

INTRODUCTION

In the U.S., Corneal Granular Dystrophy is an extremely rare yet significant diagnosis, with incidence unknown, this dystrophy affects the superficial central stromal layer of the cornea with multiple small deposits that may result in vision loss ranging from mild to severe¹. Genetically inherited, the onset of this condition will begin early in life with treatment options varying on the severity of vision loss. Some cases will be treated surgically, utilizing deep lamellar endothelial keratoplasty (DLEK) while others may not warrant treatment². Visual prognosis is heavily dependent on the severity of the deposits present in the stroma as well as the intersection with the patient's visual axis, there is also considerable variability between phenotypic variants³. It is important to consider methods of visual correction other than corneal transplants, especially in younger patients to prevent lasting consequences of vision loss or distortion due to surgery while maximizing usable vision for activities of daily living.

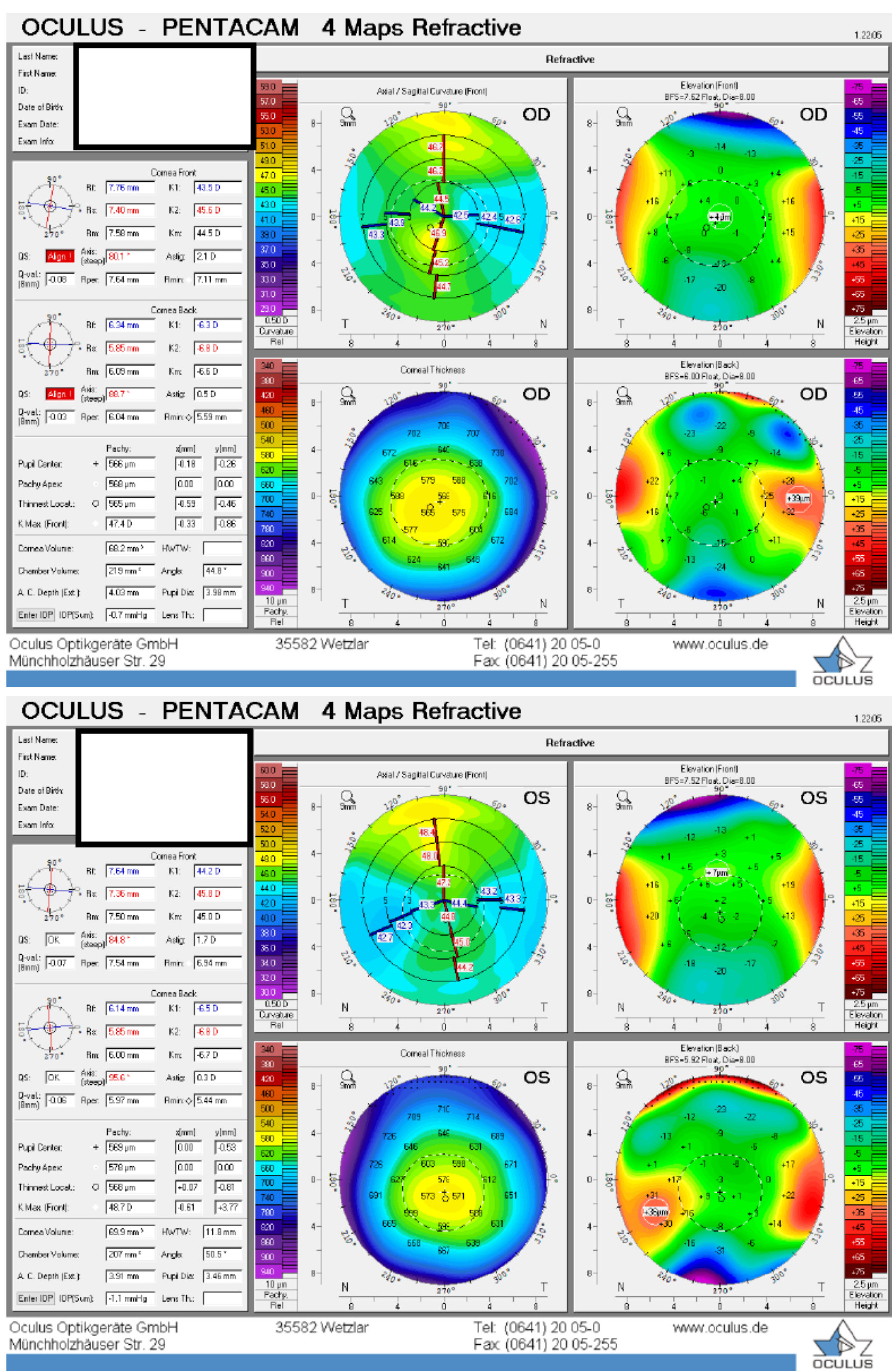


Figure 1 & 2: Pentacam scans of the patient's right and left eyes.

	Manufacturer	Power	BC/Diameter/Skirt	VA
OD	Synergeyes D uette	-7.25 Sph	7.60/14.50/8.4 flat skirt	20/20-
OS	Synergeyes D uette	-5.25 Sph	7.60/14.50/8.4 flat skirt	20/20-

CASE REPORT

An 8-year-old male presented with reduced visual acuity (20/30-2 OD, 20/30-2 OS) and bilateral corneal "crumb-like" deposits upon failing a school visual screening. A thorough case history revealed a positive family history for a similar ocular presentation, leading to the suspicion of Type 1 Corneal Granular Dystrophy (CGD). Over the subsequent 8 years, the patient's best corrected visual acuity in spectacles deteriorated to 20/50- OD and 20/100 OS due to the proliferation of granular opacities into the visual axis. At age 12, a rigid gas permeable contact lens fitting was attempted but met with limited success due to discomfort and poor patient motivation. The patient returned at age 16 seeking alternative vision correction options that provided visual acuity to rigid gas permeable lenses but with greater comfort. A Synergeyes Hybrid contact lens fitting was initiated, resulting in a significant improvement in visual acuity to 20/20- OD/OS. This improvement was attributed to the ability of Synergeyes Hybrid lenses to correct the unacceptable level of distortion experienced by the patient in conventional spectacles, which had already maximized visual acuity. Subjectively and objectively, Synergeyes Hybrid lenses achieved a level of visual acuity and comfort previously unattainable in spectacles or RGP contact lenses in the setting of bilateral corneal granular dystrophy.

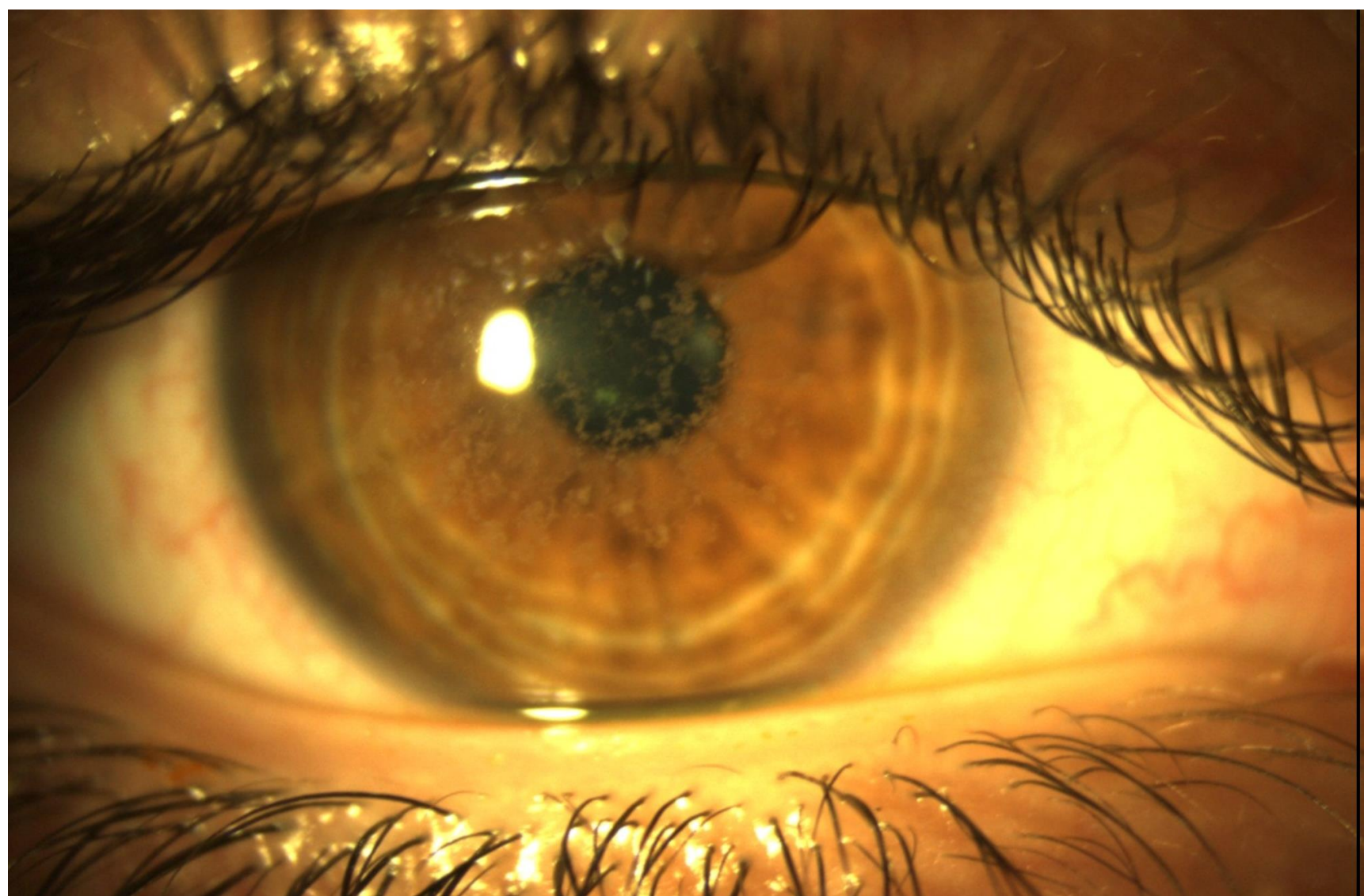


Figure 3: Anterior segment photo of patient's right eye with visible stromal opacifications.

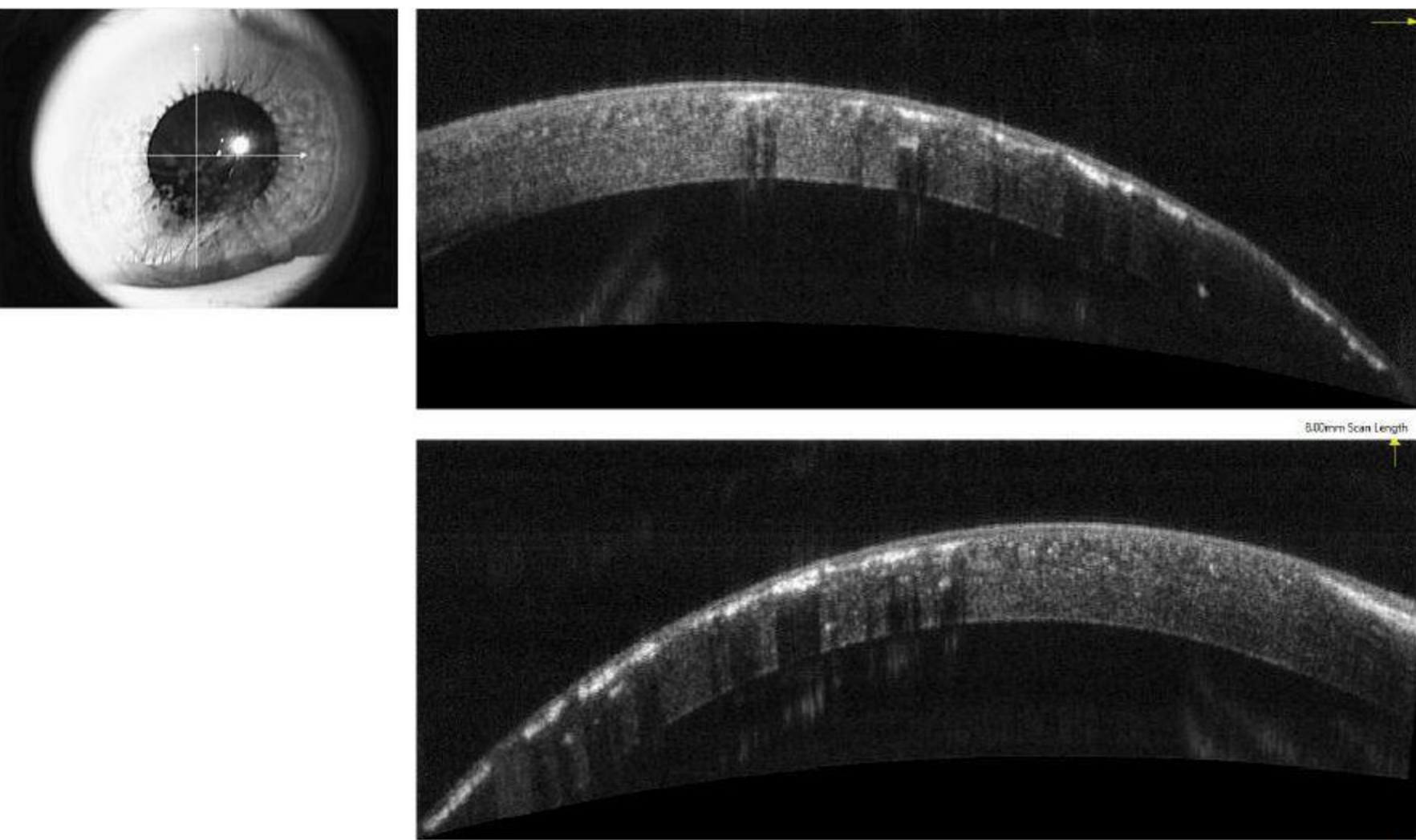


Figure 4: Anterior segment OCT through the patient's right eye.

DISCUSSION

In patients with Corneal Granular Dystrophy who have stromal opacities obscuring the visual axis, soft contact lenses and hybrid contact lenses can provide equivalent or even superior vision correction to spectacles. However, soft lenses should only be used if the corneal surface is uniform to prevent lens distortion. Specialty contact lenses, such as RGP lenses, can be uncomfortable, and some patients, especially children, may be less motivated to learn the complex fitting techniques required for scleral lenses. Synergeyes hybrid lenses combine the comfort of a soft lens with the visual clarity of an RGP lens. They can correct for the distortions typically experienced with conventional spectacle lenses, which can be exacerbated by the presence of sub-epithelial central opacities. Furthermore, the comfort of Synergeyes Hybrid contact lenses increases the likelihood of adaptation and compliance with contact lens wear and care techniques.

CONCLUSIONS

When working with these patients, it is important to balance quality of life with the likelihood of treatment success. Soft contact lenses are not always considered first-line treatment, and it is important to consider alternative methods of visual correction, especially in younger patients, to prevent lasting vision loss or distortion.

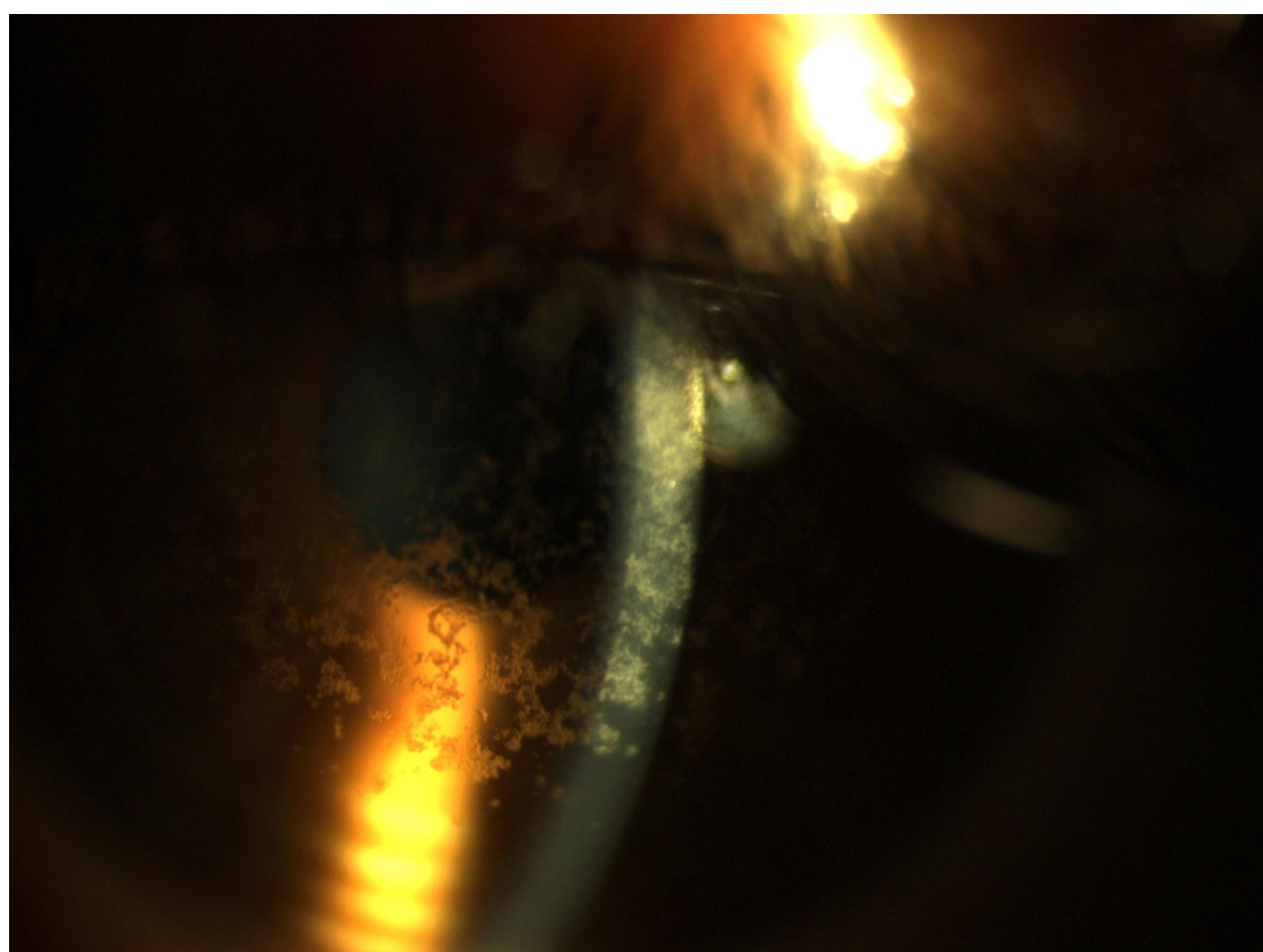


Figure 5: Anterior segment photo of the patient's left eye.

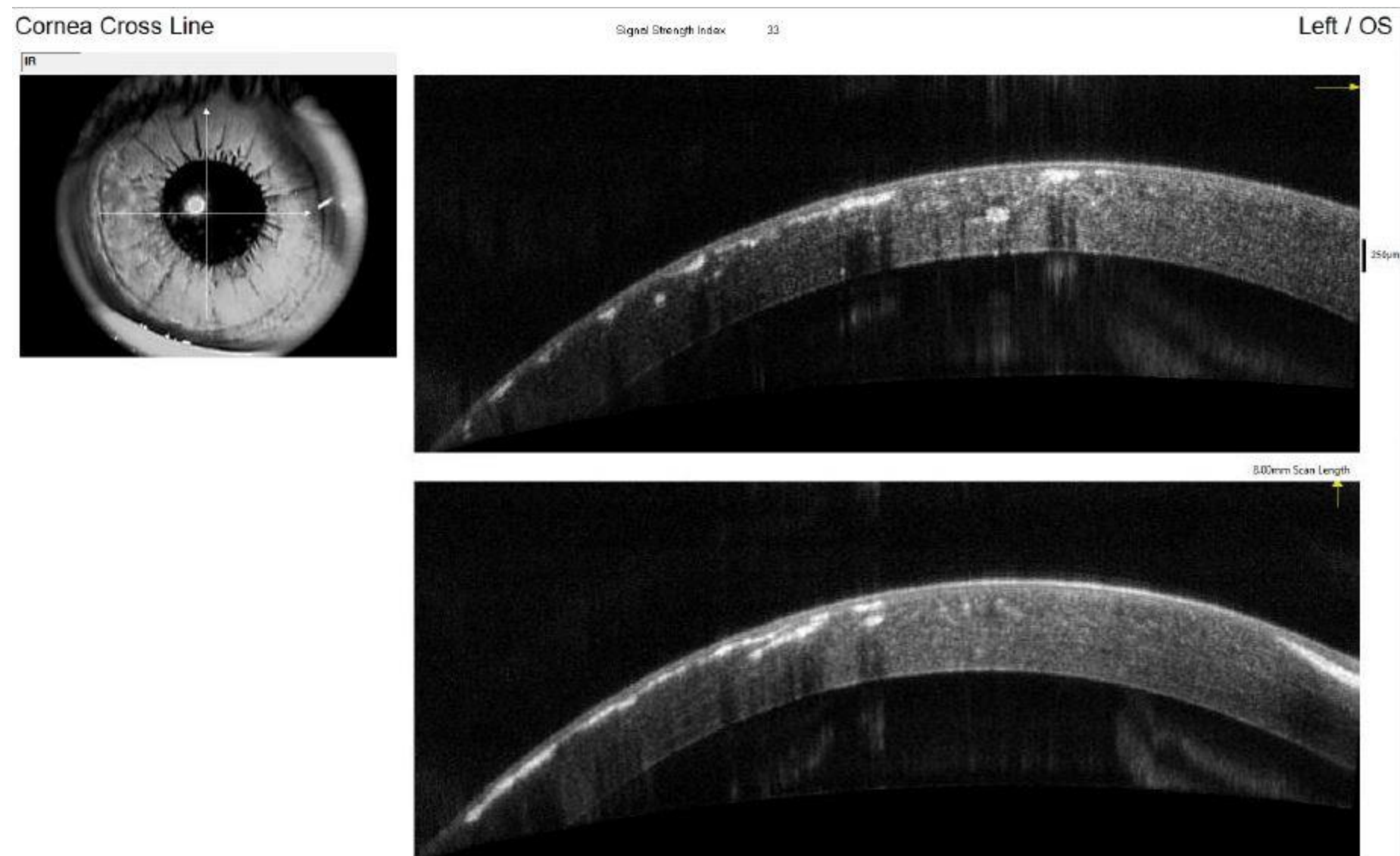


Figure 6: Anterior segment OCT through the patient's left eye.

REFERENCES

1. Chang MS, Jun I, Kim EK. Mini-Review: Clinical Features and Management of Granular Corneal Dystrophy Type 2. Korean J Ophthalmol. 2023 Aug;37(4):340-347. doi: 10.3341/kjo.2023.0032. Epub 2023 Jun 19. PMID: 37336511; PMCID: PMC10427907.
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3. Moshirfar M, Bennett P, Ronquillo Y. Corneal Dystrophy. 2023 Aug 7. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. PMID: 32491788.