

Extended Wear Scleral Lens - A Last Resort

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INTRODUCTION

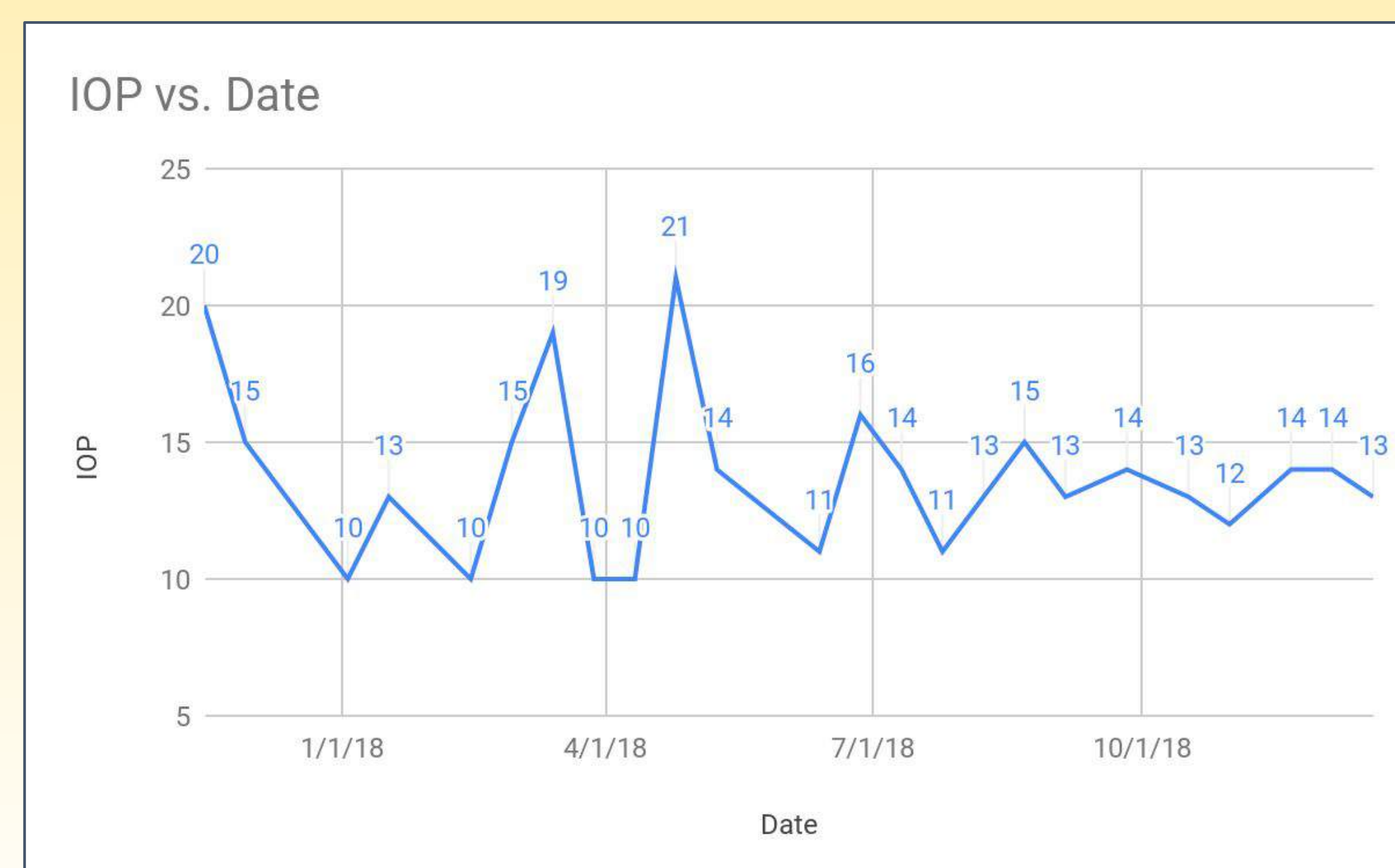
Scleral lenses are routinely prescribed for daily wear only due to the higher risk of corneal hypoxia and microbial keratitis.¹ In rare cases they may be worn overnight for recurrent epithelial defects or severe exposure.² This case report examines the use of extended wear scleral lens changed **biweekly** as a last resort on a patient followed closely over a 1.5 year span.

METHOD

A 68 yo **monocular severe dry eye** patient with significant filamentary keratitis was referred after **failing years of exhaustive topical treatment**.

- Hx of Systemic Lupus Erythematosus, limited physical mobility
- Partial tarsorrhaphy OD
- Unable to retain any soft bandage lens over several years
- Acuity highly variable, ranging from **20/200 to CF 2 ft**
- **Severe pain** and unable to function with her level of vision

Initial scleral lens trial showed improved ocular comfort, but due to physical limitations she was unable to insert and remove herself. Several attempts to train her nursing home caregivers on scleral lens insertion and removal were made, but this proved very difficult with her small palpebral aperture and temporal tarsorrhaphy. They were unwilling to continue training.



RESULTS

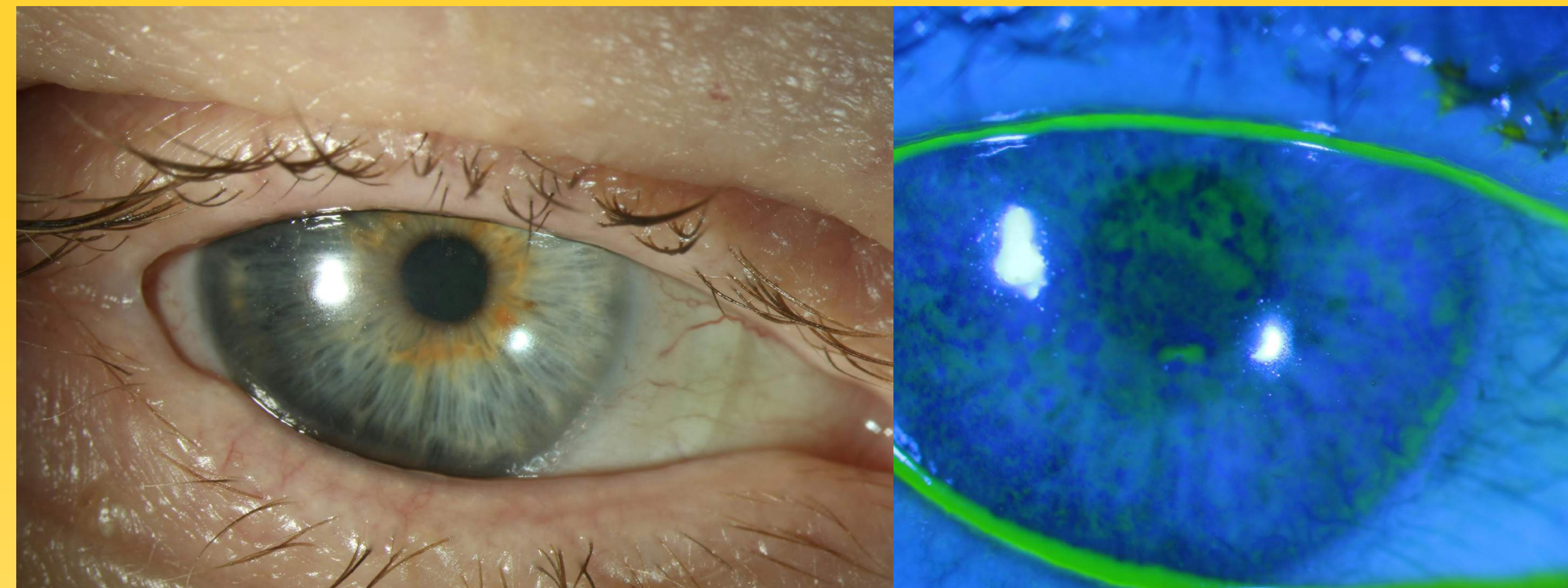


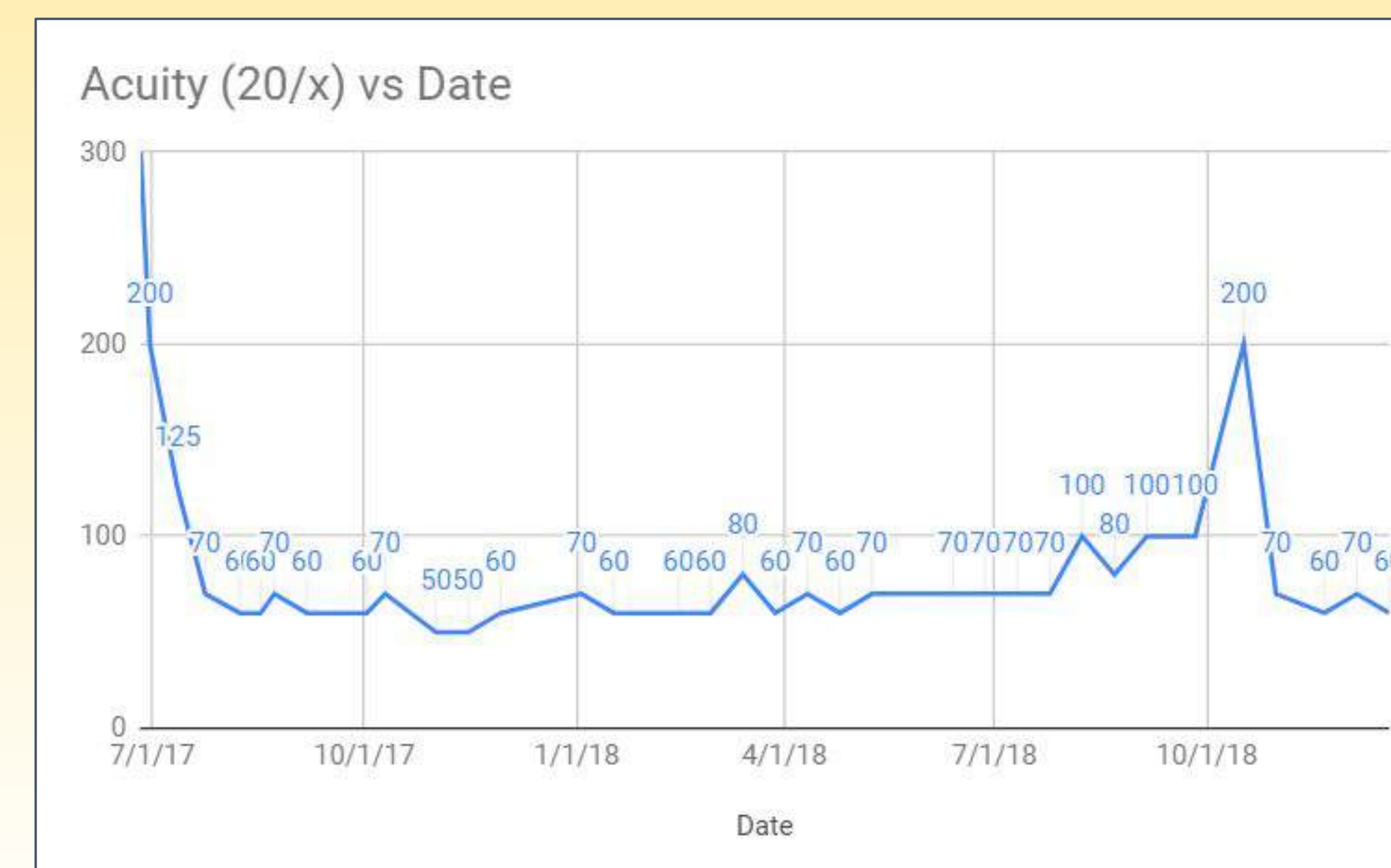
Image 1. Left image shows the scleral lens on the eye after 1 year of treatment. There is a temporal tarsorrhaphy in place. The lens diameter is 17mm. Right image shows corneal presentation immediately after lens removal. There is epithelial bogging, but no punctate epithelial erosions or corneal filaments.

As a last resort due to her extreme pain and poor vision, the patient was fit in an extended wear scleral lens. The lens was fit **large** and **loose** and demonstrated tear flow under the lens. The bowl of the lens was filled with 1 drop preservative free moxifloxacin and preservative free saline. She was followed closely for several weeks until stability was ensured.

She was then followed biweekly for lens removal/cleaning/reinsertion and clinical exam including visual acuity, slit lamp exam, pachymetry, and tonometry. Her visual acuity consistently measured **20/60-20/80** range. Pachymetry and tonometry remained normal and stable throughout the period. There were no events of microbial keratitis. She reported a greatly increased **quality of life** with a comfortable eye and vision.

Figure 1 (left) IOP vs Date: Intraocular pressure measurements were taken immediately after lens removal. IOP has largely remained stable since initial treatment.

Figure 2 (right) Acuity Vs Date: The patient's acuity has improved from 20/200-Counting Finger range to a fairly consistent 20/60-20/80 range. Endpoint acuity is limited by macular irregularities. Her acuity does fluctuate depending on dryness levels.



DISCUSSION

A scleral lens carries **significant risk** when worn as extended wear and is not recommended for the majority of patients, especially monocular patients. Every reasonable effort to treat topically, with a soft bandage lens, or with daily wear scleral lens should be exhausted before attempting. However, when vision and quality of life suffer significantly, the **risk to benefit ratio** is worth discussing with the patient. Our patient did extremely well with extended wear scleral lens changed on a biweekly basis. Fitting a lens large and loose with **regular tear exchange** and **high Dk material** may help tolerance of this schedule, along with **prophylactic antibiotics**.³ These patients must be followed closely.

REFERENCES

- 1.) Adverse Events Associate with Scleral Lens Wear, Schornack M, Journal Of Contact Lens Research and Science Vol 2 (Spec Issue 1) e13-e17, June 13 2018
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- 3.) Scleral Lens to the Rescue, Woo S, Review of Cornea and Contact Lens, June 15 2014

There are no financial disclosure to report.

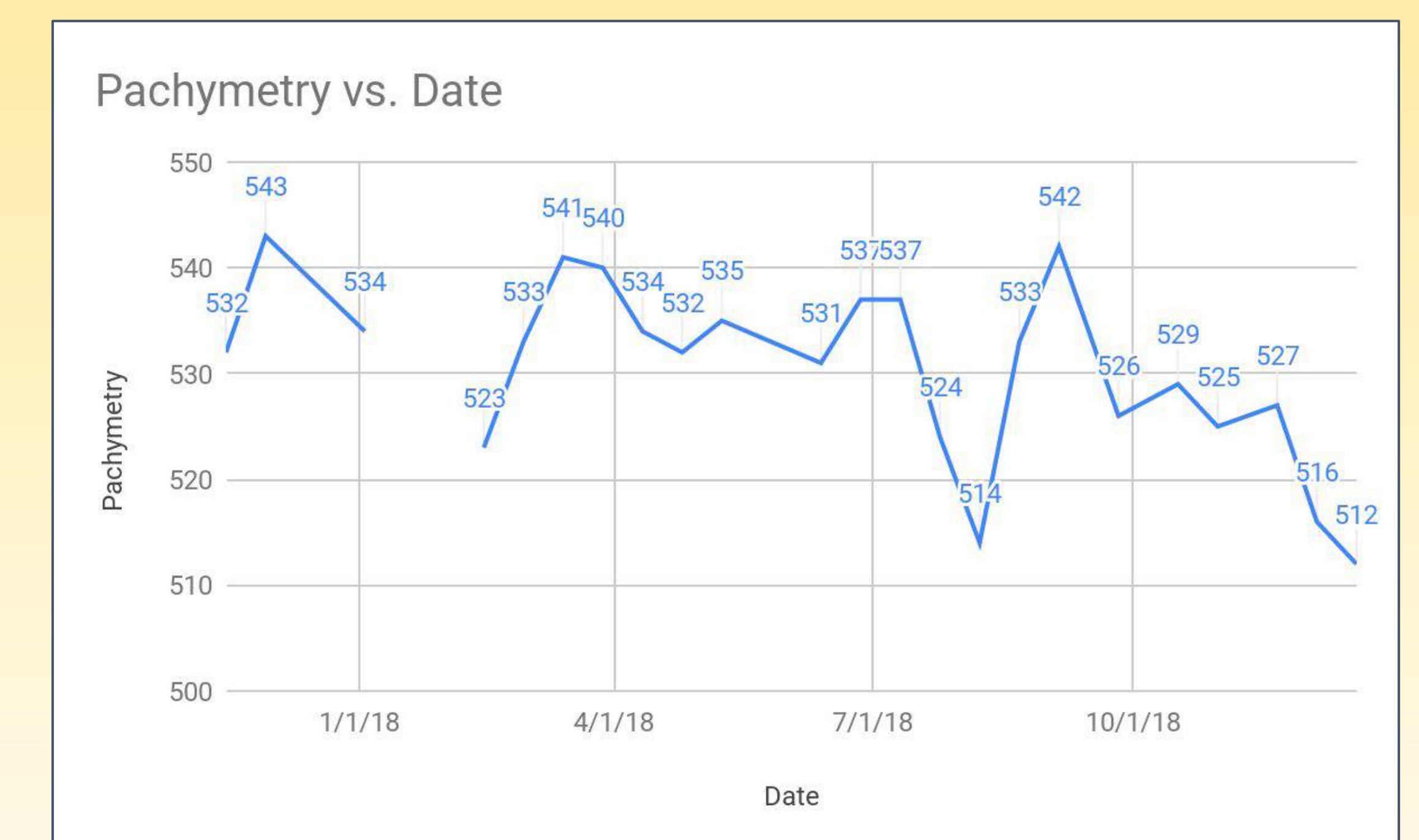


Figure 3 (above) Pachymetry vs Date: Serial pachymetry measurements were obtained to ensure no corneal edema was present after extended scleral lens wear. Her corneal thickness has remained stable throughout.