in relation to the use of therapeutic drugs/medicines;
- basic underlying knowledge relating to pharmacology, microbiology, immunology and pathology
- knowledge of over-the-counter (OTC) and pharmacy products available for sale, including their use/indications, modes of action, contraindications, precautions, adverse effects, interactions and patient information;
- knowledge of drugs/medicines available to therapeutically endorsed optometrists in Australia and New Zealand;
- the Optometry Board of Australia guidelines for the use of scheduled medicines. These guidelines are used specifically in the current examination process; and
- the correct writing of prescriptions for diagnostic and therapeutic medications and preparations.

Questions during the oral examination can take the form of:

- questions requiring short answers,
- discussion of case scenarios,
- discussion of particular conditions and their management with ophthalmic drugs/medicines and preparations,
- interpretation of clinical findings and results.

9. Policy on Cheating and Plagiarism

Cheating in any form is not permitted, and the case reports submitted must be the independent work of the candidate. Plagiarism or copying of another's work without proper acknowledgement is not permitted, nor is it permissible to allow another person to copy your work for the purposes of this assessment.

If plagiarism is suspected, (i) the potential plagiarism will be brought to the attention of the candidate and an explanation sought; (ii) if no suitable explanation is provided, the candidate will fail and no longer be eligible for the ACOT.

Version	**1.1**
Effective date	**29th May 2015**
Minor changes	**6th June 2016**
Approved by	**Examination Committee/Examination Eligibility Committee**

Appendix A: Sample Case Report

Category: Red eye/acute anterior segment presentation

Atopic anterior eye disease

Abstract

An abstract of 200 to 300 words should go here for consistency with the recommended structure given earlier.

Introduction

A brief introduction should go here. For this particular case report the introduction could introduce the area of allergy, perhaps report some statistics of incidence and prevalence, perhaps provide an overview of the range of severities, the range of treatments and the range of outcomes.

This information is available later in the report. It could be moved here to be consistent with the recommended structure given earlier in this information.

Case Report

Presenting History during clinical rotation (December 2001): Mr H, a 64 year old male, presented to the cornea clinic for a progress review after developing a herpetic corneal ulcer in the left eye (presented 2.5 months earlier).

Previous ocular history: Patient has had a history of chronic dermatitis and ocular surface problems.

1993

Multiple episodes of corneal ulcer OD, viral culture at same time isolated herpes simplex virus-1 (HSV1) with bacteria superimposed (culture indicated staphylococcus aureus and alpha-haemolytic streptococcus). Placed on neomycin, framycetin and choramphenicol.

OD developed neurotrophic ulcer and cornea subsequently perforated.

1994

Both eyes cataract extraction and IOL implants but lost to follow up.

1999

Referred to RVEEH because of recurrent ocular surface problems.

VA: 1/60 (OD) and 6/24 OS.

Exfoliating skin changes.

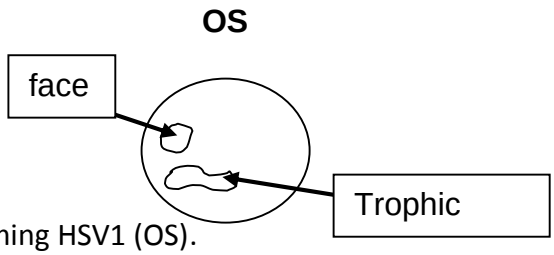
Eyelid – thickening and notching of lid margin, loss of lashes of both eyelids.

Papilomatous mass at lower lid OS.

Conjunctiva: subtarsal scarring, symblepharon and forniceal shortening of OD, early symblepharon OS.

Cornea: superficial gross pannus and epithelial haziness (OU). Opaque and vascularized cornea inferior.

Quiet anterior chamber and IOL.



2001

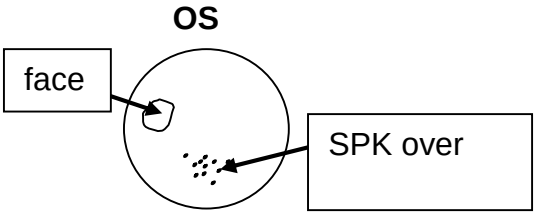
24/9 - PC: OS sore and altered vision (6/18)

Trophic ulcer noted (no RB staining), with culture confirming HSV1 (OS).

Treatment: ciprox qid, oral acyclovir 800mg x5/day; zovirax x5/day.

29/9 – LE sore and red; likely sensitivity to topical zovirax (STOP), but continue with antibiotic and oral acyclovir.

4/10 – LE sore and red, STOP ciprox, oral acyclovir only.



18/10 – Itchy lid margin, ulcer healing with only slight epithelial staining.

Oral acyclovir 400mg bd and viscotears/celluvisc prn (OU).

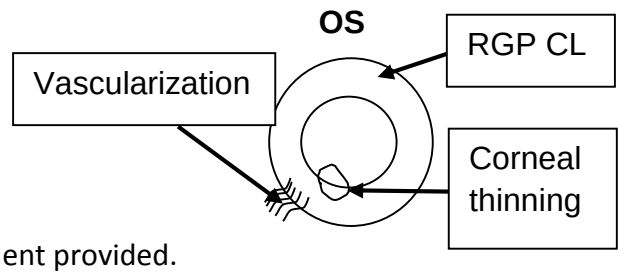
IOP 13mmHg OS.

Summary of past ocular history:

- Chronic dermatitis.
- Chronic blepharoconjunctivitis.
- HSV1 in OD (1993) and upon presenting in September 2001 in OS
- Ocular surface changes.

Examination – December 2001

Visual acuity of HM (OD) and 6/9 (OS) with PH 6/7.5.
Using RGP contact lens in the left eye and cellufresh.
No RB or fluoro staining OU.
Observed changes in OD noted above.



Treatment: continue with cellufresh; no other treatment provided.

Introduction: It is estimated that up to 15-30% of the world's population suffers from allergies[1]. Type I hypersensitivity: anaphylactic/atopic response, occurs immediately as antigen combines with IgE bound to mast cells or basophils, releasing histamine and vasoactive substances. Type II hypersensitivity: cytotoxic response, caused by IgG or IgM to cell membrane antigens, or attachment of antigen to cell followed by antibody and complement interaction, with target cell lysis by action of complement or cellular-mediated lysis. Type III hypersensitivity: immune complex response, caused by deposition of circulating antigen-antibody complexes in tissues, attracting neutrophils which release lysozymal enzymes. Type IV hypersensitivity: delayed hypersensitivity response, mediated by T lymphocytes rather than humoral immune agents, with a delayed onset and prolonged response. This is an important mechanism of graft tissue rejection[2].

Ocular allergy: Ophthalmic conditions in this category include – allergic conjunctivitis; vernal keratoconjunctivitis (VKC); atopic keratoconjunctivitis (AKC); giant papillary conjunctivitis (GPC); seasonal and perennial keratoconjunctivitis (SKC, PKC)[3-5]. Calogne[5] and Freissler et al[3], classify ocular allergy into four major categories based upon pathophysiology.

(1) Allergic conjunctivitis, SKC and PKC are type-I dependent allergic reactions. Allergic conjunctivitis is usually a benign presentation with inflammation of the conjunctiva, usually sparing the cornea, with symptoms of tearing, itching and burning. The SKC and PKC conditions reflect similar signs and symptoms (again the cornea is rarely affected), and are characterized by the appearance of antigens, usually pollen that may be seasonally restricted (SKC), or constant throughout the year but exacerbated during certain seasons.

Management: involves the removal of the offending antigen, ocular comfort with the option of including mask cell stabilizers and topical antihistamines if symptoms persist.

(2) GPC is an inflammation of the upper tarsal conjunctiva present in non-atopic but mainly in atopic contact lens wearers. It usually does not involve the cornea directly and is caused by a combination of type-I and type-IV reactions and other unknown factors. Consequently, patients have elevated IgE and neutrophil chemotactic factors.

Management: removal of the offending agent (contact lens), change of contact lens material followed by mast cell stabilizers if required.

(3) VKC and AKC are the most severe atopic disorders because the chronicity and potential to involve the cornea. For both conditions, there is a type-I and type-IV hypersensitivity reaction, in addition to environmental and genetic factors that are not fully understood. In VKC, young males with a strong history of atopic disease are more likely to be affected during the spring. Many patients have spontaneous resolution after 4-10 years. The most common presentations include papillae on the upper tarsal conjunctiva, tearing, mucus discharge, corneal irritation and photophobia. In AKC, men are primarily affected in the decade between 40 and 50, with a history of atopy or allergy including asthma and atopic dermatitis. Patients will complain of itching and burning sensations, photophobia with symptoms showing seasonal exacerbation. Lid oedema, blepharitis, conjunctival chemosis and injection, paralimbal changes, symblepharon and entropion formation. Papillae are usually found in the lower fornix. Corneal effects include superficial keratitis, epithelial erosions, corneal neovascularization, corneal neovascularization and corneal ulcers. Associated conditions may include HSV keratitis, keratoconus and subcapsular formation.

Management: for VKC, the avoidance of environmental antigens is the main way to deal with the condition followed by conventional comfort procedures. Drug intervention can include mast cell stabilizers (to pre-treat and prevent the initiation

of the reaction), topical histamines and for severe cases, the use of topical steroid (both NSAI and conventional steroids). For AKC, for mild symptoms, lubricants and cold compresses may be sufficient. With more severe symptoms, mast cell stabilizers do not appear to be useful (compared with VKC), and oral and topical antihistamines may relieve the foreign body and burning sensation. Short-term topical steroids (with poor ophthalmic penetration if no anterior chamber reaction, to avoid secondary steroid induced difficulties) may be used, particularly to relieve keratitis and refractory conjunctival and lid inflammation. If herpetic disease is present, steroids are contraindicated due to the stimulation of viral replication, but with an anterior chamber reaction, referral to a tertiary corneal specialist is required (to manage steroid use with a viral infection).

[*Differential diagnosis:* Our patient had the following signs/ocular changes: symblepharon, lid anomaly (presumably due to the blepharitis); atopic dermatitis; corneal neovascularization (HSV infection contributed); corneal ulcer not associated with HSV; HSV infection. These characteristics strongly suggest that our patient suffers from AKC. He is too old to fit the VKC category and the recurrent HSV infections are characteristic of AKC patients. Allergic conjunctivitis, SKC and PKC generally are milder conditions.]

(4) Contact allergic reactions are associated with a large array of agents commonly found in topical ophthalmic medications. After exposure, hyperemia and chemosis of the conjunctiva and upper lid are found associated with follicular response of the papillae of the inferior fornix. There may also be corneal involvement including punctate keratopathy and stromal infiltrates. This is a cell-mediated delayed hypersensitivity reaction type IV.

Management: removal of the offending agent and cold compresses.

[*Differential diagnosis:* Our patient had episodes of contact allergic reaction from the use of Zovirax ointment, and subsequent with the use of the topical antibiotic medication. Appropriate advice was provided, i.e. removal of the responsible agent. He has a long history of contact allergies and removal of these agents relieved the

symptoms. Contact allergic reaction is the most likely cause of his recurrent episodes of hypersensitivity to topical drugs. Upon further questioning, he advised us that he uses water to shower; he develops allergies to any surfactant or other substances that may be used for personal hygiene.]

Is this patient a candidate for a corneal graft in the right eye (a question he asked)?

A highly vascularized cornea is considered high risk and hence corneal grafting is not a viable option as long as the left eye provides good vision. Long-term follow up of patients with AKC indicated that almost all had some superficial epithelial defect, and many (60-70%) developed severe complications including corneal vascularization, symblepharon and 3/20 (15%) developed HSV infection, and two also developed bacterial keratitis (N=20 patients followed up with a median time of three years)[6]. AKC patient fit a "high risk" classification for most procedures.

Appropriate advice was provided for this patient relating to grafting the right eye.

Why were there multiple HSV infections?

HSV is the most common infectious cause of corneal related blindness in the Western world[7]. In the United States, up to one half million cases are diagnosed annually[7]. Although controversy exists of which T-cell are responsible for the primary mediators of immunity in herpes simplex keratitis, it is accepted that T lymphocytes are essential participants in destructive stromal inflammation[7,8]. Viruses such as HSV may not be completely eradicated from tissue, and lay dormant [i.e. not actively replicating] within tissue such as the dorsal root ganglion, and can be reactivated in the presence of a disturbed immune system[9]. Patients with AKC, are more prone to HSV infections and are more likely to experience more severe infections[10]. The report from the Herpetic Eye Disease Study Group[11] identified that the use of 400mg of oral acyclovir twice daily for one year reduced the one-year follow up of ocular HSV recurrence rate by approximately 45%[11]. Such prophylactic therapy was not required for patients who developed superficial ocular HSV disease[11], but immunocompetent patients who have had stromal keratitis and who are therefore at the greatest risk to develop recurrent HSV infections and stromal keratitis, will have the greatest benefit[11,12]. In fact, patients with stromal keratitis had 10 times the risk of developing subsequent episodes within the 18 month follow up of the study[9]. With more stromal

keratitis involvements, the more likely was the development of subsequent episodes, leading the group to propose that stromal keratitis has both a immunologic and viral component[9].

In this patient, where only one eye was functional, a history of recurrent HSV and a stromal involvement in the remaining left eye, the use of the recommended twice daily dosage of acyclovir should have been continued at 400mg bd.

Why was there secondary bacterial infections?

Staphylococcus is considered part of the normal flora of the eye[2], and infections associated with this bacterium are generally considered to be opportunistic[13]. Hemolytic streptococci infections are seen in patients who are immunocompromised[13]. As the HSV infects corneal epithelial cells, the commensal flora of the anterior eye may proliferate to such an extent that an associated bacterial keratitis results[2]. The choice of antibiotics to treat the original infection in this patient was matched to the sensitivity culture and did not include fluoroquinolones (not available in 1993). Subsequent management of the left eye involved the provision of fluoroquinolones to minimize the possibility of secondary bacterial infection.

The fluoroquinolones (ciprovloxacin and ofloxacin, both 0.3%), interfere with DNA synthesis during bacterial replication by inhibiting DNA gyrase activity essential for the supercoiling of the bacterial DNA and for DNA repair[13]. Fluoroquinolones are bacteriocidal and provide broad spectrum (Gm +ve and –ve) coverage, more efficient than other conventional antibiotics, and have been successfully used to treat bacterial conjunctivitis and bacterial keratitis. The standard treatment regime is qid for maximum of two weeks (to minimize the chance of the development of bacterial resistance), and if treating bacterial keratitis, begin with a loading dose of q15min for 6 hours, taper to q1h over the next day with the minimal dose being qid. However, a tertiary corneal specialist would be dealing with my patient within the hour after I suspected a sight-threatening bacterial keratitis.

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12. Herpetic Eye Disease Study Group (2000) Oral acyclovir for herpes simplex virus eye disease. Effect on prevention of epithelial keratitis and stromal keratitis. Arch Ophthalmol 118: 1030-1036.
13. Bartlett JD, Jaanus SD (2001) Clinical ocular pharmacology, fourth edition. Butterworth & Heinemann, Boston.

Appendix B: Sample Oral Examination Questions

Defence of the case report

The examiners will identify a number of key issues surrounding the condition(s) described in the case report and have a list of questions relating to the pathophysiology, management, drug action and diagnostic criteria. It is expected that the candidate has a thorough knowledge on all these issues.

Short answer questions

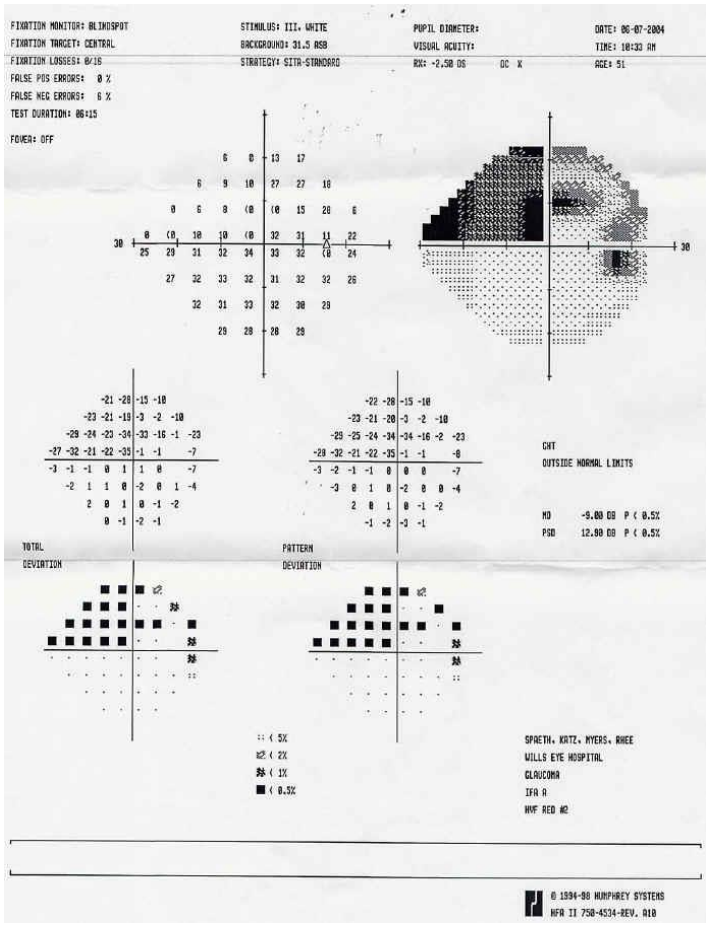
The purpose of the short answer questions is to probe the breadth of knowledge of the candidate. It is expected that each question would take approximately one minute to complete.

Sample Short Question 1

(a) When prescribing anti-glaucoma medication, which is considered to have a potential neuroprotective role in glaucoma?
(b) What is the mechanism of action of this drug and the expected drop in intra-ocular pressure?

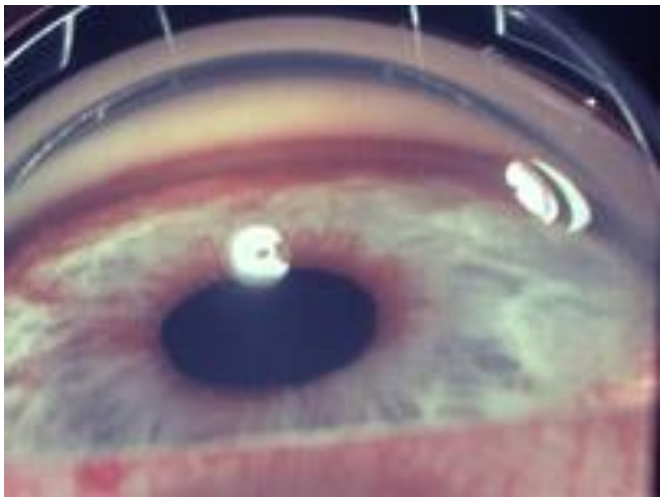
Sample Short Question 2

Visual field in one eye: describe the defect, likely anatomical location of the cause and differential diagnosis,
OR
Describe the different visual field parameters, e.g. GHT, total and pattern deviation, reliability indices.



Sample Short Question 3

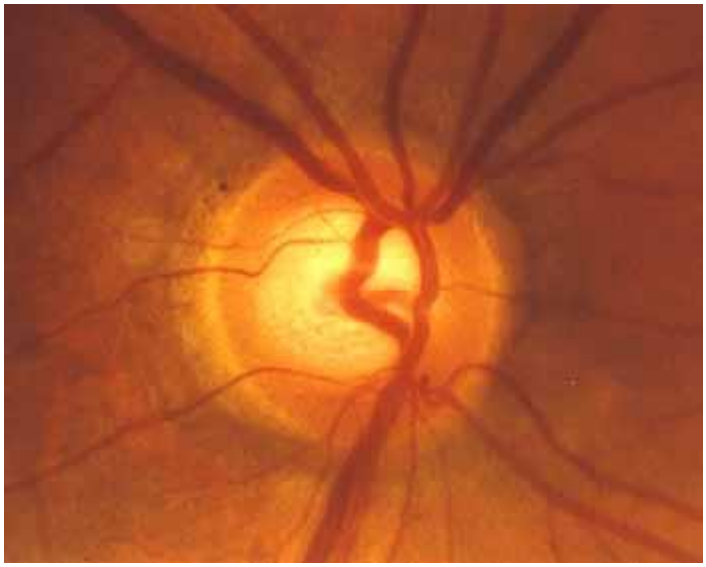
A 55-year-old diabetic male complains of poor vision in the right eye. Pressures are 38mmHg in the RE.



(a) Describe the appearance of the eye.
(b) Provide the tentative diagnosis and management.

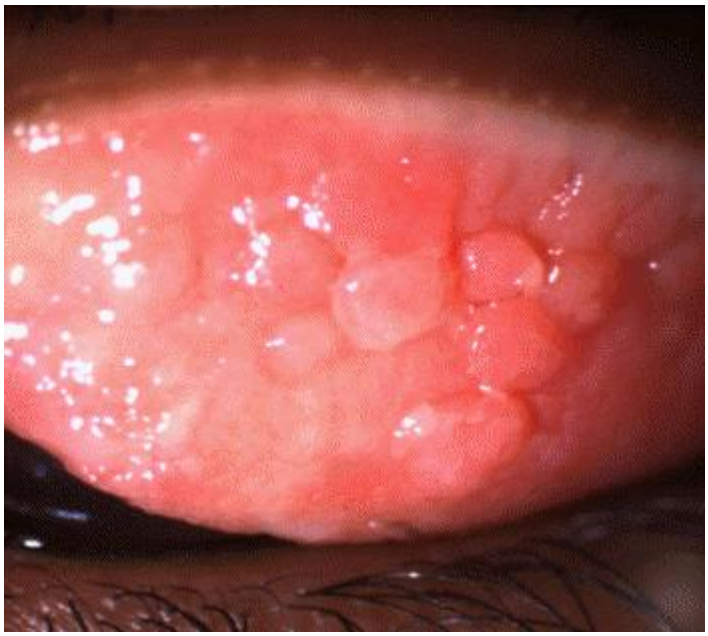
Sample Short Question 4

(a) Describe the appearance of the optic nerve.
(b) Provide the tentative diagnosis and management.



Sample Short Question 5

(a) Describe the appearance of the lid.
(b) Provide the tentative diagnosis and management.

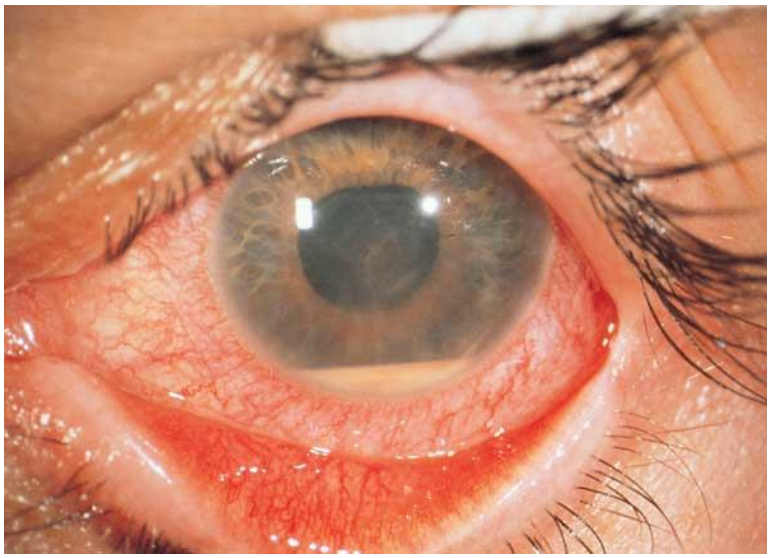


Long answer questions

Long answer questions are designed to probe in depth information. An image would normally be provided and some information relating to the patient from which the image is taken. The candidate would then be expected to seek specific test or diagnostic results or other pertinent information. As the amount of information increases, the candidate is expected to develop a likely diagnosis, differentials, and a management plan that lies within the scope of practice of a therapeutic optometrist. However, a working knowledge of the potential management plans that might be instigated by other health care practitioners is also required. The focus of questions to be chosen in this section will depend upon the topic areas covered by the case reports. Approximately 5 minutes should be devoted to each long answer question.

Question Long 1

A 35-year-old male patient presents with a sore left eye of about a week's duration. He has been using an over the counter topical drops (decongestant) to relieve the redness but the pain has persisted.



(a) Describe the appearance of the eye.

The candidate should ask for the Visual Acuity: *Given 6/15 (reduced from 6/6) in the affected eye.*
The candidate should ask if he has had this type of pain before: *He remembers multiple episodes over the past few years but the pain/discomfort has not been as bad as this episode.*
The candidate should ask for a description of the anterior chamber: *Given that there is flare and cells were observed (expected given the existence of a hypopyon).*

(b) Provide a differential diagnosis for the image considering all the additional information. Provide the most likely cause. The candidate may be asked to identify other key test results.

The candidate should ask for IOP: *Given OD 16 mmHg and OS 45 mmHg.*
The candidate should about systemic conditions such as sore lower back, autoimmune disease: *Given that the patient has a history of ulceration of mucosal surfaces.*

(c) Why is the intra-ocular pressure elevated in this patient?

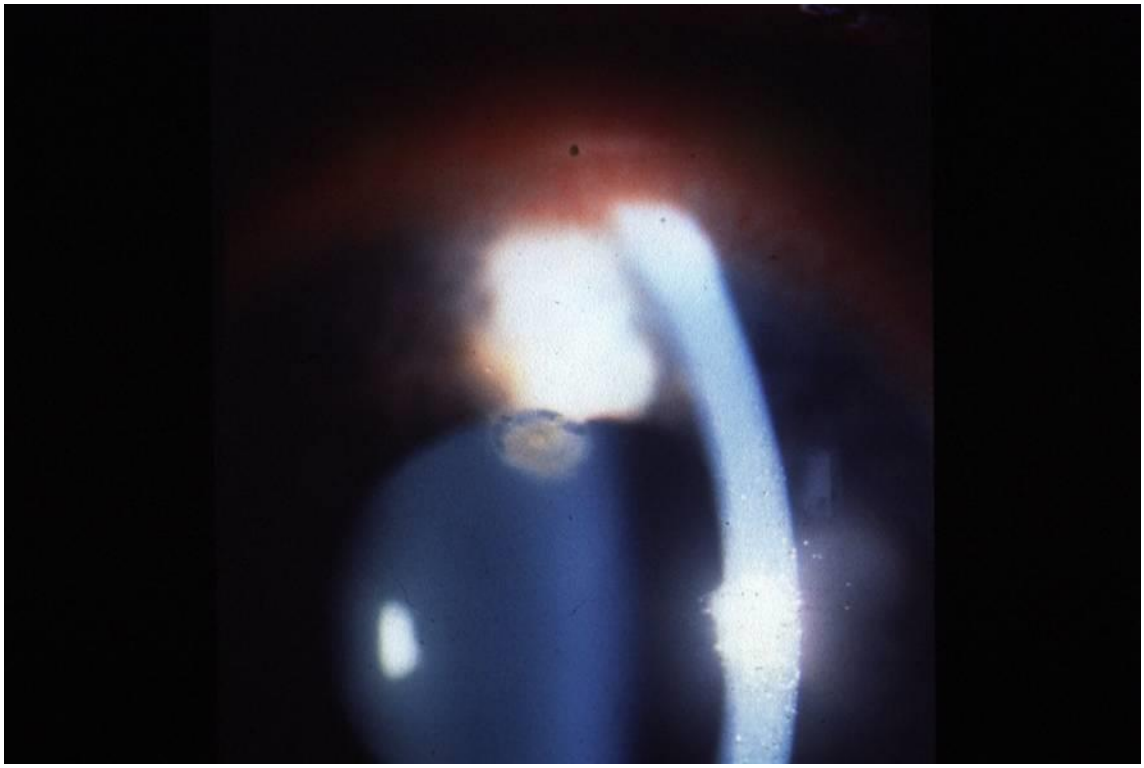
(d) What should the appropriate management be for this patient (non-ophthalmic)?

(e) Describe an appropriate management plan for this patient that a therapeutic optometrist would provide, and that of an ophthalmologist.

(f) If you had to initiate treatment to treat the elevated intra-ocular pressure, identify at least two medications that could be used and two that are contraindicated. Explain your answer.

Question Long 2

A 26-year-old male is waiting for your practice door to open at 9.00am. He has a sore watery eye that has worsened overnight. He has a history of wearing his contact lenses in the hot tub.



(a) Describe the corneal appearance.

The candidate should ask for the Visual Acuity: *Given 6/15 in the affected eye.*
The candidate should ask about the pain level the patient is experiences: *Given patient is in extreme pain.*
The candidate should ask about the appearance of the anterior chamber: *Given that there is an anterior chamber reaction.*
The candidate should ask about his history of contact lens care: *Given patient is very diligent with the care of his contact lenses and he uses a hydrogen peroxide disinfecting system.*

(b) Provide a differential diagnosis for the condition and the most likely diagnosis based upon the appearance and additional information above.

(c) In view of (b) outline the natural progression of this condition and the significance of the bathing behaviour of this patient.

(d) Outline the appropriate management plan including therapeutic agents that may be used and their mechanism of action. Appropriate testing protocols of the corneal scrape may also be asked.

Acknowledgement – these images were from:

Digital Journal of Ophthalmology (http://www.djo.harvard.edu/);
http://www.onjoph.com/global/beitraege/fingerclubbing/index.html;
http://www.uveitis.org/medical/articles/case/Allergy.html;
http://www.mdconsult.com/das/pdxmd/media/1206/6120619/large.jpg;
http://www.bobshowto.com/health-documents/visual_field_test_picture_right.htm;
Dr Erica Fletcher and Russell Lowe