THE DIAGNOSIS AND TREATMENT OF A CONTACT LENS PERIPHERAL ULCER

CLINICAL RECORD CARD

DATE of INITIAL CONSULTATION: 13/10/2025 **REF**: 1421

SURNAME: C **FORENAME**: L

AGE: 64

ADDRESS: G66 **TELEPHONE**: 07799

OCCUPATION: Retired **COMPUTER USER**: YES **SPORTS**: Speed Walker

DRIVER: Yes **SMOKER**: No

DOCTORS SURGERY: Turret Medical Practice Kirkintilloch

HISTORY & SYMPTOMS:

Px contacted the practice seeking an urgent appointment.

Px has successfully worn rigid gas permeable contact lenses for many years achieving a daily wearing time of at least twelve hours. No extended wear of lenses. (Further contact lens details are in Appendix One). Present lenses are three years old and have been worn today for five hours.

Px returned from a holiday in the city of Praque two days ago and has experienced increasing irritation in the left eye along with redness . There is moderate photophobia and a watery discharge, but not of a mucopurulent nature. The symptoms persist when the lenses are removed. No history of ocular trauma.

GENERAL HEALTH: Px has a history of good general health and is not currently taking any medications. No recent history of upper respiratory tract infections.

FAMILY OCULAR HISTORY: None

PERSONAL OCULAR HISTORY: None

PRELIMINARY EXAMINATION

PUPILLARY REACTIONS: PERLA

OCULAR MOTILITY: Full in all directions: no diplopia or pain on ocular movements.

VISUAL ACUITY

Rv: with contact lens: 6/6 no added power Near add: +2.25DS=N5

Lv: with contact lens: 6/6pt no added power Near add: +2.25DS=N6

SLIT LAMP EXAMINATION: Keeler KSL-Z Slit Lamp

N.B: Efron Grading Scales for Contact Lens Complications are used.

RIGHT EYE: unremarkable anterior segment.

Contact Lens:

RGP Lens sitting slightly low but achieving pupillary coverage

Moderate protein coverage at periphery of optic zone and also superficial scratches on front surface of optic zone.

(Contact lens now removed)

Lids & lashes: clean

Tear film: good quality tears TBUT: 12s

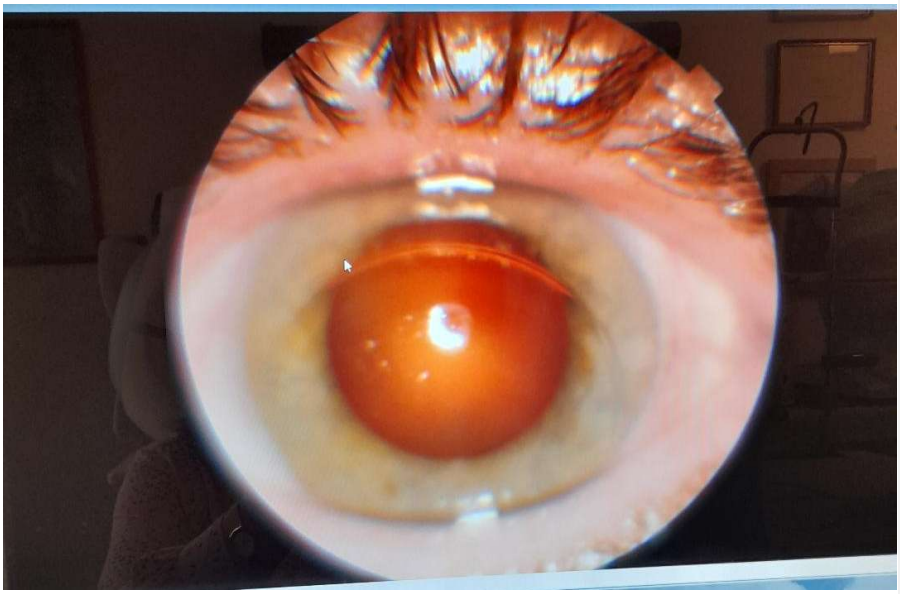
Cornea: Grade 1 fluorescein staining

Conjunctiva & Sclera: mild generalised hyperaemia: grade 2

Iris: blue

Anterior chamber: deep

Figure One: Anterior segment photograph of left eye showing RGP contact lens in situ and temporal sectorial redness. Just visible adjacent to this area is the white corneal infiltrate.



LEFT EYE: Figure One

Contact Lens:

RGP Lens sitting slightly low but achieving pupillary coverage

Moderate protein coverage at periphery of optic zone.

(Contact lens now removed)

Lids & lashes: evidence of clear watery discharge; no mucopurulent discharge, No Oedema

Tear Film: good quality tears TBUT: 11s

Iris:blue

Cornea:

1. Distinct circular white infiltrate at periphery of cornea at temporal edge
2. Clearly defined margins
3. Size: 1.00/1.5mm
4. Overlying epithelial fluorescein staining (Grade 3)
5. Corneal sensation present

Conjunctiva & Sclera: Grade 3 (moderate) sectorial limbal redness/ciliary flush adjacent to the infiltrate.

Anterior Chamber; deep & no anterior chamber reaction

INTRA-OCULAR PRESSURES: (Contact lenses removed)

RE: 13mmHg LE: 16mmHg @ 11.00am I-Care tonometer

DIAGNOSIS, TREATMENT & ADVICE TO PATIENT

DIAGNOSIS: Probable contact Lens Peripheral Ulcer, however there remains a suspicion that this could be a microbial keratitis with the potential to become a sight threatening corneal ulcer.

TREATMENT: Condition to be treated as though it is microbial keratitis. In accordance with NHS GREATER GLASGOW & CLYDE Clinical Guidelines & Anterior Segment Treatment Ladders (Updated 28th November 2024).

1. Immediately cease contact lens wear
2. Antibiotic monotherapy. Prescribe Ofloxacin (Exocin) eyedrops
   Dosage: One drop to left eye every two waking hours for two days.
   (National Health Service Scotland form GP10 OP5)
   Px compliance likely to be good
   N.B: Px has no known allergies to antibiotics

   Px advised that if ocular symptoms become worse to report to the practice immediately

   Px advised that if there are any adverse reactions to the above medication then the medication should cease to be taken and Px report to the practice.

   Follow up appointment arranged for two days.

FOLLOW UP REVIEW APPOINTMENT

DATE: 15/10/2025

PURPOSE OF CONSULTATION: 48 hours review of treatment of contact lens peripheral corneal ulcer in left eye.

TREATMENT: Exocin eyedrops every two waking hours.

Px reports an improvement in the condition. i.e:

1. The left eye feels more comfortable
2. The left is less red in appearance
3. There is less photophobia

RE visual acuity with spectacles: 6/6

LE visual acuity with spectacles: 6/6

IOP's: RE: 13mmHg LE: 15mmHG I -Care tonometer @ 11.00am

Slit Lamp: LE:

1. Sectorial limbal redness now grade 2: mild
2. Corneal infiltrate reducing in size
3. Fluorescein staining reduced & corneal re-epithelization taking place
4. No anterior chamber activity

Conclusion: Favourable response to initial antibiotic treatment, with good Px compliance in treatment.

Plan: Exocin eyedrops dose to be tapered to one drop to left eye four times a day and review in a week.

Px reminded to return to the practice urgently if the situation worsens.

FURTHER REVIEW APPOINTMENT

DATE: 27/10/2025

PURPOSE OF CONSULTATION: Review of treatment of contact lens peripheral corneal ulcer in left eye.

TREATMENT: Exocin eyedrops: one drop to left eye four times a day.

Px reports a further improvement in the condition, with symptoms having almost resolved i.e:

1. The left eye feels comfortable

2.The left is less red in appearance

3.There is minimal photophobia

RE visual acuity with spectacles: 6/6

LE visual acuity with spectacles: 6/6

IOP's: RE: 12mmHg LE: 13mmHG I -Care tonometer @ 12 noon

Slit Lamp: LE: Figure Two

1. Sectorial limbal redness now grade 1: trace
2. Corneal infiltrate reduced in size
3. Fluorescein staining minimal & corneal re-epithelization has taken place
4. No anterior chamber activity

Conclusion: Favourable response to antibiotic treatment, with good Px compliance in treatment.

The contact lens peripheral ulcer has now resolved. There is a residual tiny white spot but no symptoms.

Plan: Exocin eyedrops may now be stopped

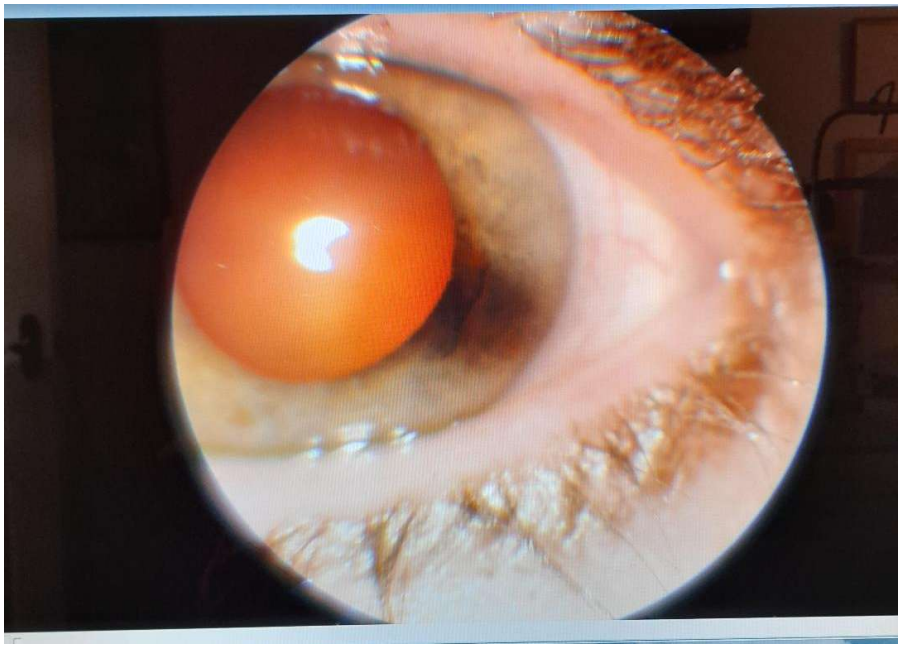
Px reminded to return to the practice urgently if the situation worsens.

N.B: The opportunity was taken to undertake a full eye examination and refraction at this visit. Details are in Appendix Two.

Px may now resume contact lens wear.

The Px made the decision to purchase a new set of contact lenses. Details of the lenses are in Appendix One.

Figure Two: anterior segment of the left eye showing minimal temporal sectorial redness and clear cornea.



DISCUSSION and REFLECTION

The initial presentation of this patient's red irritable left eye led to the conclusion that it was probably a contact lens associated infiltrative event. In this case a peripheral corneal ulcer (CLPU). This diagnosis was made on the basis that the infiltrate was small in size and had a peripheral location. There was minimal corneal epithelial damage and no mucous discharge or lid oedema and there was no anterior chamber reaction. The Px's symptoms were not particularly severe.

Other contact lens associated infiltrative events include:

1. Contact lens associated infiltrative keratitis
2. Contact lens associated acute red eye (CLARE)

Assuming this diagnosis to be correct then CLPU is a self limiting inflammatory response of the cornea affecting the anterior stroma which may or may not include epithelial involvement. (2). The aetiology of this condition is inflammatory and not infective (i.e: sterile). It is thought to be a response to microbial antigens (usually Gram positive staphylococcal) found on the lens surface or on the eye lid margin (i.e: blepharitis). Although bacteria related the bacteria do not invade the cornea and (in theory) there should not be a progression to an infection. (3).

Risk factors for CLPU include: (4)

1. Long term lens wear
2. Extended (overnight) wear
3. Tight lens fit
4. Poor lens hygiene
5. Bioburden of lenses and lens case

The differential diagnosis for CLPU included the following conditions:

1. Bacterial Keratitis
2. Acanthamoeba Keratitis (Px presents with inordinately extensive pain & photophobia)
3. Phlyctenulosis
4. Marginal Keratitis
5. Fungal infection
6. Herpes zoster

It is the first of the above conditions that initially may present with similarities to CLPU. If left untreated bacterial corneal infections can progress rapidly and become sight threatening.

The most common pathogens causing bacterial infections are: (5)

1. Pseudomonas aeruginosa: a Gram negative bacteria noted for its ability to spread rapidly and cause inflammation
2. Staphylococcus aureus: a Gram positive bacteria
3. Streptococcus pneumoniae: a Gram positive bacteria

Typical risk factors for bacterial corneal infections include:

1. Contact lens wear i.e: Extended wear>soft>daily disposable>RGP. Especially increased days of wear
2. Trauma: especially a corneal abrasion
3. Ocular surface disease: especially dry eyes, also bullous keratopathy and herpetic keratitis, corneal exposure and decompensation
4. Lid disease: especially Staphyloccocal bleparitis, also entropion
5. Prolonged topical steroid use
6. Lacrimal drainage apparatus dysfunction
7. Poor hygiene: especially poor maintenance of C/Ls
8. Vitamin A deficiency
9. Smoking
10. Youth and male gender.

In case the diagnosis of CLPU was incorrect the decision was made to treat this case as though it was an early presentation of bacterial keratitis, thereby avoiding the danger of this condition rapidly taking hold.

Given that the corneal infiltrate was small and well away from the visual axis it was not felt necessary to refer the patient to the Hospital Eye Service for corneal scraping.

The College of Optometrists Clinical Management Guidelines and NHS Greater Glasgow & Clyde Anterior Treatment Ladders recommend the rapid commencement of antibiotic monotherapy as appropriate treatment. (6) (7).

Antibiotic monotherapy refers to the use of antibiotics as the sole treatment for a bacterial infection. It has the advantage of being convenient for the patient and less likely to produce ocular surface toxicity.

Current practice is to prescribe fluoroquinolone eyedrops. The latter are bactericidal antibiotics which are found to be effective against a broad spectrum of Gram positive and Gram negative bacteria. Dosage can be tapered as the condition improves.

Commented [JK1]: po

Commented [JK1R2]:

It should be noted that chloramphenicol eyedrops and ointment, a common antibiotic available 'over the counter' in various retail sources is not effective against Pseudomonas aeruginosa the most common pathogen in contact lens related bacterial keratitis.

At all times there should be a low threshold for referring the patient to ophthalmology if the initial proves ineffective. Patients need to be aware of the need to seek urgent advice if their symptoms worsen.

It was not felt necessary to refit this patient with another mode of contact lens wear as rigid gas permeable lenses are normally not frequently associated with corneal ulcers.

APPENDIX ONE

SPECIFICATIONS of PATIENT'S CONTACT LENSES

Px L.C was a longstanding wearer of rigid gas permeable contact lenses

Age of lenses at presentation: 2 years.

Care Solutions: Bausch & Lomb

Daily wearing time: at least 12 hours a day

RIGHT LENS SPECIFICATIONS

BOZR: 7.80

BOZD: 7.8

Total Diameter: 9.6

Edge Lift: 0.12

Power: -5.25

Tint: Grey

Well blended

Engraving: R

LEFT LENS SPECIFICATIONS

BOZR: 7.80

BOZD: 7.8

Total Diameter: 9.6

Edge Lift: 0.12

Power: -4.00 i.e: reduced negative power to assist reading in non dominant eye

Tint: Grey

Well blended

Engraving L

Contact Lens material: Optimum Comfort: a fluorosilicone acrylate material with a DK of 65 and a wetting angle of 6 and a UV inhibitor.

Lens Supplier: Jack Allen Contact Lenses. Enfield England. EN3 4 LQ

Although both contact lenses tended to sit low adequate pupil coverage was obtained both on primary gaze and on ocular movements.

Examination using fluorescein showed an alignment fit.

It was not felt that the fit of the lenses contributed to the Px's symptoms.

APPENDIX TWO

OPTOMETRIC DETAILS of PATIENT L. C.

DATE of CONSULTATION: 27/10/2025 **REF**: 1421

SURNAME: C **FORENAME**: L

AGE: 64

ADDRESS: G66 **TELEPHONE**: 07799

OCCUPATION: Retired **COMPUTER USER**: YES **SPORTS**: Speed Walker

DRIVER: Yes **SMOKER**: No

SPECTACLE PRESCRIPTION: BVD: 12mm

Rv: -5.25/-0.50x170=6/6 Near Add: +2.00DS=N5

Lv: -5.25/-0.25x180=6/6 Near Add: +2.00DS=N5

HVID: 11.5mm **Dominant Eye**: Right Eye

SLIT LAMP EXAMINATION: Using Volk 90D lens for internal examination

Right Eye:

Lids & Lashes: clean & Clear. (Grade 0)

Media: small floaters

Fundus: healthy myopic fundus & ONH. C/D; 0.2

Peripheral Retina: intact

Left Eye:

Lids & Lashes: clean & Clear. (Grade 0)

Media: small floaters

Fundus: healthy myopic fundus & ONH. C/D; 0.2

Peripheral Retina: intact

KERATOMETRY:

Right Eye: 7.80 along 155 7.65 along 65

Left Eye: 7.80 along 5 7.62 along 95

REFERENCES

1. NHS GREATER GLASGOW & CLYDE. Clinical Guidelines. Anterior Segment Treatment Ladders. Updated November 2024. Accessed October 2025.
2. College of Optometrists Clinical Management Guidelines. Contact Lens Associated Infiltrative Keratitis. Accessed October 2025.
3. IBID
4. IBID
5. Denniston, A.K.O and Murray, P.I: Oxford Handbook of Ophthalmology, fourth edition. OUP 2018
6. College of Optometrists Clinical Management Guidelines. Microbial Keratitis (Bacterial, Fungal). Accessed October 2025.
7. NHS GREATER GLASGOW & CLYDE. Clinical Guidelines. Anterior Segment Treatment Ladders. Updated November 2024. Accessed October 2025