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INTRODUCTION

Centronuclear Myopathy is a progressive condition characterized by skeletal muscle degeneration and atrophy. Individuals are typically diagnosed when they begin experiencing muscle weakness, anytime from birth to early adulthood with varying degrees of severity between individuals and even between families. Characteristics of this condition include facial and skeletal abnormalities, ptosis, facial muscle weakness including extraocular muscle weakness, and a high-arched palate¹. With varying degrees of severity in muscular atrophy, some individuals at the highest level will require wheelchair assistance for mobility. Intellectual disabilities are uncommon among these individuals. In the setting of high refractive error, contact lenses are not usually considered in more severe diagnoses due to mobility problems that could lead to complications with insertion and removal, even more so in the face of specialty contact lenses.

CASE REPORT

A 27-year-old male with a history of centronuclear myopathy, lagophthalmos, corneal scarring, and severe dry eye was referred for a scleral contact lens fitting. The patient reported a longstanding history of dryness and ocular irritation as well as inadequate vision in his spectacles. Through his spectacles, his BCVA was 20/100 OD and 20/40 OS. With scleral contact lenses, the vision improved to 20/20 OD/OS with significant subjective improvement in clarity and comfort. Valley Contax Custom Stable Elite scleral contact lens were used for both eyes with a 15.8 diameter. The parameters for the right eye are -7.00 Sph, BC: 8.88, SAG: 4020 and for the left eye -10.00 Sph, BC: 8.65, SAG: 4270. Utilizing a See-Green™ Scleral Lens Inserter, a DMV Scleral Stand, and an adjustable table, successful insertion and removal training was completed.

	Manufacturer	Power	BC/Sag/Diameter	Edges	VA
OD	Valley Custom Stable™ Elite Oblate	-7.00 Sph	8.88/4020/15.8	-3/-10	20/20
OS	Valley Custom Stable™ Elite Prolate	-10.00 Sph	8.65/4339/16.8	-1/-8	20/20

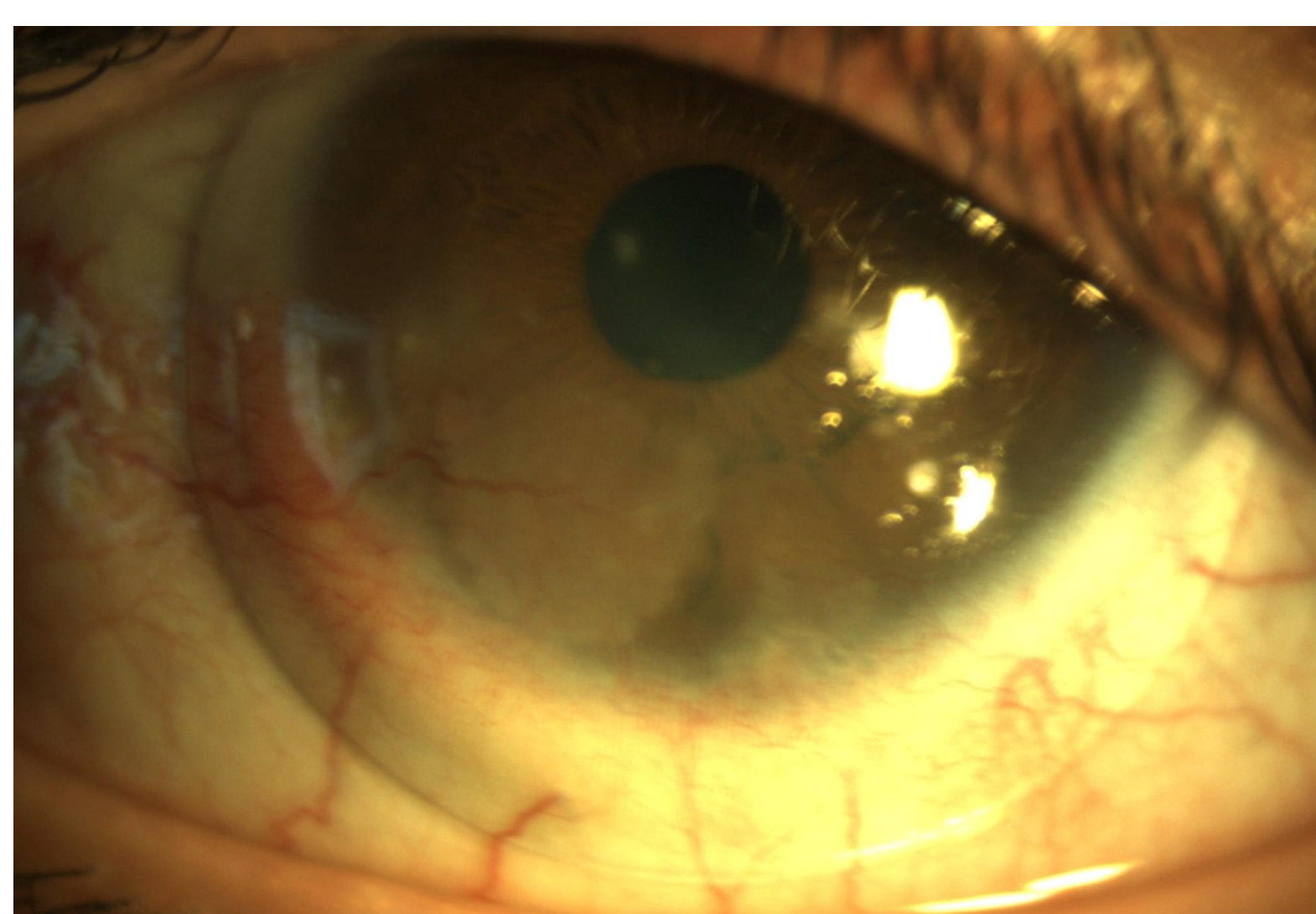


Figure 1: Anterior segment photograph of the patient's left eye highlighting scleral lens decentration.

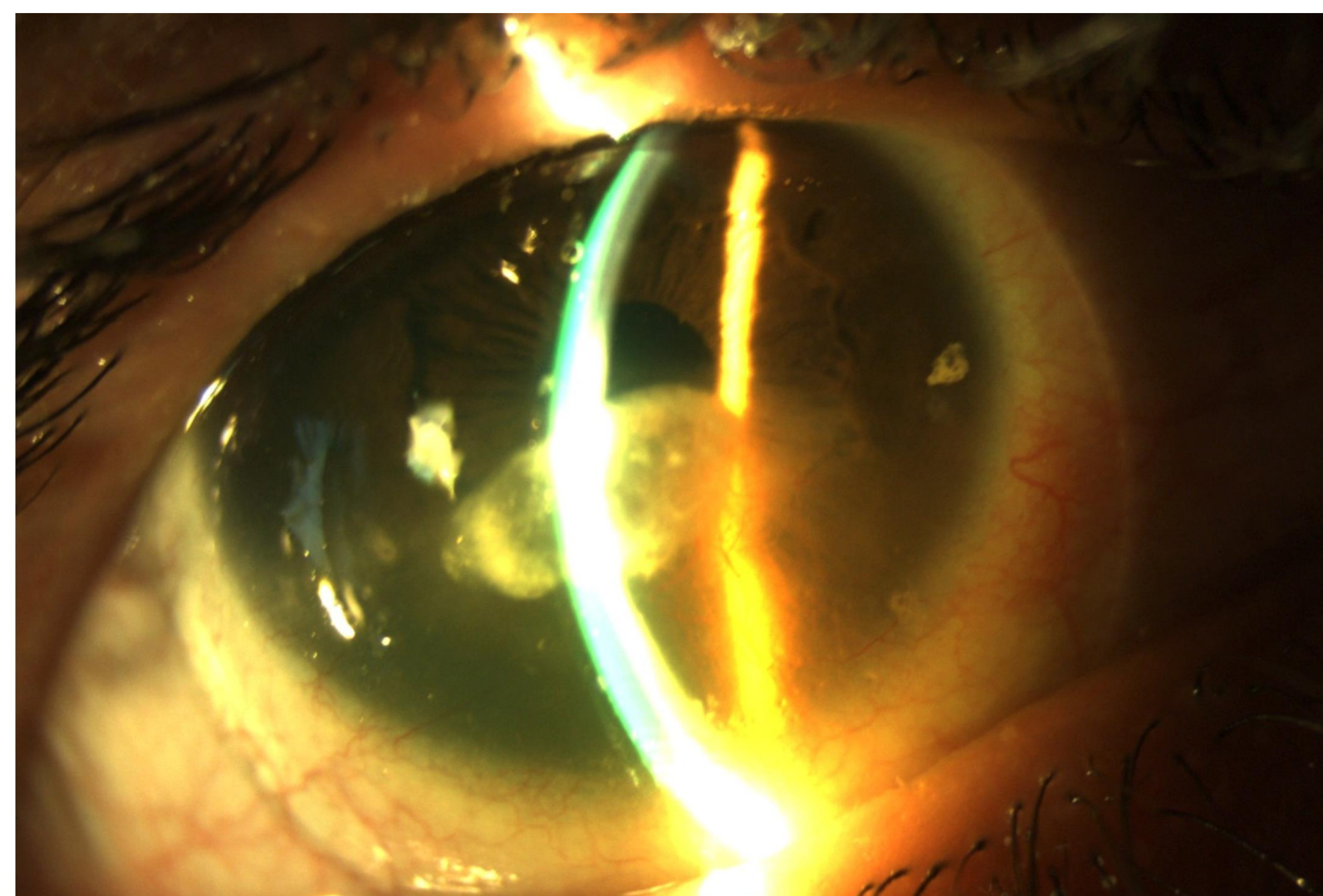


Figure 2 & 3: Anterior segment photo showing the patient's right eye with a scleral lens on vaulting over the stromal scar. The corresponding anterior segment OCT is below.

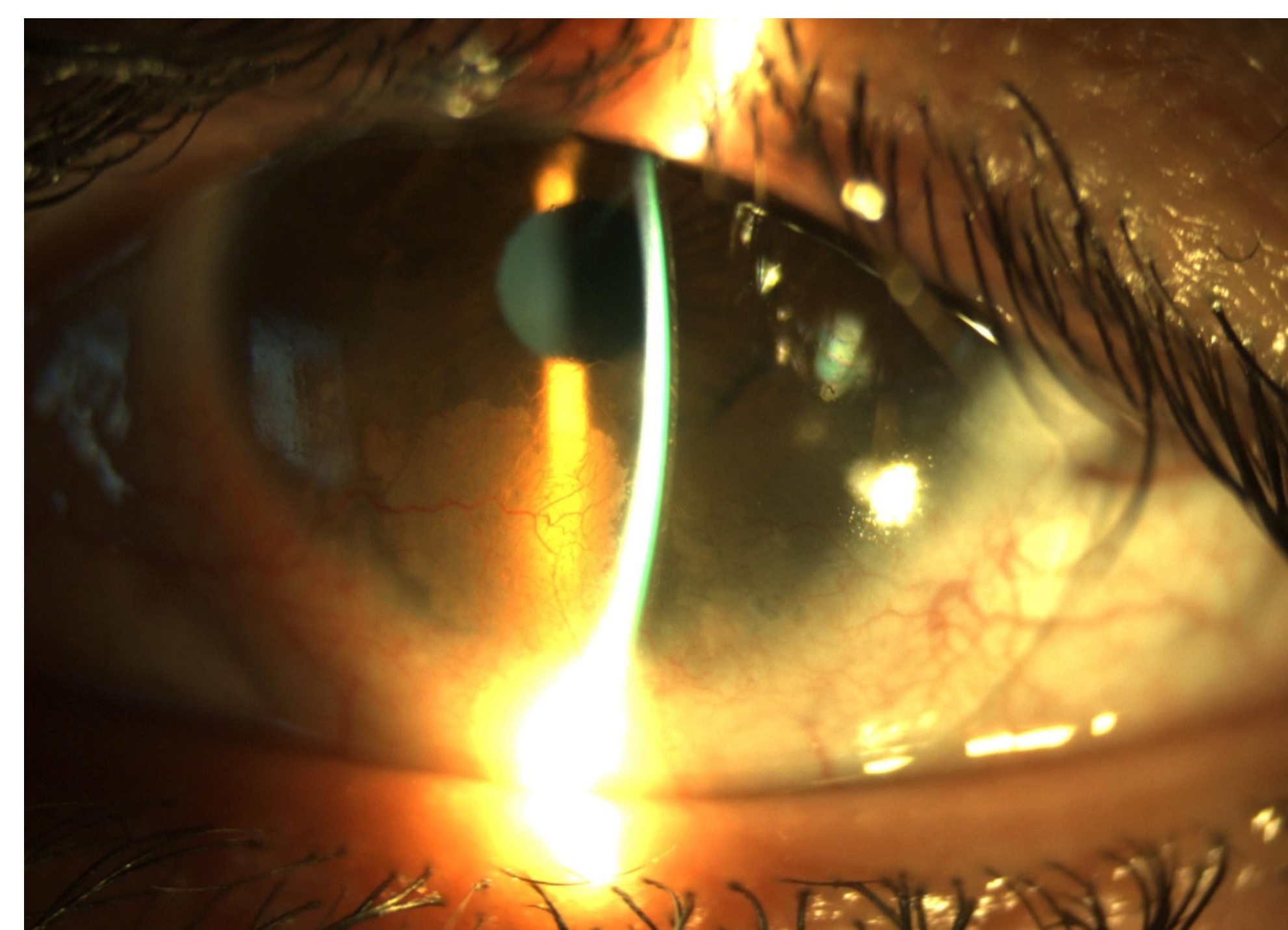
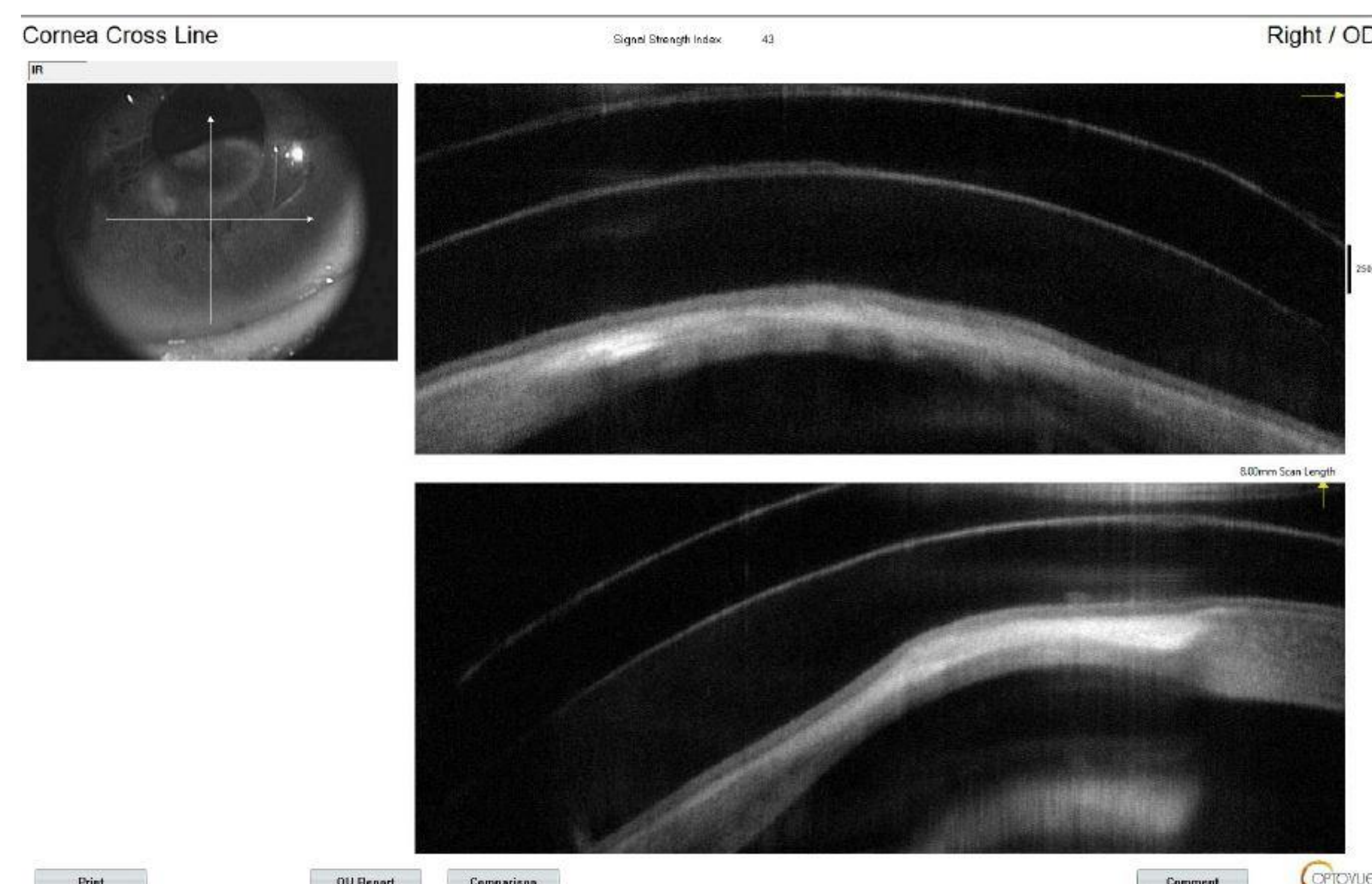


Figure 4: Anterior segment photograph of the patient's left eye with a scleral lens, optic section highlighting inferior neovascularization.

DISCUSSION

A factor considered in a scleral contact lens fitting, as well as insertion and removal training, is the patient's mobility. There has been a surge of innovation in scleral contact lens insertion tools. Proper scleral lens insertion technique always requires the eyelids to be wide open, which can be a challenge even for a patient without physical limitations. The use of adhesive tabs to pull the lids open, can solve the issue². The patient is now free to use his/her hands to perform the rest of the insertion. Besides using a plunger or a ring applicator, devices such as the Chio Lens Applicator and The See-Green™ system can make the insertion process more manageable. The Chio lens applicator is a handheld medical device that helps to eliminate bubble formation and eye injuries, while the See-Green™ Device guides the patient toward the center of the lens². This patient also presented in an adjustable wheelchair that can elevate and tilt, which proved beneficial when choosing a surface to initiate insertion and removal training on. The patient is also continuously co-managed by a dry eye specialist to ensure his dry eye is sufficiently treated.

CONCLUSIONS

Ensuring that various insertion and removal training devices are accessible in one's clinic allows practitioners to account for and provide for a wide variety of patients with various mobility considerations alternatives to traditional insertion and removal techniques. Utilizing various tools, especially in our patient with limited mobility, helped ensure the success of scleral contact lens insertion and removal, awarding our patient with excellent visual acuity and significant relief from dry eye symptoms.

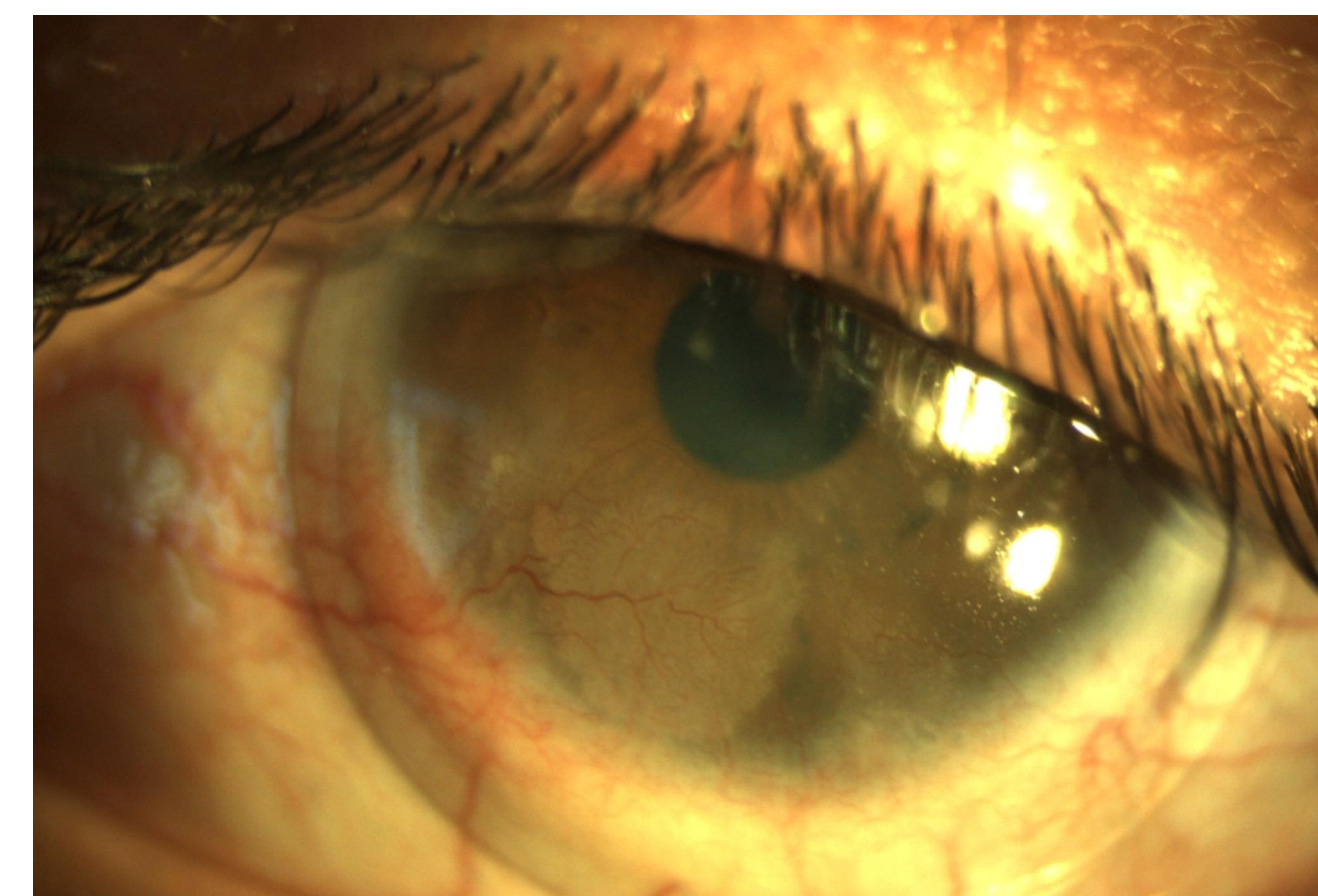


Figure 5: Anterior segment photograph of the patient's left eye with a scleral lens, optic section highlighting inferior neovascularization and inferior lens decentration due to lagophthalmos.

REFERENCES

1. MedlinePlus [Internet]. Bethesda (MD): National Library of Medicine (US); [updated Jun 24; cited 2020 Jul 1]. Available from: <https://medlineplus.gov/>.
2. Mahgoub F. Modern Optometry. Cracking the Scleral and Hybrid Lens Insertion Puzzle. Published online September 2021:32-35.