4th Year Externship Program Manual
Forward

The fourth professional year of Optometry School should be one of the most exciting of your career. You will have the opportunity to work with a variety of patients and doctors, in a variety of clinical settings. You will be able to develop your own individual style of practicing optometry as a result of these experiences.

It is our responsibility to help you plan a fourth year program that exposes you to different modes of practice (e.g., VA Medical Centers, Indian Health Services, private practices). We also would like for you to have familiarity with the various specialty areas (e.g., contact lenses, Pediatrics/vision therapy, etc.).

Your rotation block at the UM-St. Louis Center for Eye Care will insure that you have the basic experience for required clinical skills. This is paramount for preparing you for the entry level practice of Optometry.

We encourage you to work hard and continue to read clinical literature on a consistent basis. Your attitude toward learning will be very important. In some situations you may experience personality clashes between patients and yourself or doctors and yourself. You must be professional enough to overlook these temporary obstacles and look at “the big picture” experience for your career.

The College of Optometry faculty is concerned that you will have a successful externship experience. We will support you throughout the planning and duration of your fourth year.
EXTERNSHIP BEHAVIORAL OBJECTIVES

General Objectives:

The intent of the Externship Program is to provide the optometry student with an opportunity to be trained by outstanding practitioners in the science of primary and/or secondary care optometry. The Externship Program is an integral part of the curriculum and is designed to transform the optometry student into a complete health care professional who can apply scientific knowledge tempered by clinical insight and overall concern for the patient.

Educational Objectives:

- To develop the student’s ability to apply knowledge of vision and basic sciences to prevent and/or solve problems of the vision system.
- To develop the student’s ability to utilize knowledge in the behavioral, social and other health sciences to alleviate human problems.
- To develop a high level of competence in the use of modern optometric techniques, instruments and problem solving roles.
- To engender high standards of professional competence and responsibility.
- To develop the student’s ability to work and communicate effectively with other health professionals and ancillary personnel in meeting patient needs.

Learning Objectives:

- To demonstrate to the student the art of the practice of optometry as evidenced by the attending doctor/practitioner.
- To widen the student understanding of the broad spectrum of optometry practice by showing the student the clinical conditions (mental, physical and social, both acute and chronic) and their interaction with each other that make up the wide variety of health conditions in the community.
- To demonstrate where legal, the use of common diagnostic and therapeutic procedures involved in the problem solving stages of the delivery of eye care.
- To demonstrate the conscious and purposeful use and development of the doctor-patient relationship.
- To demonstrate the comprehensive care of the family from infancy to the aged, particularly in highly susceptible groups.
- To demonstrate the effect of an individual vision problem on the entire family.

- To demonstrate the role of the “health team” in patient management and continuity of care including relationships with other health professionals and agencies.

- To demonstrate preventive optometry and the importance of early diagnosis of ocular and vision anomalies, including ocularly related disorders.

- To demonstrate the practical approach of the primary care optometrist to health maintenance.

- To demonstrate the role of the optometrist in patient education.

- To demonstrate the changing patterns of optometric care and familiarize the student with emerging patterns of eye care delivery.

- To provide practical experience in the office management and business aspects of optometric practice.

- To demonstrate the civic involvement a professional owes to his community.

**Private Practice Externships**

Due to conflict of interest, externs will not be allowed to rotate through practices in which they have previously worked.

We recognize that in a private practice the attending doctor has many concerns about bringing a stranger into the practice. Concerns relative to personalities, disruption of normal patient flow, and extern competency are very important and very real. For this reason, we encourage the attending doctor to provide a transitional period for the extern. During this period, the extern can learn the office procedures and the attending doctor can evaluate the extern’s patient handling skills, competency level, etc. As the attending doctor begins to develop more confidence in the extern’s abilities, it is expected that the attending doctor and extern are working shoulder-to-shoulder providing the best eye care possible to the patients. The duration of this transition period will depend on the extern’s abilities, the type of practice and the experience of the attending doctor; however, only in rare cases should it take longer than three weeks. If at any time, the attending doctor feels that the extern will not meet the expectations of the attending doctor or may not be performing adequately at the end of the first three weeks – after consultations and upon recommendations of the attending doctor, the extern could be allowed to remain at the site, transferred to another site, or returned to the University for additional training. All of this is designed to prevent any disruption of the attending doctor’s practice and assuring high quality educational experiences for the extern. The attending doctor is encouraged to contact the assigned externship counselor regarding problems or suggestions.
**Multidisciplinary Externships**

As in the private externships, the attending doctor has as his/her primary responsibility the provision of high quality patient care. For this reason, a transition period is needed to allow the attending doctor time for evaluation of the extern's capabilities. Again, if at any point the attending doctor feels that the extern will not be prepared to see patients independently at the end of the first three weeks, then the attending doctor should contact assigned externship counselor to discuss the extern's problems and the best action relative to meet extern's education and training.

While the attending doctor’s primary responsibility is providing high quality patient care, the College’s primary concern is the education of the extern. For this reason, we have chosen in the past not to utilize certain sites when we find that while the extern is seeing a large number of patients, the educational component is missing. We feel that we are fortunate to have so many institutional sites with attending doctors so willing to share their knowledge and experience with our externs on a daily basis.

**Background Investigations/Immunization Records**

Some of the externship sites require that each extern scheduled for rotation at their facility complete a background investigation, including a fingerprint card. This may be in addition to the background check done on behalf of the College of Optometry (and required to participate in the externship program). Some of the sites will also require completion of a vaccine/disease history form. You will be notified before the rotation begins if a site is requiring any of this information.

**Externship Counselors**

Each external externship site will have an assigned UM-St. Louis faculty member as its Externship Counselor. Counselor assignments are according to externship site and not the individual student. Therefore, throughout the externship each student will interact with several different faculty Externship Counselors. The role of the Externship Counselors is the review all of the information submitted during the externship (see GRADE REQUIREMENTS) and determine the grade for the externship (see GRADING). The final grade for the externship is not based solely on the evaluation submitted by the site preceptor. The Externship Counselors may be in direct contact with students to help ascertain the progress and experience of the student at the externship site. They should be the first line of communication in the event of any situation that occurs or for any questions about the externship.

Each internal externship site will have an assigned UM-St. Louis Chief of Service.
GRADE REQUIREMENTS

Student Responsibilities: Each student will be responsible for fulfilling the following requirements.

- **Patient Care Logs** - to be submitted on a **biweekly** basis. It is the student’s responsibility to ensure that all information submitted is correct with respect to term and log dates. If term and log dates do not correspond to the externship calendar, the log will not be accepted and the student will be notified to resubmit a corrected log.
  
  [http://www.umsl.edu/~garziar/externshippatlogform5.htm](http://www.umsl.edu/~garziar/externshippatlogform5.htm)

- **Case Reports** – **two case reports** are required for each rotation. Case reports are to be written on patients seen within the dates of the current rotation. The first report is due at the end of the third week and the second report is due at the end of the sixth week. **Case reports are to be uploaded through your wiki.** Please do not email them. All case reports must include a title. In addition, the extern name must be included on the first page of the case report. Some sites may require a case report as part of their practice. This does not substitute for the College of Optometry required case reports.

  *Case reports are not required at internal rotations (UMSL Eye Center, O-Center, East St. Louis, Harvester, Community Services). Case reports are required for all external rotations and all VA’s.*

- **Site Evaluations** – **Two site evaluations** are required for each rotation. The first report is due at the end of the third week and the second at the end of the sixth week. Site evaluations submitted prior to the end of weeks three and six will not be accepted and the student will be notified to resubmit the log at the appropriate time. In addition it is the student’s responsibility to ensure that all information submitted is correct with respect to term and year. If term and year do not correspond to the externship calendar, the evaluation will not be accepted and the student will be notified to resubmit a corrected evaluation.

  [http://www.umsl.edu/~garziar/externshipevalform4.htm](http://www.umsl.edu/~garziar/externshipevalform4.htm)

- **Service Learning Project** – A service learning project is required for all externship sites. These are due at the end of the sixth week. See instructions online at:

  My Gateway>Optometry-Externships>Assignments> Externship Information for Submitting Patient Care Logs, Podcasts, Wikis, etc.>Service Learning Project.

- **Typical Day Reflection** – This is required for external sites only. At about the 4th week, please write a detailed description of a "typical day" at the externship site. For example: examined patients from 9 - 11 AM; chart review from 11 –noon; met with office staff / preceptor from 1300-1330; assisted with contact lenses follow-ups from 1330-1500 & so on and so forth. Please be as specific as possible.

  This is NOT an exercise about selecting and describing a day. But we are looking for a composite description of a typical day.
Submit through your wiki.

- **Podcast** – External sites only. Answers to the podcast questions are due any time during the rotation.

  Podcast responses are to be uploaded through your wiki. Please do not email them.

  See instructions online at:

  My Gateway>Optometry-Externships>Assignments>Externship Information for Submitting Patient Care Logs, Podcasts, Wikis, etc.>Interactive Distance Learning – Wikis & Podcasts.

- **Preceptor Meetings** – External sites only.
  1. Meet directly with preceptor (or designee) at least twice during the first 6 weeks of the rotation. Discussion should be direct feedback on student’s strengths & perhaps needed areas of improvement.

    **Assignment**: Describe steps taken to address areas of needed improvement (e.g. practiced gonioscopy on the next 5 patients; reviewed school notes, etc.).

  2. Ask preceptor (or designee) to directly observe 2 patient encounters (partial or entire) during the externship rotation.

    **Assignment**: Describe this observation (e.g. preceptor observed my vision therapy session; preceptor (or designee) observed my case history, etc.

    Document these in your wiki.

- **Grading** – will be based on the following factors:
  - Attending doctor’s evaluation of your performance
  - Service Learning Project (All Sites)
  - Case reports
  - Interactive Distance Learning Project (External Sites Only)
  - Typical Day Reflection (External Sites Only)
  - Preceptor Meeting (External Sites Only)
  - Externship counselor’s evaluation that is based on timeliness and thoroughness of reports.

  *If assignments are not received in a timely manner, the grade will be reduced by one increment per assignment. (i.e. A to A-). Please be aware that all grades below a C- are considered failing.*
LIABILITY INSURANCE

The University of Missouri provides medical malpractice coverage for optometry students. However, it does not provide general liability coverage for situations such as:

- Injury to the student while at an optometric site
- Accidental damage of property by the student while at an optometric site

All fourth year externs to have liability coverage. We are encouraging third year interns to do likewise. You may either obtain coverage on your own or purchase it through the University at a nominal fee of $17.00 per year.

Your class representative will collect the $17.00 fee for the insurance. Upon receipt of all payments, the class representative will turn payments in to the Administrative Assistant for Externships to be processed. Only checks will be accepted (no cash) and need to be made payable to the University of Missouri-St. Louis. The University will provide an insurance certificate, which upon your request you can be provided with a copy.

GENERAL INFORMATION

Externship changes will only be made for emergency or extraordinary circumstances determined by the Director of Externships. Changes can only be made for the following reasons:

- Serious illness/accident of self or immediate family (defined as spouse, parents, or children)
- Death of immediate family member
- Unforeseen emergency/urgent situations
- Termination of the externship site agreement

SPRING BREAK DATES

Spring break dates are listed on your Paperwork Due Dates and Rotation Dates Schedule. Both will be provided to you during/after the rotation selection process. Both documents will also be listed on My Gateway. Spring break dates almost always fall within the Spring 2 rotation.
Whatever site you are attending for the Winter (Spring) 2 rotation determines which Spring Break schedule you are to go by. For example, if you are at an external site for Winter 2 then your spring break corresponds with the external rotation break schedule. If you are at an internal site for Winter 2 then your spring break corresponds with the internal rotation break schedule.

FALL BREAK

When at an internal site, fall break is consistent with the Academic Calendar of the UM-St. Louis. All students attending an External site during the University Fall Break must report to and continue their external site rotation.

ATTENDANCE POLICY

A Personal Leave Form must be submitted as soon as you are aware of the need. All absences must be accounted for regardless of the reason. Attending doctors report the number of absences at the end of each rotation. If you are absent from a rotation and do not report it you will have to make up twice as many days as the number missed and your grade will be lowered by one letter grade.

Attendance is mandatory. The hours and days of office and patient care activity are subject to the schedule by the attending doctor, the Assistant Dean for Clinical Programs and the Director of Externships. If illness, attending doctor vacations, etc., prevents students from maintaining their scheduled routine, the Assistant Dean for Clinical Programs or the Director of Externships should be notified immediately. All absences, with the exception of illness, must have prior approval. However, absences due to illness must also be submitted on the appropriate Personal Leave Form. Internal sites (UEC, O-Center, East St. Louis, Harvester, St. Louis Community Services) must obtain approval from the Assistant Dean for Clinical Programs. External sites must obtain approval first from the attending doctor, then from the Director of Externships.

These Directors, within limitations, will determine how and when student absences will be made up. In the event that any absences are not made up to the satisfaction of the attending doctor and the Directors by the end of a respective grading period, and the student otherwise has a passing grade, then an “incomplete” grade will be registered for the period. The incomplete grade will be removed only with the satisfactory make-up for the absence.

During the externship year, students may be excused from their clinical assignment one (1) day per rotation. However, a student cannot be absent for more than three (3) days at one externship site. If a student is absent more than three (3) days at one externship site, the time must be made up. If you are at an internal site, it remains the discretion of the Assistant Dean for Clinical and Academic Programs to grant the request. If you are at an external site, it remains the discretion of the attending doctor and the Director of Externships to grant the request. The decision to grant an excused absence from any externship rotation should be based on, but not limited to, patient load and student staffing availability.
Two (2) days will be granted for attendance at an approved optometric professional activity. These two (2) days are for the entire externship year, meaning you are allowed to attend only one optometric professional activity for the entire externship year. You will need to provide proof of your attendance, e.g. conference registration, attendance certificate, etc. within one week after attendance. For students that are officers, you may attend two optometric professional activities for (2) days each. After you have attended your two (2) allotted optometric professional activities, you must make up all additional absences.

If you go for a Residency interview you must use your personal leave time.

Students will be able to attend a one week mission trip per year. If student attends a mission trip for more than one week the additional days will have to be made up. Arrangements to make up time will have to be established before the mission trip.

Three (3) days will be granted for board examinations.

For all anticipated absences, students must complete the appropriate Personal Leave Request Form at least eight weeks prior to the anticipated leave day. For unforeseen absences (e.g. illness, car accident), please complete the Personal Leave Form no later than two days after the day(s) of absence. Personal days are to be used for absences due to illness. Any additional days must be made up. Approval will be based on patient schedules and other criteria. Less than eight weeks notification will require special request. Verification must be submitted for these requests.

Use of a personal day is not required if site closes due to bad weather. Use of a personal day is required if a site is open in bad weather but the student chooses not to attend due to the bad weather.

**Internal Site Absence Request:**
To submit your request from an internal site you will need to obtain the Personal Leave Form from:

http://www.umsl.edu/~garziar/Request_Absence.html

**External Site Absence Request:**
To submit your request from an external site you will need to obtain the Personal Leave Form from:

http://www.umsl.edu/~garziar/Request_AbsenceExtern.html

Students need to have the attending doctor sign the form and fax the approved form to the Director of Externships at (314) 516-6708.
Extern-Attending Doctor Interaction

It has been found that the most crucial period of an externship is the first three weeks. During this period, the attending doctor and extern are developing a working relationship that will be continued throughout the externship. The important aspect of this period is a development of honesty, straightforward communication between the extern and attending doctor. A tool that has been used successfully in the past is to develop specific educational objectives that can be met during the externship.

Externs are required to comply with the standard office procedures of each externship site. Some attending doctors may require participation at seminars, local optometric society meetings, screenings, etc. Externs are expected to participate. Any questions or concerns regarding these requirements should be discussed with the Externship Counselor (faculty member assigned to the site).

The Director of Externships and the Externship Counselor fill a supportive role for the attending doctor and extern with the goal of providing the best possible education program for the extern and a rewarding experience for the attending doctor.

The Externship Counselor is a liaison that will give consultation for both the extern and attending doctor. The Director of Externships will make the final decision on evaluation of the externship site as well as the extern’s performance.

Required Texts and/or Equipment

Externs are expected to supply their personal equipment, e.g., hand diagnostic set, etc., as were required at the school during the third year. Externs are also expected to fulfill reference-reading assignments deemed necessary by the attending doctor.

Decorum

The student is expected to present a professional appearance while in the attending doctor’s establishment. This is to include meeting the attending doctor’s dress requirements whether it is casual dress or clinic coats. It is the student’s responsibility to blend in with the attending doctor’s style of practice.

UM-St. Louis Center for Eye Care

All students are required to rotate through the UM-St. Louis Center for Eye Care. A limited number of students may be selected to substitute approved external rotations in contact lenses and BV/Peds in place of the UM-St. Louis rotation. The individual Chiefs of Service must approve these substitute rotations.
1. **What is the research hypothesis? Describe the methodology, i.e. longitudinal study, retrospective, etc. Elucidate particulars such as controls, etc. if applicable.**

   The research hypothesis in this study is that there are certain factors that are associated with an increased rate of visual field progression in glaucoma when disc hemorrhages are present. The examiners completed a retrospective study of glaucoma patients between the years of 1999 and 2008 who had completed 5 or more visual field tests. A trend-based software was used to compile the retrospective data and to compare visual field measurements over time. These patients also had to have disc photographs on file.

2. **What were the conclusions of the study? What were the statistically significant or other relevant findings?**

   The study found that there were two factors that were associated with an increased rate of visual field loss in patients with disc hemorrhage present. Patients with both increased age and a decreased baseline visual field mean deviation showed higher rates of visual field progression. The study looked at several other variables, such as gender, central corneal thickness, intraocular pressure, and race, but did not find any correlating data. Disc hemorrhages are more likely to occur in severe glaucoma as compared to early glaucoma, but are unusual in advanced or end-stage glaucoma, so the study excluded these patients with late disease and very poor baseline mean deviations. They also took into account that the process of aging, separated completely from glaucoma, can cause increased rates of visual field loss. The computer program used in the study removed this variable so as to only study visual field loss from glaucoma.

3. **How do you propose to apply this information in your practice? How would this research influence your management/treatment plans?**

   I will use the information in this study to be more aggressive with glaucoma treatment in disc hemorrhage patients who are older, and also those with worse (<-4dB) baseline visual field measurements. Since they may be progressing more rapidly than other patients, I may be quicker to refer them to surgery, or much quicker on the trigger to initiate another mode of topical therapy. I will also bring these patients back for follow-up more frequently and have them complete visual field tests or imaging tests on a more regular basis to have a good handle on the rate of progression, if any.
Sample Service Learning Project

What contributions can you bring to optometry as a result of your externship?

This externship has taught me to look carefully at how you treat a patient. Not only is it important to do everything in your treatment of the pt's disease, it is just as important to not jump to any unnecessary treatment of the pt. I have seen many patients being treated for glaucoma outside the VA when they may not have glaucoma. It is important to look at all the data collected. Just because a pt has high pressure, does not mean the patient has glaucoma. You must look at the pressure, optic nerve, visual field and pachymetry results as a whole to make a diagnostic decision. This is true for many other ocular pathologies. You need to consider disease progression, state of the patient, and results of all possible diagnostic test results. Putting a patient on medication when it is not warranted can cause harm to the patient. It is an unnecessary cost to the patient, unnecessary trips to the doctor for the patient, and unnecessary worries for the patient. When I go into practice on my own I will look at the disease state and progression as a conglomeration of test results, patient needs and wants, and whether the disease is progressing or stable. I hope to not hastily put a patient on medication unless all or most clinical tests confirm its necessity.

What similarities do you perceive between you and the people you are serving?

The population I am serving is mostly male ages 50yrs and older. When initially comparing this population to myself, there are very few similarities. However, when looking closer at this population I realize that there is a very important similarity between myself and my patients. We both are from a similar living environment. Many of the patients I see travel to Marion for their healthcare from small rural communities throughout southern Illinois. It is precisely this type of community that I was born and raised in. In fact the majority of my patients are familiar with or have been to my hometown, and vice versa with me and their hometown. Not only is this a good way to begin a conversation with my patients and establish rapport with them, but I also understand better the patient's living environment. I understand the attitude of a small community, the drive that the patient travels to have their eye exam, and the values and morals of a small community that most of my patient's understand as well. It is also a way for the patient to better understand me and trust me. Many patients will open up more after I tell them where I grew up and how I am familiar with their home area. I think there is an extra level of trust and assurance if the doctor and patient can understand each other's backgrounds.
Adenoviral Keratoconjunctivitis

Adenoviral Keratoconjunctivitis, a subset of the various forms of Viral Conjunctivitis, has a pathogenesis that can be traced back to adenoviruses. Adenoviruses are the most common cause of viral conjunctivitis, also commonly called “Pink Eye”¹. Adenoviruses are known to be icosahedral-shaped meaning that it has 20 identical equilateral triangular faces, 30 edges and 12 vertices. Additionally, they are unenveloped viruses that have a linear, double-stranded DNA genome structure². The adenoviral type of keratoconjunctivitis is the most frequent external ocular viral infection that occurs irregularly or as an epidemic in highly populated areas such as hospitals, schools, and factories. The virus’s ability to survive in dry surfaces coupled with viral shedding that occur four to ten days before the clinical disease becomes apparent are what makes the spread of infection difficult to control².

The transmission of this strongly contagious virus is through respiratory channels or ocular secretions and through contact with contaminated towels or equipment. The virus is shed for about 12-14 days following the onset of conjunctivitis², which means a person with the illness is contagious for also 12-14 days.

Signs that may be noted during examination include lid edema, serous discharge, pseudomembranes, possibility of preauricular lymphadenopathy with tenderness and corneal subepithelial infiltrates¹. Subepithelial Infiltrates (SEIs) can develop one to two weeks after the onset of conjunctivitis³. Additional signs are eyelid edema, follicular conjunctivitis, conjunctival hemorrhages, chemosis, and mild conjunctival scarring from resolved pseudomembranes². The patient would present typically with unilateral watery, red, uncomfortable and photophobic eye wherein the contralateral eye is commonly affected one to two days later with lesser severity². The patient may note that their eyelids stick and are worse in the morning with foreign body sensation with less than a four-week duration of symptoms³.

There are fifty one serotypes where one third of which are typically associated with eye infection that varies from mild to almost subclinical disease to a severe full-blown infection with significant morbidity¹,². There are three subsets to adenoviral keratoconjunctivitis and they are Epidemic keratoconjunctivitis (EKC) from serotypes 8, 19, and 37, Pharyngocconjunctival fever (PCF) from serotypes 3, 4, 5, and 7, and Nonspecific follicular conjunctivitis from serotypes 1-11 and 19¹. PCF is spread by droplets within families with upper respiratory tract infection and keratitis from it develops in about thirty percent of cases, but is seldom severe. EKC is commonly transmitted by hand to eye contact through instruments and solutions causing severe keratitis, which develops in about eighty percent of cases².

Keratitis is a condition wherein the front part of the eye, the cornea, is inflamed and it also comes in three stages when associated with adenoviral keratoconjunctivitis. Stage 1 is characterized by punctate epithelial keratitis that resolves within two weeks and usually occurs within seven to ten days of the onset of symptoms. Stage 2 is characterized by focal, white, subepithelial opacities that form beneath the epithelial lesions, which are very likely the body’s immune response to the virus. Stage 3 is characterized by anterior stromal corneal infiltrates that eventually gradually fade over months or even years².
Work-up for a patient presenting with adenoviral keratoconjunctivitis is relatively simple as no conjunctival cultures/swabs are indicated unless the ocular discharge is excessive or if the patient's condition is no longer acute, i.e., chronic\(^3\). It is still important to attain a very good patient history, assess visual acuity for every visit including follow-up visits, and to use proper techniques during slit lamp examination.

Treatment of the condition includes proper education on proper precautionary techniques. When a patient is suspected of having an adenovirus infection, avoiding transmission following the examination is a priority and this includes thorough washing of hands, meticulous disinfection of ophthalmic instruments, reduce contact with others, and wash bed sheets and pillow cases that the suspected patient has been in contact with\(^3\). If a patient has conjunctivitis, he or she is treated symptomatically with artificial tears and cold compresses until resolution typically within three weeks and topical steroids may be required for severe membranous conjunctivitis. If a patient has keratitis, they typically respond well to topical steroids, which do not shorten the course of the disease, but suppress the corneal infiltration\(^3\).

It is important to counsel the patients that the disease is a self-limiting condition, which gets worse for the first four to seven days after onset and may not resolve for another two to three weeks or longer if the cornea is involved. The disease is highly contagious for about ten to twelve days from onset as long as the eyes are red. They should not be touching their eyes, sharing towels or making physical contact with other people and they should be restricted from work and/or school where they risk significant exposure to others when their eyes are still weepy. They should wash their hands quite frequently and can use preservative-free artificial tears four to eight times per day for one to three weeks to reduce discomfort. Cool compresses several times a day can also increase comfort. If ocular itching is severe, an antihistamine ophthalmic drop can be prescribed to be used twice a day. A membrane or pseudomembrane can either be gently peeled or left alone. However, if the membrane or pseudomembrane is of an acute nature or if subepithelial infiltrates reduce vision, topical steroids may be administered. It is important to note that steroid use may speed up the resolution of the symptoms, but prolong the infectious period of the disease. Follow-up is typically in two to three weeks or sooner if the condition worsens significantly\(^3\).

**Case Report**

S.M., a 41 year old Caucasian Female M.D. presented to the Saint Louis University Anheuser-Busch Eye Institute Optometry clinic on January 11, 2013 at 10:00am with complaints of blurred vision and red eyes (right worse than left). She has no complaints of any flashes, floaters, pain, or double vision and the only significant ocular history is that she wore reading glasses in high school. S.M. also has a family history of glaucoma, which was present in her maternal grandfather. S.M. also has a past surgical history of stomach surgery, tonsillectomy, and hysterectomy. All other pertinent ocular, medical, and family history is unremarkable.

S.M. is a very good historian when it comes to her chief complaint. She noted that she had blurred vision that started before Christmas 2012 with red, swollen, crusty eyes (OU). She used Ketotifen 0.025% twice a day to relieve the itching. She noted that her symptomatology started with sore throat and aches with no associated fever. On December 27, 2012, all her symptoms resolved and her vision was fine. On December 30, 2012, the redness and crusting of her eyes returned for a few days. Additionally, she got a rash over her body that lasted for three days. She also had very itchy eyes and her right eye became very blurry for both distance and near vision. She could not read her computer nor recognize faces of people at the doorway.

During the January 11, 2013 visit, S.M.'s visual acuity was 20/40 (20/30 Pinhole) OD, 20/40 (20/30\(^2\) pinhole) OS for distance vision and 20/30 OD, 20/20\(^3\) OS for near vision. Her pupils were equal, round and reactive to light (PERRL) OU, Confrontational Fields were Full-to-Finger-Counting (FTFC) OU, and Extraocular Muscle Motility of full range of motion (FROM) OU. A manifest refraction was performed and was found to be -0.50+0.25x060 (20/20 VA) OD and -0.25+0.25x088 (20/25\(^2\) VA) OS. Her intraocular pressure was 16 mmHg OD and 17 mmHg OS. During Slit Lamp Evaluation, the conjunctiva/sclera had 1\(^o\) Follicles OU and the cornea had 3\(^o\) punctate epithelial erosions (PEE) OU with all other external findings within normal limits or unremarkable. S.M. was dilated using 2.5% Phenylephrine and 1% Mydriacyl and funduscopy revealed a cup-to-disc ratio of 0.2/0.2 round OD and OS and a chorioretinal scar with small, scattered hyperpigmented lesions at 4-8 o’clock in her peripheral retina OD. All other internal ocular findings were within normal limits and unremarkable. The assessment made during this visit was a diagnosis of Viral Conjunctivitis OU (non-
specific). The plan was to continue use of Artificial Tears PRN and cold-compresses OU to relieve symptoms and that S.M. was to return to clinic in one week or sooner if symptoms worsen. S.M. was educated about the disease’s course of duration and self-limiting nature and was described the proper precautionary methods listed above.

On January 18, 2013, S.M. returned to the clinic at 11:30am for her one-week follow-up visit for viral conjunctivitis with significant corneal erosions OU (OD > OS). S.M. reports much improved vision and that it is “better, but not perfect.” Additionally, she reports that her ocular comfort is significantly better that she even forgets to use eye drops. Her visual acuity during this visit was 20/30+2 OD and 20/25+1 OS for distance and 20/16 OD and 20/20 OS for near vision. Her intraocular pressure was 20 mmHg OD and 20 mmHg OS. Pupils, Confrontational Fields, and EOM Motility were 5-3PERRL OU, FTFC OU, and FROM OU respectively and similar to her previous visit. A manifest refraction was performed again during this visit and was found to be -1.25+1.00x070 (20/20 distance and 20/20 near) OD and -0.50 DS (20/20 distance and 20/20 near) OS. Slit Lamp Examination revealed her corneas to have diffuse, trace PEE OD and trace PEE OS with all other external findings within normal limits and unremarkable. She was not dilated during this visit. The assessments made were a resolving viral conjunctivitis OU, trace, scattered PEE OD > OS, and blurred vision due to refractive error (compound myopic astigmatism OD and simple myopia OS). The plan for S.M. was that she continues to use artificial tears for an additional week and she was also prescribed her manifest refraction for distance only to correct her blurred vision. She is to return to clinic in one year for an annual comprehensive eye examination and to call if symptoms return.

Conclusion

Adenoviral Conjunctivitis is caused by an adenovirus and is the most common external ocular viral infection due to its highly contagious nature and ease of transmissibility. Fortunately, it is a self-limiting ocular disease; however it has a fairly long duration of both diseased state and infectious state. The best way to limit the disease is through proper patient education through instruction of the proper precautions listed above and limiting avenues of viral transmission, i.e. airborne or contact through contaminated skin and/or instruments and equipment. Symptoms may also be relieved with the use of artificial tears and cold compresses.

References:


SAMPLE REPORT #2

Date
Your Name

Vitreous Hemorrhage and Dislocated Restor Multifocal IOL

Background

Vitreous hemorrhages can greatly vary in severity. Patients may present with black spots, cobwebs or a haze in their vision. A severe vitreous hemorrhage may block the view to the fundus and cause a mild RAPD. Etiologies vary but vitreous hemorrhages can be caused by retinopathy, PVD, retinal breaks, retinal detachment, vein occlusion, wet ARMD, sickle cell disease, trauma, intraocular tumor, subdural hemorrhage, Eales disease, hypertension, radiation retinopathy, and other less common causes. Work up of these patients depends on severity with careful attention to rule out NVI and APD. Peripheral fundus examination should be performed with scleral depression indicated in cases of spontaneous vitreous hemorrhage. If the hemorrhage blocks the view of the fundus, a B scan is indicated to rule out retinal detachment or intraocular tumor. Recommended treatment options include elimination of anticlotting drugs including aspirin and NSAIDs, as well as treating underling etiology. Vitrectomy is reserved for nonclearing vitreous hemorrhage of greater than 3 to 6 months, vitreous hemorrhage associated with NVI, or if hemorrhage is associated with retinal detachment.

Vitreous hemorrhages do not differ from preretinal hemorrhages in location and are rather defined by whether the posterior hyaloid face is attached. If the posterior hyaloid face is attached the hemorrhage is found between the ILM and the posterior hyaloid face and is given the pathognomic boat or keel shape. If the hyaloid face is not attached, the blood is not confined but rather can spread throughout the vitreous.

Preretinal hemorrhages are typically 1 to 2 DD in size according the Primary Care of the Posterior Segment with gravity causing a settling with blood more dense at the bottom and a clear horizontal demarcation line. A variation of this occurs in a “thumbprint pattern”. These occur in the posterior pole and are smaller, approximately 1 DD in size. These thumbprint pattern preretinal hemorrhages are most dense centrally and exhibit flayed edges which changes with viewing angle. Thumbprint hemorrhages are most commonly associated with pernicious anemia.
Case Presentation

LB presented with a chief complaint of spots in her left eye further described as green and “squiggly worm looking” with an onset of one week. Associated symptoms include a headache on the left side also for one week. Last eye exam was four months previous for a one month cataract post operative visit following insertion of Restor toric IOL. All findings were normal at that exam. LB’s Medical history includes: high cholesterol, past history of lung cancer, kidney cancer with removal of left kidney, breast cancer, past history of a brain tumor removed in 2008 and current brain tumor, inducing a transient ischemic attack 9/2011. Patient has a past surgical history of phacoemulsification and PCIOL OD and OS in July and August of 2012 respectively. Ocular history includes a large cup to disc ratio, and visual field loss coinciding with location of the brain tumor. Vitals were taken during the visit and were all within normal limits. LB is currently undergoing chemotherapy and is on several other medications including Biotin, Colace, Herceptin, Oxycodone, Plavix, and Simvastatin. Visual acuity was 20/25 OD and 20/80 OS. Refraction revealed a 3.00D increase in cylinder OS. Pupils were equal round reactive to light with bare reaction (-)APD. Noncontact tonometry readings were 17 and 16mmHg respectively. Examination of the anterior segment with biomicroscopy revealed dermatochalasis and moderate trichiasis and mild injection of bulbar conjunctiva OS. Inspection of post surgical corneal incisions revealed a clear incision OD with mild edema OS. OS also exhibited 2+ stromal edema. Anterior chamber was deep and quiet. Examination of the peripheral fundus with binocular indirect ophthalmoscopy was negative for holes, tears, detachment or traction. Examination of the posterior segment with 78D fundus lens revealed a well centered PCIOL OD and inferior temporally decentered Restor PCIOL OS. Optic nerves were healthy with cup to disc rations of 0.4/ 0.45 and 0.35/0.35 respectively. Examination of the retina with normal OD and exhibited a vitreous hemorrhage 1DD in size vertically and 3DD horizontally. Maculas were flat with even pigmentation OU. Patient was educated on her condition and referred to the Ophthalmologist who completed her cataract extraction for evaluation of the decentered IOL and a letter was sent to the PCP on the findings, requesting review of blood work. The patient was also started on Muro128 to treat the corneal edema.

Discussion

This was a complicated case with multiple unrelated problems. LB is likely experiencing the beginnings of a PVD which led to a mild vitreous hemorrhage. The PVD is not complete and therefore, requires
follow up appointments to watch for further complications and retinal breaks. Separately, her vision decrease is due to the dislocation of her Restor IOL inferior temporal. This finding is slightly surprising since the Restor it is a multifocal IOL and not a toric IOL which would be much more likely to induce the significant jump in astigmatism that occurred. It is possible that the IOL is slightly tilted which could be detected with wavefront analysis, a tool we did not have available to us. The stromal edema isolated to the inferior temporal cornea may also be contributing to this large jump in astigmatism. Treating this edema with Muro128 may decrease some of the increased astigmatism found at this visit. Due to LB’s extensive systemic health history, blood work review was also requested of the patients PCP to rule out anemia or any other blood clotting problems possibly induced by the patient’s current round of chemotherapy to combat the brain tumor.

References


Optic Nerve Hypoplasia

Background

Optic nerve hypoplasia is described as an optic nerve with a decreased number of optic nerve axons.\(^1\) As optometrists, we clinically see this as a disc that is more pale and smaller than normal and can occur unilaterally or bilaterally.\(^1\) The patient may also present with a peripapillary ring of pigmentary changes known as the double ring sign, that can often be mistaken for a normal sized nerve.\(^2\) Vision in these eyes is related to the integrity of the macular fibers and can range from normal acuity to light perception.\(^1\) Often these patients present with strabismus and may respond well to patching therapy.\(^1\)

Optic nerve hypoplasia usually occurs from an insult in the first trimester as the optic nerves are developing. This may include the use of Dilantin, quinine, alcohol, or LSD.\(^2\) Segmental hypoplasia may even occur in some children when their mothers have insulin dependent diabetes.\(^1\) This condition can be associated with midline central nervous system anomalies such as the absence of the septum pellucidum and agenesis of the corpus callosum.\(^1\)

Septo-optic dysplasia (de Morsier syndrome) is characterized by optic disc hypoplasia, absence of the septum pellucidum, agenesis of corpus callosum, and endocrine problems.\(^2\) This is occasionally accompanied by hypothalamic and pituitary dysfunction that may require supplements of growth hormone or thyroid medication to compensate for growth hormone deficiency and hypothyroidism.\(^1\)

An MRI is the preferred method for detecting for these central nervous system abnormalities. Special attention should also be directed to the pituitary infundibulum where ectopia (an absence of the pituitary infundibulum) may be found.\(^1\) This occurs in 15% of patients and requires a further endocrine work-up.\(^1\)

Case Report
A.J., a one year and ten month old Caucasian male was brought to the Children’s Mercy Hospital Northland Clinic on November 29, 2012 for a surgical consult. The parents reported that they have noticed that their son has a left eye that turns out. This has been something they have noticed since he was an infant but has seemed to get worse. They recently had an appointment with an optometrist in their home town that had recommended they come to Children’s Mercy for the care of A.J.’s eyes. The parents report the child has no history of any medical conditions and has reached all of his developmental milestones on target. The only family ocular history reported was the patient’s father wears glasses and has worn them for many years.

Objective testing was completed on the patient. Bruckner testing revealed an unequal reflex. Cover test revealed that the left eye was variable in the direction it was turned. It had a tendency to turn in when the right eye was fixating at near, but would turn out when the right eye was fixating at distance. The patient did not like to have his right eye occluded and would fight to remove the occlusion whenever the right eye was covered. The left eye did not seem to ever pick up fixation and it was difficult to determine if he had any perception of light from this left eye. Cycloplegic retinoscopy revealed a prescription of +1.50 sphere OU. View of the posterior pole with binocular indirect ophthalmoscopy revealed the left optic nerve head to be very small and pale in comparison to the right eye which appeared normal. The left eye also had vasculature present that appeared smaller and reduced in number as compared to the right eye. Maculas appeared normal without pathology OU. The patient was diagnosed with Optic Nerve Hypoplasia in the left eye. He was scheduled for a MRI of the brain and orbit completed with and without contrast. The parents were also recommended to try patching the patient’s better seeing eye (OD) for one hour a day to see if any vision can be stimulated in that left eye. The parents were told to let us know how the child behaves while patching. If he fusses for a little bit and then falls asleep, it will tell us that he doesn’t have much if any vision out of that eye. If he is able to wear the patch and stay awake, it will tell us there is some vision out of that eye. He was scheduled for a follow-up with the eye clinic in 4-6 weeks to see how the patching has worked. If there is some vision in the left eye, patching will continue after that visit to see how much improvement can be made before any surgical recommendations are made.

**Conclusion**

Although optic nerve hypoplasia is not extremely common, this is a condition that we, as optometrists, are likely to see in our career. Because this condition is diagnosed at a young age, it is important to complete the proper
imaging such as an MRI to determine if there are any systemic associations. An absence of the septum pellucidum and agenesis of the corpus callosum (de Morsier syndrome) increases the risk for endocrine dysfunction. If this is detected earlier, proper treatment and care can be given to the patient to ensure he/she develops as normally as possible.

References
