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INTRODUCTION

Albinism if a genetic condition involving abnormal tissue melanin production. Signs of oculocutaneous albinism include reduced pigmentation of the hair and skin, nystagmus, iris transillumination defects, retinal depigmentation, and foveal hypoplasia. These findings can all adversely affect a patient’s visual function.

This case involves a 21-year-old African American female with oculocutaneous albinism who was referred for a first-time contact lens fitting. She reported longstanding movement of her eyes and visual blur at all distances. Previous trial of spectacle correction provided no significant improvement in vision. She did not wish to rely on a telescopic or magnification system and aimed to achieve improved clarity of vision at distance and near with contact lenses.

EXAM FINDINGS

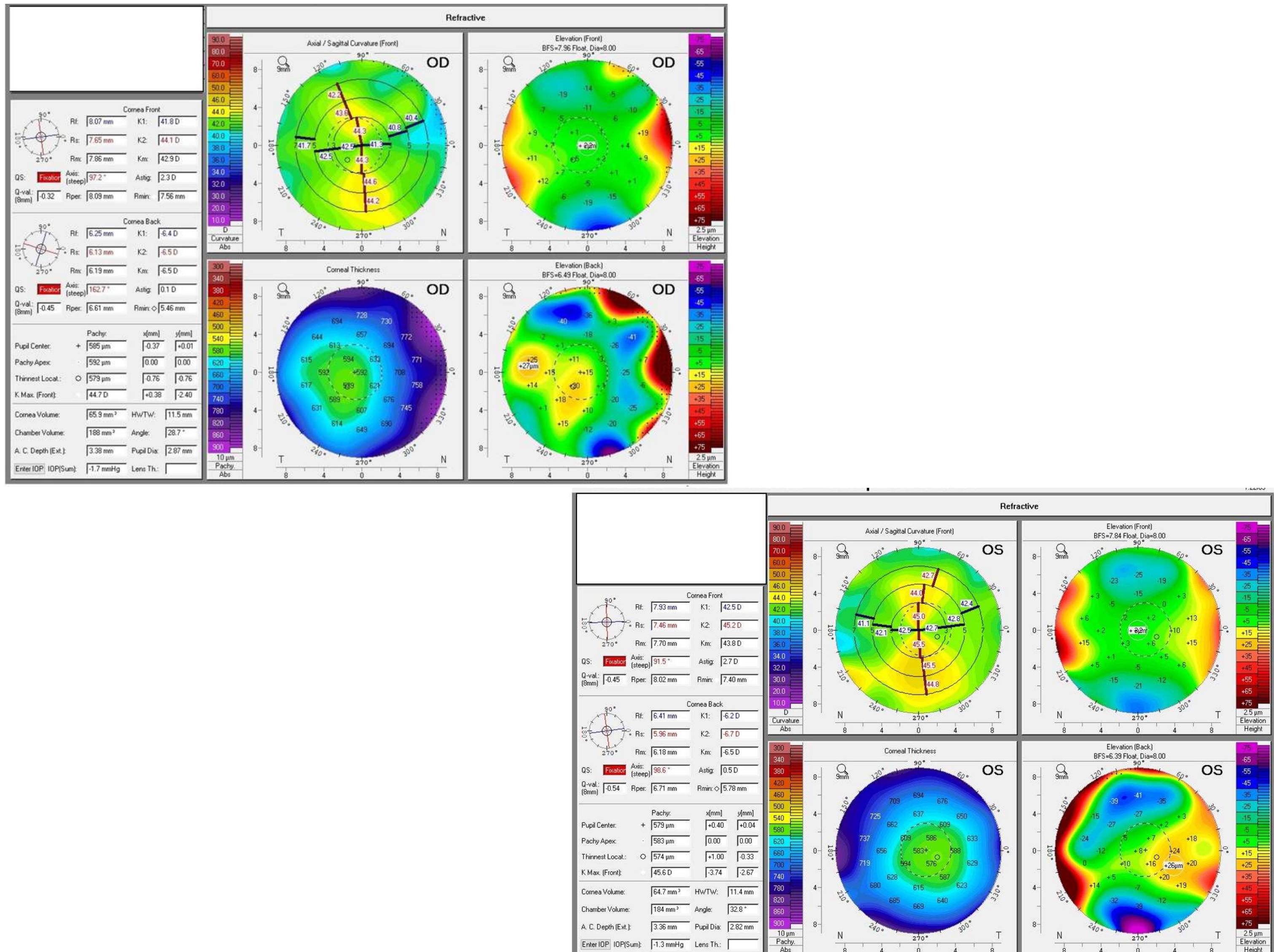
Best Corrected Spectacle Visual Acuity:

	Refraction	VA
OD	+0.50 -2.00 x 015	20/80
OS	-0.50 -2.00 x180	20/100

Remarkable Exam Findings:

- EOMS: horizontal pendular nystagmus OD + OS
- Eyelids: skin depigmentation and bilateral poliosis of lashes
- Iris: mild peripheral iris transillumination defects OD + OS
- Posterior Ocular Health: absent foveal reflex OD + OS

Corneal Tomography: mildly irregular WTR astigmatism OD + OS



MANAGEMENT

A rigid gas permeable (RGP) contact lens fitting was initiated due to the moderate corneal astigmatism OU and the patient’s desire for sharpest visual potential. Spherical RGP diagnostic lenses were trialed in office to determine the patient’s custom prescription to be ordered and dispensed at a follow-up visit.

One month later, the patient returned for the dispensing visit. The following lens parameters were trialed:

	Power	Base Curve	Diameter	PC1	PC2	VA
OD	Plano	7.8	9.6	9.0/0.40	11.5/0.20	20/70+2
OS	-0.75 sph	7.9	9.6	8.9/0.40	11.5/0.20	20/60+2
						OU 20/50

Upon insertion, the patient immediately described a “*focused*” vision she had never experienced prior. Both the right and left lenses demonstrated a well aligned fit with good movement and were well tolerated by the patient.

Gross observation of the patient revealed an appearance of a reduction in nystagmus while wearing the lenses. She also subjectively felt an improved ability to focus her eyes. To measure this, the Readalyzer2k infrared eye tracking device was utilized. Ocular movements were recorded while the patient was instructed to fixate at a central target. Measurements were first recorded with spectacles and then with the RGP lenses. The qualitative graphical data revealed reduced amplitude and frequency of ocular movements away from fixation with the use of the rigid lenses compared to the spectacles.

At the follow-up examination 2 weeks later, the patient reported very clear vision; however, she suffered from extreme awareness of peripheral glare when wearing the RGPs. Symptoms worsened with use of backlit electronic devices and in settings with fluorescent overhead lighting, such as her classroom lecture halls. To address these new symptoms, a tinted underprint prosthetic soft contact lens with clear pupil was trialed as a piggyback system under her RGPs and she reported an improvement in visual comfort. The following clear custom soft lens was ordered and dispensed for daily wear under the RGP:

	Power	Base Curve	Diameter	Material
OD	+1.00sph	8.5	14.0	Methafilcon A (55%)
OS	+1.00sph	8.6	14.0	Methafilcon A (55%)

MANAGEMENT (CONTINUED)

The patient returned 2 weeks later for follow-up examination with good comfort, fit, and stable vision with the piggyback system. The soft lenses were collected and sent for custom iris color tinting after trialing several tinted lenses to determine the best color for optimal visual comfort.



DISCUSSION AND CONCLUSIONS

In patients with oculocutaneous albinism, contact lenses should be considered to improve visual function.

Our patient’s large subjective vision improvement with RGPs was accompanied by objective and subjective data of reduced nystagmus. Several case studies suggest that contact lenses provide a tactile biofeedback mechanism to dampen amplitude and frequency of nygstagmus.¹ One study showed an increased “‘high-foveation-quality gaze’ by dampening the nystagmus over a range of gaze angles and resulting in the patient seeing ‘better’ and ‘more,’” which is similar to what our patient described.² While there are many studies to support the effect of contact lenses on eye movements, it should be noted that a randomized control trial resulted in no significant difference in ocular movements when comparing spectacle and contact lens wear.³ This may be due to tactile adaptation to the lenses. Although there is not definitive consensus on the proprioception benefits and further research is required, it is agreed upon that contact lenses provide increased viewing time through the optical center since they can move with the eyes. This minimizes distortion and allows for improved vision compared to spectacles in patients with nystagmus. After achieving optimal vision with the RGPs, our patient became symptomatic of glare. It is known that patients with ocular albinism often suffer from photophobia due to reduced iris and retinal pigmentation resulting in increased scattering of light and a degraded retinal image.⁴ An iris tinted soft lens with clear pupil can be used to minimize photophobia in these patients.

Overall, a piggyback system consisting of tinted soft and rigid gas permeable contact lenses provides improved visual acuity and function for the patient with oculocutaneous albinism.

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