# ABOUT THE PANELISTS

*Moderator*

**W. BRUCE JACKSON, MD, FRCSC:** Dr. Bruce Jackson is an ophthalmologist who specializes in cornea and external diseases and refractive surgery. In 1986, he became Ophthalmologist-in-Chief at the Royal Victoria Hospital and in 1987, Chairman of the Department of Ophthalmology at McGill, Program Director, and Research Director. He held the position until 1991, when he moved to the University of Ottawa and became Chairman of the Department of Ophthalmology and Director General at the University of Ottawa Eye Institute, The Ottawa Hospital until the end of his mandate, in June 2008. He is the recipient of the Canadian Ophthalmological Society and the Eye Physicians and Surgeons of Ontario's Lifetime Achievement Awards.

**SETAREH ZIAI, MD, FRCSC:** Dr. Setareh Ziai is an Assistant Professor of Ophthalmology at the University of Ottawa Eye Institute. She completed her residency training in ophthalmology at the University of Ottawa Eye Institute, followed by two years of fellowship training in cornea, external disease, anterior segment, and refractive surgery. Her practice encompasses tertiary care clinical and surgical ophthalmology, with a focus on ocular surface disease, corneal transplantation, ocular tumour resection, anterior segment reconstruction and complex cataract surgery. She is heavily involved in clinical research, as well as resident and fellow surgical and clinical training. She is the Director of the Cornea, Anterior Segment & Refractive Surgery Fellowship Program, as well as the Director of the Ophthalmic Medical Technology training program at the University of Ottawa Eye Institute. She is also a founding member of Canadian Women in Medicine and a member of the Canadian Ophthalmological Society Board of Directors.

**GUILLERMO ROCHA, MD, FRCSC, FACS:** Dr. Guillermo Rocha is Medical Director of the Ocular Microsurgery & Laser Centre in Brandon, MB. He trained in ophthalmology at McGill University in Montreal and has completed subspecialty training in ocular immunology and inflammation (McGill University), and cornea and external diseases (University of South Florida, Tampa). He completed the Physician CEO Executive Program at the Kellogg School of Management, Northwestern University in Chicago, IL in 2016. He is Professor of Ophthalmology at the University of Manitoba, President of the COS Foundation, past President of the Canadian Ophthalmological Society (2016-2018), past President of the Canadian Cornea, External Diseases and Refractive Surgery Society, and former Head of the Department of Surgery at the Brandon Regional Health Centre (2004-2009). In the Canadian Ophthalmological Society, he is a past Board Member and past Chair of the Council on Continuing Professional Development.

**DOMINIQUE BOURRET-MASSICOTTE, MD, FRCSC:** Dr. Dominique B. Massicotte is a comprehensive ophthalmologist and Department Head at CIUSSS Capitale-Nationale, Quebec. She is currently an Assistant Professor at Laval University, in charge of the Ethics Course in Ophthalmology and a Wetlab instructor focused on challenging cataract surgeries. She was invited to speak about her experience on starting a new department at the first Next Gen meeting in San Diego. Passionate for continuous refinement in cataract surgery, she was part of the faculty during the Canadian Ophthalmology Society Co-Developed Symposium, sharing pearls on the management of challenging surgical cases. Finally, while as a resident she helped create the annual All About IOLs symposium, she is now a faculty member dedicated to empowering the residents to better understand intraocular lens choices.

**HALL CHEW, MD, FRCSC:** Dr. Hall Chew received his MD from Dalhousie University and completed his Ophthalmology residency at the University of Toronto. He then completed a Cornea, External Disease fellowship at the Wills Eye Hospital in Philadelphia, PA. He is a Professor in the Department of Ophthalmology & Vision Sciences at the University of Toronto.

# Maximizing the Ocular Surface Prior to Ocular Surgery: An Expert Roundtable Discussion

**W. Bruce Jackson, MD, FRCSC**
**Setareh Ziai, MD, FRCSC**
**Guillermo Rocha, MD, FRCSC, FACS**
**Dominique Bourret-Massicotte, MD, FRCSC**
**Hall Chew, MD, FRCSC**

*Dry eye disease is common as people age, and it's often asymptomatic. Ensuring the best outcomes, safety and patient satisfaction for cataract and other ocular surgeries requires careful examination and step-wise treatment of ocular surface disease.*

**Bruce Jackson (Moderator):** When we look at The Prospective Health Assessment of Cataract Patients' Ocular Surface (PHACO) study, it revealed that most people who underwent cataract surgery had some degree of ocular surface disease. In the study, among patients with a mean age of 71, 60% to 87% with dry eye disease were asymptomatic. However, more than 70% had a tear breakup time (TBUT) of less than five seconds and 77% corneal staining. Improving the ocular surface is necessary to determine whether patients indeed need surgery, and which surgical option will result in the best outcome.

**In your practice, how important is it to examine the ocular surface prior to surgery?**

**Setareh Ziai:** We know that ocular surface disease is more common in women, and with aging. We also know that much of cataract surgery happens in the older population. Lastly, we know that a poor ocular surface can affect short- and long-term outcomes of surgery. Knowing those facts makes it undeniable that we need to properly assess the ocular surface before any type of ocular surgery.

**Guillermo Rocha:** With the advent of premium lenses, it is imperative to address the ocular surface. We noticed that the measurements that we took for intraocular lens implants prior to cataract surgery were not always accurate. In addition, people would say that they could read for a few minutes and then their vision "goes away." Or they would comment that they can watch TV or drive, but when they blink, their vision can become blurry. In these cases, ocular surface disease, rather than cataracts, is what's impairing a patient's vision.

**Dominique Massicotte:** I often ask patients to describe their eye challenges in their own words. Often, they tell me about redness in their eyes or eye fatigue. It's important to ask about their symptoms in detail because, in some cases, moving forward with cataract surgery could exacerbate their symptoms. At the slit lamp, I like to quickly measure the tear meniscus and breakup time and then look for rosacea and meibomian gland dysfunction.

**How do you treat the ocular surface prior to surgery?**

**Hall Chew:** I encourage warm compresses and preservative-free artificial tears. If there is ocular surface inflammation, I may suggest low-dose steroids, while making sure that patients don't have any issues with infection or pressure spikes. Then, I'll have patients come back after 2–4 weeks to recalculate. Sometimes I do serial calculations to see if I can find consistency. It can be important to make patients aware of the variability, and the challenges that this poses for cataract surgery.

**G.R.:** We send letters to patients outlining specific lid hygiene routine, even before patients come into the office. We suggest warm compresses every day, tea tree oil cleansing, and artificial tears as needed. Many of the patients come in having already done this before they see us for an assessment. We tell patients to continue performing this routine until the time of surgery and then to start again one week post-surgery.

**S.Z.:** Some patients only need a little bit of what I like to call "TLC": Teaching them about increased humidity and less screen time, Lubrication, and Compresses. I also recommend Omega-3 supplements.

**B.J.: What about the patient that has mild lid disease, rapid tear breakup and significant corneal staining. Would you delay surgery to improve the surface?**

**D.M.:** I would treat the patient with artificial tears, ideally without a preservative. I really like gel at night. I also ask patients about how they heat their homes—wood-burning heat is especially drying—and I recommend a humidifier accordingly. If the ocular surface has improved three to four months later, I repeat the biometry. I make sure that patients continue their efforts until the surgery, explaining that the surgery will be better tolerated by them and easier for me.

**H.C.:** Patients don't like to delay surgery, so communication is very important. It's important to set the expectation that dry eye disease may be more symptomatic as they heal after cataract surgery, and as they taper off steroids. This helps to reinforce the importance of taking the time for good eye hygiene.

**B.J.: The literature suggests that treating patients with a steroid, cyclosporine, or both, can improve the post-operative outcome, if the patient has keratitis associated with dry eye. This is something I do in my practice. Do you do this as well, with more severe dry eye patients?**

**S.Z.:** As we get into more advanced dry eye, I bring cyclosporine, oral tetracycline, and punctal occlusion into my therapeutic armamentarium, depending on the severity of the case and the underlying cause. I also use a short course of a steroid drops for about one month before measurements and surgery. This is not ideal for long-term treatment, but it reduces some of the inflammation in order to improve our measurements and maximize our surgical outcomes.

**H.C.:** It's important to use steroids, when necessary, but also to explain the importance of tapering off the steroids, because chronic use can lead to glaucoma.

**G.R.:** If we see a significant amount of keratitis, I will use cyclosporine ahead of surgery.

**B.J.: Is there anything you do differently in the operating room for patients with dry eye disease?**

**G.R.:** We use a wick for dilating patients, so we're not always adding drops, which makes patients more comfortable.

**D.M.:** After the surgery, I like to put a pressure patch on those patients with severe dry eye disease and have them sleep with it the first night. This seems to lower patients' pain, because they don't open their eyes, and they don't have their eyelid rubbing on the surface that has ultimately dried during the surgery.

**H.C.:** I also patch the eye for patients after surgery. I usually see patients a few hours later, as my patients often tend to be discharged on the same day. When I check their eyes, I don't usually put another drop of topical anesthetic in, because that can further dry the eye. In addition, when preparing for surgery, I only put the anesthetic in the surgical eye. If you anesthetize both eyes, the blink rate will be reduced in both eyes.

**B.J.: Let's discuss a case. A 73-year-old male was referred for possible cataract surgery. His only complaint was decreasing vision over the past year. The initial examination revealed ocular rosacea with meibomian gland disease, 20/30 and 20/40 best corrected vision, a rapid tear breakup and central epithelial basement membrane dystrophy (EMBD) lines as well as inferior superficial punctate keratitis in both eyes. How do you manage this patient?**

**S.Z.:** I would treat the ocular surface with the TLC method I mentioned earlier and oral doxycycline or minocycline. I would also treat the EBMD with phototherapeutic keratectomy. I would expect the vision to improve significantly after these treatments, and the patient may not end up needing cataract surgery at this point. We really can't tell until we clean things up because the surface is so poor and affecting the vision in ways we cannot measure.

**D.M.:** Again, I would start by asking the patient to describe his symptoms. He likely thinks his red eye and burning are from his cataract, and that the surgery will fix the problem. I would explain that the ocular surface problems are separate from the cataract issue, and that he has to put effort into treating the ocular surface. I would encourage eyelid hygiene and artificial tears, and then I would start doxycycline on the second visit. If the tear film and surface hasn't improved by the third visit, I would address the EBMD with a superficial keratectomy or a PTK.

**H.C.:** After optimizing the ocular surface, the patient may be happy with their vision and comfort level. It makes the risk-benefit decision regarding surgery more straightforward for the patient.

**G.R.:** This is one of the most common complex cases I see. I divide my treatment approach for these patients into two steps. First, I focus on fully treating the meibomian gland dysfunction with lid hygiene,

doxycycline, fusidic acid, and lubricating drops. I bring them back three months later, and do a superficial keratectomy. I use anesthetic, betadine, and then a lid speculum, and use a couple of dry cotton tip applicators to peel off the EBMD. I then do the biometry after another month. It's very rare that I do a phototherapeutic keratectomy on patients with EBMD.

**B.J.: I also always treat EBMD before considering cataract surgery. I have seen two to three lines of improvement come just from superficial keratectomy or PTK. However, I would suggest waiting longer, as I've seen the refraction change up to three months post-operatively.**

**What about patients with Salzmann's nodular dystrophy? Do you proceed with cataract surgery, or do you first remove these and let the cornea heal?**

**S.Z.:** Topography is always helpful in knowing how much a Salzmann's nodule is affecting the vision and more importantly, the visual axis. I treat most cases of primary Salzmann's nodules prior to cataract surgery. Recurrent nodules can be trickier to treat, and are sometimes left in place, assuming they are small and relatively stable.

**G.R.:** We first treat the ocular surface. Then, when they come back, we peel off the nodules at the slit lamp. I take Colibri forceps and move the epithelium around, find the edge, and they simply just peel off. You don't even have to do a complete keratectomy. After a few weeks, we remeasure them.

**H.C.:** I usually do the removal in the treatment room, but if the treatment room is being used, we will do the removal at the slit lamp.

**B.J.: What about pterygium prior to cataract surgery?**

**S.Z.:** I would excise most pterygia prior to cataract surgery. The exception would be a very small and peripheral pterygium in an elderly patient. If the lesion is not affecting the visual axis or the corneal curvature, and has looked the same for the past 40 years, it is unlikely to become an issue anytime in the future.

**H.C.:** Unfortunately, you can see surgically induced necrotizing scleritis (SINS) post pterygium excision, and we recently saw a patient with a perforation as a result of surgery. So, you have to be careful with pterygium removal. But if it's affecting the vision, with no signs of corneal scleral thinning and/or rheumatological disease, it's reasonable to proceed with removing it.

**G.R.:** If there is significant astigmatism, especially more than 1.25 or 1.5 diopters, I would remove it.

**B.J.: Do you manage patients differently if they have other corneal lesions, scars, or dystrophies, and may also have cataracts?**

**S.Z.:** You want to ensure that keratoconus and pellucid marginal degeneration are as stable as possible prior to surgery. I would not treat other corneal conditions, such as difficult-to-treat dystrophies, small scars and early Fuchs' dystrophy. In all cases where a corneal pathology is being left untreated prior to cataract surgery, it is of utmost importance to manage the patient's expectations prior to surgery. They should know that the outcome is not guaranteed, that they may need glasses post-operatively and that their corneal condition (and thus their vision) could change over time.

**H.C.:** I try to avoid penetrating keratoplasties, given the risks involved with them, compared to the endothelial and lamellar transplants we can now perform. One tip I've incorporated into my practice is to use the medium setting of your light filter, make the beam very broad and look straight on. That will mimic the operating room view. If you think you can safely do the cataract surgery with that view, then you should go ahead.

**B.J.: This has been a very helpful discussion, highlighting the importance of thoroughly examining (not just looking at the tear meniscus), and treating the ocular surface prior to surgery. Do you have any final takeaway points?**

**D.M.:** I would say that artificial tears are your best friend, pre-operatively and post-operatively. I always prescribe artificial tears the second month after surgery. This keeps the patient comfortable and precludes the need for many phone calls to our clinic.

**H.C.:** I would like to underscore the importance of avoiding the use of topical nonsteroidal anti-inflammatory drugs (NSAIDs), in patients with significant dry eyes and possible rheumatological disease which may lead to catastrophic events (i.e., corneal perforations, thinning, and scarring). Always consider that patients who have significant ocular surface disease and keratitis sicca, may have underlying rheumatologic issues (i.e., rheumatoid arthritis, Sjogren's syndrome) which can lead to permanent vision loss when topical NSAIDs are used.

**G.R.:** In 2022, we have very good lenses and biometers for cataract surgery. The drawback is that if we don't get good data, the results will be poor. So it's necessary to optimize the ocular surface. Keratometry readings are one of the two most important variables in calculating lens powers.