Unique Uses of Scleral Lenses

Steven Sorkin, O.D. and Suzanne Sherman, OD

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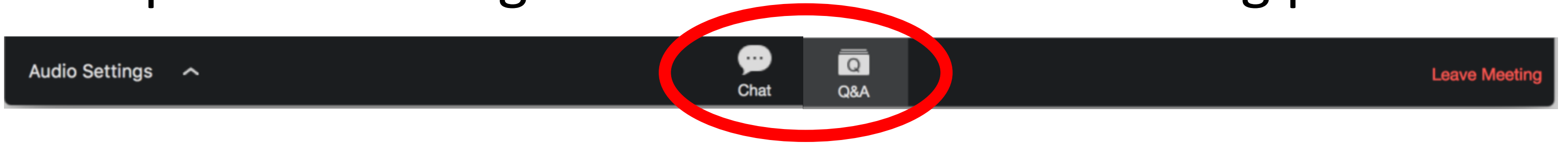

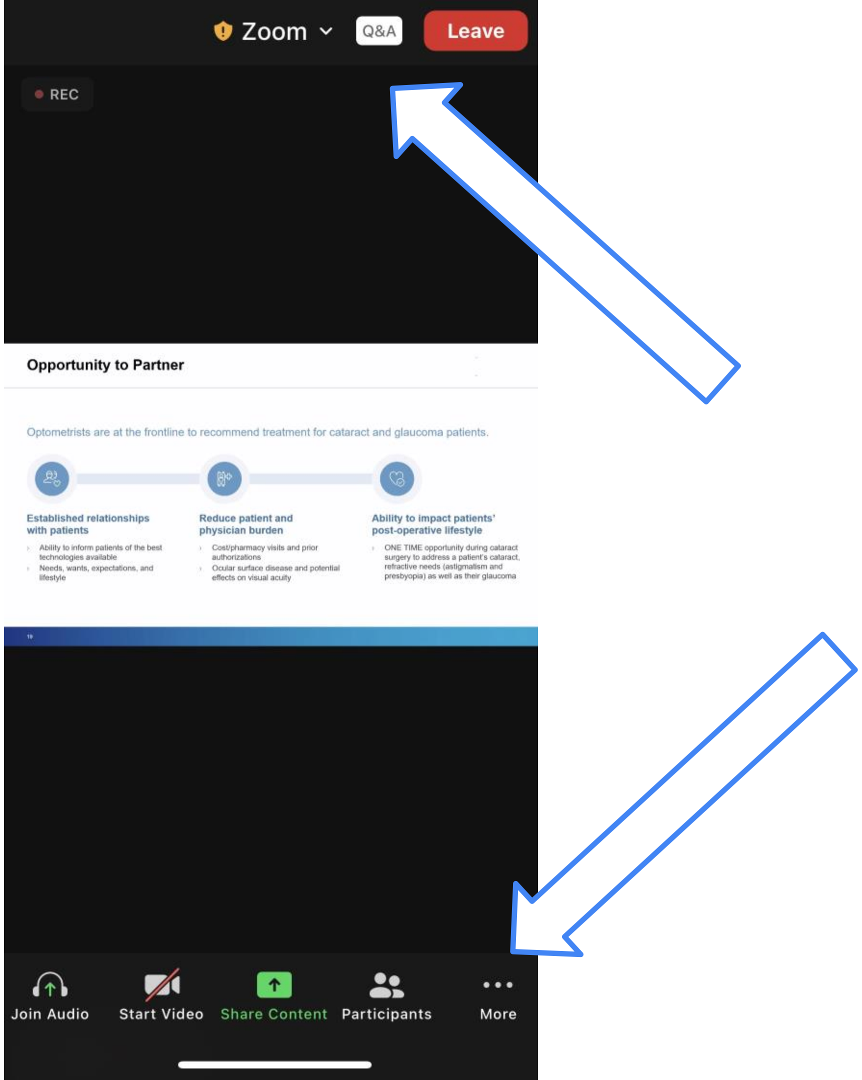

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Opportunity to Partner
Optometrists are at the frontline to recommend treatment for cataract and glaucoma patients.
Established relationships with patients
Ability to inform patients of the best technologies available
Needs, wants, expectations, and lifestyle
Reduce patient and physician burden
Cost/pharmacy visits and prior authorizations
Ocular surface disease and potential effects on visual acuity
Ability to impact patients' post-operative lifestyle
ONE TIME opportunity during cataract surgery to address a patient's cataract, refractive needs (astigmatism and presbyopia) as well as their glaucoma
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Speaker Bio –

Dr. Sorkin serves as the Director of Specialty Contact Lens Services at Corneal Associates of New Jersey in Fairfield, New Jersey. He earned his Doctor of Optometry degree from the State University of New York. He lectures extensively throughout the United States and internationally on contact lenses, ocular therapeutics and corneal diseases.

Dr. Sorkin currently serves as President of the Essex County Optometric Society and is a member of the Board of Directors of the New Jersey Society of Optometric Physicians. He is also a Fellow of the Scleral Lens Education Society and is adjunct Clinical Faculty at Salus University. He was named New Jersey Optometrist of the Year by NJSOP in 2018.

Financial Disclosures

- Avellino, honorarium
- B+L SVP, honorarium
- Blanchard, honorarium
- BostonSight, honorarium
- OysterPoint, consultant
- Santen, honorarium
- Scleral Lens Education Society, honorarium
- Synergeyes, honorarium

Speaker Bio –

Suzanne Walter Sherman, OD, FAAO, FSLS, is Assistant Professor of Optometric Sciences (in Ophthalmology), Director of Optometric Services at Columbia University Irving Medical Center. She specializes in complex and medically necessary contact lens fittings, anterior segment disease and primary care. Dr. Sherman received her undergraduate degree from the University of Michigan with a degree in Brain, Behavior and Cognitive Science. Dr. Sherman graduated from SUNY College of Optometry and elected to the Beta Sigma Kappa International Optometric Honors Society. She completed her optometric residency in Ocular Disease and Primary Care at Bronx Lebanon Hospital Center.

She is board certified by the American Board of Optometry and National Board of Examiners in Optometry (NBEO). Dr. Sherman is a Fellow of the American Academy of Optometry and a Fellow of the Scleral Lens Society. Dr. Sherman is the cornea column editor for Review of Cornea and Contact Lenses and is dedicated to research. She has contributed in peer-reviewed scientific articles in publications such as Review of Optometry (RO), Review of Optometry: Cornea and Contact Lens (ROCCL) Optometric Vision and Science (OVS), Research in Vision and Ophthalmology (ARVO) and American Academy of Optometry (AAO). Dr. Sherman has presented at the annual meeting of the American Academy of Optometry (AAO) and Global Specialty Contact Lens Symposium (GSLS).

Financial Disclosures

- BostonSight lecture received an honorarium Summer 22

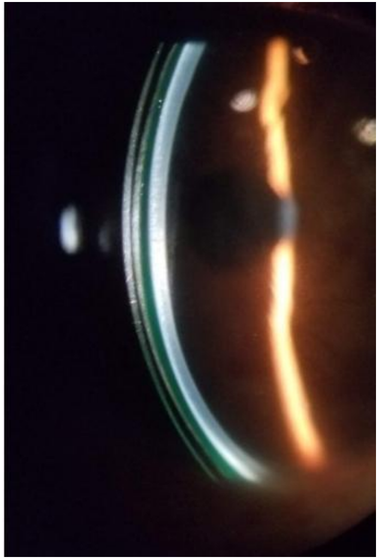
All financial relationships have been mitigated.

If you have any questions, you may send an email to
Please put your email address here.

Unique Uses of Scleral Lenses

Suzanne Sherman, OD, FAAO, FSLS

Steven Sorkin, OD, FSLS



Suzanne Sherman- Disclosures

BostonSight

Steven Sorkin- Disclosures

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Scleral Lens Indications

Primary Uses of Scleral Lenses:

Corneal Ectasias

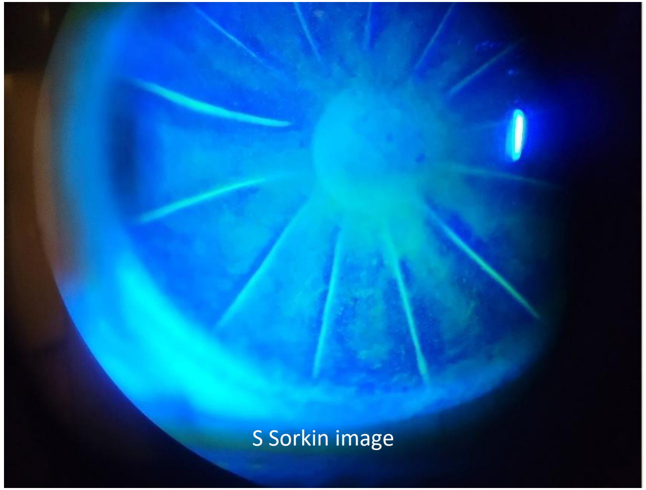
Keratoconus

Post LASIK ectasia

Post surgical- RK/PKP


S Sorkin image

Scleral Lens Indications



Provides greater comfort and stability

Lenses do not rest on the cornea

Improved VA with larger optical zone

Better centration

Improved comfort and lens stability/security

Appropriate for certain work environments/ sports/hobbies

Scleral Lens Indications

Visual Rehabilitation

Irregular corneas

Scarring

Corneal Dystrophies

Post surgical   CXL/ISCR/RK/PRK/PTK

Scleral Lens Indications

Therapeutic Treatment of Ocular Surface Disease

SJS-Stevens Johnson

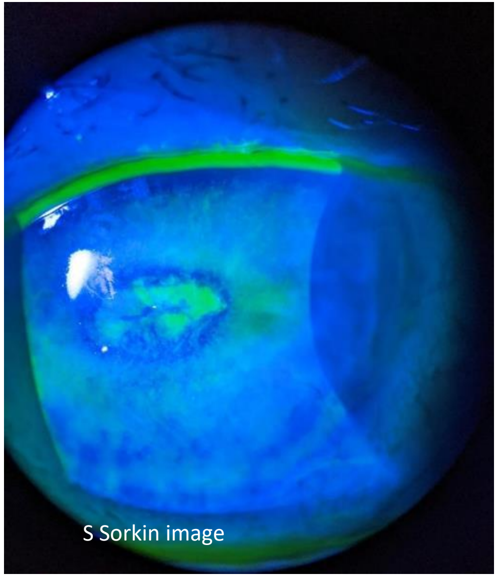
Sjogren’s

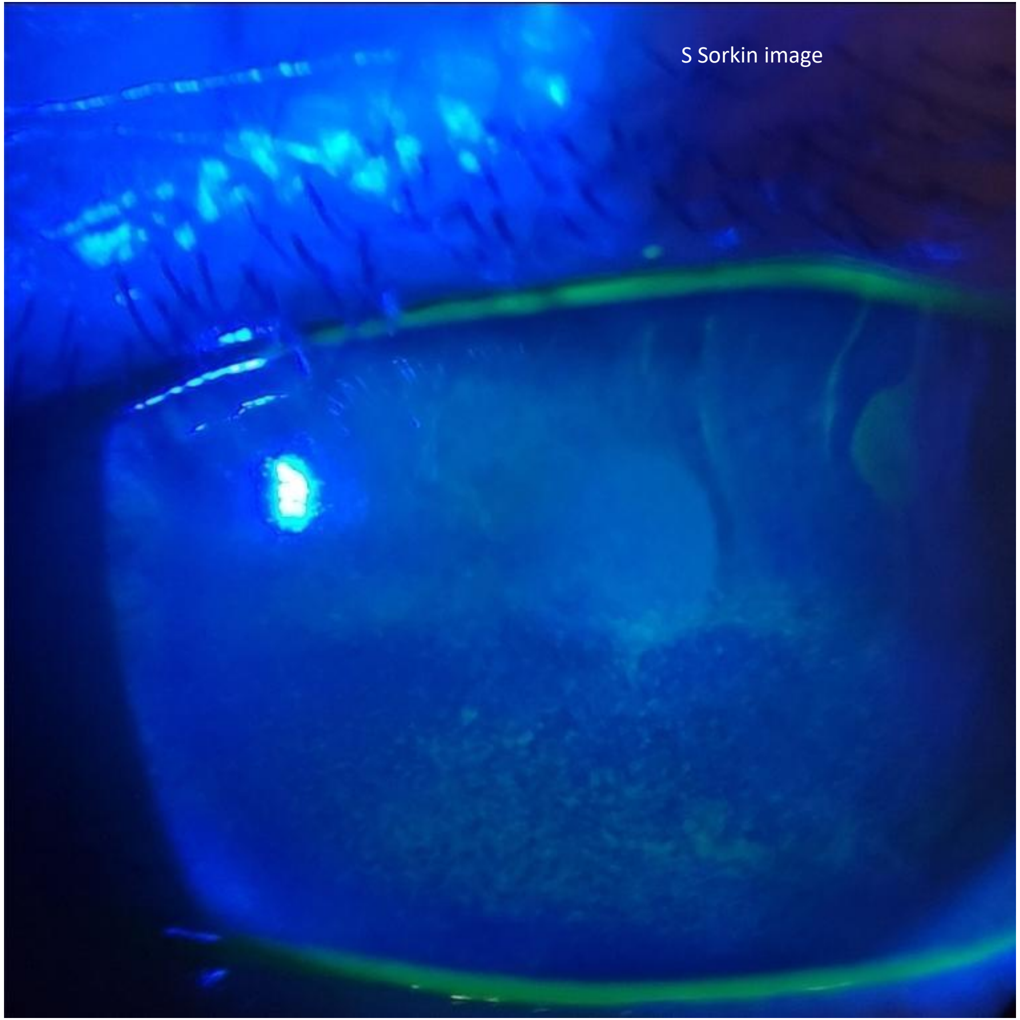
GVHD

Neurotrophic keratitis

Exposure keratopathy

Limbal stem Cell Deficiency

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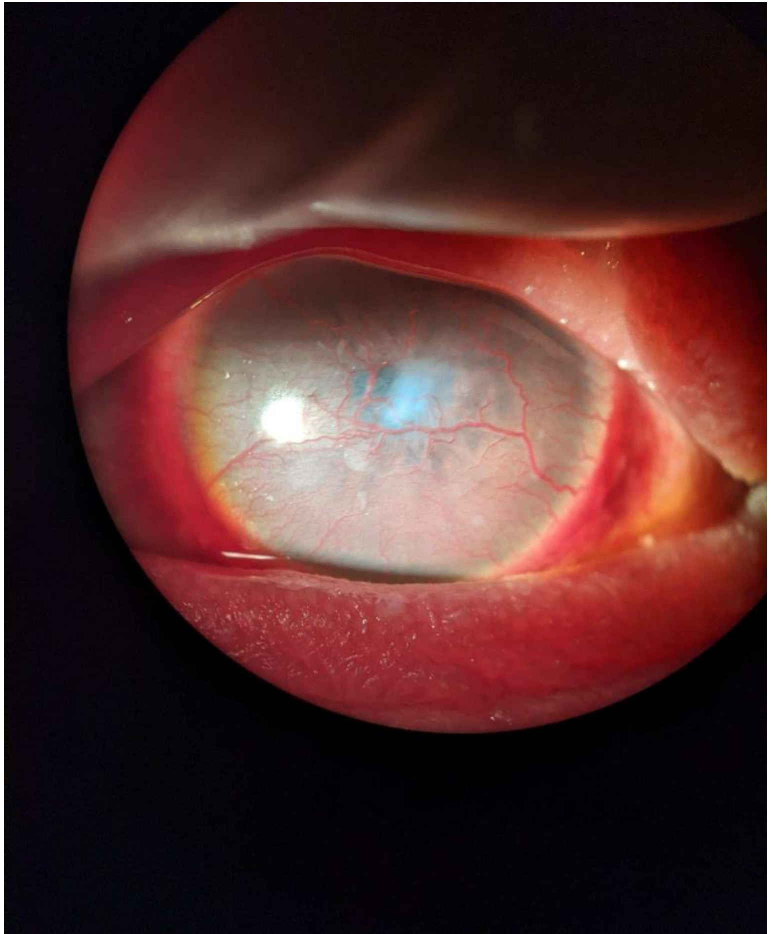

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Scleral Lens Prescription and Management Practices: The SCOPE Study

Jennifer Harthan, O.D., Cherie B. Nau, O.D., Joseph Barr, O.D., Amy Nau, O.D., Ellen Shorter, O.D., Nicolette T. Chimato, M.S., David O. Hodge, M.S., and Muriel M. Schornack, O.D.

Objectives: To assess current scleral lens prescription and management practices by conducting an international online survey of eye care providers.

Methods: The SCOPE (Scleral Lenses in Current Ophthalmic Practice: an Evaluation) study group designed and administered an online survey regarding current scleral lens prescription and management practices. The survey was open from January 15 to March 31, 2015, and generated 723 responses from individuals who had fit at least 5 patients with scleral lenses.

Results: Respondents (n=663) prescribed scleral lenses that ranged from 15 to 17 mm in diameter (65%), smaller than 15 mm (18%), and larger than 18 mm (17%). More than 50 lens designs were identified. Average daily wearing time of 11.8 hr was consistent across 651 respondents, and 475/651 (73%) recommended midday removal on some, most, or all days. Most respondents recommended nonpreserved saline to fill the bowl of the lens before application (single-use vials, 392/653 [60%]; bottled products, 372/653 [57%]). A hydrogen peroxide-based disinfection system was the most commonly recommended care product (397/651 [61%]).

Conclusions: A reasonable degree of consensus exists regarding some aspects of scleral lens prescription and management (average lens diameter, daily wearing time, and use of nonpreserved products for lens application). Further study is needed to develop evidence-based guidelines for scleral lens prescription and management.

Key Words: Contact lens—Contact lens solution—Permeable lens—Rigid gas.

(*Eye & Contact Lens* 2017;0: 1–5)

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J. Harthan: Consulting contracts: Allergan, Bausch + Lomb/Valeant, Metro Optics; J. Barr: Stock holder: Envision, Access Media, Consulting contracts: Bausch + Lomb/Valeant Pharmaceuticals and NovaBay. Contract research: Innovega and Valeant Pharmaceuticals; M. M. Schornack: Advisor: Bausch + Lomb/Valient; C. B. Nau, A. Nau, E. Shorter, D. O. Hodge. The remaining author has no conflicts of interest to disclose.

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Presented in part as posters at the American Academy of Optometry, October 7–11, 2015, New Orleans, LA, and Global Specialty Lens Symposium, January 21–24, 2016, Las Vegas, NV.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.eyeandcontactlensjournal.com).

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Scleral shells made of blown glass were early precursors of modern scleral lenses; they were initially described in the late 1800s by Mueller,[1] Fick,[2] and Kalt.[3] Early lenses were not permeable to oxygen, and hypoxia-related hazy vision and discomfort after relatively brief periods of lens wear limited the use of these large-diameter lenses.[4] As contact lens technology developed during the early and mid-20th century, scleral lenses were largely, although never completely, abandoned. In the early 1980s, rigid, gas-permeable scleral lenses were introduced.[5] Initially, these lenses were used primarily to manage severe corneal irregularity or ocular surface disease[6–11] and were available only in tertiary care centers or specialty contact lens practices. However, the recent introduction of commercially available scleral lens designs have vastly expanded the availability of scleral lenses in primary eye care practices and the indications for their use in correcting uncomplicated refractive error.[12]

When scleral lens use was limited to individuals with severe corneal irregularity or ocular surface disease, definition of best practices for their prescription and management was challenging but perhaps not of urgent importance. Complications or adverse events observed in association with scleral lens wear were rarely reported, and in some cases, they may have been precipitated by the disease for which the lenses were prescribed. Although scleral lenses were exclusively being used to manage disease, attention tended to focus on the underlying condition and not necessarily on the details of lens prescription and management. Severe disease tends to be complex and varies from one individual to another; this situation complicated attempts to standardize recommendations for lens design, wearing schedule, and lens care.

However, as scleral lenses have become more widely available, and as indications for their use have expanded even to correction of uncomplicated refractive error, development of evidence-based guidelines for their prescription and management become possible and advisable. Balancing risks and benefits of scleral lens wear differs substantially between patients with eye disease and patients who require only refractive correction. For patients who are unable to achieve functional vision with any other form of optical correction or patients who are likely to have potentially sight-threatening complications of ocular surface disease without scleral lens therapy, some risk can be tolerated because the benefits of

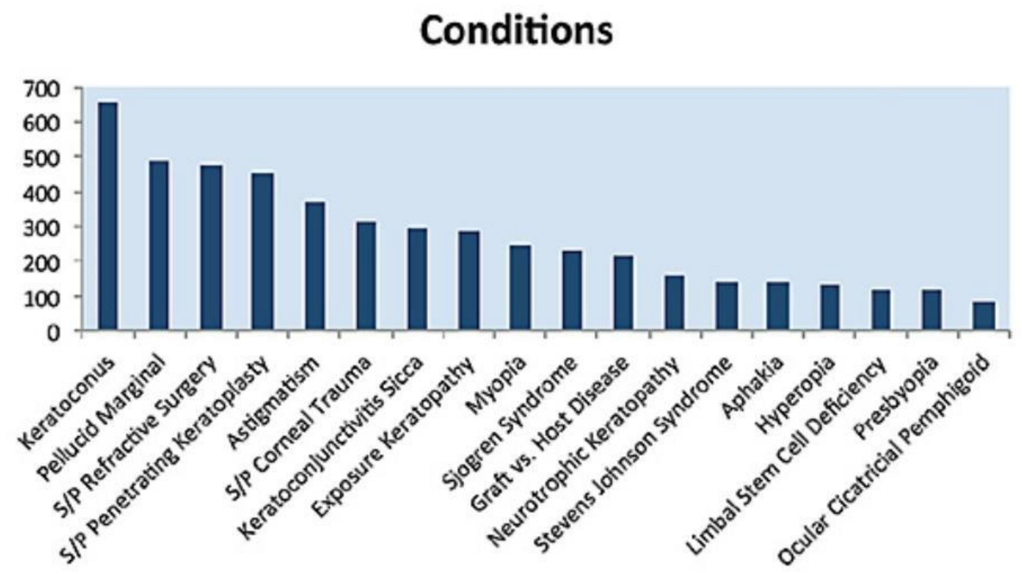

Figure 5. Conditions for which scleral lenses have been prescribed.

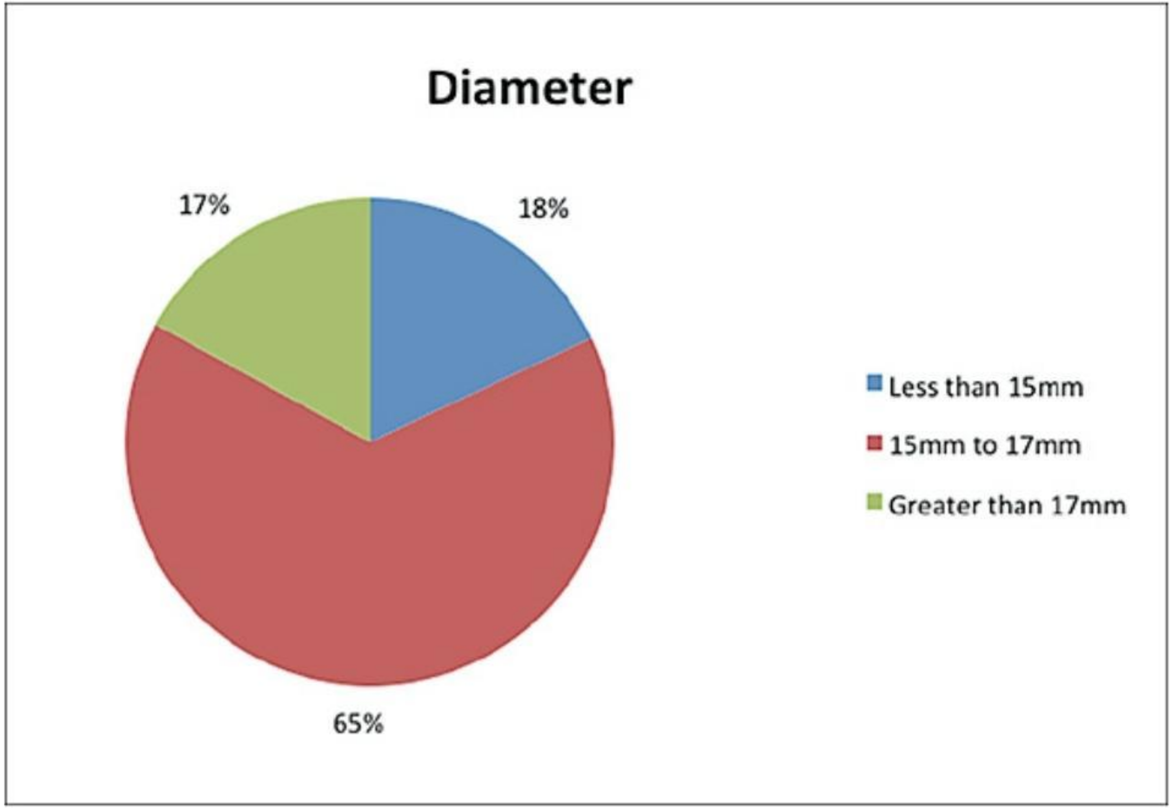

Figure 6. Distribution of lens diameters prescribed.

Contact Lens and Anterior Eye
Volume 44, Issue 3, June 2021, 101353

Current U.S. based optometric scleral lens curricula and fitting recommendations: SCOPE educators survey

Jennifer S. Harthan [a], Muriel Schornack [b 1], Cherie B. Nau [b 1], Amy C. Nau [c 1], Jennifer S. Fogt [d 1], Ellen S. Shorter [e 1]

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ARTICLE

Trends in Scleral Lens Fitting Practices: 2020 Scleral Lenses in Current Ophthalmic Practice Evaluation Survey

Nau, Cherie B. O.D.; Harthan, Jennifer S. O.D.; Shorter, Ellen S. O.D.; Fogt, Jennifer S. O.D., M.S.; Nau, Amy C. O.D.; Hochwald, Alexander P. M.S.; Hodge, David O. M.S.; Schornack, Muriel M. O.D

Author Information

Eye & Contact Lens: Science & Clinical Practice
49(2):p 51-55, February 2023. | ***DOI:***
10.1097/ICL.0000000000000960

Results:

Of 922 respondents, 777 had fit at least five SLs: 63% from the United States (59 other countries were represented), findings similar to the 2015 survey, in which 799 respondents (72%) were US-based and 49 from other countries. Most practitioners were in community practice (76%) than academic practice (24%). In 2015, 64% were in community practice and 36% in academic practice. A median of 84% of SLs were fit for corneal irregularity, 10% for ocular surface disease, and 2% for uncomplicated refractive error. In comparison, the 2015 indications were 74%, 16%, and 10%, respectively. The median number of fits completed per practitioner was 100 (range, 5–10,000; mean [SD] 284 [717]; n=752). In 2015, the median was 36 (range, 5–3,600; mean [SD] 125 [299]; n=678).

Conclusions:

The number of experienced SL practitioners is increasing, as is international representation. Most practitioners practice in community rather than academic settings. SLs continue to be primarily prescribed for corneal irregularity and are rarely used solely for correction of refractive error.

Therapeutic Indications for Scleral Lenses

Scleral lenses were not only the first contact lens, but also the first therapeutic contact lens- Ridley F. 1962 *Int Ophthalmol Clinic*

Scleral lenses provide protection and lubrication as well as visual rehabilitation.

Healing PEDs- Rosenthal, *Am J Ophthalmology,* 2000

Overnight wear of scleral lens for persistent epithelial defects, *Optom Vis Sci*, 2018

Therapeutic use of medications with scleral lenses

Constant ocular contact while the scleral lens is worn **-fluid reservoir** increases contact time

Minimal to no tear loss with scleral lens wear

Traditional eyedrop instillation causes dilution of the medication and can cause ocular toxicity

Eye drops have variability in absorption and tissue concentration

Dropper tip contamination

Compliance may be a factor-missed doses and poor drop application technique

Therapeutic use of medication with scleral lenses

Extended wear vs nightly removal?

Which medications can be used?

Preservative free?

Therapeutic use of medications with scleral lenses

Dosage/concentration of medications in lens bowl?

Dilution?

Toxic reactions?

Which filling saline is best?

Drug Delivery using Scleral Lenses

Antibiotics

Moxifloxacin- 4th generation fluoroquinolone

“self -preserved”

Watch for poor wound healing and infection

Treatment of Severe Infectious Keratitis With Scleral Contact Lenses as a Reservoir of Moxifloxacin 0.5

Eduardo J Polania-Baron et al. Cornea. 2021.

Abstract

Purpose: To report the outcomes of using scleral contact lenses as antibiotic reservoirs as a therapeutic approach in a case series of severe infectious keratitis and to discuss the clinical potential.

Methods: This was a prospective consecutive case series study of 12 eyes treated for infectious keratitis at the "Conde de Valenciana" Institute of Ophthalmology. A scleral lens (SL) filled with 0.5% moxifloxacin was used as a reservoir and replaced every 24 hours until epithelization was complete or the culture report and/or antibiogram demonstrated either a microorganism not susceptible to or resistant to moxifloxacin.

Results: The study included 12 eyes of 12 patients (7 women; 58.33%; average age of 63 ± 20.11 years). All patients completed at least 1 month of follow-up. Patients had a diagnosis of infectious keratitis, and the SL was fitted on initial consultation. Of the 12 eyes, 7 had culture-positive bacterial infection, 2 eyes were mycotic, and 3 eyes had no culture growth. In 3 eyes, SL was discontinued because of the lack of response (one eye) and to the presence of mycotic infection (2 eyes). All infections resolved favorably at the final follow-up.

Conclusions: The use of SLs could be an alternative for antibiotic impregnation and treatment of infectious keratitis. No complications or side effects were observed related to the use of the scleral contact lens as a reservoir for the antibiotic. This treatment modality could offer a comfortable treatment for the patient, ensuring good impregnation and maintenance of antibiotic concentrations during the 24-hour wear periods.

Case Reports

Treatment of Refractory Persistent Corneal Epithelial Defects: A Standardized Approach Using Continuous Wear PROSE Therapy

Jessica B Ciralsky et al. Ocul Immunol Inflamm. 2015 Jun.

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Abstract

Purpose: To evaluate continuous wear of a fluid-ventilated, gas-permeable scleral PROSE device using a standardized protocol as treatment for refractory persistent corneal epithelial defects in patients with severe ocular surface disease.

Methods: Retrospective review of eight eyes of seven consecutive patients with persistent epithelial defects refractory to traditional therapies. The standardized treatment regimen consisted of: (1) 24-hour-a-day PROSE wear until re-epithelialization

Methods: Retrospective review of eight eyes of seven consecutive patients with persistent epithelial defects refractory to traditional therapies. The standardized treatment regimen consisted of: (1) 24-hour-a-day PROSE wear until re-epithelialization

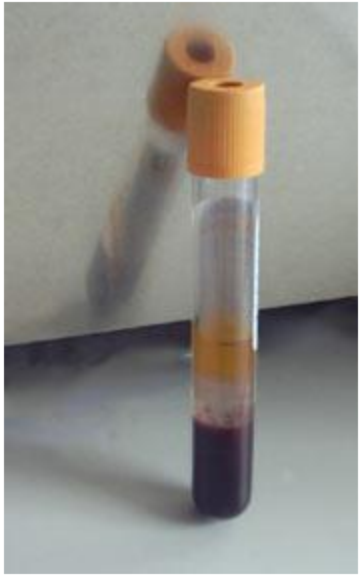
was achieved, (2) brief daily device removal, cleaning, disinfection, and reservoir fluid replacement, (3) addition of a benzalkonium chloride (BAK)-free fourth-generation fluoroquinolone antibiotic drop to the reservoir, and (4) transition to long-term, daytime PROSE wear upon re-epithelialization.

Results: All eight eyes exhibited resolution of the persistent epithelial defect. No eyes developed microbial keratitis. Four eyes exhibited recurrences; all recurrences promptly responded to reinstitution of continuous wear.

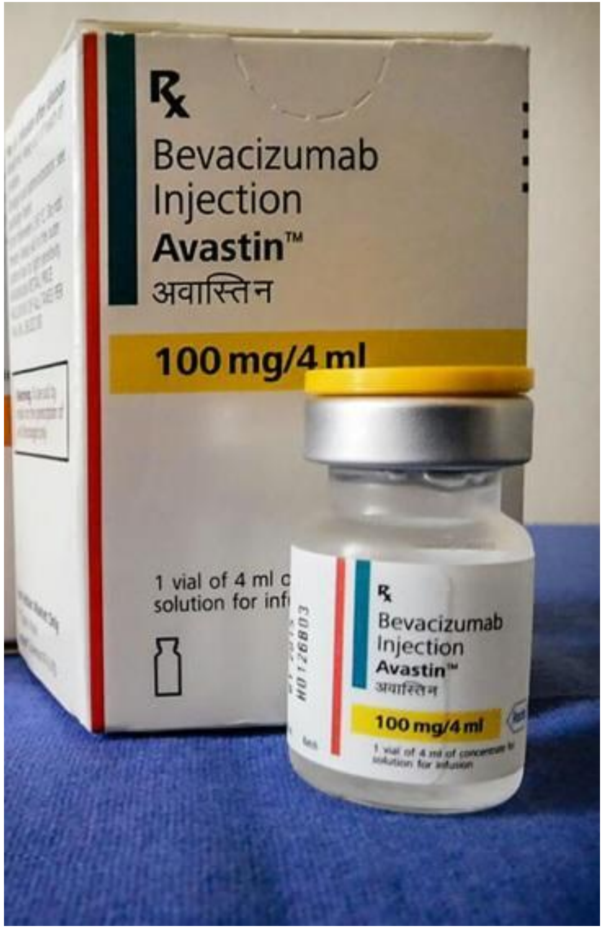
Conclusions: Continuous wear of a PROSE device, using a strictly standardized regimen, constitutes an effective, safe treatment option for refractory persistent epithelial defects.

Drug delivery using scleral lenses

ASD- %?



Anti VEGF



The Ocular Surface
Volume 17, Issue 1, January 2019, Pages 134-141

Original Research

Long-term outcome of using Prosthetic Replacement of Ocular Surface Ecosystem (PROSE) as a drug delivery system for bevacizumab in the treatment of corneal neovascularization

Jia Yin, Deborah S. Jacobs

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Methods

Retrospective, non-comparative, interventional case series of 13 sequential patients treated for KNV at the BostonSight between 2006 and 2017. In all cases, PROSE treatment was initiated for management of ocular surface disease and patients wore PROSE consistently on a daily wear basis prior to bevacizumab treatment. Patients applied a drop of 1% preservative free bevacizumab to the reservoir of PROSE device twice daily. Patients continued with daily wear of the device during treatment and afterwards.

Results

13 patients (8 female and mean age of 45 years) are included with a mean follow-up of 5.1 years (range 6 months–11 years). Underlying ocular diagnoses included Stevens-Johnson syndrome (7), ocular chronic graft-versus-host disease (2), corneal transplant (2), contact lens-related corneal ulcer and limbal stem cell deficiency (1), and familial dysautonomia (1). Median duration of bevacizumab use was 6 months (range 3 months–10 years). Twelve cases (92%) had regression of KNV and 10 cases (77%) had improved best-corrected visual acuity (BCVA) with treatment. Median BCVA improved from −1.1 (LogMAR) at baseline, to −0.66 at end of bevacizumab treatment, and remained −0.63 at last follow-up ($P = 0.047$). KNV progressed in one eye after discontinuation of bevacizumab. There were no ophthalmic or systemic complications.

ARVO Annual Meeting Abstract | April 2014

Full-Time Wear of Prosthetic Replacement of the Ocular Surface Ecosystem (PROSE) Device Does Not Alter Endothelial Cell Density or Morphology

Daniel L Kornberg; Ryan M St Clair; Yvonne Wang; Cecilia Nicol; Michelle Lee; Priyanka Sood; Kimberly C Sippel; Jessica B Ciralsky; Ana G Alzaga Fernandez; Mark I Rosenblatt

Purpose: Corneal edema is a potential consequence of PROSE wear. This study investigated whether constant corneal immersion in the fluid-filled reservoir of the PROSE device could be causing a decrease in endothelial cell density or change in morphology that could account for this complication.

Methods: Patients referred for the PROSE device at Weill Cornell Medical College who had achieved wear of 6+ hours per day were included. Exclusion criteria were patients with epithelial defects or active intraocular inflammation. 12 patients (23 eyes) were

Results: The mean endothelial cell density at fitting was 2453 ± 93 and decreased to 2417 ± 89 cells/mm^2 by the final measurement ($p = 0.27$). Polymegathism changed from 38.9 ± 2.0 to 40.7 ± 2.1% ($p = 0.45$), and pleomorphism changed from 55.3 ± 1.9 to 50.4 ± 2.3% ($p = 0.13$). Over the time period covered, none of these changes in the endothelium were statistically significant. There was no significant correlation between a change in endothelial cell density and days of full-time PROSE wear ($r = -0.05$, $p = 0.59$).

Conclusions: Endothelial cell density, the heterogeneity of cell size (polymegathism), and the percentage of hexagonal endothelial cells (pleomorphism) are not significantly affected by PROSE wear over an average of 113 days. The corneal edema that arises during the PROSE fitting process may be due to processes other than endothelial cell dysfunction.

Science

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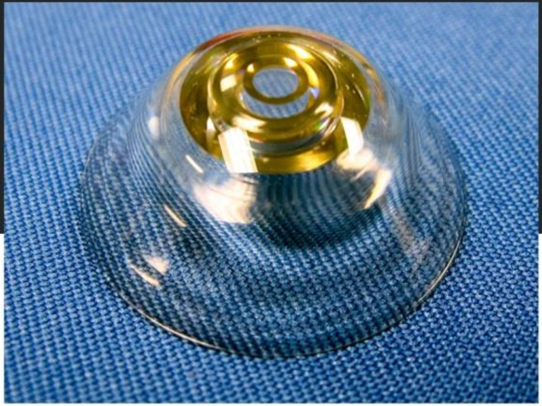
SCIENCESHOTS | TECHNOLOGY

Telescopic contact lenses could magnify human eyesight

Prototype allows 3x zoom

13 FEB 2015 · BY KELLY SERVICK



ERIC TREMBLAY AND JOE FORD; IMAGE COURTESY EPFL

SAN JOSE, CALIFORNIA—Wink your right eye to zoom in; wink your left eye to zoom out. Those are the operating instructions for a vision-enhancing system that could be a workaround for certain kinds of vision loss—or a futuristic upgrade to human sight. A new prototype of the technology, presented here today at the annual meeting of AAAS (which publishes *Science*), relies on contact lenses (above) containing tiny aluminum telescopes that interact with a pair of eyeglasses to toggle between normal and 3x magnification. The telescopes were first developed with Defense Advanced Research Projects Agency funding as superthin cameras for aerial drones. But they were reimagined as an aid for people with age-related macular degeneration—the loss of light receptors on the inner surface of the eye that blurs the center of the visual field. (A zoomed-in view allows still-working parts of the retina to better recognize details such as human faces.) Today,

REVIEW OF CORNEA
& CONTACT LENSES

Published March 15, 2015
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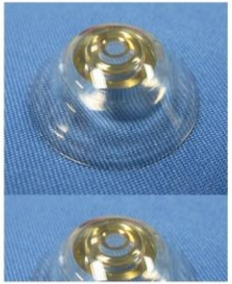
News

Telescopic Scleral Lenses May Ease AMD Burden

A telescopic lens design may give AMD patients a more subtle way to improve their vision.

By RCCL Staff



A telescopic scleral contact lens design—unveiled at the recent American Association for the Advancement of Science annual meeting in San Jose, Calif.—could one day improve the vision of patients suffering from age-related macular

Initially discussed in the June 2013 *Optics Express*, the telescopic scleral lenses incorporate a concentric pattern of circular aluminum reflectors. When light hits these "mirrors," a telescopic effect is achieved that enlarges objects to 2.8 times their actual size.[1]

Early versions of the telescopic lenses were made from PMMA, a hard, oxygen-impermeable plastic that prevented them from being worn for long periods of time. The newer design includes tiny 0.1mm air channels cut into a gas permeable plastic to help improve oxygen transmission to the cornea.[1]

To function, the telescopic contact lenses must be paired with a pair of modified glasses originally made for viewing 3D television. The liquid crystals contained within the glasses block either the magnifying portion of the contact lens or its unmagnified center by electrically changing the orientation of polarized light.[2] The user controls this switch by winking their right eye for magnification, and their left one for normal vision; a small light source and light detector in the glasses distinguish these intentional winks from simple blinks.[3]

The contact lenses have already proved successful in computer simulations and when placed on an optomechanical eye constructed for testing purposes.[1] Researchers hope to begin human clinical trials in the near future.

eyewire+

01.16.2020

Mojo Vision Developing Smart Contact Lens

Source: Mojo Vision

Share | Copy Link

Mojo Vision announced it is building what it calls the "world's first true smart contact lens," called the Mojo Lens. Mojo Lens is a contact lens with a built-in display that gives people useful and timely information without forcing them to look down at a screen or losing focus on the people and the world around them, according to a company news release. Mojo calls this eyes-up experience "Invisible Computing," a platform that enables information to be instantaneous, unobtrusive, and available hands-free. It will allow people to interact with each other more freely and genuinely.

Mojo Lens architecture

14K pixel-per-inch Monochrome Display

- Smallest, densest dynamic display ever made!

Cosmetic Iris

Advanced Lens Design

- Bio-compatible materials for embedded electronics
- Safety & comfort competitive with today's best contact lenses
- Built in refractive error correction (Rx)

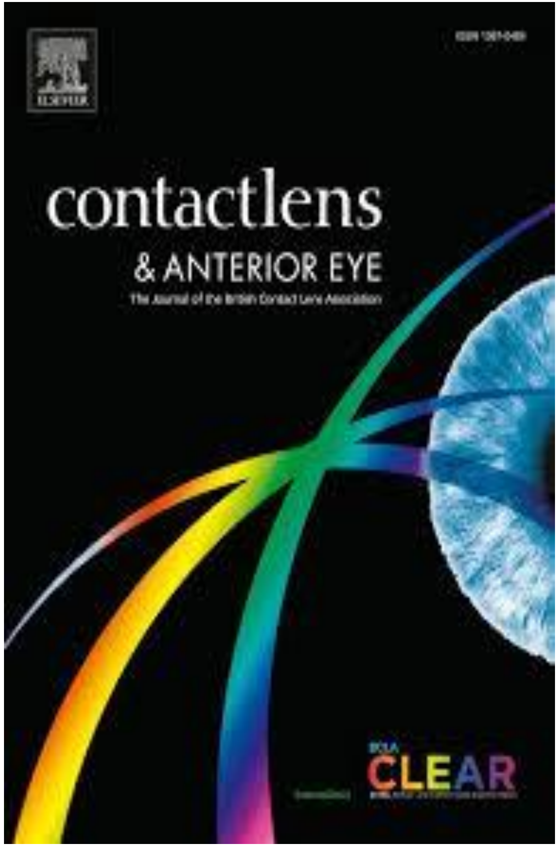
Power, Sensors, Communication

- Bio-safe battery innovation
- World's most power efficient image sensor for computer vision
- World's best eye tracking
- State-of-the-art, low power, bi-directional 5 GHz radio

Mojo Lens

Past — Present — Future

2017	2017	2018	2019	2022	202-
FIRST LIGHT	**STATIC IMAGE**	**DYNAMIC CONTENT**	**WEARABLE LENS**	**FEATURE COMPLETE**	**FIRST PRODUCT**
Craft build Single LED Wireless power	Static projector	microLED display Wireless data	Semi-automated build Oxygenation Custom-fit	Hi-res microLED display Fast wireless data Battery power Eye tracking Eye-controlled UX	Prescription Cosmetics



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Contents lists available at ScienceDirect

Contact Lens and Anterior Eye

journal homepage: www.elsevier.com/locate/clae

CLEAR – Medical use of contact lenses

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ABSTRACT

The medical use of contact lenses is a solution for many complex ocular conditions, including high refractive error, irregular astigmatism, primary and secondary corneal ectasia, disfiguring disease, and ocular surface disease. The development of highly oxygen permeable soft and rigid materials has extended the suitability of contact lenses for such applications. There is consistent evidence that bandage soft contact lenses, particularly silicone hydrogel lenses, improve epithelial healing and reduce pain in persistent epithelial defects, after trauma or surgery, and in corneal dystrophies. Drug delivery applications of contact lens hold promise for improving topical therapy. Modern scleral lens practice has achieved great success for both visual rehabilitation and therapeutic applications, including those requiring retention of a tear reservoir or protection from an adverse environment. This report offers a practical and relevant summary of the current evidence for the medical use of contact lenses for all eye care professionals including optometrists, ophthalmologists, opticians, and orthoptists. Topics covered include indications for use in both acute and chronic conditions, lens selection, patient selection, wear and care regimens, and recommended aftercare schedules. Prevention, presentation, and management of complications of medical use are reviewed.

1. Introduction

Clinicians have long appreciated that contact lenses play a role in the care of patients with ophthalmic disease. Contact lenses therefore have a medical use, in addition to their use for correction of refractive error. This medical use has evolved over decades alongside advances in contact lens materials and design. Appreciation of the role a lens might play in stabilising the ocular surface, neutralising refractive error, and improving visual function, combined with awareness of potential complications and how to avoid them, has yielded vast experience and a body of literature on the medical use of contact lenses.

Statements on the quality of evidence are based on the approach discussed in the CLEAR Evidence-based Practice Report [1].

1.1. Definition of medical contact lenses

The literature search conducted to create this report failed to find a field-wide, accepted definition for medical contact lenses. After discussion and consensus, the following definition for medical contact lenses has been adopted by the subcommittee on Medical Use Contact Lenses:

Medical Contact Lenses are any type of contact lens that is worn for

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Definition of Medical Contact Lenses

Prior to the CLEAR report, there was no accepted definition of "medical contact lens"

"**MEDICAL CONTACT LENSES** are any type of lens that is worn for the primary purpose of treating an underlying disease state or complicated refractive status"

-CLEAR subcommittee on Medical Use Contact Lenses

Think outside the box


How to Learn From a
FAILED EXPERIMENT!
One Time Through

Never Say Never

Initial referral: can you help with glasses and dry eye?

FIG. 1. Patient without scleral lenses in place.

Never Say Never

Systemic History: Severe chronic progressive external ophthalmoplegia
Ocular history: Severe dry eyes

- Previously tried and failed:
- Xiidra, restasis, cequa
- Ptosis crutches
- Not a surgical candidate due to age

FIG. 1. Patient without scleral lenses in place.

Clinical Correspondence

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Severe Chronic Progressive External Ophthalmoplegia–Associated Ptosis Successfully Treated With Scleral Lenses

Christina Cherny, BS, Suzanne W. Sherman, OD, Lora R. Dagi Glass, MD

CPEO

FIG. 1. Patient without scleral lenses in place.

CPEO

TABLE 1. Summary of reported scleral lens usage for ptosis secondary to progressive external ophthalmoplegia

Outcomes of Scleral Lens Usage for Ptosis Secondary to CPEO

	Report 1	Report 2[6]	Report 3[7]	Report 4[8]	Report 5[8]	Report 6[9]
Age	28	10	43	41	42	51
Sex	F	F	F	F	F	M
History of prior eyelid surgery	No	No	Yes	Yes	Yes	Undisclosed
Scleral lens used	BostonSight Scleral	Epsilon V3	Boston Equalens II with ptosis prop	PROSE	PROSE	Undisclosed
Scleral lens diameter (mm)	18.5	16.5	21.0	Undisclosed parameters	Undisclosed parameters	Undisclosed parameters
Length of successful lens wear at publication	4 mo	Lens wear discontinued	>2 wk	3 yr	1.5 yr	Undisclosed
Baseline IPF (mm)	3.5 OD, 4 OS	5.0 OD, 4.0 OS	<5 OD, <5 OS	Undisclosed	Undisclosed	Undisclosed
Post-lens IPF (mm)	6.5 OD, 6.5 OS	6.0 OD, 5.0 OS	Undisclosed	Undisclosed	Undisclosed	Undisclosed
Improvement in IPF (mm)	3.0 OD, 2.5 OS	2.0 OD, 1.0 OS	Undisclosed	Undisclosed	Undisclosed	Undisclosed
Baseline MRD1 (mm)	−1.5 OD, −1.5 OS	0.5 OD, 0.0 OS	Undisclosed	Undisclosed	Undisclosed	Undisclosed
Post-lens MRD1 (mm)	0.5 OD, 0.5 OS	1.5 OD, 1.0 OS	Undisclosed	Undisclosed	Undisclosed	Undisclosed
Improvement in MRD1 (mm)	2.0 OD, 2.0 OS	1.0 OD, 1.0 OS	Undisclosed	1.0 OD, 1.0 OS	1.5 OD, 0.5 OS	Undisclosed

The present case is termed "Report 1."
CPEO, chronic progressive external ophthalmoplegia; IPF, interpalpebral fissure; MRD1, margin reflex distance; OD, right eye; OS, left eye.

CPEO → Ptosis


SW Sherman image


SW Sherman image


Dr. Rebecca Rojas

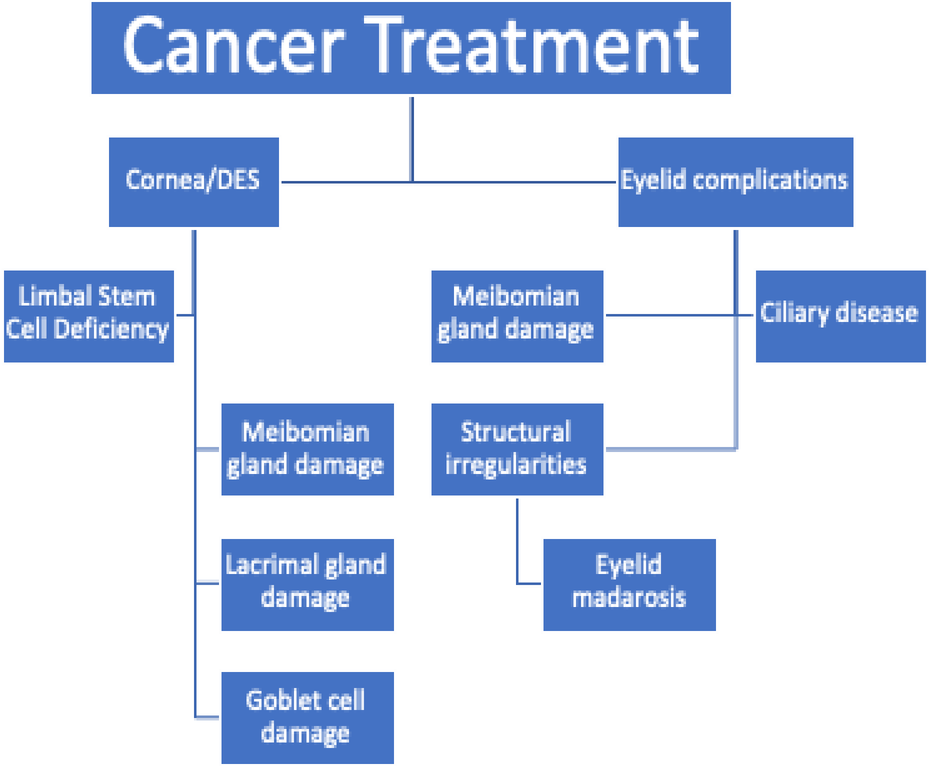

Dr. Rebecca Rojas

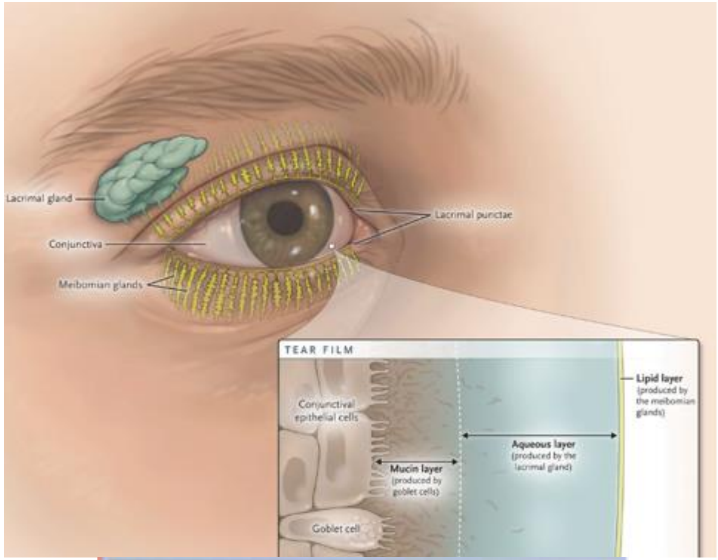
CPEO → Ptosis

Fitting

Combine Scleral lenses with:
- -Glasses
- -Upneeq

Cancer treatment side effects



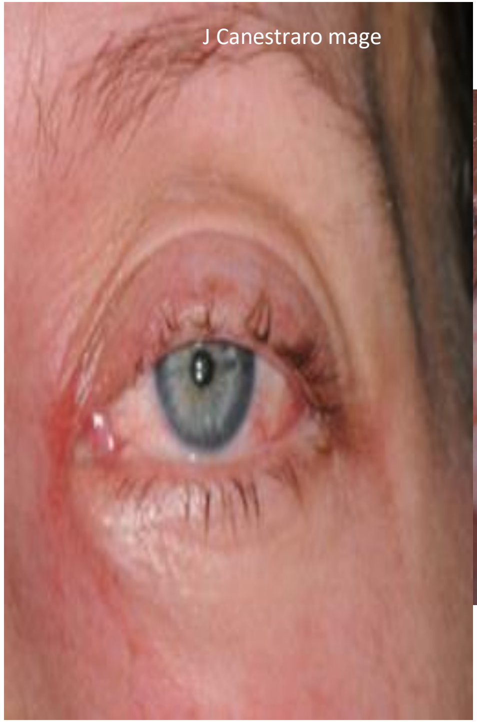


Julia Canestraro, OD, FAAO, Dipl ABO
Ophthalmic Oncology Service

https://www.nejm.org/doi/full/10.1056/NEJMra1407936

Cancer treatment side effects

- **Radiation Keratopathy**



Why why why?

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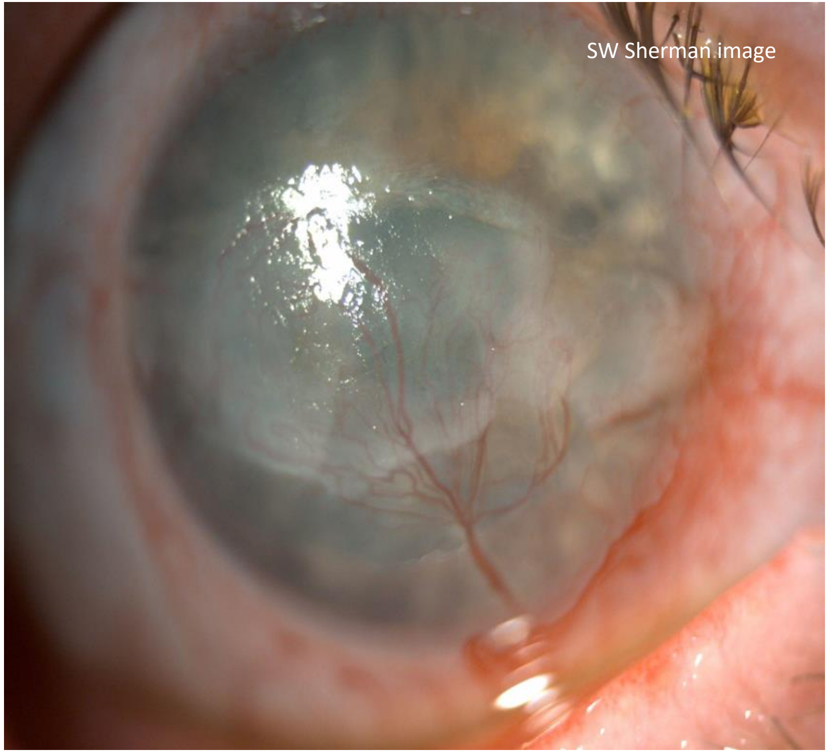
- **Squamous cell carcinoma of maxillary sinus, orbit, skin of left cheek**
- **Lagophthalmos of left lower eyelid**
- **Status post radiation therapy**
- **Open angle glaucoma with borderline intraocular pressure, bilateral**

Cancer treatment side effects

THE EDWARD S. HARKNESS
EYE INSTITUTE

- **Gardner's Syndrome**
  - **Biopsy proven invasive squamous cell carcinoma**
  - **PED, stromal loss, neovascularization, exposure**

Cancer treatment side effects



Cancer treatment side effects

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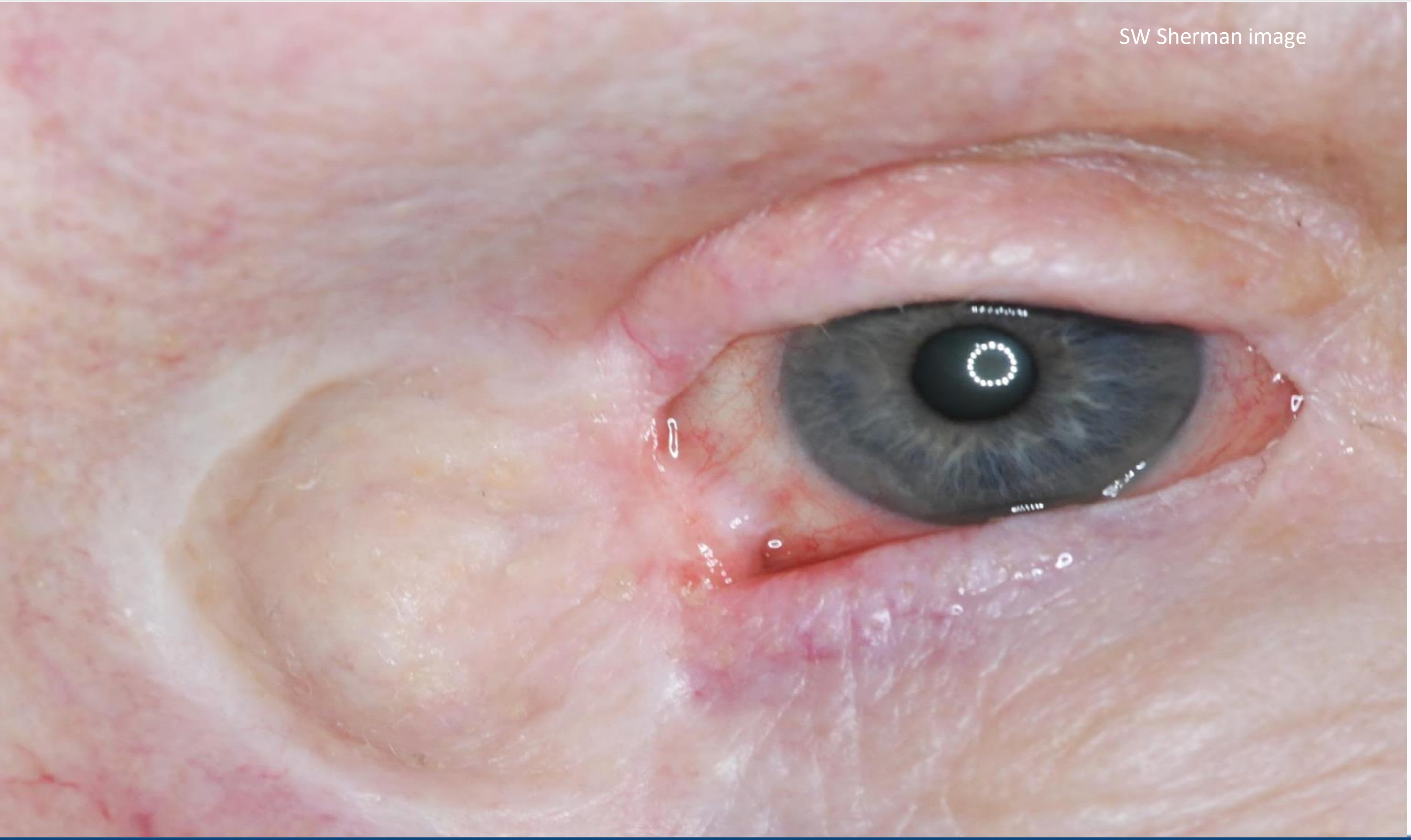

- **Basal cell carcinoma (BCC) of left eyelid, unspecified eyelid**
- **Salzmann's nodular degeneration of cornea of left eye**
- **H/O skin graft**
- **Chronic dry eyes, left eye**
- **Herpes Keratitis, left eye**
- **Trichiasis, left eyelid**

Protect & Heal

10 year old
Medulloblastoma of cerebellum
H/o tarsorrhaphy 3 years OD

Protect & Heal

Stability

Marfan's and/or Nystagmus

21y/o lens subluxation OU

Failed: glasses, soft toric lenses.

Able to get stability of vision in scleral lens

Think outside the box

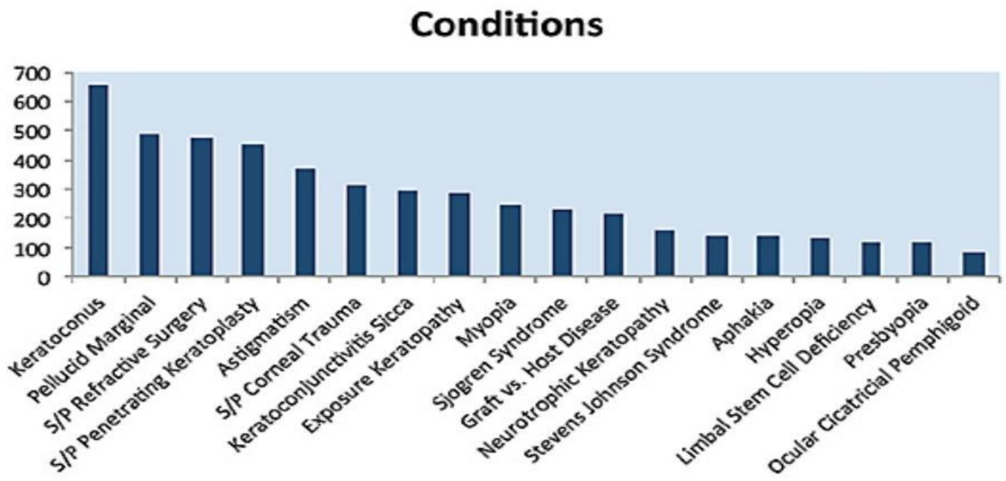

Figure 5. Conditions for which scleral lenses have been prescribed.