

## CASE STUDY

### BOSTONSIGHT SCLERAL SMART360® AND PENTACAM CSP IMPROVES LENS WEAR TIME

#### BACKGROUND

A female patient with Sjogren's Syndrome and keratoconjunctivitis sicca presented with left eye pain and severe dryness in both eyes. Her past medical history includes rheumatoid arthritis, systemic lupus erythematosus, and a history of corneal epithelial defect left 1 week prior. Prior treatment included punctal cauterization, amniotic membrane, and IPL. Her OSDI score was 100, indicating severe ocular surface disease. The patient was fit with diagnostic scleral lenses with bi-tangential scleral landing zone.

Upon return, the patient presented with new bilateral central epithelial defects. Application and removal training was delayed. Two weeks later, the corneal epithelial defects had healed. Her BCVA with therapeutic soft lenses was:

- OD 20/200 PHNI
- OS 20/400 PHNI

Five months later, she was using her scleral lenses 15 to 17 hours/day. She was using an alcohol-based extra strength cleaner, overnight hydrogen peroxide solution, and filling the bowl of the lenses with a combination of 0.9% NaCl and 50% serum tears. Her vision with scleral lenses was now:

- OD 20/40 PH: 20/30
- OS 20/30 PH: 20/20

#### FOLLOW-UP OCULAR EXAM

A year later, the patient returned complaining of decreased wear time and had occasional difficulty removing lenses. On slit-lamp examination, there was evidence of areas of scleral landing zone compression and conjunctival chalasis. Options were discussed, including advanced image-guided design. The decision was made to proceed with a new scleral lens fitting based on the patient's horizontal visible iris diameter



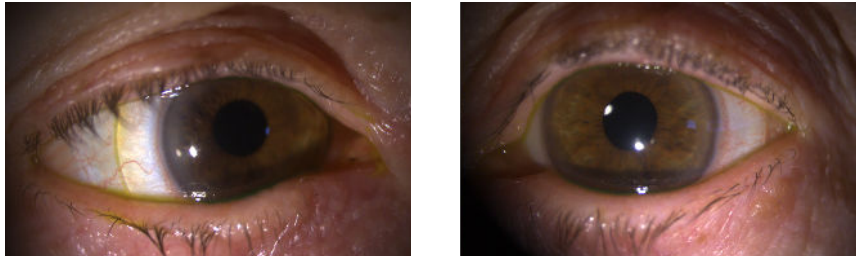
**DR. ELLEN SHORTER**

University of Illinois  
College of Medicine

*Dr. Ellen Shorter fits gas permeable and soft contact lenses for patients with a history of keratoconus, corneal surgery, and aphakia. She is trained in the use of scleral lenses and Prosthetic Replacement of the Ocular Surface Ecosystem (PROSE®) devices to restore vision, reduce symptoms and improve the quality of life for patients suffering from complex corneal disease. She is an Associate Professor of Ophthalmology and Director of the PROSE Clinic at the University of Illinois College of Medicine Eye and Ear Infirmary.*

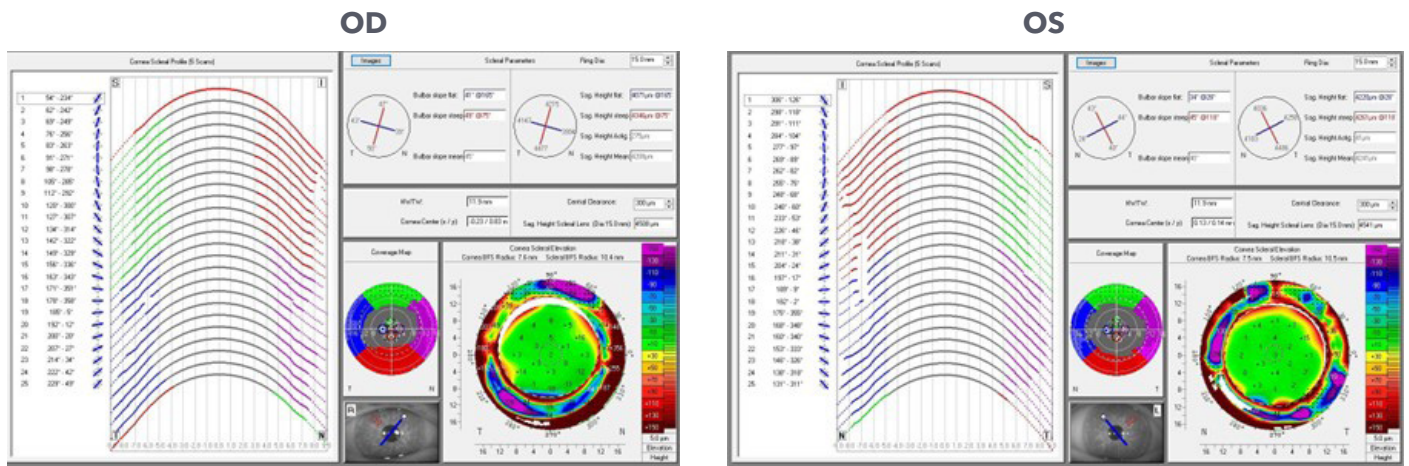


(HVID) and scleral shape with BostonSight SCLERAL free-form lens design. The patient returned one week later on a day when she was not wearing her habitual scleral lenses to obtain OCULUS® Pentacam CSP imaging.



## SCLERAL LENS FITTINGS

Pentacam CSP imaging was acquired for the patient's right and left eyes. The patient maintains fixation at a single point and 250 images are combined from 5 scans. The scan data was then uploaded to the BostonSight FitConnect® software system to design and order the lenses.



- Material: Contamac Optimum Extreme
- Power: +0.31 sphere
- Base Curve: 7.70
- Diameter: 17.5
- Sag: 2972



- Material: Contamac Optimum Extreme
- Power: -1.04 sphere
- Base Curve: 7.70
- Diameter: 17.5
- Sag: 2961

## RESULTS

**The patient had improved comfort and wear time with the free-form design. She noted easier lens removal at the end of the day.**

OD: 20/30 improving to 20/20 with -0.50 sphere

OS: 20/30 PHNI