CASE REPORT

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20/20 EYECARE
LOVELAND, OH

ADVANCED KERATOCONOUS CORNEAL SCARING

N.H. a 28-year-old Caucasian male
Occupation warehouse worker

- Severe keratoconus

- Presented for a scleral lens fitting to obtain better vision and comfort with new technology

Ocular history
- s/p trauma to right eye as a child mild scarring OD. Hit in the eye as a child with a toy
- wearing 4-5-year-old scleral lenses (unsure of company/brand)
current issues with scleral lenses: Vision has decreased. Comfort is not as good. Mild to moderate redness after daytime use

No history of corneal GP lens wear
Vision with current scleral lenses
- OD 20/60-
- OS 20/25-

Discussed the option of custom scleral lenses
- Goal to improve vision and comfort with scleral lenses
Maxim 3D lenses were designed based off of ESP data

Maxim 3D Front Toric
7.34 -7.75/-3.00 X088
16.4/9.0, 5.58 SAG, 45 degree angle offset
Haptic Deviation 551, CT .300

Maxim 3D
7.50 -5.75
16.4 9.0, 5.23 SAG, zero angle offset
CT .250

**Initial Lenses**
OD
Fit could be improved slightly (top edge ½ step tight, bottom edge ½ step flat, mild inferior decentration)
Decrease central sag by 100μm
Decrease mid-peripheral sag by 150um
(Mid peripheral corneal clearance around 400μm initially)

SOR +1.00 20/40

OS
Ideal central and limbal clearance (275um initial clearance, adequate limbal ~ 100um)
Even peripheral alignment

SOR -0.25 20/25-1

**Final Lenses**
Maxim 3D Front Toric
7.34 -6.75/-3.00 X088
16.4/9.0, 5.69 SAG, 22 degree angle offset
Haptic Deviation 496, CT .300

Maxim 3D
7.50 -6.00
16.4 9.0, 5.23 SAG, zero angle offset
CT .250
Optimum extra OU
Lens center thickness .250

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**Pertinent Medical History**
- Takes omeprazole for heartburn.
- No known family history of keratoconus or other ocular pathology.

**BCVA with refraction** (unable to get even remotely reliable refraction in either eye)
OD Finger counting at x 2M (plano)
OS 20/400 (plano)

OD 56.25/73.00
OS 60.00/68.75

**Pachymetry**
OD 423um
OS 425um

**Anterior segment examination**
Significant central corneal thinning and scarring
OD>OS

**Eaglet Eye ESP performed**
OD OS

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**Maxim trial lens selected**
OD 7.03/-6.00 / 16.4 (7.34 lens was broken in fit set so had to use next lens)
Sag 5.59
SOR over refraction -3.75 -300 x 88 20/50-1

OS 7.5/-4.00 / 16.4 (again 7.34 was broken so used this lens instead)
Sag 5.19
SOR 20/40-1
Acculens continues to stay ahead of the curve with its Maxim 3D lens. This lens improves upon current quadrant-specific technology and allows you to make edge-specific changes at any clock hour instead of just 12/6 and 3/9. Furthermore, this can be incorporated with their many multifocal designs. If the patient has residual astigmatism and needs a front toric along with a quad-specific multifocal, NO PROBLEM! Acculens maxim 3D has you covered.

Alex Gibberman OD

Clinical pearls
- Custom scleral lenses improve efficiency
- Ideal results with two sets of lenses
- This case exemplifies scleral lens success in advanced KCN with corneal scarring
- N.H. reported a huge improvement in quality of life and is able to wear lenses comfortably for 12–14 hours per day

Ideal fit and vision with scleral lenses
central clearance around 300μm OD and 275μm OS