

I'm writing this on July 4th, after a wonderful thunderstorm that has dumped nearly an inch of rain in about 10 minutes. This wouldn't normally be particularly newsworthy, but we've been experiencing one of the driest periods in recorded history around here. So let it rain! Of course, September will be cool, sunny, and beautiful for our annual meeting.

This issue's "You Asked for It" includes a rather disturbing letter from an ophthalmologist in Louisiana. He describes a simple practice, one many of us do every day, for which his facility was criticized in a recent survey. When you read his predicament and the comments of several people from around the country, ask yourself if you are also "guilty" of the "crime" of compounding. This issue bears discussion and further illumination, so perhaps we can kick it around at the annual meeting. At some point we might consider inviting someone from the regulatory body that wrote the rules so we can ask our own questions in hopes of getting straight answers. I'd love to receive comments from you regarding this problem. After reading the column, I think you'll have a clear idea of how complex this issue really is.

To our credit, many educational activities involving OAS members are scheduled in the near future. In addition to our own annual scientific meeting, there will be two events involving OAS members at the annual ASA meeting in New Orleans in October: the third annual Workshop on Ophthalmic Anesthesia and a refresher course on ophthalmic anesthesia (the latter, something we've wanted for a long time, to be given by Steve Gayer, MD). Also in October, we will be represented at the American Academy of Ophthalmology meeting in Chicago, where Chandra Kumar, Tim Dowd, and I will give a course on anatomy for orbital regional anesthesia. Next summer's *Ophthalmology Clinics of North America* will be devoted to ophthalmic anesthesia, with OAS members writing several of the chapters. Our goal is to promote the practice of safe and effective anesthesia for eye surgery. To do that we must go beyond the boundaries of our own society and spread the word to as many providers as possible.

My wife, Arline, and I finally did something we've been meaning to do for years: visit the headquarters of the American Society of Anesthesiologists in Park Ridge, Illinois. The museum and library are wonderful, but you know you're getting old when you see so many things you used in training behind a glass case in a museum! I highly recommend a trip there to all you anesthesia providers. I talked to one of the librarians, who was interested in our newsletter. As a result, we will be sending it to the museum, where the newsletters of several other anesthesia-related societies are also housed.

As you read this, we'll be rapidly approaching our annual meeting. Steve Gayer and Ric Rivers have put together a terrific program. The new venue at the Marriott should meet our needs; it's a beautiful hotel, very well situated for all the fun activities in the Michigan Avenue area. I wish you all a safe trip and will look forward to seeing you there. Oh, and don't forget to vote for members of the Board! •

President's Farewell

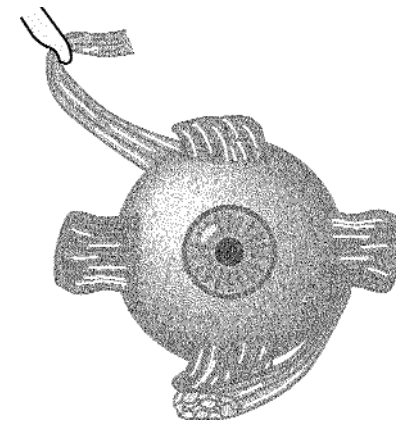
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The UP is supported by limited scientific evidence and is, in fact, ineffective in preventing ophthalmic anesthesia wrong-side errors, as it does not include a "time-out" immediately prior to performing regional anesthesia of a symmetrical body part such as the eye.

Since 1942, the number of deaths due to transfusion errors has been reduced 2000-fold—due not solely to research, but also to implementation of safety policies, mandatory "no-fault" reporting, accumulation of incidence data, human factor engineering, and the creation of a culture of awareness. We need to parallel this achievement with wrong-side, site, patient, and procedure errors as well. We need to tweak systems, not individuals. After all, to err is human. The process of prevention must occur without fear of embarrassment, loss of license, or potential litigation. •



Gary Fanning, MD



OASIS

OPHTHALMIC ANESTHESIA SOCIETY IN-SIGHT • SUMMER 2005 NEWSLETTER

Midnight at the OASIS

Karen S. Morgan

This is the final issue of our newsletter, *OASIS*—in its present form, that is. Beginning with the fall issue, paper will be replaced by electrons.

We can accomplish several goals by publishing online at www.eyeanesthesia.org. Online

We can accomplish several goals by publishing online. . . . online publication will make valuable information available to a wider audience, and we'll do a much better job of serving our educational mission.

publication will make valuable information available to a wider audience, and we'll do a much better job of serving our educational mission. Making our newsletters available to members and non-members alike will help attract new

members to our organization and to our annual meeting. Those who prefer reading in print will still be able to download and print the newsletter, but by eliminating the costs associated with design, print production, and postage, OAS will save at least \$5,000 per year—not to mention quite a few trees!

In addition to publishing the newsletter online, we are revamping the web site (www.eyeanesthesia.org) in other ways. The annual meeting brochure will no longer be available in print, beginning with next year's 20th Annual Meeting. Instead, we will send our regular mailing to members and others as a postcard, at far less cost; it will direct attention to www.eyeanesthesia.org, where interested individuals will be able to view the program, meeting, and hotel registration information. The Annual Meeting brochure is mailed to

more than 2000 people, so, as with the newsletter, the saving in printing and postage will be significant.

Planned additions to www.eyeanesthesia.org include a FAQ (Frequently Asked Questions) section, where we will post both "Minority" and "Majority" opinions and solutions. We'll also consider a "blog" space on the web site, which would provide an open forum for members and others. In addition, we will ask our experts to prepare videos of themselves demonstrating anesthesia techniques; visitors will be able to view these online.

To cover costs associated with the web-site upgrade and maintenance, we plan to solicit several vendors to sponsor the web site, offering them banner advertising and links to their own web sites.

So now is your chance to assist OAS as we celebrate two decades of providing information

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Midnight at the OASIS

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and education to anyone interested in anesthesia for eye surgery. Tell us what upgrades to www.eyeanesthesia.org would benefit you, your practice, and your patients. Tell us what gives you the most value for your membership in OAS. Tell us how to become a better organization and attract more members.

And finally, *send us your email address!*

That is how you will know the Fall issue of OASIS is ready for viewing. Just send an email to info@eyeanesthesia.org, Subject: (Your name) email address. No message necessary; we'll simply enter the address from your email into your file. And your email address will be used ONLY by OAS for membership purposes; we promise not to offer it to any other organization or give it out for any purpose. •

ANESTHESIOLOGIST WANTED

Looking for an anesthesiologist to join a group of six for growing eye hospital as well as same-day surgery center in Minneapolis, MN. Reasonable nights and weekends. If interested, please call 952-401-3402.

Your OAS Member To-Do List

- ❑ *Mark your calendar:* The 19th annual Scientific Meeting of the OAS will be held **September 23 – 25, 2005**, at the Marriott Chicago Downtown.
- ❑ *Fax your OAS Board ballot by 9/15.*
- ❑ *Send the OAS office your email address:* To receive membership notices, email info@eyeanesthesia.org with your current address.
- ❑ *Share your expertise:* Consider contributing to the OASIS newsletter. Contact Gary Fanning if you wish to write an article or suggest an idea. Or submit a question to answer—or answers to questions—in the “You Asked for It” column, which appears regularly.
- ❑ *Pay your 2005 dues, if you haven't already.*
- ❑ *Contact your vendors:* The OAS needs outside funding to support the organization. Contact your vendors to see if they would be interested in having an exhibit at next year's annual meeting.
- ❑ *Check your label:* Is your contact information current? If you have recently moved or changed your name, title, or affiliation, contact the OAS office with those changes. •

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President's Farewell

Steve Gayer, MD

This is the final President's Message of my tenure, which has passed rather quickly. Although I owe heartfelt thanks to many whose counsel and assistance have proven quite helpful, space does not permit me to list all the names here, so I will make every effort to extend my gratitude in person at our annual meeting.

We just completed the survey by the Joint Commission of Affiliated Hospitals Organization (JCAHO) at Anne Bates Leach Eye Hospital and the Bascom Palmer Eye Institute. It involved a thorough review and stressed one area addressed at last year's OAS meeting: Systems to ensure proper patient and site selection.

The spectrum of this problem includes anesthesia and/or surgery on the wrong site or side, incorrect patient, and improper procedure. Consequences can range from the trivial to the tragic. While these events are rare, they are more common than generally appreciated because formal reporting in the medical literature is scarce, and there is an inherent bias to self-reports and surveys. Often, egregious cases are reported by the lay press, so the chance of finding information corresponds to the degree of harm or magnitude of the consequences.

The National Practitioner Databank has accumulated 5940 such events over the past 13 years. Of those, 2217 were wrong-side operations, and 3723 were incorrect procedures. The JCAHO has recorded 278 wrong-site procedures in the previous eight years. This represents the third most frequently reported event, greater than cases of retained instruments or transfusion errors.

Several states, including Florida, New York, and Pennsylvania, have enacted mandatory reporting laws. Florida's legislation is nicknamed “Code 15” because all such incidents must be reported to the Florida Agency for Health Care Administration within 15 days of occurrence. Since 2000, that body has accumulated about 75 cases of wrong-side activity each year. Approximately 25% are wrong procedures, 12% are wrong patients, and 63% are wrong-side errors.

Some estimate that orthopedic hand surgeons have a greater than 20% lifetime risk of involvement in a wrong-side surgery! Ophthalmologic surgery and anesthesia confer greater risk than baseline due to the potential for laterality errors. It is easy to confuse one's own right side from a patient's left. In fact, higher-IQ populations tend to have more problems with left-right discrimination.

There exist many other potential etiologies for this problem, which is rarely due to diagnostic error. Patients may be confused as to the side, site, or actual procedure—a problem augmented by sedatives or anesthetic agents. Some patients, such as children and infants, may lack the competence to intervene. In addition, similarity of names or procedural factors can contribute to mistakes. A wrong side may be draped or prepped, or a patient's cap may obscure a clearly marked surgical site. Similar procedures performed consecutively in the same operating room may lead to side dyslexia. Human factors can play a key role in the problem as well. For instance, failing to cross-check OR schedules, consent forms, patient charts, and patients is not unusual. Our distraction-rich environment, coupled with poor verbal/written communication and lack of safety protocols, also contributes.

We need to establish systems to ensure proper patient, side, site, and procedure selection. At Anne Bates Leach Eye Hospital & Bascom Palmer Eye Institute, we have had 14 policy updates over the previous 12-year period. In May 2003, the JCAHO held a “Wrong Site Summit,” during which they developed a “Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery (UP).” Effective July 1, 2004, compliance was mandatory for all hospitals. The policy is tripartite, involving pre-op verification, marking of the intended site, and a “time-out” immediately prior to the start of surgery. Patient involvement and effective communication are key components.

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Under the Covers

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erative and less than hygienic when they leave. While there is only so much one can do, extra counseling and emphasizing the importance of following instructions may be helpful and certainly can do no harm.

I believe that this problem is not going to go away in the very near future. An increasing incidence of endophthalmitis is not something we can accept, and the current incidence is considerably higher than what we know can be achieved. If you multiply 0.189% by 2.5 million, you get over 4700 patients per year with iatrogenic endophthalmitis, many of whom will never have useful vision in that eye. We should be able to do better than that. We may have to change our surgical technique. We may have to become better at identifying patients who are not good candidates for clear corneal incisions simply because they are non-compliant. We may have to use different prophylactic measures. The only certainty is that we cannot accept the status quo.

References: Taban M, Behrens A, Newcomb R, et al. Incidence of acute endophthalmitis following penetrating keratoplasty: a systematic review. *Arch Ophthalmol* 2005; 123:605 – 609.

Taban M, Behrens A, Newcomb R, et al. Acute endophthalmitis following cataract surgery: a systematic review of the literature. *Arch Ophthalmol* 2005; 123:613 – 620.

FIRE!

Following the excellent lecture we had on OR fires at a recent OAS annual meeting, here comes an interesting case of fire following cataract surgery. A healthy 78-year-old man underwent cataract surgery under topical anesthesia. He had oxygen running at three liters per minute under the drape. At the end of the procedure, the surgeon removed a small papilloma from the lower lid. When he used a bipolar cautery to stop a bleeder, the surgical drape (paper) burst into flames. Completely stunned, the OR team remained frozen in horror until a tech thoughtfully

threw a basin of saline over the patient's face to extinguish the flames.

The patient suffers first- and second-degree burns to the face and also suffers a bronchial burn, resulting in a three-week hospital stay. He is left with dyspnea on exertion that hinders his ability to engage in the active physical pursuits he enjoyed prior to this event. He sued everybody, including the manufacturers of the drape and the cautery.

Editor's Comments: I'm going to leave you hanging in the air as to the outcome of the suit.

Please go to the Outpatient Surgery Magazine website (www.outpatientsurgery.net) and under archived issues work your way to the March 2005 issue. Under "Outpatient Surgery's E-mail," you will find the Medical Malpractice Quiz. When you have properly registered, you will be able to read the entire article, including the results of the trial.

One of the plaintiff's experts claimed that it is not standard of care to administer oxygen under the drape (he suggested using air). I would vehemently disagree with that. He also said that it is not standard of care to use cautery when oxygen is being administered under the drape. I would vehemently agree with that, providing we're not talking about someone under general anesthesia with a sealed airway system. Oxygen can be very dangerous, and we should all be very careful with its use. When using it, we should always be mindful of the possibility of fire. It's hard to be alert for something that occurs so rarely, but we certainly cannot stand around frozen in horror when it happens. Always know where that basin of saline is, and be prepared to use it. Even when we're doing everything right, strange things can happen. Do your very best to prevent things like this. Be vigilant at all times, and be prepared to take immediate action if necessary.

Reference: Sheren LB. Medical Malpractice Quiz. *Outpatient Surgery Magazine*, March 2005. (www.outpatientsurgery.net) •

You Asked for It!

Do Freestanding Eye Centers Operate on Pediatric Patients?

I work at a high-volume freestanding eye center. Of the 7,000 cases per year we perform, only 2% are children ages 6 months to 12 years. We are five miles from the closest hospital. We are considering not operating on

kids under age 12. Factors in this choice include equipment and training costs and dwindling proficiency of anesthesia and nursing staff.

I've called several freestanding eye surgery centers around

the country and have yet to find one that is operating on kids under 13. Is it rare for a freestanding eye center to operate on children? Have the majority of centers decided against it because of the increased risks of caring for small children? Has this topic been brought up before?

MD, Albuquerque, NM

Answer #1

I have been doing pediatric cases in our freestanding eye center for almost 14 years. When I first started, I took all comers, even doing a 6-week-old for a congenital cataract, doing him again at 8 weeks of age for the other one. More recently, we limit the kids to a year and up. I fudge occasionally by taking a perfectly healthy 8- or 9-month-old for a tear-duct probe. We do not do a high volume, maybe 50 – 60 kids a year, but they make up over 90% of our cases under general anesthesia.

A lot needs to be said regarding this issue. First, you need to like doing kids. Before coming here to do eyes exclusively, I practiced in a very busy general practice of anesthesiology for 19 years and did a lot of kids for a variety of non-cardiac, non-neurological procedures. When I came to Hauser-Ross, I felt very comfortable doing children. I have tried to keep up in this area, and a lot of my CME

has been geared toward peds whenever possible. I have also been PALS (Pediatric Advanced Life Support) certified.

Second, you need to establish a comfort level. I feel that a healthy kid at age 1 is an excellent risk for general anesthesia. As the child approaches 2, the risk is probably even a little bit better. Data in the literature certainly supports this observation. With the availability of sevoflurane, I feel the risk is even better, as untoward airway events are rare with this agent. So, I feel comfortable doing kids 1 year and up. Children less than a year make me nervous because I know the risks are greater, the veins are tougher to find, and I don't do them often enough to feel comfortable.

Third, you must have a good working relationship with your surgeon. Our surgeon prefers to send me the pediatric cases so I can evaluate whether to do them in our ASC. This allows me to make a judgment and to talk with the parent(s) well in advance of surgery. If a child has multiple problems, I simply recommend that the case be done in a hospital setting, preferably with someone specifically trained in pediatric anesthesia. I essentially accept kids in ASA PS classes I and II, if they have no terribly unusual problems such as an abnormal airway. Others need more sophisticated management than I feel I can offer.

The surgeon has never challenged my decision. I am also quick to cancel for acute URIs or any other condition that worries me on the day of surgery. Again, the surgeon has never challenged me. Her motto is: "If you don't put them to sleep, I won't operate on them."

Fourth, you must have the necessary staff and equipment. The nurses have to feel comfortable with children and be willing to help you. To prepare for our pediatric cases, we perform MH drills, we have an asthma kit and a croup kit on hand, and the nurses who normally work on the days we do kids are trained in

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You Asked for It!

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PALS. Proper equipment is also essential, so the administration has to be willing to supply it for you. LMAs have revolutionized anesthesia. I routinely do all our kids with LMAs, even fairly long muscle cases with controlled respirations and muscle relaxation. They work beautifully, even in the 1 year olds. Occasionally I am unhappy with the fit from the get-go and will switch to an ET tube, but that is a rare event. As a result, post-intubation croup is a non-issue. I use continuous propofol on all kids over about 3 years. I give them dolasetron and dexamethasone, and we have never (hear me knocking on wood) had to admit a kid for N&V. In fact, N&V is essentially non-existent in the facility.

Finally, it helps to do children on a regular basis. Even though we schedule kids only on Friday and may only do them two or three Fridays a month, it is a regular thing. In this way we come to expect it and work it into our routine. It is a good idea if one gas passer does all the kids in a small institute, thus enabling him or her to maintain the necessary skills. Having a consistent nursing staff on those days is also a big help.

We have been fortunate and have had little trouble. In 14 years there have been only three scary incidents. The first happened several years ago, before we had sevoflurane. A little girl with a history of asthma went into extremely tight bronchospasm under light anesthesia with propofol. With the help of albuterol and halothane her bronchospasm broke completely and we finished the case without further problems. Her mother said that the night of surgery was the best she had breathed in months! More recently (just last year), I had two little boys two weeks apart who exhibited another problem. During the course of an otherwise uneventful sevoflurane induction, they both went into supraventricular tachycardia at a very high rate. Both converted spontaneously when the sevo was turned off. One was a tear-duct probe, which we were able to accomplish quickly. The other was supposed to have muscle surgery. We cancelled him. He had it done

elsewhere with an IV induction and maintenance with propofol. Both kids had a little weird cardiac history, like a suspected small VSD, but had been totally asymptomatic. It was probable that both had aberrant pathways with sevo triggering the SVT. Both are fine.

In my opinion, it boils down to your desire and to your skills and those of your staff in doing kids. No one would fault you for not wanting to do these cases. On the other hand, if you like to do kids, you shouldn't be kept from doing so just because of the setting, all other things being equal.

— Gary Fanning, MD, Sycamore, IL

Answer #2, etc.

I'm counting on you! What do you think about doing small children in a freestanding surgicenter? I want to hear from as many of you as possible on this subject. I'll collate the answers and print them in the next issue. This could be an interesting debate, so please join in and give us your opinions.

What caused a dehiscence and possible choroidal hemorrhage? The block? The cough? Pre-existing conditions?

I have been doing blocks for more than ten years and do over a thousand a year, but I had something happen recently that I have never seen or experienced. I was putting in my usual block in a 78-year-old woman scheduled for a repeat PKP ("failed graft"). I did my block with only 5mL of solution. The needle (25g) went in normally—felt like melted butter—no resistance whatsoever. I injected and was actually coming out when the patient gave an unexpected cough—not a little cough but not a hard cough, either. At the moment I was bringing the needle out, she had a de-

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... if you like to do kids, you shouldn't be kept from doing so just because of the setting, all other things being equal.

Under the Covers

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Acute endophthalmitis, a disturbing trend

Two reports from investigators at the University of California in Irvine, the Johns Hopkins University, and the Cleveland Clinic Foundation provide us with some rather chilling news. Initially they reviewed the literature from 1963 through March 2003 looking for the incidence of endophthalmitis following penetrating keratoplasty [PK] (corneal transplantation). Of the 66 studies that met their criteria for inclusion, there were 90,549 patients who underwent PK. The incidence of postoperative endophthalmitis was 0.382%. The incidence changed during the time periods studied: 1970s 0.142%, 1980s 0.376%, 1990s 0.453%, and 2002 – 2003 0.200%. Overall there was a downward trend from 1992 and after, compared with 1991 and earlier.

In the second report they review the literature, looking for the incidence of postoperative endophthalmitis following cataract surgery during the same time period. There were

They conclude that the recent rise in the frequency of postoperative endophthalmitis following cataract surgery coincides with the rise in the use of clear corneal incisions.

215 studies meeting the inclusion criteria, representing 3,140,650 cataract extractions. The overall rate of postoperative endophthalmitis was 0.128%. The change in rate over time was different

than for PK: 1970s 0.327%, 1980s 0.158%, 1990s 0.087%, and 2000 – 2003 0.265%. The incidence was found to differ significantly based on the type of incision used during the time period from 1992 to 2003: clear corneal 0.189%, scleral 0.074%, and limbal 0.062%. They conclude that the recent rise in the frequency of postoperative endophthalmitis following cataract surgery coincides with the rise in the use of clear corneal incisions.

Editor's Comments: I'll leave it to you to read

these articles and the authors' comments. While there are limitations in their studies owing to the limitations of all meta-analyses, the results are nonetheless sobering. I doubt that many surgeons would wish to abandon clear corneal incisions, even though the evidence suggests that this approach is associated with a higher incidence of one of the most feared complications of the surgery. The study cited merely confirms what most people already knew.

We had a small cluster of postoperative endophthalmitis in our institution recently after many years of an excellent record. We examined all of our procedures and instituted a number of changes. Although we have had no further cases in several months, we are still skeptical that our changes were effective. Endophthalmitis is a complicated entity to deal with due to the multifactorial nature of the problem. For example, we can take every precaution ever proposed in the perioperative period, but when the patient leaves the surgicenter, all bets are off. Will the patient use the antibiotic drops properly or at all? Will the patient vigorously rub the eye, either consciously or unconsciously? Will the patient observe good hygiene? Are the flora in the patient's conjunctiva susceptible to the effects of the antibiotic drops being used? In one of our three cases, the patient's organism was totally resistant to the latest fluoroquinolone drops she was using, but was sensitive to an earlier (and much less expensive) antibiotic that we no longer use routinely.

Our surgeons have become extremely compulsive about their techniques, especially checking the clear corneal wounds for leaks. If there is any question, a stitch is used, albeit quite rarely. As anesthesia providers, we can help as well. We can be compulsive in our own sterile technique, and we can observe others and point out breaks in technique if we see them. We can also help identify the patient who may be less than coop-

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was then given 25mg diphenhydramine, with slow improvement in her symptoms. By the following day, she was completely cleared and had no memory of the events.

Editor's Comments: I used to use ondansetron in all my strabismus cases, along with dexamethasone. Within the last year or so, we have been using dolasetron instead of ondansetron because it costs less. Our incidence of nausea and vomiting is essentially nil. However, I think we now have to consider that in the rare patient these 5-HT3 receptor inhibitors may produce a rather severe abreaction involving the pyramidal system. The trick is to recognize it for what it is and to apply appropriate therapy instead of chasing our tails by giving agents that will do no good and might do harm. From this report, it would seem that a judicious dose of diphenhydramine and careful watching are the best choices. I have not read the original case report, but I have included the reference here.

References: Pembroke L. Multifocal encephalopathy from ondansetron use is rare, severe. *Anesthesiology News* May 2005, Page 32. Article based on a poster presentation by Dr. Ryan Bortolon at the 2004 Postgraduate Assembly in Anesthesiology. This case report has been published in the *Mayo Clinic Proceedings* 2003; 78:1150 – 1152.

Back to hyaluronidase

A group of investigators from Paris, France, report on the incidence of diplopia following peribulbar anesthesia during two time periods: one in which hyaluronidase was available and routinely used, and one in which hyaluronidase was not available for use. The study involves a chart review of over 7000 patients, 3582 who received hyaluronidase and 3623 patients who did not. There were no cases of diplopia in the patients who had received hyaluronidase in their block mixture, while there were 27 cases (0.75%) in those who did not (results highly significant). The

majority of the diplopia cases involved malfunction of the inferior rectus muscle (40%) or lateral rectus muscle (37%). The diplopia resolved spontaneously in a month in 12 patients (46%). Ten patients required treatment (surgery 2, prism 7, occlusion 1).

Editor's Comments: In spite of being retrospective, this is a good study involving a large number of patients. While it is not the prospective, randomized, double-blinded study one would love to see, it may be as good as we're going to get on this subject. Hyaluronidase seems to help prevent postoperative diplopia following orbital regional anesthesia.

A couple more comments: They, as does almost everyone, used a lot of hyaluronidase (12.5 – 50 units/mL). You don't need that much. One unit per mL is plenty. I have over 20,000 reasons for being so confident. I could be wrong, but it seems to me that I've mentioned this before. Also, I doubt very much that their block was peribulbar, or, more correctly, extraconal. When the needle is directed upward and inward 10 – 20 degrees, I can guarantee you that the tip will be intraconal. Now, there's nothing wrong with its being intraconal. In fact, I prefer it to be intraconal. I just think we need to stop fooling ourselves as to where we think we're putting the needle, and I think we should stop saying retrobulbar and peribulbar and start saying intraconal and extraconal. Fanning's on his soap box again. You gotta love it!

Reference: Hamada S, Devys J, Xuan TH, et al. Role of hyaluronidase in diplopia after peribulbar anesthesia for cataract surgery. *Ophthalmology* 2005; 112: 879 – 882.

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You Asked for It!

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hiscence of the old graft (mind you this was a year old, and the surgeon always tells me if there is a possible leak). In this particular patient the orbital area did not feel "full" as is sometimes the case with these blocks. It certainly did not feel "tight" as I was finishing. I think what is surprising to me is that a dehiscence and choroidal hemorrhage can happen (to this magnitude) with a PBB. It was a 66% dehiscence and quite shocking to witness, even for a veteran.

I applied gentle pressure over the closed eye until the surgeon could examine the patient himself. We were able to regraft and did a vitrectomy. The surgeon immediately sent her to the retinal specialist. My first thought was that there must have been a weak spot on the old graft and the pressure from the block plus the cough was enough to open it. The surgeon wondered if it was an intraocular block. I just don't think that was it—but am not saying it couldn't be. She had no unusual anatomy, and there was plenty of room between the globe and the orbit. The cornea clearly looked cloudy to the naked eye. The surgeon did not see a globe puncture site during the surgery. The patient immediately went to the retinal specialist. He said there was blood in the back of the eye. He couldn't see much, but said he did not see a puncture site either. The retinal surgeon thought the patient had a choroidal hemorrhage (which became expulsive). I have seen those before and had always noted a spike in the blood pressure, but I did not note an increased blood pressure in this instance (normally the increased BP is a precursor to the choroidal hemorrhage).

I feel stumped and horrible about the situation. I just wonder if I missed something or could have done something differently or better.

I feel stumped and horrible about the situation. I just wonder if I missed something or could have done something differently or better. It doesn't seem very probable to me that

she would have a choroidal hemorrhage with a block—I have just never seen or heard of that. I did an Internet search and came up empty handed. Can you shed any possible light? She was not on any anticoagulants.

In addition, on the day of surgery the patient was NLP. The next day on her post-op exam she had light perception. Of course, she was a prior cataract patient, and the lens floated to the back of the eye, so she is in for retinal surgery as well.

– CRNA, Kansas City, KS

Answer #1

A corneal graft dehiscence in this clinical scenario could have been caused by a weak graft-host interface, stress from the pressure created by the block, stress from a possible intraocular injection, or stress from a cough if these other factors pre-existed. There could also have been an unfortunate confluence of a combination of these factors. A significant corneal graft dehiscence could in turn lead to a choroidal hemorrhage, even if the patient was normotensive, because of the loss of intraocular pressure.

– Gary D. Cass, MD, Tampa, FL

Answer #2

First of all, if my interpretation of her description of the case is correct, this patient had an old corneal graft dehiscence plus a choroidal hemorrhage shortly after, following her block and the patient's cough. I agree with her initial impression that a weak graft spot along with the pressure from the block plus the cough probably caused the dehiscence.

However, I think there are plenty of other explanations for the choroidal hemorrhage than a globe perforation, of which it sounds like there was no real evidence anyway. One such explanation is that when the corneal dehiscence occurred, the anterior chamber lost its

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pressure. This would create tension on the retina, and in a susceptible patient could cause a choroidal hemorrhage. I discussed this scenario with one of my surgeons, who stated that this is not only a definite possibility, but that he has heard of that happening without involving a block.

Factors that would make such a patient susceptible to a choroidal hemorrhage include hypertension, advanced age, macular degeneration, anticoagulation, and taking at least one cardiovascular medication. (My references for this are *RETINA*, April, 2003, Yang, and *Br. J. Ophthalmology*, April, 2004, Ling). This patient had at least one of these factors. From her description, the block technique was fine, the patient's anatomy was normal, and this was just a most unfortunate cascade of events.

— Terry Gabrielson, MD, Rancho Mirage, CA

Answer #3

We read this case with great interest. There are a number of relevant ophthalmic anesthesia issues. These include regional anesthesia for traumatized eyes, needle-globe penetration, choroidal hemorrhage, and perioperative patient movement.

Over the past few years we have used regional anesthesia selectively for patients whose eyes have sustained open-globe injuries. Our experience has been published (*Ophthalm Surg Lasers & Imaging* 36 #2:122 – 128, 2005 and *AJO* 134 #5:707 – 711, 2002). While this patient presumably did not have a dehiscence prior to the block, a failed graft is reason enough to be extra cautious during the block. During injection, the lesion is readily visualized for evidence of elevated intraocular pressure. The precise technique used for anesthesia (intraconal vs. extraconal) is indeterminable from the vignette. Nonetheless, it is our impression that ocular force/volume curves seem to be independent of type of block, but more dependent upon speed of injection and intrinsic patient factors (orbital volume, globe size, and tightness/laxity of tissues).

Globe puncture is one of the most dreaded complications of needle-based ophthalmic anesthesia. It necessitates expert ophthalmologic confirmation. It is reassuring that two ophthalmologists were unable to find evidence of needle injury. Since perforation occurs exceedingly rarely, particularly in experienced hands, we doubt the likelihood of needle puncture as the etiology in the case; however, the diagnosis is not precluded.

Perioperative movement associated with Valsalva maneuver can have untoward visual consequences. Increased intrathoracic pressure is transmitted to the orbit via elevated venous pressure. This can occur when a patient coughs, retches, or bucks on an endotracheal tube. Pollack, et al. reported anecdotal case reports of six patients who experienced massive suprachoroidal hemorrhage during pars plana vitrectomy via general anesthesia (*AJO* 132:383 – 387, 2001). *The New England Journal of Medicine* recently presented a case report of a 24-year-old pregnant woman who experienced painless loss of vision after vomiting-induced Valsalva maneuvers (*NEJM* 352 #17 April 28, 2005). The ASA Closed Claims Project found that anesthesiologists are often cited in blindness-due-to-movement cases done under general anesthesia. Conversely, the number and size of claims and awards were significantly lower for movement-related permanent injuries under regional anesthesia (Gild, et al. *Anesthesiology* 76:204 – 208, 1992). Thus, general anesthesia may not be the most prudent option for a patient who has a cough. The notion that all patients should be given prophylactic anti-tussives seems reactionary and inappropriate. The patient in question gave no prior indication of predisposition to cough. Of note, over-judicious sedation may incite reflex cough in some patients.

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Since perforation occurs exceedingly rarely, particularly in experienced hands, we doubt the likelihood of needle puncture as the etiology in the case; however, the diagnosis is not precluded.

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munity hospital setting? *Anesth Analg* 2005; 100:1644 – 1650.

Another point of view

From Germany comes a letter to the editor of the *Journal of Cataract and Refractive Surgery* questioning the necessity of monitoring during cataract surgery under topical anesthesia. They report on 1002 consecutive patients having cataract surgery under topical. 771 received a small dose of oral midazolam preoperatively, while 230 received nothing. All of the patients were ASA Physical Status 3 or less. During surgery, the anesthesiologist intervened in 29 patients, 28 for BP control and 1 for angina. The surgeries took a median of ten minutes, with a range of 5 – 60 minutes. They conclude that the results suggest that an anesthesia provider is not necessary for this kind of surgery. Interestingly, however, they state that it is nice to have an anesthesiologist nearby to help the occasional patient who gets into trouble.

Editor's Comments: My thanks to Dr. Paul Honan for bringing this one to my attention. There are several things wrong with their "study," of course. First, it was not a randomized study in

They conclude that . . . an anesthesia provider is not necessary for [cataract surgery]. . . . [But that] it is nice to have an anesthesiologist nearby to help the occasional patient who gets into trouble.

which half of the patients received anesthesia care and half did not. They did not consider the patient's feeling about anesthesia care, as was done in the study previously discussed. They didn't really think through the problem of the unpredicted major problem. As a good example, we recently had an alcoholic with known alcoholic cardiomyopathy. He did well during his first eye several weeks earlier, but toward the end of the procedure on his second eye, he developed acute pulmonary edema. The question is: what would have happened if no anesthesia

provider had been there to make the diagnosis and initiate treatment? How does one arrange to have an anesthesia provider "nearby" for a free-standing surgicenter? Furthermore, I find the percentage of patients needing intervention (2.9%) in this study to be quite low. At least one study in this country indicated intervention to be as high as nearly 30%. It depends on what one calls an "intervention," of course, but 2.9% seems low. To be sure, the patient can actually be monitored by a nurse trained to recognize problems requiring intervention, but the matter of who does the intervening remains. Will it be the nurse, the surgeon, or an anesthesia provider? I find it hard to accept any answer but the latter, an opinion, I freely admit, that comes from both my personal prejudice and my experience.

Reference: Jonas JB, Pakdaman B, Sauder G, Bender H – J. Is intraoperative monitoring necessary in cataract surgery under topical anesthesia? *J Cataract Refract Surg* 2004; 30:2645 – 2646.

Heads up on ondansetron

A report from the Mayo Clinic summarized in *Anesthesiology News* alerts us to a rare but impressive complication resulting from the use of ondansetron. While it is known that this drug may rarely cause extrapyramidal symptoms, this report advises us that an entity called "multifocal encephalopathy" may also rarely occur. The case involved a 58-year-old woman undergoing a routine procedure. She received 4mg of ondansetron at the end of the case. She was initially extubated, but subsequently became unresponsive with signs of respiratory depression, including labored breathing, falling SpO₂, and chest-wall rigidity. She was unresponsive to verbal commands, combative, and developed clonus and whole-body jerking movements. When she began to wretch, another dose of ondansetron was given. This resulted in increased dystonic movements. The patient

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Patient satisfaction with cataract surgery

Our neighbors to the north, specifically North Bay, Ontario, Canada, published a study of the satisfaction (or lack thereof) of 306 patients undergoing cataract surgery under topical anesthesia and IV sedation. Overall, the level of satisfaction was very high in this group of patients. The authors note that 13% of patients had significant intraoperative pain, and 37% had pain in the immediate postoperative period. Of the 22.5% (69 out of 306) of patients who rated the quality of their experiences as low (mean score less than 5 out of a total of 6), the following factors were most predictive of a low score: being male, preoperative anxiety, postoperative pain, and any other postoperative adverse event. Another interesting finding was that patients rated the anesthesiologist's care as important only 66% of the time preoperatively, but this increased to 88% when questioned postoperatively. As a result of their analysis, the facility made some changes. For example, one of the two surgeons involved routinely administered pilocarpine intraoperatively at the end of the case. His patients had a much higher incidence of postoperative pain. He has since abandoned this practice, and the incidence of postoperative pain in his patients has fallen.

Editor's Comments: I highly recommend your reading this article in its entirety. There are many nuggets worth thinking about. The high incidences of pain bother me. Is enough topical being applied? When is it applied? People forget that topical anesthesia may not last more than about 30 minutes, less in some people. Do more than 10% of your topical patients complain of pain during surgery? The postoperative figure is a little more understandable, but even that should be much less than the reported 37%. One of our surgeons routinely uses NSAID drops preoperatively, while the second did not. The second's patients had a higher incidence of postoperative pain, even though he is the faster of the two. He has now started to use the NSAID

drops, and we are seeing a reduction in postoperative pain in his patients.

Some of the complications they mention bother me, especially respiratory depression. I am biased, of course, because I virtually never use an opioid in cataract surgery. In fact, I like to treat preoperative anxiety using midazolam and thiopental before the patient ever enters the OR. Then I know how the patient will respond to sedation if I need to administer more in the OR,

which most often I do not unless the patient is obviously very anxious. If you use the topical anesthesia properly (and our surgeons use intracameral as well), you really shouldn't need an opioid very often, in my opinion.

This study should somewhat cool the fervor of those who would completely do away with the anesthesia provider in cataract surgery. The fact that 88% of the patients after surgery were appreciative of the anesthesia care is heartening. I don't know if the providers in this study held their patients' hands, but I'll wager that if they had, the level of satisfaction would have been even higher, especially among the women patients (I think the men are just as appreciative, but a lot less vocal about it). The human touch plus remaining in control by just squeezing someone's hand are important factors in helping to ensure patient satisfaction. The comment cards returned by our patients attest to this time after time.

Reference: Fung D, Cohen M, Stewart S, Davies A. What determines patient satisfaction with cataract care under topical local anesthesia and monitored sedation in a com-

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This study should somewhat cool the fervor of those who would completely do away with the anesthesia provider in cataract surgery. . . . 88% of the patients after surgery were appreciative of the anesthesia care . . .

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Spontaneous choroidal hemorrhage is associated with hypertension, systemic anticoagulation, advanced age, and macular degeneration. It is extremely uncommon in patients not taking anticoagulants. Hypotonia due to the pre-existing dehiscence and chronic inflammation from prior procedures may also predispose an eye to choroidal/suprachoroidal bleeding, either spontaneously or as a result of indirect insult such as coughing (*Intl Ophthalmol Clin* 40 #2, 2000).

The precise mechanism of this injury remains speculative. However, considering the account of events and reviewed literature, we tend to doubt that this was a globe perforation but favor an episode of acute intraocular hypertension due to a Valsalva maneuver in association with a local anesthetic-filled orbit.

– Dr. Steven Gayer, Dr. Howard Palte, and Dr. Jacqueline Tutiven, Bascom Palmer Eye Institute, Miami, FL

Answer #4

This case reminds us that all things can go smoothly for months or even years, but one is never immune from horrible things happening, no matter how careful or experienced one is. Seemingly, the orbital anatomy was pretty normal, although the globe was not. We don't know what the original pathology was leading to the graft—was it perhaps rheumatoid? I think 5mL injected into the globe would have created problems prior to the withdrawal of the needle and the cough, although perforation (as opposed to penetration) with retrobulbar injection remains a possibility, even though unlikely with an experienced blocker and normal anatomy. So, what are the alternatives? I guess a weak graft plus cough could do this. I suspect that choroidal “expulsive” hemorrhage requires only a very transient pressure rise (IOP or systemic)—it is probably rapid change rather than absolute that is relevant, and failure to detect such a rise a few minutes later would not be surprising. My guess is that this was the cause, especially as the anesthetist gives a description of an orbit

with plenty of space and slow, low-volume injection. No mention was made of pain during the block. I wonder how much analgesia/sedation had been used and could this have masked pain during performance of the block? My take-home message would be that we earn our bread and butter and can never relax—things sometimes go wrong!

– Dr. Robert Johnson, Bristol, England

Surgicenter sanctioned for “compounding” cataract mixture: Does your center mix preoperative ocular medications?

Our surgicenter was recently surveyed by the state health department. We received a sanction because we routinely use the following mixture for patients having cataract surgery under topical anesthesia: 5mL 2% lidocaine gel, 4 gtts Mydracil, 4 gtts 1% cyclogel, 4 gtts 10% neosynephrine, 10 gtts Vigamox, and 4 gtts Acular. This mixture is prepared fresh daily by a nurse and placed in sterile syringes for use. Drops of the mixture are administered twice prior to the OR, with excellent results in terms of both pupillary dilatation and anesthesia. Any mixture left over is discarded at the end of the day. The nurse surveyor contended that this practice constitutes “compounding” and that it should only be done by a licensed pharmacist under a sterile hood. I know of many practices in our state that are doing this same thing, and everyone is worried that all will be sanctioned.

When I asked our consultant pharmacist about this and even nurses mixing epinephrine in with the BSS irrigating solution at phaco, I was told that this was not compounding; rather, it was just “administrative technique.” I think that we are caught in a form of judicial legislation that is overlooking practicality and patient benefit. If I can get enough information to document mixing of preoperative ocular medication as standard of care in ophthalmology, then perhaps we can

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get the interpretation of well-meaning regulation to conform to best-practice standards.

– *Ophthalmologist, Alexandria, LA*

Answer #1

We prepare our gel-mixture in much the same way each day, and it is also discarded at the end of the surgery day. I plan on taking this question to our licensed pharmacy consultant for interpretation. He may well have to present it to our state Board of Pharmacy; however, as our consultant, he will not divulge our center's identity. I also plan to contact a local compounding pharmacy where we purchase medications for their interpretation.

– *Michael Cosgrove, CRNA, Livonia, MI*

Answer #2

What an interesting problem! I started to approach each of the elements and then realized that what was most important was not my clinical judgment but rather Louisiana's administrative code. The question here revolves around what actions are considered "compounding" based on Louisiana law and administrative code. I am willing to bet a large sum of money that this question has 50 different answers based on the Pharmacy Acts of the different states.

My recommendation to the ophthalmologist would be that he ask to have an opinion on the matter rendered by his state Pharmacy Board. Our advice could be offered as an "amicus curiae" style of document, but it may not help him. If the Pharmacy Board decides in his favor, he is home free, but if not, there is little our advice can do to help him.

The point I would advise him to give the Board is that these mixtures, as prepared by the nurse, would be the same as those given by individual drops given in sequence. The mixtures have the advantage of allowing each medication to have a predictable effect, rather than the random and uncontrollable effect of giving the drops one after the other. Asking a consult-

ing pharmacy to compound these items would be very expensive with little, if any, demonstrated improvement in patient care.

– *Dan Simonson, CRNA, Spokane, WA*

Answer #3

We do very few topicals here, but we do use several of the drugs you mentioned preoperatively. We only have a licensed pharmacist come once a month to check drugs, etc.

Since I have not seen the nurse in the facility in Louisiana prepare the mixture, I can only assume that it is done under sterile conditions and with due diligence. I have not seen anything in the peer-reviewed literature about a similar mixture. The whole thing sounds rather like bureaucracy at work to me.

– *Chuck Zueck, CRNA, Frankfort, IL*

Answer #4

This is an interesting question. I seem to see someone at the state level trying to justify his/her job. I do not use this particular mixture, but see nothing wrong with this practice, see no need for a pharmacist to do the mixing, and am not aware of any peer-reviewed material on this matter. By extrapolation, would this mean that every time we mix our local and adjuvants for an eye block, we should do so under a hood and/or by a pharmacist? It makes no sense to me. If we were having a major problem related to our current practices, wouldn't we have known it by now? I mix bupivacaine, neosynephrine, and cyclogel for use on pledgets and have not had a problem in six years. I certainly look at this ruling in Louisiana with a lot of skepticism.

– *Louis DeLuca, CRNA, York, NE*

I do not use this particular mixture, but see nothing wrong with this practice, see no need for a pharmacist to do the mixing, and am not aware of any peer-reviewed material on this matter.

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Under the Covers

Gary Fanning, MD

One more thing to worry about

From Kiel, Germany, comes an interesting case of probable air embolism occurring during intraocular surgery. A 55-year-old man was undergoing retinal-detachment surgery under general anesthesia. During the air-fluid exchange, which was being done with a 20G cannula and 40mmHg air pressure, the patient's vital signs deteriorated, with falling SpO₂, falling blood pressure, and falling ETCO₂. Within a minute, listening over the precordium revealed the presence of a "distinct mill-wheel murmur." All infusion lines were quickly checked, but no other source of air embolism could be found. The air-fluid exchange was stopped, and other measures were taken, including reducing the level of anesthesia, administering 100% O₂, and giving two bolus doses of norepinephrine. The patient ultimately did fine, and no other explanation for the murmur or intraoperative deterioration was found. The authors conclude that the embolism must have occurred when air entered a choroidal vein.

Editor's Comments: This is an interesting case, one which must have really puzzled the anesthesia team at the time. Can air embolus really occur with simply putting air into the eye? You bet! When I was a resident, there was a case of air embolus when one of the ENT residents used a Pulitzer bag (remember that one?) to insufflate air into the ear through a myringotomy.

A couple of things puzzled me a bit about this case. Does a 20G cannula sound rather large for this purpose? It may not be, but it sounds large to me. A pressure of 40mmHg also sounds a bit excessive, but I may well be wrong on that one, also. How many of you have ever heard a "mill wheel?" It's loud. The murmur from gas embolism is very distinct, and a well-placed precordial stethoscope will pick it up quickly when the embolus is this large. For more subtle degrees of

gas embolism, you need to use a precordial Doppler or even transesophageal echocardiography, both of which these authors mention in their discussion. I have always felt that a precordial stethoscope constantly plugged into the anesthesia provider's ear is a mandatory monitor for intraocular surgery under general anesthesia. I also feel that way about any procedure involving injection of gas of any kind into the patient's body, no matter where. I detected gas embolism with my stethoscope during a routine laparoscopic tubal ligation once and undoubtedly saved the woman's life. When the surgeon opened her, he saw that the needle delivering the CO₂ had been placed into an omental vein. So when you're doing anesthesia for retinal surgery, please use a good precordial or esophageal stethoscope. If you have the ability to use a precordial Doppler, by all means do so if an air-fluid exchange is going to be done.

One last thing about this case disturbed me a little. I know the surgeon might croak, but when you make the diagnosis of gas embolism, the first and most important steps are to stop the source of gas and appropriately position the patient. Proper positioning means putting the patient in steep Trendelenburg and turning the right side up. This will allow the gas bolus to float away from the tricuspid valve into the apex of the right ventricle. It really works. They didn't do this in this case, which I think was a mistake, in spite of the grief they would have received from the retinal surgeon. Fortunately, all turned out well for the patient.

Reference: Ledowski T, Kiese F, Jeglin S, Scholz J. Possible air embolism during eye surgery. *Anesth Analg* 2005; 100:1651 – 1652.

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Member Spotlight: Boozman-Hof

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Kelly Butcher conducts a post-op interview

insurance limits are the same for all providers. The anesthesia group contracts with the ASC and maintains its own billing office. All providers are part of HMO, PPO, or other provider contracts so that the patients are covered for provider and facility charges. The group recognizes any charity cases as determined by the facility policy.

What do we do for anesthesia?

First, all anesthesia providers are skilled at blocks, which we refer to as low-volume, short-acting intra-conal blocks. We believe this best describes the type of the block that is performed. Choices of anesthetic agent will vary depending on the length of the duration desired. In our setting today, about 50% of our patients receive blocks, while the remainder receive topical anesthesia, depending upon the procedure surgeon's preference. All our patients are fully monitored and have an intravenous site, even though continuous intravenous fluid administration is rare.

For routine cataract surgery, a low-volume, short-acting block, along with IV sedation, is utilized. The patients and surgeons have been very happy with this approach, which has been nicknamed "I didn't know you started" anesthesia because of the reaction of our patients. For other procedures requiring more time, a long-acting block, along with IV sedation, is utilized.

Our practice regarding sedation may be different from most centers in the country. We

may sedate patients more than others, and IV midazolam and fentanyl are routine. We simply want our patients to be comfortable and relaxed, and find that people tend to be apprehensive about the idea of eye surgery. On selected cases we also use a propofol drip, for example, in the young, extremely apprehensive, and in the longer-duration plastic procedures. Every effort is made to determine anesthesia needs on a case-by-case basis, trying to avoid the "one-size-fits-all approach." Patients are evaluated pre-operatively by the surgeon and preop nurse, and important issues are communicated to the anesthesia staff, such as patient anxiety, claustrophobia, positioning challenges, sensitivity to sedation, or excessive axial length to name a few.

Although we like our approach, we are continuously looking for ways to make it better for the patients and surgeons. For example, we recently began using "slurry" for topical application of dilating and anesthetic agents, as recently described by David Chang, MD.

Next time you are vacationing in the Ozarks or nearby Branson, we would welcome you to call in advance and come by for a tour and firsthand look. •



Everett Fountain checks a patient chart at the Boozman-Hof Eye Surgery and Laser Center

You Asked for It!

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Answer #5

As a pharmacist specializing in ophthalmology, I will attempt to answer the questions as objectively as possible. Unfortunately, the inspector is probably right. Although the definition of "compounding" may vary from state to state, it is generally accepted that compounding is the professional act by a licensed practitioner of "incorporating ingredients to create a finished product for dispensing to a patient or for administration by a practitioner or his agent; and shall specifically include the professional act of preparing a unique finished product..." (Florida Rule Section 64B16 – 27.700)

The closest product we make to the one described is probably just dilating "combo" drops, which include phenylephrine 10%, cyclopentolate 2%, and topicamide 1%. I do know, however, that many practices use pledgets or "wicks" soaked in multiple ophthalmic drops, including dilating drops, anti-inflammatory drops, and an antibiotic prior to cataract surgery, and there is literature to support this (*J Cataract Refract Surg* 2003; 29:2060 – 2062).

I do have a few concerns with the practice that was described and certainly not because I feel that a pharmacist is the only practitioner qualified to prepare such a product.

We do all of our compounding here in the hospital in a cleanroom environment, under a laminar flow hood by a licensed pharmacist. Our satellite physician-based practices, which don't have

these facilities, contract with a nearby compounding pharmacy to provide patient-specific compounds.

I do have a few concerns with the practice that was described and certainly not because I feel that a pharmacist is the only practitioner qualified to prepare such a product.

1) First, is there any literature to support the mixing of these products? Individually, these products may seem benign, but are they com-

patible and how long are they stable? Four hours, thirty days, a year?

2) Second, is this an accepted standard of practice? It appears that other centers in that community do the same thing, but I don't believe it is a recognized standard of practice in ophthalmology.

3) Third, I feel uncomfortable with the product being mixed in a syringe. It may seem silly, but many serious errors have occurred when a nurse or physician mistakenly attached a needle to a syringe with drug intended for oral or topical administration. I would prefer that it be mixed in a sterile dropper bottle.

4) Next, does the center have a written policy & procedures (standard operating procedures) manual that describes this practice and how safe it is for patients?

5) Last, the United States Pharmacopeia (USP) recently revised its chapter on "Pharmaceutical Compounding: Sterile Preparations" and numbered it as Chapter 797. What does it mean? Any chapter in the USP below 1000 becomes FDA enforceable, regardless of whether the state adopts it or not. This chapter provides specific guidelines on what is expected of anyone compounding or preparing sterile products. I'm fairly certain that this particular center would not be in compliance with the strict and voluminous requirements described in the chapter. In fact, most compounding pharmacies and hospitals are now scrambling to comply. The only defense I can see for the surgery center is to provide literature confirming that mixing these medications is safe and then convince the state that the preparation is intended for "immediate use." You can justify that a product does not have to be mixed by a pharmacist if it is for immediate use. Although I don't believe a time frame has been attached to the term "immediate use," it means that there are no other steps between the mixing of the drug

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MEMBER SPOTLIGHT

This issue's Member Spotlight features Randall E. Cole, MD, FACS, and Clyde Tempel, CRNA, of Boozman-Hof Eye Surgery and Laser Center.

Boozman-Hof Eye Surgery and Laser Center

The Boozman-Hof Eye Surgery and Laser Center opened its doors in 1996 as the first freestanding single-specialty ophthalmic surgery center in Northwest Arkansas. It remains the only such center in Benton County, which also serves as the corporate headquarters to the world's largest retailer, Wal-Mart. Along with Wal-Mart, the area is home to the nation's largest poultry producer, Tyson's Foods, and the nation's largest trucking firm, J.B. Hunt. The area has grown at an unusually rapid rate over the past decade.

Since opening, the center has performed 28,823 procedures, including cataracts, penetrating keratoplasty, strabismus surgery, glaucoma-filtering surgery, cosmetic and plastic procedures, and Lasik and Lasek refractive procedures. A remarkable achievement is the number of intraocular cases completed over the past nine-and-one-half years without a single case of endophthalmitis.

The center has performed over 17,000 intraocular procedures with nine surgeons using a comprehensive prophylaxis system that has resulted in no infections. Randall E. Cole, MD,



Clyde K. Tempel, CRNA, completes paperwork

FACS, and Donna Acord, RN, have published and presented papers and courses regarding the system and its success.

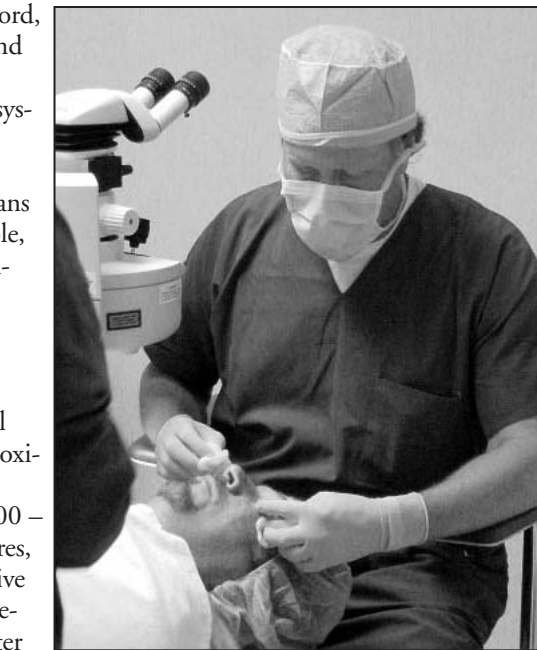
The operating physicians include Randall E. Cole, MD, FACS, who additionally serves as the Medical Director; C. William Hof, MD, FACS; and Lucas O. Platt, DO. The annual caseload includes approximately 1600 – 2000 cataract procedures, 600 – 800 Yag laser procedures, and 300 – 400 refractive laser procedures. In December 2002, the center entered into a corporate partnership with Amsurg, Inc., of Nashville, TN.

Our staff includes eight full-time and three PRN Registered Nurses, three business-office personnel, and one unlicensed full-time assistant in the operating room. Annually, the nurses, anesthesia staff, and physicians are trained in ACLS.

The Anesthesia Department

The anesthesia director is Clyde K. Tempel, CRNA, who began his practice in Rogers in 1971. He has been doing anesthesia at the center since its opening in 1996, having stepped down from full-time hospital practice in 1998. The ASC contracts exclusively with Clyde as the anesthesia provider, and two other CRNAs provide backup for him.

The goals of the anesthesia department are to provide safe, professional, quality, timely ophthalmic anesthesia with a gentle touch and caring heart, and each member is completely dedicated to these goals. This results in happy patients with good outcomes.



Dr. Randall E. Cole performs laser surgery

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Member Spotlight: Boozman-Hof

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The three CRNAs represent nearly 75 years of anesthesia experience with tens of thousands of ophthalmic anesthesia cases. Clyde is a charter member of the OAS and has served on the Advisory Board. All of the members of the anesthesia department are OAS members.

We believe that the OAS represents the best setting for all ophthalmic anesthesia providers

to develop, maintain, and foster high-quality professional ophthalmic anesthesia. We take continuing education very seriously and believe that educational efforts should closely reflect and parallel one's practice. All anesthesia providers are fully credentialed and obtain staff privileges just as any other provider. Liability

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and administration to the patient. If a physician, nurse, or ophthalmic tech mixes the drug and sets it down or walks away to perform another task before administering it to the patient, this would not qualify as "immediate use."

Although it should be clear from my remarks, I would not feel comfortable defending this practice. However, I am hopeful that my comments and references can provide some guidance on a defense.

— Serafin Gonzales, PharmD, CPh, Bascom Palmer Eye Institute, Miami, FL

Editor's Comments: This is a very sticky situation. Here we have a practice that takes several commonly given medications and mixes them together instead of giving them separately. We know that mixing these drugs causes no harm because we've been mixing them together drop-by-drop in the eye for years. On the other hand, do we know what happens if these drugs sit together in a syringe or bottle for several hours? Ideally, studies should be performed in animals, followed by clinical trials in humans, followed by application to the FDA by a pharmaceutical firm to manufacture a useful compound such as this and put it on the market. The practice that raised this question is certainly not the only one in the country doing exactly the same thing, and others would undoubtedly use a proven-safe, commercially available compound. In fact, a few years ago you may

remember a lunch presentation on this very subject by an OAS member, who worked with a prominent ophthalmologist. With the drugs that are currently in use, the practice may be very safe. But think what might happen if a brand-new drug is released that, when mixed with other commonly used agents, releases a caustic compound after 45 minutes of exposure at room temperature. Perhaps we ought not to be wholly cavalier when it comes to mixing things together.

Another question arises, however. Does adding adjuvants to our local anesthetics constitute compounding? If so, we are all in a world of hurt. This practice has gone on for decades. We may be safe because an abundance of support in the world literature supports doing it, but we had all better be ready to face that battle.

I suggest you read about USP Chapter 797. The following website gives you a primer on the chapter and information on how to order it if you are so inclined: www.nhianet.org/docs/usp_797_primer.pdf. Be sure you consume a couple cups of strong black coffee to stay awake, and be prepared to consume something later to calm your nerves.

One other point regarding Dan Simonson's response: This isn't a state-by-state situation. Chapter 797 clearly makes it a federal issue.

My thanks to all for their input on this issue. Perhaps we need to explore this more at a future annual meeting. •