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# Scleral Contact Lens-Induced Recurrent Pingueculitis

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## CASE HISTORY

After 4 months of successful scleral lens wear, a 57 year old white female presented in June complaining of a tender, red conjunctival nodule nasally in the right eye, *see Figure 1*.

- First noted as lens irritation 1 hour after lens insertion
- 2/10 pain that increased with blinking, moderate redness
- Discontinued lens wear; pain, redness resolution after 2 days
- Right lens suction to eye, uses artificial tears before removal

### Ocular History:

- Irregular Astigmatism OU
- History of RK OU (x1995)
- Scleral lens wear (Zenlens, Optimum Extreme, HydraPEG)

### Medical History:

- Chronic cough, Hyperlipidemia, Myofascial pain syndrome, Atrial fibrillation, Thyroid nodule, Lung nodule, Tubular adenoma of colon

### Medications:

Vitamin D

Allergies: Ciprofloxacin, Doxycycline, Bactrim, Morphine



Figure 1. The left photo shows the initial presentation of the lesion. The right photo shows the lesion appearance 1 week after discontinuing scleral lens wear.

## INITIAL PRESENTATION, JUNE 2020

**Aided VA (glasses):** 20/20-2 OD, OS

### Slit Lamp Exam OD:

- Clear, gelatinous, elevated nasal conjunctival lesion 3mmV x 2mmH, 2mm nasal to limbus, (-) feeder vessels

### CL Assessment OD:

- Fit: 200µm central clearance, tapers sup/nasal; blanching and compression of nasal conj lesion, *see Figure 2*, otherwise good edges
- Removes scleral by putting suction tool in the center of her lens and pulling straight outwards



Figure 2. Compression of conjunctival lesion can be seen inside nasal edge of lens.

## DIFFERENTIALS & DIAGNOSIS

### Differential Diagnosis:

- Phlyctenular conjunctivitis
- Focal allergic reaction
- Focal irritation due to forceful removal of OD lens
- Pingueculitis
- Malignant neoplasm

### Diagnosis:

- Corneal specialist diagnosed inflammation due to lens wear
- Leading diagnosis: recurrent pingueculitis
  - Location, relapsing nature, appearance of lesion

## MANAGEMENT

- Change to Clear Care disinfectant
- Avoid use of new cosmetics or lotions prior to lens insertion
- Re-trained lens removal technique
- New lens was ordered, *see Table 1*
- Avoid use of scleral lenses until new lens arrives

	Base Curve	Sag	Diameter	Power	Limbus Clearance	Periphery	Material
Habitual Lens	36.6D (9.78mm)	<b>5075</b>	17.0mm	+2.25	+100	Standard	Optimum Extreme, HydraPEG
New Lens	36.6D (9.78mm)	<b>5150</b>	17.0mm	+2.50	+100	V: steep 3 H: flat 3	Boston XO, HydraPEG

Table 1. Lens changes are in bold. Toric peripheral curves were ordered to loosen lens fit over the lesion. Sag was increased per consultant recommendation. Lens material was changed to rule out hypersensitivity reaction.

## FOLLOW UP, AUGUST 2020

1 month follow up; new scleral lenses arrived 2 weeks ago.

- Severe irritation and redness after 12hr wear, *see Figure 3*
- Took 1wk break from lenses; resolved
- Lens wear 4hr/day for last 4 days
  - Increased lesion redness, size after lens wear
  - Minimal pain



Figure 3. Nasal pingueculitis

**Aided VA (scleral):** 20/20-2 OD, 20/20-1 OS

### Slit Lamp Exam:

- Pingueculitis nasal OD; Injection temp OD and nasal OS

### CL Assessment:

- OD: ideal fit with compression of nasal lesion, *see Figure 2*

### Management Options:

- RGP lens → previously failed out
- Piggyback lens → nuisance of 2 lenses per eye, less oxygen
- Hybrid lens → improve comfort vs RGP, oxygen vs piggyback
- Discontinue CL → significant glare, distortion with glasses

### CL Fit:

- Re-fit SynergEyes UltraHealth FC Hybrid lens to avoid compression of nasal pinguecula. Tried lenses in-office, *see Table 2*.
  - OD: 105µm vault, steep skirt/7.9mm BC, 14.5mm D, +1.75
  - OS: 155µm vault, steep skirt/7.9mm BC, 14.5mm D, +2.00

Lens	Fit
Trial 1: 255µm vault, medium skirt	large bubble on insertion, removed immediately
Trial 2: 155µm vault, medium skirt	moderate bubble on insertion, removed immediately
Trial 3: 55µm vault, medium skirt	OD: decentered sup/nasal, <50µm central clearance, sup/temp bearing; excessive movement (OR: +1.75, 20/20) OS: decentered temp; bearing central, temp, along ILZ; excessive movement (OR: +3.00DS, 20/20)

Table 2. Hybrid lenses trialed in-office to determine fit and interaction with pinguecula.



Figure 4. Left image shows hybrid lens on right eye at dispensing visit. Right image shows lens on right eye after several hours of wear with no irritation or redness.

## HYBRID LENS DISPENSE, SEPTEMBER 2020

**Aided VA (glasses):** 20/25-2 OD, 20/30+2 OS

### Slit Lamp Exam:

- Nasal pinguecula OU, Temporal pinguecula OD

### CL Assessment:

- VA: 20/20-2 OD, 20/25+2 OS
  - Patient reported great visual clarity through lenses
- OU: decentered temp; temporal bearing

### Final CL Ordered:

- OD: 155µm vault, steep skirt/7.9mm BC, 14.5mm D, +1.25
- OS: 205µm vault, steep skirt/7.9mm BC, 14.5mm D, +1.00

## DISCUSSION

Pinguecula are one of the most common age-related conjunctival lesions. A study performed in Japan noted nasal and/or temporal pinguecula in roughly half of people over age 40 years without contact lens wear. It found the prevalence of pinguecula remains at approximately 50% for contact lens wearers between the ages of 40-50 years but increased to about 80% for contact lens wearers over age 50 years. This suggests that contact lens wear, along with age, is a risk factor for the development of pinguecula. The effect was even more pronounced for hard contact lens wearers over age 50 years, as over 90% were found to have pinguecula.<sup>1</sup>

Despite the high prevalence of pinguecula in hard contact lens wearers, reports of pingueculitis induced by scleral lens wear are rare in literature. Most reports simply note pinguecula as sources of mild discomfort or redness with contact lens wear.<sup>2-3</sup> In cases of scleral contact lens discomfort due to edge interaction with pinguecula, most practitioners recommend decreasing lens diameter to avoid the pinguecula.<sup>2-4</sup> However, inadequate limbal clearance can become a problem with lens diameter smaller than 15mm for patients with corneal HVID greater than 11.5mm.<sup>4</sup> A combination of pinguecula proximity to the limbus and greater than average HVID for our patient negated this option.

Adding a microvault over the pinguecula or cutting a notch around the pinguecula were other common suggestions.<sup>2-4</sup> As with decreasing lens diameter, we felt that the pinguecula proximity to the limbus ruled out the option of a notch.

## FOLLOW UP, NOVEMBER 2020

2 month follow up; "things are going really great."

- Overall, very comfortable; intermittent mild irritation
- Wears lenses 10hr for 2 days, then takes a break for 1 day
- No inflammation, redness or change in size of lesions

**Aided VA (hybrids):** 20/20-1 OD, OS

### Slit Lamp Exam:

- Nasal pinguecula OU, Temporal pinguecula OS

### CL Assessment:

- OD: decentered temp; 50µm central clearance, tapers temp
- OS: decentered inf/temp, 50µm central clearance, tapers temp

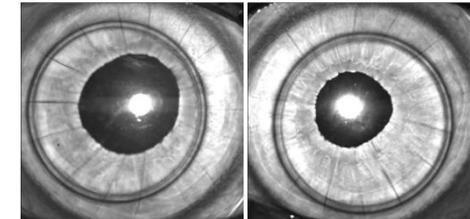


Figure 5. Red-free image shows the final hybrid lens design decentered slightly temporal on the right eye and slightly inferior temporal on the left eye.

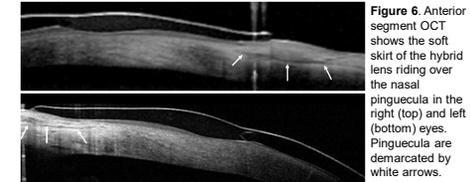


Figure 6. Anterior segment OCT shows the soft skirt of the hybrid lens riding over the nasal pinguecula in the right (top) and left (bottom) eyes. Pinguecula are demarcated by white arrows.

## CONCLUSIONS

Switching from a scleral contact lens to a hybrid contact lens maintained our patient's visual clarity while eliminating irritation from recurrent pingueculitis.

There are several key takeaways from this case:

- Scleral contact lens wear may increase risk of developing pinguecula or pingueculitis.
- Lenses can cause pinguecula irritation even with an ideal fit.
- Hybrid contact lenses are a good option for patients with irregular corneas and pinguecula.

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## CONTACT

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