Contact Lens Correction in Microspherophakia

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BACKGROUND

Microspherophakia is a rare congenital condition caused by a lack of nutritional support to the tunica vasculosa lentis, which causes poor development of secondary lens fibers and leads to weak zonules with a lack of tension. This causes the patient to have a small spherical crystalline lens with an increased thickness[1]. Microspherophakia leads to high lenticular myopia and can lead to other complications such as lens subluxation and secondary glaucoma[1].

CASE DESCRIPTION

A 17-year-old male presented for a contact lens fitting. The ocular history was remarkable for microspherophakia that was diagnosed at age five. He reported always having “thick glasses” and poor vision. He had never tried contact lenses as he was told he was “not a candidate” due to his high refractive error. Entering spectacle-corrected distance visual acuity (VA) was D 20/50+2, improving to 20/30-2 with pinhole, and OS 20/40+1 with no improvement on pinhole. Entrance testing was unremarkable. Manifest refraction was OD -18.00-3.50 x 023 with VA 20/30 and OS -15.25-2.50 x 137 with VA 20/30-1. Slit lamp exam prior to dilation revealed bilateral iridodonesis. Intraocular pressures were OD 18 mmHg and OS 19 mmHg. Simulated keratometry values were OD 40.90/42.10@117 and OS 40.50/41.90@065 (Figures 1 and 2). Axial length by optical biometry measured OD 27.17mm and OS 26.11mm. The patient was fit in a monthly soft toric contact lens with an extended parameter range (Table 1). Distance VA with contact lenses improved to OD 20/20-1 and OS 20/25+1. Dilated fundus examination was unremarkable excepting the presence of a small crystalline lens OU (Figure 4). The patient has successfully worn the soft toric contact lenses for the last eight months.

FIGURE 1
Axial map OD showing with-the-rule corneal astigmatism and SimK values: 40.9/42.1@117.

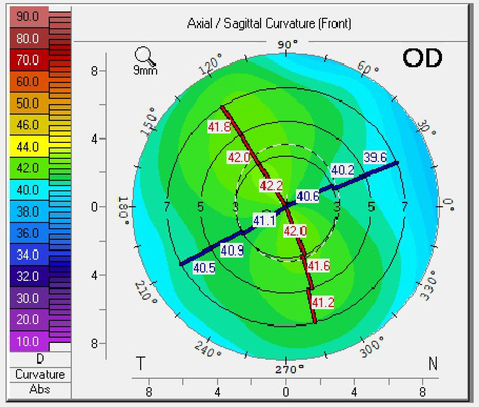

FIGURE 2
Axial map OS showing with-the-rule corneal astigmatism and SimK values: 40.5/41.9@065.

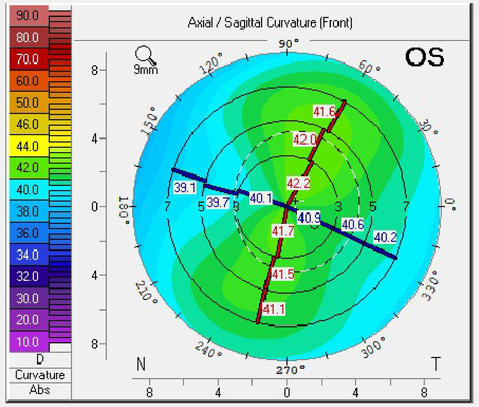

FIGURE 3
Follow-up visit demonstrates appropriate fit of extended range soft toric contact lens OD. The OS fit was identical. There was no lens rotation in either eye.

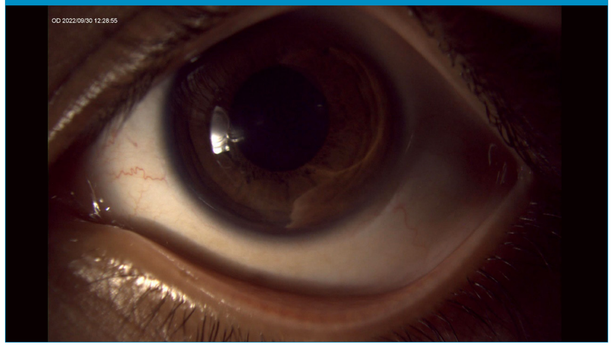

FIGURE 4
The patient’s small, round crystalline lens is visualized within the aperture of a dilated pupil.

TABLE 1
Soft Contact Lens Parameters

	Brand	Type	Sphere	Cylinder	Axis
OD	CooperVision	Biofinity XR Toric	-13.50	-2.25	020
OS	CooperVision	Biofinity XR Toric	-12.50	-1.75	140

CONCLUSIONS

Microspherophakia is a rare congenital condition that causes high lenticular myopia leading to high ametropia. These patients are optimal candidates for contact lenses, even from a young age, as lenses can improve their visual acuity and optimize visual function by providing fewer minification effects, better peripheral vision, and improved cosmesis[2].

REFERENCES

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