2024 Resident Edition

YO Info
THE YOUNG OPHTHALMOLOGIST’S NEWSLETTER

Your source for clinical pearls, coding, practice management advice, advocacy and more. YO Info Resident Edition provides new ophthalmology residents essential information for starting residency.

Being an Educator Starts Now

Sixteen years ago, when I was in your shoes starting as a new intern and resident in ophthalmology, I would not have predicted my career path would lead me to become an academic residency program director and educator. Over the years, I have realized that just as we are learners at every stage of our careers, we also are educators. Whether it be with a medical student, undergraduate student, junior resident, co-resident or ophthalmic technician, the opportunities to make a difference as an educator are all around you, even at this early stage of your careers.

Here are a few pearls and principles of being a successful educator that I have observed and learned over the years.

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Demonstrate Empathy
Like me, many of you probably vividly remember your first day of medical school and on the wards. Fear, uncertainty and not knowing the best place to stand without getting in the way are feelings not uncommon in medicine. Simple acknowledgement, small words of encouragement and any opportunity to contribute no matter how small the task made all the difference. In your role as a new resident, this can be as simple as:

• Reviewing steps of cataract surgery in the operating room between cases with a medical student who is just now observing cataract surgery for the first time.
• Pointing out slit-lamp examination findings to an emergency department resident who consulted you.

I often find myself pausing before starting sentences with the omnipresent phrase, “When I was a resident …” A better way is to imagine walking a mile in our learner’s shoes.

Take the Time
Despite ubiquitous pressures in medicine to go faster and produce more, our best educators take extra time in the clinic and operating room and demonstrate patience with learners.

It is rare for any learner or surgeon to perform better when under duress or when rushed early in the learning curve. Patience is a virtue that we must preserve despite the time constraints and demands of academic medicine. Mentorship also takes time and effort. Just as many of you have had your lives changed by mentors, being a mentor at any point in your career can change lives.

Seek and Provide Constructive Feedback
Educators are notoriously bad at seeking and giving feedback — even though it is necessary for growth. As you progress along your residency, you will have the responsibility and privilege to supervise junior residents. Learning to provide constructive methods for improvement and actionable feedback is essential. Avoid the temptation to gossip about the performance of other trainees. Focus instead on giving positive tips for growth.

Be an Upstander and Ally
The scary fact is that more than one half of medical students and residents may experience or witness mistreatment — such as humiliation, discrimination or harassment — in some form. Examples include yelling, use of profanity, malicious gossip and power mistreatment. It is important to learn the skills of an upstander and ally early on when you are training.

Learn From Other Educators
There is a lot we can learn from educators outside of our own institutions and outside of our specialty. Take the time to learn about organizations dedicated to education such as the Association of University Professors of Ophthalmology (AUPO), the Accreditation Council for Graduate Medical Education (ACGME), the Association of American Medical Colleges (AAMC) and the American Board of Medical Specialties (ABMS).

Some of you might take a similar career path to mine, in which you’re privileged to have a formal role in education as a chief resident, medical student educator/clerkship director, residency or fellowship program director or vice chair of education. Embrace these opportunities because they will be one of most rewarding aspects of your career. But even without formal roles, don’t forget that the opportunities to educate are all around you and that you can make a difference starting now.

Fasika A. Woreta, MD, is the 2024 president of AUPO’s Program Directors Council and the Academy’s co-chair of the Diversity, Equity, and Inclusion Committee for Residency Education. She has been a member of the Academy since 2008.
From the Editor’s Desk

Welcome to ophthalmology residency! We are thrilled you chose this wonderful, rewarding and enriching specialty in medicine. In this year’s YO Info Resident Edition, you will find articles to help set the foundation of your ophthalmology knowledge, help you succeed on call and in the operating room and help you thrive as a resident learner.

You are now part of the young ophthalmologist (YO) family. A YO is an Academy member who is currently in training or their first five years of practice. This community and family are here for you — we provide e-newsletters highlighting topics that YOs care about. Make sure you opt in to these newsletters listed below and to other important Academy communications. If you don’t get the emails, you will miss out on vital news and advice that can augment your success.

Enjoy your time as a resident. It is a unique experience in which you will learn how to be an ophthalmologist, a surgeon, an advocate and a lifelong learner.

**Evan Silverstein, MD, Chair, YO Info Editorial Board**

Members have free access to Academy tools and resources as well as email communications that are especially important to YOs:

- **YO Info** provides articles about starting your career, clinical pearls and other relevant issues curated by and written for young ophthalmologists.
- **Washington Report Express** includes brief updates of the Academy’s Governmental Affairs activities.
- **Academy Express** highlights clinical content, podcasts, surgical videos and crucial news in a weekly roundup digest.
- **EyeNet** is the Academy’s official magazine and the premier source of credible clinical news.
- **Practice Management Express** provides coding, billing and financial management information.

To opt in to Academy communications, scan the QR code or visit aao.org/optin. Log in with your email and password if prompted. The communication consent page will display for you to check the consent box.

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4 Tips to Do More in the OR

In medical school, did you ever ask yourself or hear another resident ask, “Why won’t the attending surgeon let me do more?” Follow these four tips, and you will get to do more in the operating room and accelerate your surgical training.

**Be Yourself, But Know Your Institution’s Policies**

Review the cases at least a week before the OR day and schedule a time to discuss the cases with your attending. This will allow you to ask questions to the attending surgeon about the cases coming up and prepare for potential complications or new techniques. The attending will see your effort and your preparedness and know that you deserve to be operating.

**Be a GREAT Surgical Assistant**

If you can predict the needs of your attending when assisting, they will see you know what you are doing and will let you operate more. Know the steps of the surgery and the names of the instruments you are using — there’s nothing worse than hearing, “Please hand me the second instrument,” during cataract surgery. Know what you want and verbalize it. Watch videos. Go through the operation in your head the night before and the morning of the operation. When you do this, the attending will see that you are ready to do more.

**Practice Like You Play, and Play Like You Practice**

The OR is not the place to learn how to use your loupes, how to sit at a microscope or how to throw a “3-1-1” knot. You need to do this at home or in your wet lab. Attending surgeons want to feel like their patients are safe when you are operating. If you cannot tie a surgeon’s knot, how will you handle two hands in the eye? Come to the OR practiced, with confidence, and with questions: “I’ve been practicing this, but I can’t quite get it. Can you give me some tips?” Your attending will be thrilled to hear this.

**Debrief**

At the end of an OR day, don’t let your attending escape! Talk about the cases — what went well, what didn’t go well and what you need to practice. Self-reflection and self-directed learning go a long way to earning the trust of your attending surgeon. When your attending can’t stay after the surgery day, schedule a time to go over the cases. If you can, record your operations and watch them back (either with your attending or on your own). Watching yourself is a great way to learn. You can also debrief between cases if you have time.

If you follow these four steps, you will gain the trust of your attending surgeon and get to do more in the operating room.

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**Evan Silverstein, MD,** is a pediatric ophthalmologist, assistant professor of ophthalmology and associate residency program director at Virginia Commonwealth University in Richmond, Va. He joined the Academy in 2008 and chairs the Academy’s YO Info editorial board.
How to Leverage Social Media as a Resident

Social media can help with education, promotion and marketing, but can also be a powerful tool for networking and branding, especially for a young resident.

Social media’s presence in ophthalmology training is rising; almost one-half of all U.S. residents use social media for professional purposes. As health care professionals-in-training, ophthalmology residents must adhere to a higher standard that reflects the integrity of the medical profession.

Here are a few pearls for maximizing the benefits of social media as an ophthalmology resident, while minimizing the pitfalls.

Be Yourself, But Know Your Institution

Before embarking into the world of social media as a young and eager resident physician, it’s important to familiarize yourself with your institution’s social media guidelines. Many academic programs have published regulations and require specific deidentification of all ID badges and campus facilities, for example, on all online posts.

There have been cases of disciplinary action taken against practitioners and trainees who violated their institution’s social media guidelines, including suspension and expulsion. In some cases, personal views can be separated from one’s employer or academic institution by including a statement of disclosure: “All views are my own.”

Share Your Journey, Respect Patient Privacy

Sharing day-to-day clinical experiences can be an enjoyable way to reflect upon one’s journey through medicine as well as to stimulate engaging discussions between colleagues.

However, think twice before sharing any information related to any patient experience online. Physicians must follow the guidelines of the Health Insurance Portability and Accountability Act (HIPAA) and the Family Educational Rights and Privacy Act (FERPA, 20 U.S.C. § 1232g), especially in the online space.

Even if specific identifiers about a patient or case are not explicitly stated, just the timing or location of the post could make a patient identifiable. Specific patient-related information, videos or photographs can only be shared if the patient gives appropriate written consent. In such instances, a simple line in the caption could be included, such as: “Release consent obtained. Do not repost or distribute without permission.” Without such consent, it is safest to avoid sharing patient-related information and interactions on social media.

Provide Evidence-Based Education to Patients and Colleagues

Sharing a video that demonstrates an advanced surgical technique or linking a new publication that you co-authored are great ways to demonstrate both your growing expertise and passion in a particular field. It’s never too early to build your professional reputation. It may also prove valuable when applying to competitive fellowship programs or job positions early in your career (you never know who’s Googling you).

Remember, however, that one should only promote information on social media that is scientifically accurate and supported by evidence. Opinions should be clearly distinguishable from facts. It is also wise to refrain from giving specific medical advice to patients on social media due to liability risk. Avoid direct contact with patients over social media and employ traditional methods of communication instead.

Harness Professional Relationships Through Social Media

Social media provides trainees with an unprecedented channel for connecting with role models and potential mentors in ophthalmology, many of whom are also using social media professionally. LinkedIn, Instagram and X are among the most popular platforms for networking within the ophthalmology community.

Following the official social media accounts of academic ophthalmology institutions and faculty whom you admire can help you to learn more about their program and ongoing work. Actively engaging with their social media posts can help to put your name and face out there and make introductions that are far less daunting than those traditionally accomplished at large, crowded meetings.

There are also a number of online ophthalmology communities catered to trainees that aim to foster relationships between young and seasoned ophthalmologists.

By following these tips and tricks, young eye surgeons can best leverage all that social media has to offer during their residency training.

Further Resources – Advisory Opinion: Social Media and Professionalism, American Academy of Ophthalmology

Dagny C. Zhu, MD, is a cornea, cataract and refractive surgeon and medical director and partner of NVISION Eye Centers in Rowland Heights, Calif. She joined the Academy in 2013.
Tackling a Clinical Case You Have Never Seen Before

It’s 2 a.m. You’re in the middle of what feels like an endless call night. And in between triaging open globes, endophthalmitis and closed angles, you’re called to see a patient with ... well, who knows what’s going on? Stay calm! We have all been there before. Thankfully, there are many resources and strategic steps available to help you tackle a clinical case you’ve never seen before.

Write Down Pertinent Positives and Negatives

List out parts of the clinical history and exam that you think could be relevant to the overall diagnosis. Focus especially on the ocular “vital signs”: pupils (presence of relative afferent pupillary defect, or RAPD), vision, pressure, motility/alignment and visual field. With neuro-ophthalmology complaints, consider checking color plates. Also, what could potentially be unique on the clinical exam? Try taking photos of the potential pathology on your phone to share with your senior resident and/or attending.

The more data points you have, the better you can tackle what feels like a nebulous complaint.

Rule Out Vision- and Life-Threatening Conditions

Full stop.

Do your due diligence to ensure that your patient does not have a condition that could cause them to permanently lose vision or lose their life.

Pull Out Your Handy Online and Electronic Resources

Online resources like EyeWiki and the University of Iowa’s EyeRounds are incredibly helpful for finding similar cases and following how to evaluate and manage a patient. The Wills Eye Manual is also available online to Academy members through the Academy website and has chapters dedicated to the differential diagnosis of ocular signs and symptoms, which can be incredibly helpful for generating a differential diagnosis.

Escalate the Case

When you are unsure of what’s going on, call in your senior. If you’re the senior, call your attending. If you’re an attending, call a colleague. Especially when you’re just starting, you’ll need to call for help. But do your due diligence before calling (see steps above). Put in the investigative effort first, and then escalate.

Monitor Progress

Especially when you’re unsure about the diagnosis or prognosis, it is essential to arrange for appropriate follow-up for patients in order to monitor their progress and assess their response to any treatments you’ve initiated. Document your findings meticulously for easy reference in the future as the case continues to evolve.

Be honest with patients about the rarity or complexity of their condition. Ensuring that patients understand what’s happening fosters trust and compliance.

Reach Out to Your Community

The amazing thing about ophthalmology is that it really is a small, well-connected family. Subspecialties have listservs where people share difficult, puzzling cases to seek out the opinions of other ophthalmologists across the globe (for example, Keranet for cornea content). The Ophthalmology Moms Group also has several posts a day where complex cases are shared and advice is doled out respectfully. (Note: You do not need to be a mom to join!) Sometimes, tackling a clinical case also means recognizing your limits and referring the patient to a colleague. This is not a sign of weakness, but rather speaks to your professional integrity and patient-centered care.

Facing an unfamiliar clinical scenario is an integral part of the learning curve in the early years as an ophthalmologist. Embrace these challenges as opportunities to enhance your diagnostic skills, expand your knowledge and ultimately provide better care for your patients. Remember, the mark of a skilled ophthalmologist isn’t just in knowing all the answers, but in knowing how to find them and apply them in clinical practice.

Cherie A. Fathy, MD, joined the Academy in 2018. She completed her residency at Wills Eye Hospital in Philadelphia and her cornea fellowship at Wilmer Eye Institute at Johns Hopkins Hospital in Baltimore.
5 Tips to Find Your Niche

A typical day for me may start with an early-morning pediatric cataract surgery, followed by clinic, coaching soccer practice, dinner and bedtime with the family, and often ends with a trail run with my dog in the foothills of the mountains near my house.

I find fulfillment and challenge in each aspect of my unique setup, but how did I get here?

Finding your niche in ophthalmology can seem daunting as a resident or fellow. Between studying for the Ophthalmic Knowledge Assessment Program (OKAP®) exam, memorizing white-dot syndromes, seeing late-night consults and preparing for surgeries, it may be difficult to take time to formalize what you are looking for in a career.

I polled a group of YOs for their advice to residents trying to find their niche. Their advice follows:

What Drives You?

As a resident you will likely find aspects of many subspecialties that you enjoy. I was almost an oculoplastic surgeon, medical retina specialist and comprehensive cataract specialist before deciding on pediatric ophthalmology. Although there will be aspects of many specialties that you will enjoy, try to identify which aspects you really look forward to. I enjoyed many subspecialty rotations, but I found that I woke up excited for pediatric clinic and surgery in a way that I hadn’t been before.

Another important aspect to think about is which challenging patient situations or clinical scenarios do you feel comfortable taking on with regularity? A pediatric retina exam may not be something you want to deal with regularly, but you may not mind managing complex ocular surface issues. You want to be excited about the good and comfortable with the difficult in your specialty of choice.

Find an Honest Mentor

Finding a mentor with whom you can discuss your thoughts and ask for advice is very helpful. You may find great advice from faculty members, senior residents or fellows and community ophthalmologists. Having regular conversations with your mentors can help you process the ups and downs of residency and help with connections as you pivot toward a fellowship and/or job search.

In the End, You Need a Job

Once you have identified a subspecialty of your choice, you will need to find a job. Depending on your subspecialty and market, this process may even start before you begin a fellowship.

When it comes to finding your ideal job, you need to decide what core aspects of a job are most important to you. Making a list of basic elements (higher or average clinical volume, teaching, research, international opportunities, etc.) can help you evaluate opportunities that arise.

Know the Market

Where you work will be a major factor in your long-term enjoyment. Do you prefer a big city or access to the outdoors? Close proximity to family or social supports? If you have a region or market in mind, it is never too early to reach out to practices or institutions in the area to express interest and make connections.

Be Creative and Flexible

Once you have your non-negotiables in mind, being flexible with the details can help you find your spot in a practice or institution. Although you may think your career goals would traditionally push you toward academics or private practice, keeping an open mind will allow you to find the opportunity that best meets your interests.

You may find a private practice opportunity that allows you to teach and do research or an academic position with high clinical volume and a focus on international outreach. If you maintain an open mind, you will often find that your core job values can be fulfilled in a variety of situations, allowing you to find your niche.

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Building a Top-Notch Ophthalmology Consult Fanny Pack

Picture this: You’re strutting through the hospital corridors, fanny pack slung stylishly around your waist like a seasoned ophthalmology detective.

With each step, you feel the weight of responsibility (and your lens box and eye drop or two) around your waist. But fear not! Your trusty fanny pack is packed to the brim with all the eye-examining goodies you need to dazzle your patients and colleagues alike.

All right. Maybe “dazzle” is a bit much. But, hey, a little flair never hurt anyone, especially when it comes to peering into peepers! So, let’s embark on a journey through the must-haves for crafting a top-notch ophthalmology consult fanny pack. Because who said saving sight couldn’t be stylishly hands-free?

• **Fanny pack.** Perhaps it goes without saying, but the fanny pack is an essential component here. With your equipment always at the ready and providing hands-free convenience, the fanny pack is a solid choice for any consult resident. Depending on the style, you can also express your personality! Cotopaxi hip packs are a vibrant and unique choice for the fashionable ophthalmology trainee.

• **Smartphone.** Keeping a well-charged cell phone with you that’s loaded with handy apps can replace the need for lots of bulky equipment:
  - The light can serve to check pupils in lieu of a pen light.
  - The Eye Handbook app can be used to check color vision and visual acuity.
  - Some electronic medical records are accessible from phones or apps.
  - The camera can document pathology.
  - EyeWiki on your browser can serve as your “eye dictionary.”
  - And OE Acronyms can keep you up to date with all the complex acronyms in our field!

• **Reading glasses or +2.50 free lens.** Checking visual acuity can be one of the most crucial parts of the eye exam. But for patients over the age of 40, presbyopia can make bedside vision exams a nightmare. Pro tip: Purchase a cheap pair of reading glasses at the dollar store or a +2.50D trial rim lens that can be placed over each eye during the visual acuity assessment. You’ll never again have to wonder if the patient is losing vision or just needed a pair of readers!

• **Eyedrops.** Keep a fresh bottle of proparacaine and a set of dilating drops at the ready for bedside exams. Intraocular pressure testing and dilated fundus exams are a staple of most inpatient consults. Proparacaine is also a great way to determine surface pain (which resolves with drops) from other sources of eye pain (e.g., intraocular pressure or uveitis). Pro tip: If patients need frequent retinal exams, atropine can keep the eye dilated in preparation for their next consult exam.

• **Fluorescein strips.** Eye pain, red eyes, blurry vision … many of these consult questions can be solved with the use of fluorescein dye. Keep a few fluorescein strips nearby to help check for dendrites, keratopathy and corneal abrasions.

• **Tonometer.** Many options exist for checking intraocular pressure while on consults. Common tools include tonopens and iCare tonometers. The convenience of having these tools on hand for consults can’t be understated, as performing Goldmann tonometry in the inpatient setting is often difficult or impossible. However, these tools are sensitive to damage and expensive! Tonopens should always have a protective tip in place to prevent debris and trauma. Make sure to bring extra tonopen covers!

• **Fundoscopic lenses.** Is an eye doctor even an eye doctor without their lens set? Keep your personal lens set handy to perform dilated eye exams. The 20D lens can also serve as a magnifying glass to check for corneal and eyelid pathology bedside.

• **Scleral depressor.** Don’t let flashes and floaters get you down. Checking the peripheral retina is important in any patient with a concern for retinal pathology. A scleral depressor is key to add to your kit, though cotton-tipped applicators often serve as a ready stand-in.

• **Desmarres.** Consult for a facial burn? For trauma with periorbital ecchymosis and edema? For an intubated patient? Examining the eye can be difficult in these cases, but Desmarres lid retractors can be your best friend in visualizing the eye without putting pressure on the globe or causing patient discomfort.

• **Snellen and pediatric eye chart.** If you’re worried about your phone losing charge, keeping a Snellen eye chart in your fanny pack is an easy way to check visual acuity bedside. Some Snellen eye charts also come with a handy-dandy pupil gauge to assess pupil diameter with increased

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*Figure 1: Isaac Bleicher, MD, chief resident at Massachusetts Eye and Ear and director of the ocular trauma service, sports his colorful consult fanny pack. Figure 2: Here are the contents of Dr. Bleicher’s all-star consult fanny pack! Make sure to pack anything you might need for your next inpatient or emergency room consult.*
accuracy. Pediatric handheld vision tools can also be great for entertaining and checking vision in children.

- **Pen light.** Here’s another backup for the cellphone: a pen light. Checking pupils is crucial, and a penlight will allow the bedside assessment to happen with ease. **Pro tip:** You can also use the light on an indirect ophthalmoscope in the same way.

- **Notebook and pen.** Finally, don’t forget to pack a small notebook and pen to record your findings and document patient consultations. Once you’ve seen a few patients, the findings can all start to blur together. You can even map out a retinal drawing in the notebook and document items to study up on later.

And there you have it! Your fanny pack is now primed and ready to accompany you on your ophthalmic adventures. Remember, when it comes to eye care, a little laughter and a well-equipped fanny pack can go a long way. Now, strut your stuff with confidence because with this arsenal at your hip, you’ll be ready to tackle any eye-related challenge that comes your way.

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### 9 Vision-Threatening Diagnoses to Recognize

From retrobulbar hemorrhage to microbial keratitis — familiarize yourself with these common eye emergencies and vital tips for handling them.

#### 1. Ischemic Optic Neuropathy

**Signs:** Fundus photo shows a chalky white pallor of the optic nerve from arteritic anterior ischemic optic neuropathy.

**Pro tip:** If there is vision loss, but no pain in a patient age 50 or older, consider tests to rule out giant cell arteritis (GCA), including erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and complete blood count (CBC). Additionally, if a patient presents with signs of a central retinal artery occlusion but there are no plaques seen on examination, a workup for GCA is also recommended.

#### 2. Retrobulbar Hemorrhage

**Signs:** External photo demonstrates periorbital ecchymosis, proptosis and decreased motility.

**Pro tip:** Suspect this in cases of trauma without a break in orbital bones. Perform canthotomy and cantholysis immediately if there is a tight orbit and high intraocular pressures.

#### 3. Central Retinal Artery Occlusion

**Signs:** Fundus photo shows diffuse retinal whitening with a foveal cherry-red spot.

**Pro tip:** Do a time-sensitive workup for giant cell arteritis as well as an embolus/thrombus workup, given the increased risk of a cardiovascular event.

#### 4. Endophthalmitis

**Signs:** Slit-lamp photo shows conjunctival injection, corneal edema and hypopyon.

**Pro tip:** Get a tap and injection of intravitreal antibiotics immediately, with or without vitrectomy. In cases of panuveitis, do not inject corticosteroids unless you have ruled out infection.
5. Macula-On Rhegmatogenous Retinal Detachment

**Signs:** Fundus photo montage demonstrates a superior macula-on retinal detachment.

**Pro tip:** Perform a retinal detachment repair immediately. Don’t forget to dilate and evaluate the contralateral eye carefully.

6. Carotid Cavernous Fistula

**Signs:** External photo highlights dilated episcleral vessels and chemosis in the right eye.

**Pro tip:** The disease can sometimes masquerade as a scleritis as well. Supportive findings can include blood in Schlemm’s canal on gonioscopy and presence of an orbital bruit. Urgent imaging is warranted.

7. Orbital Cellulitis

**Signs:** External photo shows lid swelling, proptosis and limited extraocular motility of the left eye.

**Pro tip:** Get a CT scan and a clinical diagnosis, and differentiate between preseptal and postseptal cellulitis, as treatment regimens can differ.

8. Open Globe

**Signs:** Slit-lamp photo shows uvea protruding through a corneal laceration and a peaked pupil.

**Pro tip:** Get a CT scan with thin cuts to rule out an intraocular foreign body. Place a shield over the eye immediately and examine the eye gently.

9. Acute Angle-Closure Glaucoma

**Signs:** Slit-lamp photo shows corneal edema and shallow anterior chamber. The ultrasound biomicroscopy shows the narrow angle.

**Pro tip:** Treat immediately and order laser peripheral iridotomy (LPI). The contralateral eye also may need an LPI. In addition to laser treatment, medical treatment can also be used, which includes beta blockers, alpha adrenergic agonists and carbonic anhydrase inhibitors. Oral medications such as acetazolamide or intravenous hyperosmotics can be used.

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**Sruthi Arepalli, MD,** joined the Academy in 2015. She completed two fellowships, one in uveitis from Casey Eye Institute and the second in surgical retina from Cole Eye Institute. She is currently assistant professor at Emory Eye Center in Atlanta.
‘I Didn’t See That Coming!’: 5 Dangerous and Unexpected Diagnoses

Ophthalmology is a visual specialty. Being able to directly see microscopic pathology within the eye enables us to make diagnoses in our daily practice. However, there are times when the pathology we see is not what it seems or when patients present with no or subtle signs. Being able to identify and differentiate these signs and then make the correct diagnoses may allow you to initiate the correct treatment and save your patients’ life and sight.

Case 1: Left Chronic ‘Conjunctivitis’

Not all pink eyes are viral conjunctivitis. One patient I saw presented with a three-month history of left-eye redness, which did not improve with topical antibiotic and lubricating drops. There was no known past medical history or history of trauma. On examination, his left eye had a 2-millimeter axial proptosis and slight limitation in movements in all directions of gaze. His left conjunctiva was diffusely injected with dilated and tortuous vessels. Intraocular pressure was 11 mmHg in his right eye and 21 mmHg in his left.

Computed tomography (CT) angiography revealed a spontaneous left carotid cavernous dural arteriovenous fistula, and the patient underwent embolization by interventional radiology.

Case 2: ‘My Vision Is Not Better After Cataract Surgery!’

It is important to look for other causes of blurry vision, especially when the patients’ vision does not correlate with the severity of their cataract or ocular pathology. A 60-year-old male presented with persistent bilateral blurry vision, which did not improve after undergoing bilateral cataract surgeries, despite achieving a postoperative visual acuity of 6/7.5 in both eyes.

Case 1: 1.1: Slit-lamp photograph demonstrating dilated and tortuous conjunctiva photos. 1.2: The right eye is unremarkable, while there is mild injection and axial proptosis of the left eye.
Optical coherence tomography (OCT) of his optic nerve head was unremarkable. However, OCT of his macula ganglion cell layer revealed a binasal pattern of thinning, and his Humphrey visual fields revealed a bitemporal hemianopia.

MRI revealed a pituitary macroadenoma compressing on his optic chiasm, and he proceeded to have a prompt endonasal transsphenoidal resection of his pituitary tumour.

Case 3: Steroids Aren’t for Everyone

Postoperative inflammation can happen for a variety of reasons. Acutely, it is important to rule out toxic anterior segment syndrome and postoperative endophthalmitis. Causes of low-grade inflammation that persists after a month may include premature cessation of topical steroid eye drops, retained lens fragments or uveitis.

One patient I saw presented 1.5 months after her cataract surgery with left eye redness and blurry vision after stopping her steroid eye drops a week prior. On examination, her left eye had an intraocular pressure of 29 mmHg as well as medium to large granulomatous keratic precipitates with anterior chamber cells 1+ and mild flare. Her intraocular lens was clear, and the dilated fundus examination was unremarkable. We performed an anterior chamber tap, which was positive for cytomegalovirus, and the patient was initiated on ganciclovir and antiglaucoma drops.

Steroids are essential to manage postoperative inflammation, but they can also lead to the reactivation of viral uveitis. An anterior chamber tap can be diagnostic and help to guide treatment.

Case 4: Not Your Routine Diabetic

Retina changes in a person with diabetes may not always be caused by diabetic retinopathy. Hypertensive retinopathy, retina vein occlusions and ocular ischemic syndrome may concurrently present, especially in patients with poorly controlled vascular risk factors.

I once saw a 60-year-old male patient for routine diabetic retinopathy screening. His visual acuity was 6/7.5 and 6/9 in his right and left eyes, respectively. Fundus examination revealed bilateral scattered Roth spots, in addition to microaneurysms and dot and blot haemorrhages. Preliminary investigations found a high total white...
4 Tips to Triage and Treat a Corneal Ulcer

You’re on call, and you’re consulted to see a patient with a suspected corneal ulcer. Here’s a simple stepwise approach to make sure you get the patient on the road to recovery and don’t miss anything.

Ulcers are visually threatening diagnoses that come in all shapes and sizes. They’re defined as an epithelial defect with stromal loss and inflammation and can be bacterial, viral, fungal and parasitic in nature. Most ulcers are caused after a micro-abrasion, but some bacteria can perforate intact epithelium. Additionally, neurotrophic corneas can be prone to infection or sterile ulceration.

Your role is to document and diagnose the infection and then start treatment as soon as possible. This stepwise approach can guide you, whatever the cause.

**History**

- **Duration of symptoms**
- **Pain.** Pain out of proportion to exam findings can be seen with Acanthamoeba.
- **Contact lens use.** Think of pseudomonas.
- **Environmental exposure.** Increases likelihood of fungal infection.
Exam

- **Eye vitals**
- **Location.** If central, then scarring can lead to vision loss and may necessitate a transplant.
- **Depth.** Slit beam can determine percentage of stroma lost and if perforation is imminent.
- **Anterior chamber reaction.** Cell/hypopyon can indicate a severe infection.
- **Photos/documentation.** Monitor for improvement.

Management

Culture. Can narrow antibiotics in the future.
- Most ulcers should be cultured — the 3-2-1 rule can guide you when to obtain a culture:
  - <3 mm from corneal center
  - >2 mm in size
  - >1+ cell in anterior chamber
- After anesthetizing, scrape with a sterile blade or Kimura spatula or scrape aggressively with a calcium alginate swab. If possible, plate on each of the culture mediums below:
  - Saboraud agar: fungal
  - Chocolate agar: aerobes
  - Blood agar: aerobes and anaerobes
  - Thioglycolate broth: aerobes and anaerobes
  - Viral transport media
  - Sterile saline: for transport if you are unable to plate yourself
  - Glass slides: gram stain
  - Culture contact lenses/case if available

Antibiotic management. Antibiotics should be broad spectrum and given frequently. The most common pathogens are *Staphylococcus aureus*, *Streptococcus pneumoniae* and *Pseudomonas* species. When in doubt, give stronger and broader antibiotics.
- For mild and small ulcers, a fluoroquinolone (moxifloxacin) can provide adequate gram-positive and gram-negative coverage.
- For most ulcers (central, large or with robust anterior chamber reaction), start fortified antibiotics. Ensure you have both gram-positive and gram-negative/*Pseudomonas* coverage.
- Our institution typically uses vancomycin 50 mg/mL and ceftazidime 50 mg/mL every hour.
- Vancomycin 50 mg/mL: Gram-positive
- Cefazolin 50 mg/mL: Gram-positive
- Ceftazidime 25-50 mg/mL: Gram-negative, *Pseudomonas*, some gram-positive
- Gentamicin 15 mg/mL: Gram-negative, *Pseudomonas*
- Tobramycin 15 mg/mL: Gram-negative, *Pseudomonas*
- Drops should be given initially every one to two hours, 24 hours per day (even overnight), and spaced out five minutes between drops. After improvement, the frequency can be decreased to allow for sleep.

Cycloplegia

Atropine daily or cyclopentolate 3 times a day can provide comfort and prevent synechiae formation.

Steroids

Steroids can help with wound healing and prevent scarring, but only after improvement and once sterility is achieved. The decision to initiate therapy is typically made in consultation with a corneal specialist.

Invasive/Surgical Management

Patching or tarsorrhaphy can help wound healing, but only after sterility is achieved.

Glue can help patch small perforations. Full-thickness transplants are used for large perforations, but they do have high failure rates.

Follow-Up

See the patient daily until you see improvement. If the patient cannot reliably administer drops, admission to the ICU for nursing requirements is often warranted. If there is no improvement or the condition is worsening, consider atypical causes (*Acanthamoeba* or fungal infections).

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Slit Lamp 101: 3 Tips to See Clearly

If you are a medical student, a new resident or an early-career ophthalmologist, this review of the slit lamp is for you.

If you are a seasoned ophthalmologist, a refresher never hurts anyone. The slit lamp is an essential tool that allows eye doctors to directly visualize pathology. We make so many of our diagnosis just from pure physical exam.

Know Your Slit Lamp

Every slit lamp is different, but here are the key parts.

- **Light source.** This is where the light bulb is located to create the slit lamp light.

- **Vertical light control.** This can be used to measure structures and can rotate in different directions. Measure the height and width of a specific lesion like a corneal ulcer.
  - **Cobalt blue filter.** Learn to switch from white light to blue light. This is different on each slit lamp. The blue filter is helpful when you apply fluorescein to the eye to look at the cornea.

- **Oculars.** Spend time adjusting your oculars. Match the oculars to your pupillary distance, and make sure the scope is “zeroed” out if you’re wearing your own correction. If the right eyepiece is on a -3 and the left is on a 0, you are not going to have a fun time.

- **Horizontal light control.** For corneas, I tend to prefer a very thin beam. You can make your slit-lamp beam wider or narrower here.

- **Articulating arm.** Rotate your slit lamp on axis.

- **Thumb wheel/decoupler.** Decouple where the light is in relation to the ocular focus.

- **Joystick.** Think of it as the fine focus of your microscope. Most slit-lamp joysticks twist clockwise and counterclockwise and move horizontally right and left and up and down. Always keep your hand on the joystick. To see something deeper in the eye, move the slit lamp toward the patient. To see something more anterior, move it away from the patient.

- **Lastly, the slit-lamp lock.** This locks the slit lamp. Don’t forget about it (both locking and unlocking).

Focus on Your Ergonomics

Many ophthalmologists have bad neck issues because we often force our bodies into bad positions. Here are some things I do to avoid strain:

**First,** I get the patient into the chair. I slightly raise the patient’s chair so I don’t bump my wheels into the foot rest.

**Second,** if the patient has a short torso or large body habitus, I have the patient slide up in the chair. The patient can drop the knees and allow me to get the slit lamp closer.

You need to ensure three things:

1. The patient’s eye is at the level of the back line.
2) The patient’s chin is on the rest.
3) The patient’s forehead touches the strap.

Third, focus on you. You are the most important part of this equation. Why? Because you will be doing this exam thousands of times in your career. If the patient has to be uncomfortable for less than a minute, yes, that’s not ideal. However, it’s better than you having to strain your neck 50 to 60 times a day, five days a week, 52 weeks a year, for 40 years.

Here are my essential ergonomics tips:
• Focus on sitting up right — no slouching.
• Keep your neck up and shoulders up.

Be Systematic
If you start jumping around, you will miss things. I always follow the flow of the standard clinic note. Meaning, I always check the following:
• **External.** Eyelids, eyelashes, meibomian glands, palpebral conjunctiva, upper lid and then lower lid.
• **Conjunctiva and sclera.** Ask the patient to look in all directions so you can examine all parts of the anterior globe. Don’t forget to flip the eyelids to look for papillae.
• **Cornea.** Start with diffuse light, and then bring the light directly in front of the eye for a red reflex. This will highlight irregularities in the cornea and lens and will show transillumination defects in the iris. Now, narrow your beam. I like rotating my slit lamp about 45 degrees away. This allows you to look at a slice of the cornea. Examine the epithelium, then the stroma and then the endothelium.
• **Anterior chamber (AC).** Look for cell/flare. First, focus on the iris. Next, center your slit lamp, focusing right over the pupil, and then move toward you. This will move the focus of the slit lamp to be more anterior so you can look directly at the anterior chamber. Reduce the size of your beam by 1 mm and use increased magnification. I also recommend turning the room lights down. Lastly, ensure that the AC is deep — if shallow, don’t apply dilating drops.
  • **Iris.** Look for neovascularization and nevi.
  • **Lens.** Repeat the red reflex if necessary. Look at the anterior lens, posterior lens and nucleus.
  • **Anterior vitreous.** In patients with floaters, look for pigment in the vitreous, which is a sign of retinal detachments/tears (Schafer’s sign).

Phew, that was all for one eye. I always do the RIGHT eye first, and then I move to the LEFT eye. Be methodical.

Best of luck with your slit-lamp adventures.

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BCSC: Tips to Make It Work for You
Starting ophthalmology residency can be daunting. In medical school, it was customary to get the scoop about a new rotation and some recommendations for quick reading material to prepare.
But when you walk into work on your first day as a first-year resident and ask what you should be reading for ophthalmology rotations, you get this: The *Basic Clinical and Science Course*™ (BCSC®) is intimidating, to say the least (all 13 of the set!). Although it is the most comprehensive resource available to ophthalmology trainees (and even those of us in practice), the BCSC is dense. Reading it cover to cover is time-intensive.

To help you out, we’ll review how to use the BCSC as a new ophthalmology resident without being bogged down in the details. Here are some tips:

Prepare for a specific rotation. Use the BCSC as a preparatory resource before starting a subspecialty-specific rotation will help you make the most of your clinical experience. It’s particularly helpful in rotations that involve more observation than hands-on learning. Reading ahead will help you to better engage in what’s happening with each patient.
BCSC: Tips to Make It Work for You

Use as a reference for something new you see in clinic or on consults. Although PGY-1 years are structured variably depending on your schedule, the unifying factor is that you will be seeing new and unfamiliar things. Keep a notebook in your pocket or list in your notes app of conditions that you see throughout your day. Look up those particular conditions and read about them in the BCSC later. Do the reading as close to seeing the patient as possible to ensure that the material sticks; seeing is learning, and the BCSC should be used to reinforce what you see.

Reinforce concepts you may be missing in practice questions. Most ophthalmology residents start using a question bank to prepare for the Ophthalmic Knowledge Assessment Program (OKAP®) exam during their second year of residency. One example is the BCSC Self-Assessment Program, which has over 4,500 online questions tied directly to BCSC content with additional discussion. However, it can be discouraging to feel that you are getting the same types of questions wrong over and over. In spite of the explanations provided by most Q-banks, sometimes there is a lack of fundamental knowledge in the subject area. For instance, if you miss questions on the appropriate management of uveitis, you may find that a better understanding of the pathophysiology of ocular inflammatory disease will help you deduce the correct treatment strategy. Conceptual understanding rather than memorizing is a more useful long-term strategy and will allow you to retain knowledge for the rest of your residency career and beyond.

Take practice questions. The BCSC itself has practice questions in the back of each book — these are great for days when you don’t have the energy to slog through reading, but want to make sure you’re staying up to speed. They are also great for OKAP prep.

Read it ahead of a lecture. Reading the appropriate section of the BCSC prior to the corresponding lecture can help the material stick. As a bonus, you can look like a star when your attending asks you a question, and you already know all the answers.

Take advantage of new learning formats for your particular learning style. You may find that you learn material in different ways. For instance, there are links to the online Pathology Atlas in BCSC Section 4 that give you additional pathology images to enhance understanding. And both Section 3 and Section 4 feature Quick-Start Guides that give you the basics that you need before going further into your rotation.

Try not to lose the forest for the trees. Remember that the goal is always to apply what you are learning to optimal patient care. The BCSC can be your friend, when used the right way!

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