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Visual Acuity Approach to a Patient with a Rose-K Contact Lens - A Case Report

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ABSTRACT

Objective- Providing a healthy satisfactory visual acuity approach to a patient of Keratoconus fitted with a Rose-K contact lens.
Introduction- Rose K lens is an effective option for visual improvement in irregular cornea such as Keratoconus. Contact lenses are the mainstay therapy for Keratoconus and are the treatment modality of choice in 90% of patients due to corneal surface irregularity.
Case History- A 32-year-old female patient visited at Ahooja Eye & Dental Institute, Gurugram, with the chief complaint of diminished vision in her left eye for the last one month. The patient did not complain about diminished vision in the right eye. Earlier, the patient had diagnosed with the case of Keratoconus somewhere else and suggested to be continued with the glasses. The patient had a history of spectacles in the last 7 years and using the current prescription for the last 4 months. Visual acuity for distance & near, with glass and the current prescription was recorded.
Conclusion- In our case, after all the presented findings and trial, one pair of Rose K2 lenses of varying total diameter and optic zone diameter was ordered. The patient was asked to visit for lens collection and follow up after 6 months. Lastly, it is advised that all Rose k practitioners keep at least two to three trial lenses, assess the fit in each fit, and choose lenses based on corneal topography.

Key Words- Rose K Contact Lenses, Keratoconus, Visual Acuity, Topography

INTRODUCTION

Progressive ectasia is related with impaired vision and clinical manifestations such as Vogt's striae, Fleischer's ring, stromal thinning, and apical corneal scarring in Keratoconus.[1] Increased corneal ectasia results in increased irregular astigmatism, which may require the use of rigid contact lenses. [2-5]. Contact lenses are the mainstay therapy for Keratoconus and are the treatment modality of choice in 90% of patients due to corneal surface irregularity [6] Popular options in contact lenses for Keratoconus include Rigid Gas Permeable (RGP) lenses, hybrid contact lenses, piggyback lenses, and scleral contact lenses. Two commonly used RGP lens designs include the Soper contact lens and the Rose-K contact lens. The Rose-K lens for Keratoconus is a proprietary design. A multi-spherical posterior design with aspheric optics for aberration control across the diameters of the back and front optic zones. Rose K lenses are an excellent treatment option for uneven corneas such as Keratoconus. According to this study, all

patients equipped with Rose K lenses improved their visual acuity by 100%, which is clinically significant. Improved patient compliance, as a result of the higher visual acuity compared to standard Keratoconus lenses, and fewer problems, may help to delay the need for penetrating keratoplasty in such patients. [7] With the aid of corneal topography, persons with keratoconus who wear the Rose K RGP have easily achieved a comfortable wearing status and had their vision corrected to a satisfactory degree. The corrective impact has been proven to be satisfactory. [8]

CASE PRESENTATION

A 32-year-old female patient was visited at Ahooja Eye & Dental Institute, Gurugram, with the chief complaint of diminished vision in her left eye for the last one month. The patient did not complain about diminished vision in the right eye. Earlier, the patient had diagnosed with the case of Keratoconus somewhere else and suggested to be continued with the glasses.

The patient had a history of spectacles in the last 7 years and using the current prescription for the last 4 months. Visual acuity for distance & near, with glass and the current prescription was recorded (Table-1(a) and (1b). The power of earlier glasses' prescription was.

OD: -0.50ds -4.50dc 60

OS: -0.50ds -4.50dc 140

The patient had a general history with the treatment of hyperthyroidism for 3 years. No other ocular history or drug allergy was recorded. Another medication history, the patient was instilling lubricating eye drop for a month in both eyes.

Table- 1(a)

Unaided VA	**OD**	**OS**
Distance	6/60	6/60
Near with English chart @33 cm	N36	N36

Table-1(b)

With glass VA	**OD**	**OS**
Distance	6/12+ NI	6/24 NI
Nearwith English chart @33 cm	N08	N12

1st Visit for Rose K2 CL

On evaluating the case of Keratoconus, it was suggested for the management of disease progression with Rose K2 contact lens. Following patient consent, the ocular assessment was done at Contact Lens Clinic, Ahooja Eye & Dental Institute. Retinoscopy revealed scissors reflex. Best-corrected visual acuity (BCVA) was measured before subjective refraction (Table-2).

Table- 2

ACCEPTANCE								
(OD)					**(OS)**			
	Sph	**Cyl**	**Axis**	**Vision**	**Sph**	**Cyl**	**Axis**	**Vision**
Dist.& Near	0.00	-5.00	70	6/9, N6	0.00	-5.00	140	6/24+, N6

Corneal reflex and the cover test showed orthophoria, with painless eye movements in all gazes. On further examination, the cornea had Prominent Corneal Nerve, Fleischer's Ring in both eyes. Rest all anterior segment findings were normal. Intraocular pressure (IOP) was measured at 11mmHg by Goldmann Applanation tonometry (GAT). On examining the posterior segment, the fundoscopy showed both eyes as below:

- Media Clear
- Cup-Disc Ratio(0.3:1)
- Retina Attached; both eyes corneal topography and keratometry were advised (Figure-3(a) and (3b) and (Figure-4), respectively.

Complete slit-lamp examination following lacrimal function test was assessed, and Rose K2 contact lens was fitted following 2 trials. (Table-3). The final power of the Rose K2 contact lens with its base curve (BC) and total diameter (TD) (Table-4). Post-contact lens fitting, slit lamp examination showed proper fitting in both eyes. (Figure-5 & Table-5)

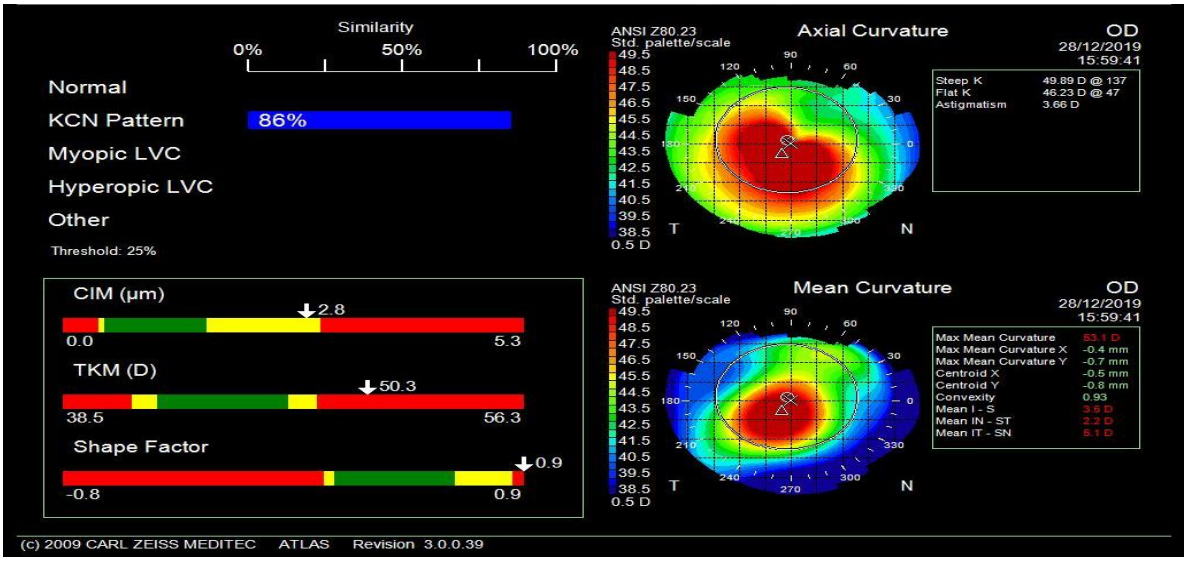

Figure 3(a)

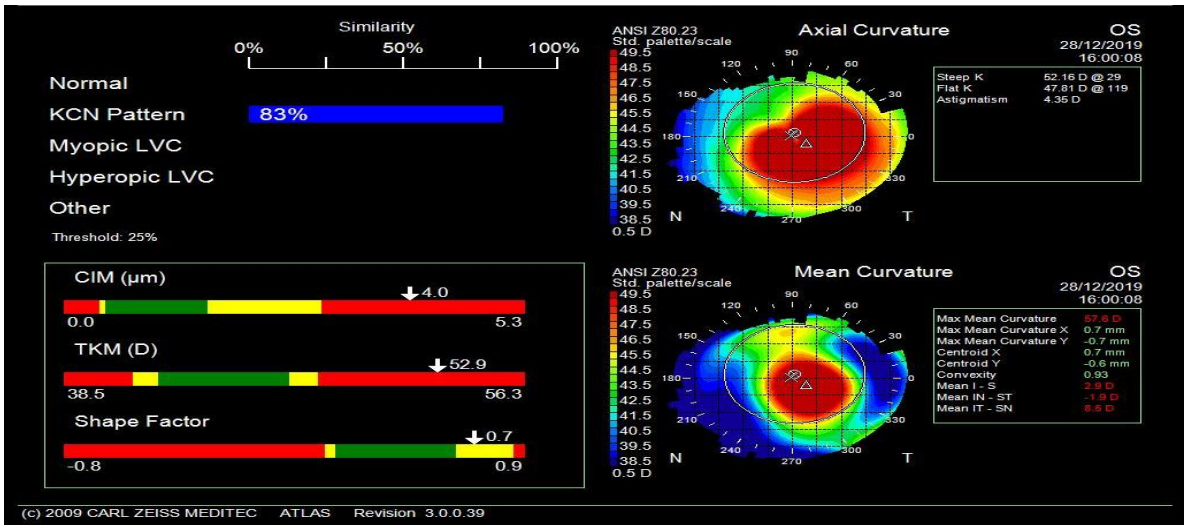

Figure 3(b)

Figure 3 depicting both eyes, i.e., OU: Simple Myopic Astigmatism and Keratoconus

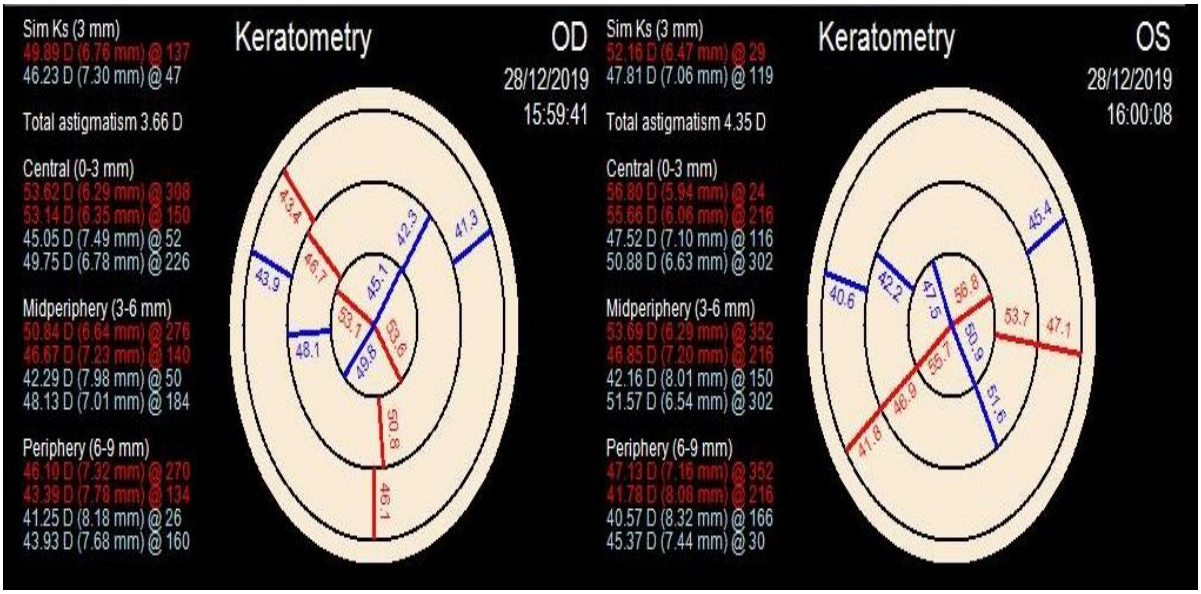

Figure 4 shows Keratometric readings in both eyes.

Table-3 Showing static fit assessment.

PRELIMINARY ASSESSMENT	OD	OS
STEEP K (CORNEAL TOPOGRAPHY)	49.89 (6.77mm) @ 137°	52.16 (6.47mm) @ 29°
FLAT K (CORNEAL TOPOGRAPHY)	46.23 (7.32mm) @ 47°	47.81 (7.06mm) @ 119°
AVG. K (CORNEAL TOPOGRAPHY)	48.06 (7.04mm)	49.98 (6.76mm)
HVID	11.50MM	11.50MM
PUPIL	3.50MM	3.50MM
TBUT	10SECS	10SECS
SCHIRMER	25MM IN 5 MINS	28MM IN 5 MINS
TRIAL -1 BC/ POWER/TD	7.1/-2.75/9.0 (Steeper side)	6.8/-5.75/8.8 (Flatter side)
TRIAL -2 BC/ POWER/TD	7.2/-2.75/9.0 (Acceptable)	6.7/-6.75/8.8 (Acceptable)
CENTRAL	Central feathery touch	Central feathery touch
MID PERIPHERY	Diffuse Pooling	Diffuse Pooling
PERIPHERY	Touch	Touch
EDGE	Good edge clearance	Good edge clearance

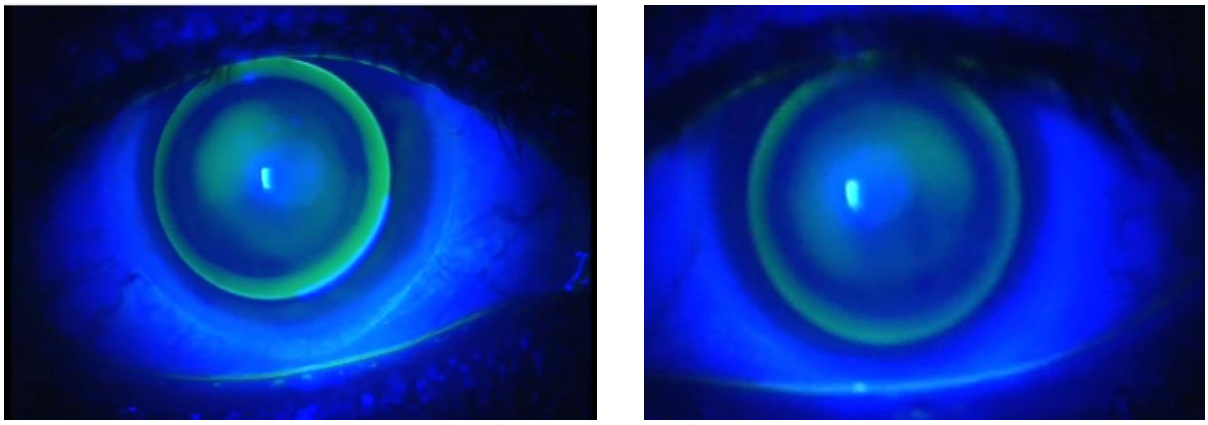

Figure-5 Showing acceptable fit on fluoresce in staining for both eyes on slit-lamp examination.

Table-4 shows Rose K2 contact lens dimensions in both eyes of the patient.

Final parameters	OD (BC/POWER/TD)	7.2/-2.75/9.0
	OS (BC/POWER/TD)	6.7/-6.75/8.8

Table-5 Showing the stability of Rose K2 contact lens over cornea with trial 2 power contact lens.

Position	IPF (OD)	IPF (OS)
Coverage	360° Pupillary coverage	360° Pupillary coverage
Movement	1.00-1.2mm	1.00-1.2mm
Stability	Stable in all gazes.	Stable in all gazes.

2ND VISIT:

Visual acuity was measured with Rose K2 contact lens, and retinoscopy was done as shown in figure 6. Refraction showed +0.50ds spherical correction in the right eye and Plano in the left eye with visual acuity for distance 6/6 in both eyes and N6 for near. (Table-6)

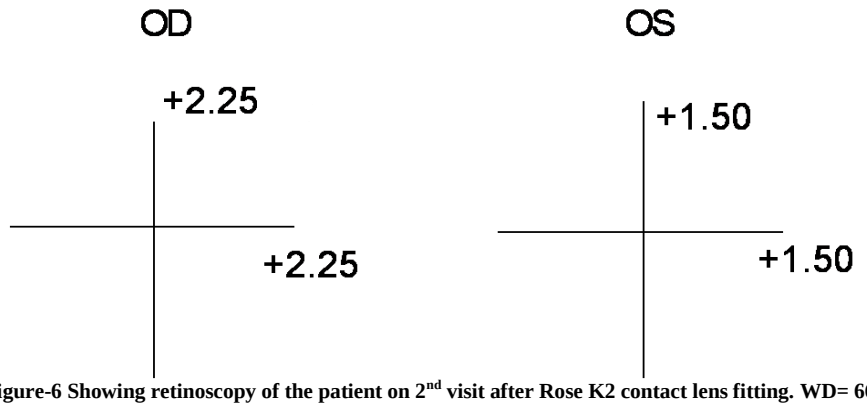

Figure-6 Showing retinoscopy of the patient on 2nd visit after Rose K2 contact lens fitting. WD= 66cm

Table -6 showed refraction on the 2nd visit of the patient after contact lens fitting in both eyes.

Acceptance Over CL	POWER	DIST. VA	NEAR VA
OD	+0.50	6/6	N06
OS	+/-	6/6	N06

DISCUSSION

The purpose of this case study was to investigate the fitting of a Rose k contact lens in a patient diagnosed with Keratoconus with simple myopic

astigmatism. We find that if a patient with Keratoconus were fitted with Rose k lenses, there is a high increase in visual acuity, and this case study patient was improved from 6/60 (1.0 Log MAR) to 6/6 (0 Log MAR) in both eyes. The lens was selected based on corneal topography. We selected the trail lens and fitted it, then assessed the fitting of trial lenses, both static and dynamic fitting. We found that the first trail fit was not successful and then tried with a different base curve, and this trial fit was successful with proper coverage, centration, movement, and movement post blink.

Moreover, the visual acuity improved in the second trial lens. Compared to our case study, it is shown that there is a more significant improvement in visual acuity, and appropriate fitting can be attained if we use two or more trial lenses. It will somehow take longer, but the result improves. The limitation of this case study was that no aberrometry was performed, despite the fact that it was recommended to perform aberrometry both before and after the Rose K lens to check for aberrations.

CONCLUSION

Rose K lenses are one of the best treatment modalities for keratoconus patients to restrict the progression. It has many contour options according to the type of cone, like oval or nipple cone etc. Rose K2 lenses can be ordered with the varying total diameter and different optic zone diameters. They can also be called toric periphery (TP), Asymmetric Corneal Technology (ACT) and front toric design with prism ballast. In our case, after all the presented findings and trial, one pair of Rose K2 lenses of varying total diameter and optic zone diameter was ordered. The patient was asked to visit for lens collection and follow up after 6 months. Lastly, it is advised that all Rose k practitioners keep at least two to three trial lenses, assess the fit in each fit, and choose lenses based on corneal topography.

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